

# **Social anxiety disorder in the digital age**

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## **How do social networking sites, devices and the Internet affect socially anxious individuals?**

Amy Hackett

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in partial fulfilment of the requirements for the degree of  
Master of Science Interactive Digital Media

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## Summary

This research paper looks at socially anxious individuals' use of three forms of digital media: cyber-technological devices, general Internet use, and social networking sites. It aims to discover whether individuals with social anxiety are thriving more than ever in the digital age because they are now more connected to people than ever before, or if dependence on these digital mediums can worsen their social anxiety and stop them from overcoming it. A systematic literature review was undertaken to explore the existing research and to compare and contrast their findings. It was found that socially anxious individuals experience less anxiety in online interactions than they do in face-to-face interactions, meaning that individuals were able to build friendships online that they otherwise felt unable to do offline. However, socially anxious individuals were at risk of becoming dependent on digital media, potentially becoming addicted and using it as a form of escapism, replacing face-to-face interactions. This had negative effects on their well-being, with levels of depression and social isolation rising. In conclusion, digital media had both positive and negative effects on socially anxious individuals. It was proposed that socially anxious individuals should use online interactions in conjunction with offline interactions to help them to overcome their social anxiety, rather than substituting them completely. Further research could consider online forms of therapy to help individuals with social anxiety and could also look at what factors determine pathological Internet use in socially anxious individuals.

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## **Abbreviations**

BSPS - Brief social phobia scale

GPIU - General problematic Internet use

HSA - High social anxiety

LSA - Low social anxiety

SA - Social anxiety

SAD - Social anxiety disorder

SAS - Smartphone addiction scale

SNS - Social networking site

SOSQ - Seeking Online Safety Questionnaire

# 1. Introduction

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## 1.1 Research question

The research question posits that individuals struggling with social anxiety disorder may have different socialisation experiences that are shaped by access to the Internet through a multitude of devices. It aims to explore a number of ideas in relation to one's use of the Internet: whether access to the Internet is problematic or it can be helpful for those struggling with social anxiety, whether social anxiety causes individuals to use the Internet differently to those without social anxiety, and how these relations can impact upon one's well-being. The research paper will look at socially anxious individuals' use of three forms of digital media: cyber-technological devices, general Internet use, and social networking sites. It aims to discover whether individuals with social anxiety are thriving more than ever in the digital age because they are now more connected to people than ever before, or if dependence on these digital mediums can worsen their social anxiety and prevent them from overcoming it.

## 1.2 The shift into the digital age

Due to the development of information technology within the past few decades, the current society we live in has become what many refer to as the information age or the digital age. Computers and smart devices have become the focal point of the 21st century, governing integral anthropogenic processes and activities. It is now the norm for people to have access to the Internet, with it being estimated that 51.2% of the global population uses it (International Telecommunications Union, 2019). Only a few decades ago, peoples' experiences within society were in stark contrast to how we interact with each other today, and it all began with the introduction of the Internet. The original concept of the Internet can be traced back to 1962, and by 1985 it became well established as a form of communication among various communities across different computers (Leiner et al., 2001). However, it wasn't until the 1990s when the World Wide Web was created as a means of accessing data online, that the Internet became a reality and a global phenomenon (Andrews, 2013). As the Internet has been developing constantly over time, along came the rise of social networking sites (SNSs), which redefined human interaction and communication as we know it.

### *1.2.1 The development of social networking sites*

Social networking sites (SNSs) play a large role in the daily lives of a multitude of people. Facebook, Instagram, Twitter and various other sites and apps have attracted many users, as their basic premise offers the opportunity to bring people together through the virtual

world, enabling social interaction online rather than face-to-face or through a phone call. Users can scroll through the feed of these SNSs and know what people are doing with their lives without ever having to talk to them, while also having the opportunity to talk to an endless number of people, from complete strangers to old, forgotten friends. Early developments of this concept included Bulletin Board Systems (BBSs), America Online (AOL) and CompuServe. Bulletin Board Systems allowed users to share files and games for downloading in online meeting places and became popular throughout the 80s and 90s (Shah, 2016). CompuServe expanded for public usage in the 80s and allowed users to experience email and discussion boards (Shah, 2016). America Online developed these sites further and became extremely popular (Shah, 2016). One of the first major SNSs that mirrors what we know today was “Classmates.com”. It gave users the opportunity to search online for people from their school or college, and it is still running today (Boyd & Ellison, 2007). Another major site, “SixDegrees.com”, was created in 1997, and allowed users to make profiles and a searchable friends list (Boyd & Ellison, 2007). As technologies developed and people built upon these early concepts, SNSs grew in popularity and along came the rise of MySpace, which was extremely popular in the U.S., and Bebo, which was popular throughout Ireland, the UK, New Zealand, and Australia (Boyd & Ellison, 2007). However, these SNSs and many of the other SNSs made at the time have lost popularity and some are no longer running at all. Facebook was introduced to the public in 2005 and became a huge hit, and it is currently the world’s biggest SNS, with 2.5 billion monthly users (Statista, 2019a). Instagram is also a hugely popular SNS, with 1 billion monthly users (Statista, 2019b). Both of these SNSs and various others are accessible on different platforms, including PC and smartphones.

### *1.2.2 Smartphones and social networking sites*

The usage of SNSs on smartphone devices has become popular in recent years. Smartphones give users the opportunity to download apps which allow them to receive notifications. In this way, they can be constantly connected to various SNSs without going near a traditional computer. Users have the entirety of the Internet in their pocket. This can appeal to users in numerous ways, as for example, it allows them to be in contact with people who may not have their number, and it allows them to scroll through the feeds of various SNSs when they are bored. However, this can lead to problematic behaviour. In an interview with The New York Times, social psychologist Adam Alter discussed the nature of smartphone addiction (Dreifus, 2017). He stated that the term addiction involves an individual enjoying something compulsively in the short term, which undermines one’s

well-being in the long term, yet they continue to do it compulsively anyway (Dreifus, 2017). Alter notes that as humans, we are biologically predisposed to becoming addicted to smartphones, due to the high levels of dopamine that phones release, emitting feelings of pleasure into our brains in the short term (Dreifus, 2017). He emphasises how this is problematic in the long term, because we build a tolerance, and crave more stimulation the more we use it (Dreifus, 2017). Kwon et al. (2013) developed a self-diagnostic smartphone addiction scale (SAS) to understand the main predeterminants of smartphone addiction. One important finding was that smartphone addiction is likely to emerge because of its multi-function, in particular, access to SNSs (Kwon et al., 2013). Salehan & Negahban (2013) likewise found that SNSs and social networking apps are a significant predictor of smartphone addiction, and people's usage of them are influenced by the SNS's network size and the SNS intensity of the user. As information technology continues to develop, we dive deeper into the digital age. We as humans were living completely different experiences just a few decades ago. It is important to look back and see how far we've come, before turning to look at the present situation and pondering what the future may hold.

### **1.3 Socialisation**

Gould (2018) defines socialisation as the type of social learning that happens when a person interacts with other individuals. Sosteric (2018) lengthens this definition by stating that socialisation helps us to form a sense of self and identity. He also notes that socialisation is not voluntary; we are thrown into this world and every interaction we have with another person helps us to learn different things about the social order of our world and about ourselves. Hence, every social interaction we experience shapes us in some way. We are constantly, unconsciously learning about various different processes, such as social norms, gender or social class, every time we interact with another person. In the context of this research paper, one important thing we learn about through socialisation is simply how to act in social situations. It is through socialising with other people that we develop social skills. Bandura's social learning theory states that human behaviour is not affected by innate functioning or environmental sources alone, but it also develops from an individual's direct experiences and by their observations of others (Tu, 2000). Human behaviour develops due to the social interaction of people and their environments, and social interaction between learners and role models is required for social learning to occur (Tu, 2000). All of these influences that occur during social interaction are bi-directional; cognitive, behavioural and environmental determinants work together to form us as social agents in our world (Tu, 2000).

Vygotsky's social development theory builds on Bandura's theory, as he believed that social interaction is fundamental for full cognitive development (Tu, 2000). Vygotsky theorised that a child's cultural development occurs in two stages: firstly, on a social level where we interact with others, and later, on a personal, individual level (Tu, 2000). Hence, social interaction develops our social learning, which in turn develops our own individual human behaviours. Therefore, the importance of socialisation must be considered, as it helps us to learn more about those around us and also about ourselves. Although we are socialised online, through the various forms of media we see and through talking to others on SNSs, it is important to socialise with others face-to-face to develop our social skills adequately and to satisfy our social needs. However, not all individuals experience adequate face-to-face interaction for various different reasons - one of them being that they may have a phobia.

#### **1.4 Social anxiety disorder**

Social anxiety disorder (SAD), also known as social phobia, can be loosely defined as a fear of social situations, due to potentially being scrutinised, humiliated or embarrassed (Stein & Stein, 2008). Although it is commonly mistaken for shyness, SAD is a much more extreme form which is chronic and negatively affects people's daily lives, while also being a risk factor for substance abuse and depression (Stein & Stein, 2008). Hartman (1986, cited in Van Zalk, Van Zalk, Kerr & Stattin, 2011) notes that SAD involves experiences of negative ideation, discomfort and incompetent performance in both the anticipation and the execution of any social interaction. SAD is the most common anxiety disorder, and it develops quite early; 50% of cases form by age 11, and 80% of cases form by age 20 (Stein & Stein, 2008). The DSM-5's definition of SAD mentions that the person recognises their fear is unreasonable, that exposure to a feared situation may cause a panic attack, and that the distress, the avoidance, or the anxious anticipation interferes with the person's functioning, normal routine, or relationships (The American Psychiatric Association, 2013).

It can sometimes be hard to detect whether or not someone has SAD, because those who struggle with it tend to avoid the situation in the first place, may be quite good at hiding their discomfort, and/or they experience symptoms hard for others to pick up on (such as psychological symptoms, sweaty palms, or a fast-paced heartbeat). However, typical behaviours that individuals with SAD possess are as follows: they are quiet in group settings, reserved in new social settings, and shy when meeting new people (Stein & Stein, 2008). They may also appear to be quite uncomfortable, for example, avoiding eye contact or

blushing, and they avoid speaking in public and expressing their opinion, for fear of being judged harshly (Stein & Stein, 2008). Avoidance is a common coping mechanism for those with SAD, and as a result, those suffering can miss out on experiences that are taken for granted by other people. There is no clear cause of SAD, but it is understood that it is attributed to a mixture of genetics and environmental factors (Higuera, 2016). Higuera (2016) notes that SAD can form after one has been through various negative experiences, such as sexual abuse, family conflict, or bullying, and also certain biological factors, such as an overactive amygdala or a serotonin imbalance. This research paper will aim to see if SNSs and the Internet through the medium of both smartphones and other devices have any linkages with SAD.

### **1.5 Conclusion**

The topics discussed above are important for understanding the context of this research paper. In today's society, exposure to SNSs and the Internet is the norm and cyber-technological devices such as smartphones allow individuals to obtain constant access to them. However, smartphone addiction can occur due to these high levels of stimulation, and the danger of becoming addicted to one's smartphone may have negative effects on an individual's socialisation. People may turn to their smartphones for socialisation, rather than face-to-face interaction. Bandura and Vygotsky emphasise the importance of socialisation for our own development. Hence, if we do not experience enough socialisation that is to a high standard, it can lead to certain issues developing, which can negatively affect an individual's well being. This research paper will build upon this theory and will explore whether or not there are strong linkages between SAD and SNSs, the Internet and smartphone usage. It will also concentrate on the experiences of individuals from all age groups, because it is relevant for the entire general population since this is the world we now all live in.

## 2. Methodology

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### 2.1 Introduction

This research paper aims to find out whether constant access to social networking sites through smartphones altered socialisation and increased social anxiety among the general population. It will systematically and strategically collect qualitative secondary research through the synthesis and analysis of existing research articles. The method being used is a systematic literature review, which will enable the research to establish a well-rounded view of the question being asked. This chapter presents the methodology for this research paper under the following headings:

- Research instrument considerations
- Inclusion and exclusion criteria
- Search process
- Screening

### 2.2 Research instrument considerations

There are a number of different research instruments to be considered which could work for this specific question, which include primary and secondary methods, and also the collection of both qualitative and quantitative data. Discussed below are the advantages and disadvantages of each, and weighing up each option to see which would be the best choice for this specific research question.

#### 2.2.1 *Primary research instrument: Survey*

Akbayrak (2000) defines a survey simply as a 'list of questions to which answers are being sought' (p.1). Surveys can give us both qualitative and quantitative data. In relation to this specific research question, a survey could be given out to subjects asking them various questions about their smartphone and social networking habits, and whether they have struggled with social anxiety and to what degree. A survey is a quick and easy method of gathering large, varied amounts of data from a certain target audience. It would be possible to keep subjects anonymous which may prompt them to be more honest in their answers than they would be if their identity was known. However, surveys pose a number of disadvantages. A survey could be handed out to a randomised population, but it wouldn't be guaranteed that the subjects would have much interest in partaking in the survey. It would also be an issue if the subjects didn't have much experience with social networking, or have

struggled with instances of social anxiety. This may make for relevant quantitative data, but it would make it harder to gather qualitative data. It should also be considered that it would be more beneficial for a survey to be delivered to a large population size to make it as representative of the general public as possible. This was not possible due to timeline considerations. With the above considerations, it was best not to conduct surveys for this research question.

### *2.2.2 Primary research instrument: Interview*

An interview can be defined as a method of research with the purpose of gathering descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena (Kvale, 1983). It involves asking one or more subjects a number of questions to understand their experiences and opinions. It is more commonly used for qualitative data, although with enough subjects, interviews could gather quantitative data too. In relation to this specific research question, an interview has its advantages in that it is quite a personal method of data collection, as it involves being face-to-face with the subject. Since the research question is quite a personal topic, a personal method may therefore be suitable. However, an interview may be too intimate considering the topic at hand. The participant may feel uncomfortable answering certain questions. Interviews are also quite time-consuming, which again, didn't suit the timeline considerations.

### *2.2.3 Primary research: Ethical considerations*

In relation to this research question, conducting primary research brings up a number of ethical issues. Firstly, the research is focused on all age groups, which include adolescents. Engaging in primary research among those under the age of 18 could bring up a number of issues in relation to ethics. Secondly, this research could pose a potential high risk to participants, as it deals with sensitive topics, such as (smartphone) addiction and social anxiety. Subjects may find it quite hard to discuss these topics, as they may be rather personal, and it could prompt a negative reaction. The subjects may also have had issues with opening up, feeling uncomfortable about sharing such personal information. So for this particular research question, secondary research was a better choice.

### *2.2.4 Secondary research instrument: Systematic literature review*

A systematic literature review (also known as a systematic review) can be defined as a form of secondary research which identifies, critically evaluates and integrates the findings of all relevant studies on a specific topic (Siddaway, 2014). They are precise, objective, replicable



and transparent, and are advantageous because they use methods that are fair and unbiased (Siddaway, 2014; Gopalakrishnan & Ganeshkumar, 2013). The purpose of a systematic review is to provide a comprehensive overview of all existing data on the topic at-hand (Ressing, Blettner & Klug, 2009). Systematic reviews can focus on much broader questions than primary research methods can, because they look at an entire synthesis of studies, comparing and contrasting their findings and looking for any gaps or inconsistencies (Siddaway, 2014). Systematic reviews can however pose some disadvantages, namely the fact that the value of its findings depend on what research was done, what was found, and the clarity of reporting (Gopalakrishnan & Ganeshkumar, 2013). For this specific research question, care was taken to focus only on studies that are of a high standard, and care was taken to contribute a high reporting quality. Despite having certain limitations, a systematic review worked well for this research question for a number of reasons. It allows us to look at a larger demographic of the population: comparing and contrasting peoples' experiences worldwide, rather than people from a certain country or institution. This increases the validity of the research, and can help us to grasp an overall sense of people's' experiences all over the world. It is also important that this research was fair and unbiased for its validity, and a systematic review inherently achieved that. Hence, a systematic literature review can provide invaluable research through its method of comparing and contrasting smaller-scale studies that already exist, and so it worked well for this research question.

### **2.3 Inclusion and exclusion criteria**

The inclusion criteria for the studies included the following:

- Be published within the past 10 years
- Involve subjects with social anxiety symptoms
- Involve either social networking sites, the Internet in general, and/or devices which have access to the Internet
- Be published in English
- Be peer-reviewed journals
- Be primary research

Originally the studies were to include just adolescents, but due to scarce research on adolescents and a rich array of literature with participants from all age groups, there are no age limitations. Most of the studies are also small-scale - under 1,000 participants - but two articles were included which have larger-scale studies because of their invaluable findings. Studies were excluded if they did not satisfy the inclusion criteria. Studies published within

the past 10 years were chosen because more recent research is valuable due to recent developments in the usage of social networking sites, as they have become truly commonplace. Instead of just focusing on social networking sites, articles which discussed the Internet in general or computer devices were also useful so that they could be compared and contrasted against each other, and give a more well-rounded perspective.

## **2.4 Search process**

Various databases were searched in an intensive 2 week period to find relevant research, including Google Scholar, TCD Library, DCU Library, JSTOR, Science Direct, Taylor & Francis Online and the Journal of Computers in Human Behaviour. The bibliographies of articles were also searched to find relevant studies. Results were filtered so as to exclude the years preceding 2009, as the most recent research was desired from the past 10 years since this is when SNSs became completely commonplace. The search terms included:

- Social anxiety media
- Social anxiety social networking sites
- Social anxiety social media
- Social anxiety and SNSs
- Social anxiety and Internet use
- Social anxiety and problematic Internet use
- Social phobia Internet
- Social anxiety nomophobia
- Social anxiety Internet development
- Social anxiety Internet and wellbeing
- Internet dependency and social anxiety
- Social anxiety and technology
- Social anxiety Internet addiction
- Social anxiety smartphone addiction
- Socialisation and social networking sites
- Smartphone use
- Social anxiety disorder
- Individuals with social anxiety disorder
- Socialisation and social media
- The digital age

## 2.5 Screening

Overall, 94 studies were screened. Every article was looked at that matched the inclusion criteria and they were to be included even if the findings differed from the research question, so as to be completely fair and unbiased. However, some articles that matched the criteria were unfortunately not available for access so they were excluded. Articles were also excluded if they focused too much on general device usage and not enough on SNSs or the Internet. Other articles were excluded because they didn't focus on social anxiety at all, and they just looked at other mental illnesses or shyness. Certain articles discussed social anxiety but it wasn't the main focus - they focused a lot more on shyness or other mental illnesses such as depression or generalised anxiety disorder. Likewise, articles that were too general were excluded, such as articles that just spoke generally about the bad aspects of SNSs, the Internet and/or devices. There was a general preference for smaller-scale studies because of an interest to compare and contrast their findings and to see if multiple small-scale studies had similar or differing conclusions. Hence, some articles may have been excluded due to their sample size being too large. Articles may also have been excluded if they spoke about social anxiety but didn't talk it in relation to the Internet or devices. Hence, articles were excluded if they weren't relevant to the research question, even if they discussed some amount of the subject matter. Articles were also excluded if they were from before the year 2009. One article that matched all of the other criteria was Shephard and Edelman (2005), which was not included because it was too old. The same issue was found with Caplan (2007).

Fortunately, all of the articles found had an English translation, so there was no issue with the exclusion of articles if they were a different language. Articles were also included no matter what their method or their outcome measures were. Comparing and contrasting different methods and findings ensures that the research is fair because that way it isn't just focused on the negative aspects of SNSs and ignores positive aspects or even findings with no correlations. All articles were in peer-reviewed journals to ensure that they were of a high standard and were reputable. Each article brought its own separate perspective and approach to the research question and hence they were all valued equally. A borderline study that was chosen is Mazer & Ledbetter 2012. It slightly breaches the inclusion criteria as it does not focus explicitly on social anxiety disorder, but it does refer to it throughout. This research was considered to be valuable to include because of its discussion on the wellbeing of those who are at risk for problematic internet use, which can be applied to those struggling with social anxiety disorder. In the end, 17 articles were chosen to use, with two

articles containing two studies each. Each article brings about different findings that can be used for comparing and contrasting. Efforts were also made to ensure that articles included demographics from all over the world, rather than in one or two concentrated areas. This also ensured that the research was as unbiased as possible, and it gives the research a more well-rounded view of the problem at hand, as findings can be applied to the general public.

## 3. Findings and Discussion

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### 3.1 Introduction

This research paper's aim is to discover whether constant access to social networking sites through smartphones alters socialisation and increases social anxiety among the general population. It systematically and strategically collected qualitative secondary research through the synthesis and analysis of existing research articles. The method used is a systematic literature review, which enables the research to establish a well-rounded view on the question being asked. This chapter presents the findings for this research paper under the following headings:

- Data analysis
- Sample size & demographic
- Method
- Limitations of the research papers
- Cyber-technological devices and nomophobia
- Internet use and social anxiety
- SNSs and social anxiety

### 3.2 Data analysis

A qualitative data analysis was conducted through the use of coding and categorisation. Some of the data was also quantified, which can be seen in figures 1, 2 and 3. When conducting the research and choosing which categories to sort the research into, the data took a combination of a deductive and inductive approach.

#### 3.2.1 *Deductive approach:*

- Sample size & demographic
- Method

When reading the research articles, information was coded and then pulled and placed into a table under certain headings (see Appendix A). The sample size, demographic, geographical location and the method were chosen with a deductive approach and pulled from each study. This data was useful for the purpose of comparing and contrasting any quantitative data from the studies and searching for any patterns within them (for example, if any studies used the same scale, such as the Liebowitz Social Anxiety Scale).

### 3.2.2 Inductive approach:

- Cyber-technological devices and nomophobia
- Internet use and social anxiety
- SNSs and social anxiety

The idea to separate the studies into the above three categories was inductive in its nature, because of the patterns that were found: five articles focused mainly on devices, five articles focused mainly on general Internet use, and seven articles focused on SNSs. Hence, the articles were dissected and studied carefully and it seemed most rational to separate them by the medium being used (e.g., device or SNS, etc). The inductive approach was carried further when looking at the subcategories. Each research article was read and the findings were coded in that certain subjects were pulled. For example, if findings were found on the effect of social anxiety and Internet use on relationships, sections mentioning that were coded under that heading. Each research article was studied separately and extensively and after coding each one, the findings were integrated and patterns emerged which dictated the subcategories. Different articles spoke about the same themes and contained various similarities and differences. These subcategories are discussed under the larger categories (see Table 1 for a list of each subcategory under each category). The majority of the research therefore took an inductive approach, which built an argument depending on the themes that were found in each article, with regard to the research question.

**Table 1 - List of qualitative categories and subcategories in sections 3.6-3.8**

	<b>Cyber-technological devices and nomophobia</b>	<b>General Internet use and social anxiety</b>	<b>SNSs and social anxiety</b>
<b>Subcategories</b>	<ul style="list-style-type: none"> <li>● General correlations</li> <li>● <b>Preference for device vs. face-to-face</b></li> <li>● <b>Friendships/relationships</b></li> <li>● Gender differences</li> </ul>	<ul style="list-style-type: none"> <li>● General correlations</li> <li>● Self-disclosure</li> <li>● <b>Online vs face-to-face</b></li> <li>● <b>Friendships/relationships</b></li> <li>● Well-being</li> <li>● Other findings</li> </ul>	<ul style="list-style-type: none"> <li>● General correlations</li> <li>● Facebook</li> <li>● High social anxiety vs low social anxiety</li> <li>● Other findings</li> </ul>

	<ul style="list-style-type: none"> <li>• Other findings</li> </ul>		
<b>Articles</b>	<ul style="list-style-type: none"> <li>• Pierce (2009)</li> <li>• King et al. (2013)</li> <li>• Uysal et al. (2016)</li> <li>• Darcin et al. (2016)</li> <li>• Hong et al. (2019)</li> </ul>	<ul style="list-style-type: none"> <li>• Lee and Stapinski (2012)</li> <li>• Weidmann et al. (2012)</li> <li>• Mazer and Ledbetter (2012)</li> <li>• Weinstein and Dannon (2015)</li> <li>• Yucens and Uzer (2018)</li> </ul>	<ul style="list-style-type: none"> <li>• Casale and Fioraventi (2015)</li> <li>• Honnekari et al. (2017)</li> <li>• Farquhar and Davidson (2015)</li> <li>• Yen et al. (2012)</li> <li>• Lin, Li and Qu (2017)</li> <li>• Markovitsky et al. (2012)</li> <li>• Kamalou, Shaughnessy and Moscovitch (2019)</li> </ul>

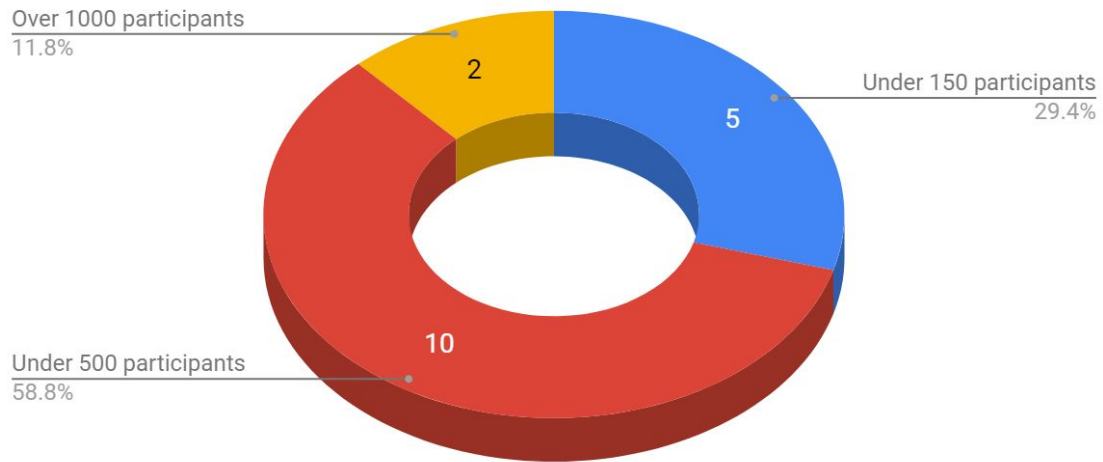
There a number of overlaps within each category. In general, each category begins with describing the various general correlations that the form of digital media has with social anxiety and then ends with any other relevant findings (before the heading under which the findings are discussed and analysed). Some specific subcategories overlap, such as the preference for the digital medium over face-to-face interactions, and the links with friendships/relationships (these subcategories have been highlighted bold within the table). Each category also mentioned some slight gender differences. Hence, the findings could have been divided up differently since there are overlaps. However, due to only a small number of overlaps, it was decided that the current order of categories functioned best, and any overlaps were compared and contrasted separately in the conclusion.

### 3.3 Sample size & demographic

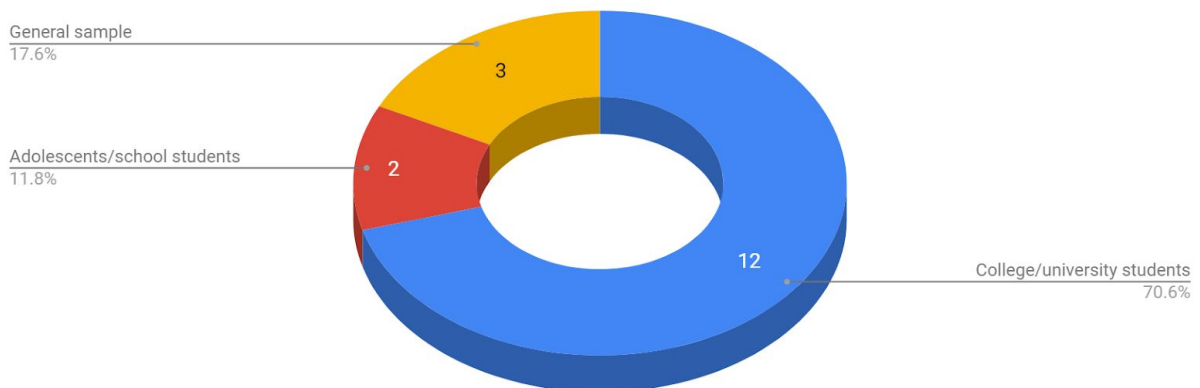
The majority of the studies included are small-scale (see Figure 1) for the purpose of being able to compare and contrast them to paint a bigger picture of the question being asked. The

demographic majority are students (see Figure 2). There is also a large dispersal of geographical locations, with numerous countries from Europe, Asia and America being included, along with Australia (see Figure 3).

**Figure 1: Sample size of studies**

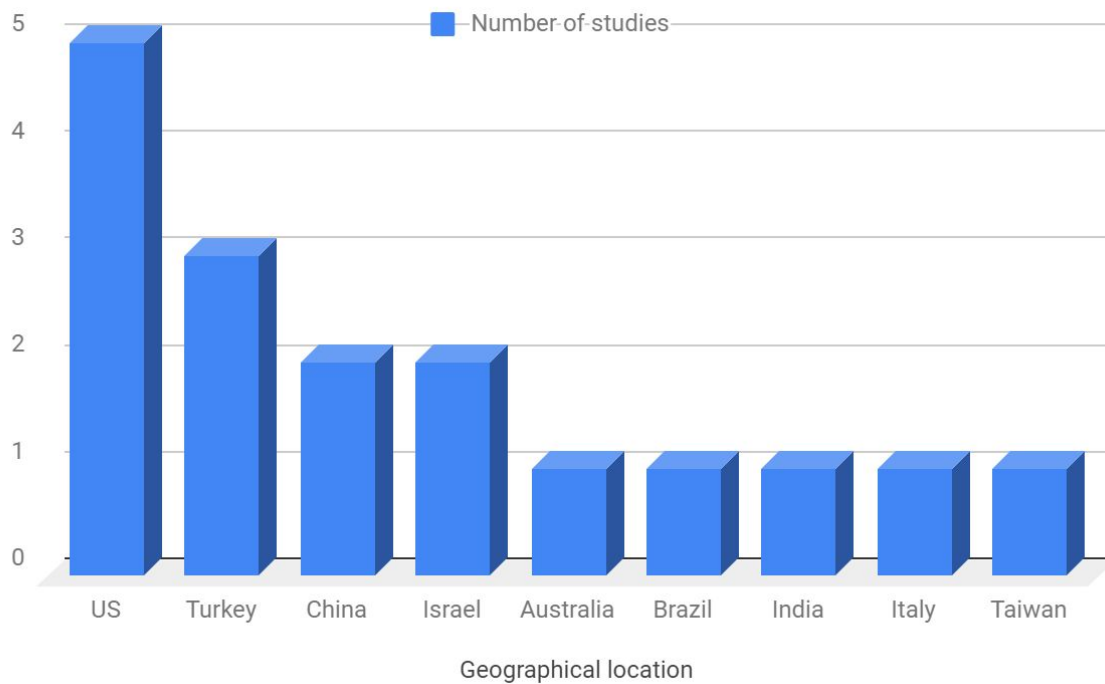


**Figure 2: Demographics of studies**





**Figure 3: Geographical locations of studies**



Having a combination of small-scale studies and larger-scale studies, different demographics, and various geographical locations makes the research a lot more versatile. Hackshaw (2008) mentions that small-scale studies function best when they are used to design “larger confirmatory studies”, which could be used to describe this research paper (p. 1143). Salkind (2010) also notes that demographic information allows us to determine whether the individuals in the study are a representative sample of the target population for the purpose of generalisation. Hence, having a wide demography throughout this research paper is key for determining the relationship between social anxiety and digital media among general populations, and it allows us to draw similarities, differences and conclusions.

### **3.4 Method**

Each study conducted primary research and used some form of Likert-type scale self-report questionnaire or survey. Questionnaires were given out to gain demographic and socio-demographic information and any specific information such as people’s usage of smartphones and the Internet, usage of social networking sites, reasons for using smartphones, the need to belong, psychological well-being, and so on. Each study used a

combination of different scales to gather their findings, with some studies using more scales than others. There were also some studies which used the same scales, including the following:

- Liebowitz Social Anxiety Scale (LSAS-SR; Fresco et al., 2001)
  - 7 studies used this scale
- Generalized Problematic Internet Use Scale (GPIUS2; Caplan 2010).
  - 3 studies used this scale
- Social Interaction Anxiety Scale (SIAS; Mattick and Clark, 1998)
  - 3 studies used this scale
- Internet Addiction Test (IAT; Young, 1995)
  - 3 studies used this scale
- The Brief Fear of Negative Evaluation scale II (bFNEII; Carleton, McCreary, Norton, & Asmundson, 2006)
  - 2 studies used this scale
- Beck Depression Inventory (BDI)
  - 2 studies used this scale

See Appendix B for a complete list of scales that were found throughout the research. The above scales are all taken from the field of psychology. Kamalou, Shaughnessy & Moscovitch (2019) developed their own scale: Seeking Online Safety Questionnaire (SOSQ). It was created to understand how certain features of online communication contribute to the perception of interpersonal safety. Every other article used only pre-existing scales. It was interesting to consider what scales were used the most among the articles.

### **3.5 Limitations of the research papers**

Although care was taken to find the most relevant and highest quality research papers, any limitations associated with them should also be taken into consideration. Since the majority of the research papers are smaller-scale, their findings may not necessarily speak for the general population and may be quite random. Although the aim of this research paper was to focus on smaller-scale studies to build a larger-scale synthesised whole, it should still be taken into account when considering their viability. The majority of the research papers (70.6%; see figure 2) were also student populations. This research paper aimed to focus on the general population with no specific demographic, yet due to the nature of the articles found, the majority happened to focus specifically on student populations. Hence, the

findings of this research paper may not necessarily be readily applicable to all age groups, due to a lack of pre-existing articles on differing demographics. The findings of each research article were also all based on self-report questionnaires. Hoskin (2012) states that using this method has a number of limitations, including the fact that researchers rely on the honesty of their participants. It is possible that participants in the research papers were not entirely truthful at all times, due to varying reasons, maybe due to a lack of knowledge or being embarrassed to admit certain truths. Hence, this is a danger when looking at self-report methods. Hoskin (2012) also notes that participants may be biased in their answers, lacking introspective ability; they may not grasp a full understanding of what is being asked of them; and rating scales (which were used in many of the research papers) may be ambiguous, with participants interpreting their meaning differently. Hence, it must be noted that the findings associated with the research articles may not be entirely accurate, and must be considered if one wishes to apply the findings to the general population.

### **3.6 Cyber-technological devices and nomophobia**

There were five studies which looked specifically at cyber-technological devices in general, rather than general Internet use or specific SNSs. A number of findings were drawn that linked levels of social anxiety with problematic usage of devices.

#### *3.6.1 General correlations*

Pierce (2009) found that social anxiety significantly influences teenagers' use of socially interactive technology (devices and the Internet) for communicating with others, with those with social anxiety engaging with socially interactive technology more than those without social anxiety. King et al. (2013) reported that nomophobic behaviour and the dependency on communication through a virtual medium resulted in a reduction of the individual's anguish with social anxiety when making personal contact with others. It was also found that the individual's social anxiety symptoms intensified his nomophobic behaviours and kept him dependent on the online world to avoid social contact. Uysal et al. (2016) similarly found a significant, albeit low correlation between social phobia and nomophobia. Participants reported feeling anxious, panicked and worried if they didn't have access to their smartphone because they weren't able to communicate, connect with others, or access information (Uysal et al., 2016). There was also a very high number of students struggling with SAD, which Uysal et al. (2016) attributed to their levels of nomophobia. Darcin et al. (2016) found a positive correlation between those struggling with social anxiety symptoms and excessive smartphone use. Brief social phobia scale (BSPS) was used to track social

anxiety, with fear, avoidance and physiological symptoms being sub-scales. Physiological symptoms were the subscale most likely at risk of smartphone addiction, but all BSPS scores showed correlations with SAS scores. Hong et al. (2019) found that the mediating and moderating mechanisms underlying the potential impacts of shyness on problematic mobile phone use remained ambiguous. They did, however, find that social anxiety may somewhat mediate the relation between them, meaning that individuals who are shy are more likely to engage in problematic mobile phone use if they struggle with social anxiety.

### *3.6.2 Preference for device vs. face-to-face*

Pierce (2009) found that social anxiety symptoms among teens were positively correlated with feeling more comfortable talking with others via a socially interactive technology than in face-to-face conversation. Participants with social anxiety symptoms also felt more comfortable text messaging than engaging in face-to-face contact. Hence, this was a risk factor for using socially interactive technology as a substitute for face-to-face communication. King et al.'s (2013) case study of one individual similarly found that since their participant was so scared of real-life interaction, he turned to his PC and other technological devices and chose to live his life in the virtual world, "defending himself" from personal contact offline.

### *3.6.3 Friendships/relationships*

Pierce (2009) found no negative relationship between social anxiety and making friends online among teens, but there was a positive correlation between the lack of social anxiety and making friends online. Those with less social anxiety made more friends online than their counterparts. King et al. (2013) likewise reported that their case study subject depended on the Internet entirely for all forms of communication, which was linked with avoiding directly personal relationships rather than a pathological dependence on the device itself. Positive aspects were found here because the individual was able to communicate with others and build friendships and relationships online, when he felt it was impossible to do so in real life. Using his device to access the Internet alleviated his SA symptoms while allowing him to form bonds. However, this meant that he was at risk of abusing the device and detaching completely from the real world. Uysal et al. (2016) similarly documented that excessive use of the smartphone daily, for establishing social and personal relationships through the Internet and for escaping reality, revealed the existence of social anxiety.

#### *3.6.4 Gender differences*

Pierce (2009) found that females felt more social anxiety than males did, and females who were socially anxious tended to use socially interactive technologies more than males, in order to communicate with others. Females stated that they felt more comfortable communicating through text messaging and the Internet than they do in face-to-face situations. Females also reported more symptoms of social anxiety talking face-to-face than males did. Females used text messaging and spoke on their phones more than males did. However, there were no gender differences in the use of instant messaging, SNSs, online chat rooms or email. In contrast, Darcin et al. (2016) found no correlations between gender and smartphone addiction.

#### *3.6.5 Other findings*

Uysal et al. (2016) found that participants displayed less sociophobic symptoms if their father had a low literacy level, compared to those whose fathers had a postgraduate degree. Darcin et al. (2016) found that 41.6% of their participants use their smartphone for SNSs, 39.7% for the Internet, 2.4% for games, 16% for the telephone, and they found a positive correlation between feelings of loneliness and problematic smartphone use. They also found that 94.8% of the participants have an SNS account, but there were no large differences in the SAS scores between the individuals who had SNS accounts and those who didn't. Darcin et al. (2016) further found significant differences in SAS scores for those who use their smartphone primarily for SNSs when compared to those who use it for the Internet or telephone. Young people who use their smartphones mainly for the use of SNSs were found to be at a higher risk for smartphone addiction, as opposed to their peers who used their smartphones for the Internet or for phone calls despite having an SNS account. Hong et al. (2019) found that the mediation of social anxiety was moderated by relatedness need satisfaction when using a mobile phone; i.e., individuals' need to belong and relate to others was satisfied by their use of their phone, leading to feelings of acceptedness and inclusion. This meant that participants were more likely to endure problematic mobile phone use, because they may feel like they belong more online than they do in real life.

#### *3.6.6 Discussion*

The above findings show that there is a clear relationship between social anxiety symptoms and the usage of cyber-technological devices in a number of ways. Individuals with SA tend to use these devices more than those who do not have SA possibly because they feel a lot

more comfortable communicating with others online or through text-messaging than they do in face-to-face interactions, and they experience a sense of belonging in their devices which they cannot get offline. This has a number of positive and negative effects. Having constant access to a device, for example, a smartphone, means that we are always connected with others no matter where we are. It gives individuals with SA the opportunity to form friendships and relationships that they may not be able to have in offline life because they are too anxious to interact with others. Devices can hence allow us to be social in that regard.

However, substituting offline interactions in favour of a digital relationship or friendship raises issues, namely problematic phone use and nomophobic behaviour. Those who use their phone or another digital device to communicate with others online may abuse this and decide to replace face-to-face interactions entirely with digital interactions. Hence, individuals can become entirely dependent on the device and become addicted. It was also found that those who didn't struggle with SA were more likely to make friends online, which may suggest that those with SA could still struggle with friendship through their phone. The fact that those who used their device primarily for SNSs were more addicted than their counterparts shows that replacing offline communication with online communication can be detrimental and cause individuals to engage in nomophobic behaviour. Anxiety can also worsen when these individuals do not have access to their phone, as they do not have the chance to communicate with others, which shows that individuals with SA still crave social interaction; they just search for it elsewhere. Furthermore, those who engaged in problematic smartphone use were more lonely, which could suggest that relationships formed digitally do not satisfy their social needs as much as relationships formed offline. Vygotsky (cited in Tu, 2000) notes that we need adequate socialisation for our cognitive development, while Sosteric (2018) mentions that we need socialisation for a sense of self and identity. Hence, online interactions may not satisfy our social needs and human development.

Rao et al. (2007) note that engaging in social avoidance results in fewer friendships and more isolation. Moitra, Herbert and Forman (2008) further found that higher levels of avoidance in those with SAD leads to higher levels of depression. Hence, avoidance is harmful for well being. There is also a large body of research which claims that exposure therapy can be used to help individuals to overcome social anxiety (Haug et al., 2003; Hofmann, 2000; etc). Therefore, it could be posited that social avoidance could lead to an

individual's social anxiety becoming worse because they are not facing their fear and exposing themselves to social situations; rather, they allow the fear to manifest and develop, worsening over time. Choosing to avoid offline social interactions and replace them with excessive use of cyber-technological devices could make one's social anxiety worse.

It should also be considered that some studies found significant gender differences while others did not. Pierce (2009) found females to be more socially anxious than males and more likely to use devices as a substitute for face-to-face interaction. This contrasts McLean et al. (2011), a large-scale study which found no gender differences in social anxiety disorder, but differences in every other anxiety disorder they researched. This could suggest that Pierce's (2009) gender findings are not representative of the general population and are just random. Gender differences could be explored further in more larger-scale studies.

### **3.7 General Internet use and social anxiety**

Five articles were found that discussed general Internet use, such as Internet addiction and problematic Internet use, in relation to social anxiety symptoms.

#### *3.7.1 General correlations*

Lee and Stapinski (2012) found that social anxiety was linked with all aspects of problematic Internet use in both their multivariate analysis and the univariate analysis. Participants with higher levels of social anxiety communicated online more so than they did in face-to-face interactions. Weidmann et al. (2012) found that those struggling with social anxiety engaged in online disinhibition more so than they did in offline situations. Participants with SA also experienced reduced online social pressure, and they perceived (more so than those without SA) that this was important for enhancing their social experience. Mazer & Ledbetter's (2012) findings generally support the claim that trait-like attitudes toward online communication is a predictor of problematic Internet use and hence poor wellbeing. Mazer & Ledbetter (2012) also found that social connection has links with compulsive Internet use and excessive Internet use. Weinstein and Dannon (2015) likewise found a positive correlation between Internet use and SA, and those with higher levels of SA were more likely to be addicted to the Internet than those with lower levels of SA. There were also no significant differences between those with high levels of SA and low levels of SA and Internet use frequency. Altogether, there was a moderate positive association between Internet addiction and SA, no gender differences for Internet addiction, and those with high SA levels had no preference for SNSs over any other form of Internet use. Yucens and Uzer

(2018) found that participants who were classified as being addicted to the Internet also scored higher on levels of social anxiety, depression, and general anxiety, and lower on levels of self-esteem. There was no difference between those addicted to the Internet and levels of impulsivity. The association of social anxiety with Internet addiction was more prominent than the association between Internet addiction and depression or self-esteem. The severity of Internet addiction was also linked to the avoidance of social situations in those with social anxiety. Their findings suggest that those who are addicted to the Internet use it as a way of escaping negative emotions associated with SA, to live in an alternate virtual world where they are not challenged or threatened. (Yucens and Uzer, 2018)

### *3.7.2 Self-disclosure*

Weidmann et al. (2012) reported that SA was positively correlated with online self-disclosure. Individuals with higher levels of SA self-disclosed more online than they did offline when compared with individuals who had lower levels of SA. Hence, individuals with SA found the Internet to be more comfortable than offline situations and also used it for self-disclosure. Mazer & Ledbetter (2012) similarly found that self-disclosure had links with both compulsive Internet use and excessive Internet use.

### *3.7.3 Online vs face-to-face*

Weidmann et al. (2012) found that individuals with higher levels of SA use the Internet to avoid face-to-face interactions and as a positive substitution for face-to-face interactions. They found little links between using the Internet as a positive substitution and one's quality of life. Weidmann et al. (2012) also found that individuals who used the Internet as compensation for face-to-face interactions had low self-esteem satisfaction for those higher in SA, and greater self-esteem for those with lower SA. When looking at the avoidance of face-to-face interactions in those with SA, there was no relationship with self-esteem, quality of life or friendship, but there was a correlation with predicted levels of depression. Lee and Stapinski (2012) found that participants with higher levels of SA felt they had more interpersonal control online than offline, and they perceived that there was less threat online than in face-to-face interactions. However, there were no differences in the consequences of this perceived threat. The perceived probability of threat in offline interactions mediated the relationship between SA and problematic Internet use. The links between SA and preference for online social interaction was mediated by the tendency to use safety behaviours; hence, participants feel safer online than in real life, so they gravitated toward the Internet for social interaction. This preference for online social interaction was associated with avoiding



face-to-face interactions, showing that participants engaged in avoidance behaviours due to a fear of negative evaluation.

#### *3.7.4 Friendships/relationships*

In terms of online relationships, Lee and Stapinski (2012) found that levels of SA didn't lead to better quality online relationships than offline relationships, but it did lead to decreased levels of relationship breadth, depth and predictability. Weidmann et al. (2012) found that individuals used the Internet for socialisation, with it predicting levels of self-esteem, but it did not seem to predict friendship or depression.

#### *3.7.5 Well-being*

Weidmann et al. (2012) found that individuals with SA who engaged in compensatory Internet use had higher scores of depression, and those with lower SA had lower levels of depression. Hence, those who struggle with SA and engage in compensatory Internet use have poorer well-being. Mazer & Ledbetter (2012) found compulsive Internet use to be a predictor of poor well-being, but excessive Internet use was not. They found that compulsive Internet use mediates the relationship between online communication attitudes and well-being.

#### *3.7.6 Other findings*

In the case of Lee and Stapinski (2012), younger participants, those not living with a partner, those with a lower income, those born in Australia and those who were not of the Caucasian race were all more likely to develop problematic Internet use. Weinstein and Dannon (2015) found that those with high levels of SA used the Internet a lot more frequently if they were male, with 75% being male and 25% being female, but there were no significant differences in levels of Internet addiction.

#### *3.7.7 Discussion*

Although problematic Internet use does not have an official definition, it is nonetheless a significant issue in today's world (Spada, 2014). Block (2008) notes that problematic Internet use can be regarded as an addictive behaviour which involves excessive use of the Internet, withdrawal symptoms when the Internet is not accessible, building a tolerance, and adverse consequences such as fatigue and social isolation. The above findings further suggest that social anxiety disorder has a significant relationship with problematic Internet use. Individuals with SAD tend to communicate with others online more than they do in

face-to-face situations, experiencing reduced social pressure online, and using the Internet as a form of escapism from the offline world. Those with social anxiety hence tend to use the Internet as a replacement for offline interactions, which mirrors socially anxious individuals who use cyber-technological devices as a substitute for face-to-face interactions. Those with high social anxiety self-disclosed online more than offline, which suggests that individuals may feel more trusting of others on the Internet than in “real life”, and feel more comfortable showing their true personality. Individuals also experienced more interpersonal control online than offline, and felt safer on the Internet. However, individuals with SA also engaged in online disinhibition, showing that they felt a lack of restraint about showing their true self. This could possibly be attributed to being anonymous online and feeling that their actions would not have any consequences. In this way, the Internet can help individuals with SA to feel less vulnerable about interacting and communicating with others, and it can act as a security blanket for them to act in whichever they please, which they feel they cannot do in offline situations.

Those with SAD were more likely to be addicted to the Internet, which could be attributed to these above factors which allow individuals to feel that they can be themselves online. Hence, similarly to socially anxious individuals’ use of cyber-technological devices, the Internet acts as a place to go for socially anxious individuals to replace meaningful face-to-face interactions. A number of the above studies mentioned how problematic Internet use can lead to poor well-being, such as Yucens and Uzer (2018), finding higher levels of social anxiety, depression and general anxiety and lower self-esteem among individuals who were addicted to the Internet. Using the Internet as one’s primary means of socialisation also implied that individuals avoid face-to-face social interaction, due to fears of being evaluated negatively. The Internet can offer socially anxious individuals a different world where they feel like they can be themselves and communicate with others with ease, giving them the opportunity to remain anonymous if they wish. However, this puts individuals at risk of becoming addicted to the Internet, using it to replace real-life experiences, and developing poor well-being. The Internet may help individuals in some ways, but in the long term, its effects may do more harm than good.

In contrast to the findings on cyber-technological devices and gender differences, males were found to use the Internet three times as much as females. However, there were no gender differences for levels of Internet addiction, which suggests that the amount of time spent online may not predict the risk of becoming addicted to the Internet; rather, addiction

could rise when individuals begin to replace offline interactions with online interactions, using the Internet as a means of escaping reality.

### **3.8 SNSs and social anxiety**

Seven articles were found that focused on social networking sites and their relationship with social anxiety disorder.

#### *3.8.1 General correlations*

Casale & Fioraventi (2015) found that social anxiety has correlations with the need to belong, the need for self-presentation, and the need for assertiveness. The need for self-presentation was the only direct predictor of general problematic Internet use (GPIU) levels. For indirect effects, it was found that social anxiety and GPIU were indirectly mediated by the need for self-presentation, but the need to belong and the need for assertiveness did not indirectly mediate them. Kamalou, Shaughnessy & Moscovitch (2019) similarly found that individuals who had high levels of SA and a fear of negative evaluation were more likely to be concerned over controlling self-presentation online. Casale & Fioraventi (2015) also found gender differences. For males, the need for self-presentation explained the association between SA and GPIU, as they used SNSs compulsively due to being satisfied by avoiding public displays of imperfection in the fear of being judged harshly. Socially anxious males felt they could satisfy their needs for self-presentation, autonomy and closeness on SNSs, but satisfaction through the Internet of appearing competent may result in GPIU. For socially anxious female students, the satisfaction of the need for assertiveness and self-presentation motivated them to use SNSs. However, these were not related to GPIU. The need to belong via SNSs was the only predictor of GPIU among females.

#### *3.8.2 Facebook*

Honnekari et al. (2017) found a number of differences between those with generalised social anxiety (fear of being judged negatively in general, everyday interactions) and those with a specific social phobia (including talking in front of a crowd and being observed by others). They found that those with a specific social phobia spent more time on Facebook than those without a specific social phobia, while those with a general social phobia did not show any differences in Facebook usage. Individuals with specific social phobia had lower satisfaction scores for in-person interactions, but not Facebook interactions. They reported higher satisfaction scores for their preferred parts of Facebook, such as distracting themselves from college, chatting to friends or collecting information on people. 51.5% reported that they use

Facebook as a distraction from a personal problem, and a third spend a lot of time thinking about Facebook, becoming irritated if they don't have access to it, and they have tried and failed to cut down on it. Generalised SA had fewer correlations with Facebook use than specific SA. Both groups reported that they felt as if they were a part of the Facebook community. (Honnekari et al., 2017)

Farquhar & Davidson (2015) report that Facebook itself may be increasing social anxiety and leading to Facebook-specific anxiety. They found that role conflict plays a part in Facebook-specific anxiety, but there were no correlations between role conflict and SA. Role conflict occurs here because Facebook gives the individual a role of performing social behaviours and identity, and this may cause conflict for the individual. Self-monitoring behaviours were found to predict both SA and Facebook anxiety: the ability to self-monitor is related to lower Facebook anxiety but higher levels of SA. Church attendance had an effect on Facebook-specific anxiety but not social anxiety - the more frequently one went to the church, the more Facebook anxiety they endured. Social anxiety and Facebook-specific anxiety were predictors of each other, suggesting that anxiety experienced offline is easily transferred into the online world.

### *3.8.3 High social anxiety vs low social anxiety*

Yen et al. (2012) found that individuals with SA experienced more SA in real-life interactions than computer-mediated interactions, along with higher scores for depression, Internet addiction, and motivation about anxiety with regards to punishment (BIS) and reward (BAS). This was especially true for subjects with very high SA. SA in general was lower during online interaction than real-life interaction. Those with high SA had their anxiety levels decrease online more than those without SA. High SA and motivation by anxiety about punishment were most strongly associated with feeling less anxious online. Those with high SA still experienced more anxiety online than those without SA. Hence, individuals with SA are still subject to experiencing anxiety online, just to a lesser extent than offline interactions. Subjects who were more depressed also experienced decreased SA online. Although subjects experienced less anxiety online, there were no links with Internet addiction or Internet activity.

Lin, Li & Qu (2017) found that individuals who were highly socially anxious (HSA) were more sensitive to social exclusion than LSA individuals, feeling less included and like they didn't belong. HSA individuals showed a better recovery than LSA individuals when they used

social media after being excluded. Hence, HSA individuals show different patterns from LSA individuals, and social media benefits them more in terms of recovery after being socially excluded. HSA individuals felt higher inclusion and meaningful existence than the LSA group after being included, showing their basic needs are dependent on social approval. Hence, exclusion and inclusion had a more extreme effect on those with high social anxiety. HSA individuals benefited more from SNSs than LSA individuals when using it to feel included after a period of exclusion. For LSA individuals, the recovery from meaningful existence and disconnection for participants who didn't use social media was more noticeable than for individuals who did use social media. Using social media actually hindered recovery from social exclusion for LSA individuals, while recovery was better for LSA individuals if no social media was used. HSA individuals may then receive more social capital from social media.

Markovitzky et al. (2012) found that highly socially anxious individuals experienced less anxiety in face-to-face interactions if they had previously engaged in computer-mediated communications, rather than those who had only freely surfed the Internet. Participants with lower anxiety didn't report different levels of anxiety. Highly socially anxious individuals were more likely to wish to avoid a face-to-face interaction if they had freely surfed the Internet before, rather than taken part in a computer-mediated communication. There was no difference for lowly anxious individuals. Highly anxious individuals who had engaged in computer-mediated communications displayed greater expectations for success in the face-to-face interaction than those who had just freely surfed the web.

#### *3.8.4 Other findings*

Honnekari et al. (2017) found that females were more likely to have a specific social phobia. Time in city and relationship status didn't have any correlations with social phobia. Kamalou, Shaughnessy & Moscovitch (2019) developed the Seeking Online Safety Questionnaire (SOSQ) to understand how certain features of online communication contribute to the perception of interpersonal safety, i.e. how those with SA use the Internet as a safe space away from face-to-face interaction. SOSQ was organised into control over self-presentation and control over personal information. As each SOSQ score increased, so did the individual's social anxiety, fear of negative evaluation, concern over certain flaws, and use of offline safety behaviours. Control over self-presentation showed correlations with social anxiety and online fears of negative evaluation more than control over personal information. Individuals higher in SA and fear of negative evaluation were more likely to be concerned over controlling self-presentation online. Those who reported greater importance of safety

features online also applied them to offline interactions, and those with higher SA had greater safety behaviours both online and offline.

### *3.8.5 Discussion*

The findings above illustrate that social anxiety and SNSs have a number of links. Socially anxious males felt that they could satisfy much of their social needs through the use of SNSs while socially anxious females felt that SNSs could satisfy their need to belong. In general, socially anxious individuals may use SNSs for control of self-presentation and for interpersonal safety. Facebook was found to be a popular SNS that socially anxious individuals used for a number of reasons. In particular, those with a specific social phobia spent more time on Facebook than those with generalised social anxiety, and were also less satisfied by real-life interactions. Facebook also increased both social anxiety and Facebook-specific anxiety. Individuals' usage of Facebook, and likely SNSs in general, may be dictated by self-monitoring behaviours. Snyder (1979) defines self-monitoring as exercising control over one's self-presentation and expressive behaviour, which assumes their behaviour in social situations and their interactions with others. Hence, socially anxious individuals may feel the need to use SNSs to express themselves in a way that they are unable to do in real-life interactions, whether it's through posting pictures, or status updates, or simply by chatting online. Farquhar & Davidson (2015) suggest that anxiety experienced offline is easily transferred into the online world. However, it remains ambiguous as to why those with a specific social phobia are more dependent on Facebook than those with generalised social anxiety. It could be that self-monitoring behaviours may be more prevalent in those with a specific social phobia, but further study is needed before any conclusions are made.

There were also a number of differences between individuals with high social anxiety (HSA) and low social anxiety (LSA). HSA individuals were more sensitive to social exclusion than LSA individuals, they recovered better from social exclusion when they used SNSs to help them while SNSs made LSA individuals worse, and they experienced less SA when engaging in face-to-face interactions if they had engaged in computer-mediated communication beforehand. HSA individuals react much more strongly to being included and excluded than those with LSA and they rely on SNSs a lot more, with their basic needs depending on social approval. These findings show that the higher that one's social anxiety is, the more reliant they are on SNSs for inclusion and for feeling like they are capable of engaging in social interaction. Hence, it could be suggested that individuals struggling with

high levels of social anxiety can be put at risk of becoming dependent on SNSs, and possibly engaging in problematic Internet use. However, the fact that highly socially anxious individuals can be helped when they are exposed to SNSs and computer-mediated communication may not be all negative. It could suggest that those with SA can just use SNSs as a coping mechanism for when they feel excluded or for when they feel anxious about an upcoming face-to-face interaction. Hence, usage of SNSs could help highly socially anxious individuals if they do not replace real-life interactions and engage in problematic Internet use. Furthermore, the fact that individuals felt less anxious in real life after speaking with someone online could suggest that online therapy might be an option for highly socially anxious individuals if they have issues with attending therapy face-to-face.

## 4. Conclusion

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### 4.1 Discussion

Since the shift into the digital age, it has become increasingly important that we consider the effects that digital media has on individuals in relation to their psychological health. The Internet, SNSs and cyber-technological devices have redefined what it means to be social, and have altered how we communicate with others. Social anxiety disorder can hold individuals back from engaging in social interactions due to feelings of fear or inadequacy. Hence, this research paper aimed to explore whether digital media has a mostly positive or negative effect on socially anxious individuals.

The findings suggest that there are a multitude of ways that digital media affects socially anxious individuals, with some being positive and some being negative. Overall, socially anxious individuals tend to rely on digital media for satisfying their social needs. Interacting with others online can give individuals with SA the opportunity to build friendships and relationships that they otherwise wouldn't be able to in real-life interactions. Digital media can allow individuals to feel a sense of belonging, to control how they are presented to others, to engage in self-monitoring, to experience feelings of safety, increased interpersonal control and reduced social pressure, to feel more comfortable self-disclosing, and overall, to feel less anxious online than they would in face-to-face interactions. Engaging in computer-mediated communication before a face-to-face interaction also allowed socially anxious individuals to feel less anxious about the face-to-face interaction itself, and SNSs helped socially anxious individuals to experience feelings of inclusion and they helped in the recovery of feeling excluded. Hence, devices, the Internet and SNSs have a number of benefits for those struggling with SAD, because it allows them to interact with others with less anxiety than they would experience in offline interactions.

However, this leads to an issue where socially anxious individuals are at risk of completely substituting real-life experiences for digital experiences, choosing to escape the offline world and live their lives completely in the digital world. Individuals could become addicted to their smartphones or to the Internet and become distressed when they do not have access to them. The findings also showed that dependency on digital media can result in poorer well-being, with higher levels of depression and loneliness. It should also be considered that avoiding one's fears and not facing them will stop one from overcoming them. Hence, although individuals may feel like they are satisfying their social needs on the Internet, they



may simply be ignoring the real issue and choosing not to overcome their social phobia. The findings also showed that socially anxious individuals still experience anxiety online, but just to a lesser extent than in real-life interactions. Socially anxious individuals were found to experience the most negative effects with general problematic Internet use, and then devices, while SNSs appeared to be the most positive digital medium. The Internet and devices in general were found to be problematic with regard to dependency, addiction and using them for escapism and avoidance, while SNSs seemed to be helpful with regard to helping individuals interact with others, feel included and achieve a sense of belonging.

Overall, the findings convey that digital media can be beneficial for socially anxious individuals in the short-term, if individuals don't use it pathologically. Balance is the key variable here. Socially anxious individuals can use digital media to help them to lead more enriching offline lives, rather than using it as a form of escapism or avoidance from the real world. Digital media should hence be used in conjunction with face-to-face interactions, and then it can allow individuals with SA to thrive and to experience adequate socialisation to form them as active social agents in the world.

#### **4.2 Limitations**

This research paper had a number of limitations. It is possible that human error could have acted as a variable in determining the viability of this research. As only 94 studies were screened, it could be possible that certain studies were not found that may have added valuable findings. The articles used were also from the year 2009 onwards to achieve the most recent research. However, some articles from before this year may have had important findings that could have had a place in this research paper. This paper also could have looked at more quantitative research, for example, comparing the amount of time that individuals spend online with levels of anxiety and dependence on digital media. Another limitation is that this study only looked at articles that had an English translation. There may have been numerous other articles that provided important findings but weren't available in English. The research could have also compared and contrasted the findings from the articles in relation to the scales used in their method, rather than simply just gathering quantitative data on the scales.

### **4.3 Further research**

Further research should be conducted to discover the benefits of online therapy with helping individuals to overcome SAD. Research could also be conducted to compare and contrast socially anxious individuals from different geographical locations and to consider whether an individual's place of residence plays any part in how they communicate with others and whether they are more or less dependent on digital media. It may also be important to focus on the well-being of those with social anxiety and their usage of digital media, considering how digital media affects their quality of life and levels of depression, hopelessness and loneliness. Studies should also be done to consider what makes certain socially anxious individuals more likely to use digital media pathologically and become addicted to or dependent on it. As we dive deeper into the digital age, we are presented with more opportunities than ever to study the effects of digital media on individuals. Research should aim to focus on the effect of digital media on psychological health as it is an important topic that is only recently beginning to become less of a taboo and is becoming more normal to talk about. Research can bring to light important discoveries that can help people live their lives the way they want to, with no inhibitions.

## Appendices

### Appendix A - Table of Findings

Article	Sample	Method (scales)
Casale, S. and Fioravanti, G. 2015.	n = <b>400</b> students, mean age 22.45 + 2.09 University of Florence, Italy	<ul style="list-style-type: none"> <li>- The Generalized Problematic Internet Use Scale 2 (GPIUS2; Caplan, 2010)</li> <li>- The Social Interaction Anxiety Scale (Mattick and Clarke, 1998)</li> </ul>
Darcin, A. E., Kose, S., Noyan, C. O., Nurmedov, S., Yilmaz, O. and Dilbaz, N. 2016.	N = <b>357</b> university students with smartphones in Istanbul, Turkey.	<ul style="list-style-type: none"> <li>- Smartphone Addiction Scale (SAS)</li> <li>- UCLA Loneliness Scale (UCLA-LS)</li> <li>- Brief Social Phobia Scale (BSPS)</li> </ul>
Farquhar, L. K. and Davidson, T. 2015.	N = <b>250</b> students in the US.	<ul style="list-style-type: none"> <li>Liebowitz social anxiety scale</li> <li>Self-monitoring scale (Snyder, 1974)</li> <li>Role conflict and ambiguity scale (Rizzo, House, and Lirtzman, 1970)</li> </ul>
Hong, W., Liu, R., Oei, T., Zhen, R., Jiang, S. and Sheng, X. 2019.	- <b>1050</b> students (470 Males = 44.8%) from middle schools in Beijing, China Age 12-18	<ul style="list-style-type: none"> <li>- Shyness scale (Cheek &amp; Buss, 1981)</li> <li>- Social anxiety scale (Fenigstein, Scheier, &amp; Buss, 1975)</li> </ul>

		<ul style="list-style-type: none"> <li>- relatedness need satisfaction perceived on the mobile phone (adapted from Shen et al 2013)</li> <li>- Mobile phone problem use scale (Foerster Et al.,2015)</li> </ul>
Honnekeri, B. S., Goel, A., Umate, M., Shah, N. and de Sousa, A. 2017.	<p>Mumbai, India</p> <p><b>316</b> urban undergraduate University students</p> <p>&gt;18 years old</p>	<p>Social Interaction Anxiety Scale (SIAS) (Mattick and Clarke,1998)</p> <p>Social Phobia Scale (SPS) (Mattick and Clarke, 1998)</p>
Kamalou, S., Shaughnessy, K. and Moscovitch, D.a A. 2019.	<ul style="list-style-type: none"> <li>- n=<b>374</b></li> <li>- Age 18-82</li> <li>- US</li> </ul>	<ul style="list-style-type: none"> <li>- Developed the Seeking Online Safety Questionnaire (SOSQ)</li> </ul>
King, A. L. S., Valenca, A. M., Silva, A. C. O., Baczynski, T., Carvalho, M. R. and Nardi, A. E. 2013.	<ul style="list-style-type: none"> <li>- Case study of <b>one</b> individual</li> <li>- 30 yr old male in Brazil</li> </ul>	<p>Medication, cognitive-behavioral therapy (CBT) and the application of evaluation tools (interviews, scales, inventories and questionnaires).</p>
Lee, B. W. and Stapinski, L. A. 2012.	<p>n = <b>338</b> adults living in Australia</p> <p>134 men and 204 women</p> <p>Over 18</p>	<ul style="list-style-type: none"> <li>- Erwin et al. (2004) internet usage survey</li> <li>- The Depression, Anxiety and Stress Scale-21-item version (DASS-21; Lovibond &amp; Lovibond, 1995)</li> <li>- self-report version of the Liebowitz Social Anxiety Scale (LSAS-SR; Fresco et al., 2001)</li> <li>- The Brief Fear of Negative Evaluation scale II (bFNEII)</li> </ul>

		<p>(Carleton, McCreary, Norton, &amp; Asmundson, 2006).</p> <ul style="list-style-type: none"> <li>- The Levels of Development in Online Relationships survey (LoD; Parks &amp; Floyd, 1996)</li> <li>- The Generalized Problematic Internet Use Scale (GPIUS; Caplan, 2002)</li> <li>- The Preference for Online Social Interaction scale (POSI; Caplan, 2003)</li> <li>- The Subtle Avoidance Frequency Examination (SAFE)</li> <li>- The Probability and Consequences of Threat survey</li> </ul>
Lin, X., Li. S. and Qu, C. 2017.	<p><b>N=95.</b> Average age of 20 South China Normal University, Guangzhou, China</p>	<ul style="list-style-type: none"> <li>- Positive and Negative Affect Schedule (PANAS) (Nikitin et al., 2014).</li> <li>- Need Threat scale (Liu, 2014)</li> <li>- six relatedness items employed by Sheldon and Gunz (2009), Sheldon, Cummins, and Kamble (2010), and Sheldon et al. (2011)</li> <li>- Liebowitz SA scale-self-report (LSAS-SR)</li> </ul>

<p>Markovitzky, O., Anholt, G. E., and Lipsitz, J. D. 2012.</p>	<p>N = <b>60</b> students living in Israel.</p>	<p>Mini-SPIN (Connor et al. 2001)  Fear of negative evaluation scale (Watson and Friend, 1969)  Body Sensations Questionnaire (Chambless, Caputo, Bright, &amp; Gallagher, 1984)  Liebowitz social anxiety scale</p>
<p>Mazer, J. P. and Ledbetter, A. M. 2012.</p>	<p><b>352 participants</b> (82 males, 270 females), with 241 (68.4%) identifying themselves as undergraduate students. Based in the US.</p>	<p>- Ledbetter's (2009a) measure assessed online communication attitude  - assessed PIU via the three-item CIU and four-item EIU dimensions from Caplan's (2002) Generalized Problematic Internet Use measure  - (a) the mental (9 items) and (b) physical symptoms (5 items) subscales of Dornbusch, Mont-Reynaud, Ritter, Chen, and Steinberg's (1991) poor well-being symptoms scale.</p>
<p>Pierce, T. 2009.</p>	<p><b>280 students</b> from two High Schools in a large western city. US.</p>	<p>Self-report Likert-type questionnaires</p>
<p>Uysal, S., Ozen, H., Canan, M. 2016.</p>	<p>- N = <b>265</b> students  - higher education students</p>	<p>- Nomophobia (NMP) questionnaire developed by</p>

	at ESOGÜ, Turkey	Yıldırım and Correia (2015b) - the fear of positive evaluation scale (FPES), Weeks et al. (2008)
Weidmann, A.C., Fernandez, K.C., Levinson, C.A., Augustine, A.A., Larsen, R.J., & Rodebaugh, T.L. 2013.	- Students n = <b>108</b>	online self-disclosure and offline self-disclosure scales taken from Schouten et al. (2007) online disinhibition scale taken from Schouten et al. (2007) perceived relevance of reduced non-verbal cues and the perceived relevance of controllability scales taken from Schouten et al. (2007) Social Interaction Anxiety Scale (S-SIAS; Mattick & Clarke, 1998; Rodebaugh et al., 2011) Quality of Life Inventory (QOLI; Frisch, 1994) Beck depression inventory-II (BDI-II; Beck, Steer, & Brown, 1996) Internet Usage Questionnaire (IUQ)
Weinstein, A. and Dannon, P. N. 2015.	N = <b>120</b> students living in Israel.	Liebowitz Social Anxiety Scale,2, Young Internet Addiction Test (IAT),1

<p>Yen, J. U., Yen, C., Chen, C., Wang, P., Chang, Y. and Ko, C. 2012.</p>	<p>- n = 2,282 college students. China.</p>	<p>The Brief Version of Fear of Negative Evaluation Scale (BV-FNE) Center for Epidemiological Studies Depression Scale Chen Internet Addiction Scale Behavioral Inhibition System (BIS) Behavioral Activation System (BAS) scales.</p>
<p>Yucens, B. and Uzer, A. 2018.</p>	<p>- N = 392 undergraduate medical students. - Turkey</p>	<p>Socio-demographic scale Internet Addiction Test (IAT), Liebowitz Social Anxiety Scale (LSAS), Barratt Impulsivity Scale-11 (BIS-11), Rosenberg Self-Esteem Scale (RSES), Beck Depression Inventory (BDI) the Beck Anxiety Inventory (BAI</p>



## Appendix B - List of scales

- Liebowitz Social Anxiety Scale (LSAS-SR; Fresco et al., 2001)
- Generalized Problematic Internet Use Scale (GPIUS2; Caplan 2010)
- Social Interaction Anxiety Scale (SIAS; Mattick and Clark, 1998)
- Internet Addiction Test (IAT; Young, 1995)
- The Brief Fear of Negative Evaluation scale II (bFNEII; Carleton, McCreary, Norton, & Asmundson, 2006)
- Beck Depression Inventory (BDI)
- Smartphone Addiction Scale (SAS; Kwon, Kim, Cho and Yang, 2013)
- UCLA Loneliness Scale (UCLA-LS; Russell, 1996)
- Brief Social Phobia Scale (BSPS; Davidson, Potts, Richichi, Ford, Rama, Smith and WH, 1991)
- Shyness scale (Cheek & Buss, 1981)
- Social anxiety scale (Fenigstein, Scheier, & Buss, 1975)
- Relatedness need satisfaction perceived on the mobile phone (Shen et al., 2013)
- Mobile phone problem use scale (Foerster Et al., 2015)
- Social Phobia Scale (SPS) (Mattick and Clarke, 1998)
- Internet usage survey (Erwin et al., 2004)
- The Depression, Anxiety and Stress Scale-21-item version (DASS-21; Lovibond & Lovibond, 1995)
- The Levels of Development in Online Relationships survey (LoD; Parks & Floyd, 1996)
- The Preference for Online Social Interaction scale (POSI; Caplan, 2003)
- The Subtle Avoidance Frequency Examination (SAFE; Cuming, Rapee, Kemp, Abbott, Peters & Gaston, 2009)
- The Probability and Consequences of Threat survey
- Positive and Negative Affect Schedule (PANAS; Nikipin et al., 2014).
- Need Threat scale (Liu, 2014)
- Six relatedness items employed by Sheldon and Gunz (2009), Sheldon, Cummins, and Kamble (2010), and Sheldon et al. (2011)
- Ledbetter's (2009a) measure assessed online communication attitude
- The mental and physical symptoms subscales of Dornbusch, Mont-Reynaud, Ritter, Chen

- Steinberg's (1991) poor well-being symptoms scale.
- Nomophobia (NMP) questionnaire developed by Yıldırım and Correia (2015b)
- the fear of positive evaluation scale (FPES) developed by Weeks and et al. (2008)
- Online self-disclosure and offline self-disclosure scales (Schouten et al., 2007)
- Online disinhibition scale (Schouten et al., 2007)
- Perceived relevance of reduced non-verbal cues and the perceived relevance of controllability scales (Schouten et al., 2007)
- Center for Epidemiological Studies Depression Scale
- Chen Internet Addiction Scale (CIAS)
- Behavioural Inhibition System (BIS)
- Behavioural Activation System (BAS) scale
- Barratt Impulsivity Scale-11 (BIS-11)
- Rosenberg Self-Esteem Scale (RSES)
- Beck Anxiety Inventory (BAI)
- M.I.N.I. (axis I DSM-IV-1994)
- Hamilton scale for depression (1980)
- The scale of anxiety of Zung (1971) T
- The scale for panic and agoraphobia (Bandelow, 1995)
- The scale of severity of panic disorder
- The questionnaire WHOQOL-brief (1998)
- Quality of Life Inventory (QOLI; Frisch, 1994)
- Internet Usage Questionnaire (IUQ)
- Self-monitoring scale (Snyder, 1974)
- Role conflict and ambiguity scale (Rizzo, House, and Lirtzman, 1970)
- Mini-SPIN (Connor et al. 2001)
- Fear of negative evaluation scale (Watson and Friend, 1969)
- Body Sensations Questionnaire (Chambless, Caputo, Bright, & Gallagher, 1984)
- Seeking Online Safety Questionnaire (SOSQ)

## References

- Akbayrak, B. (2000). A Comparison of Two Data Collecting Methods: Interview and Questionnaires. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi* 18, pp. 1-10.
- The American Psychiatric Association. 2013. *The Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. Washington, DC: American Psychiatric Publishing.
- Andrews, E. 2013. *Who invented the internet?* [Online]. Available from: <https://www.history.com/news/who-invented-the-internet> [Accessed February 3rd, 2019].
- Boyd, D. and Ellison, N. B. 2007. Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, 13(1), pp. 210–230.
- Caplan, S. 2007. Relations among loneliness, social anxiety, and problematic Internet use. *Cyberpsychology and Behavior* 10(2), pp. 234-242.
- Casale, S. and Fioravanti, G. 2015. Satisfying needs through Social Networking Sites: A pathway towards problematic Internet use for socially anxious people? *Addictive Behaviors Reports*, 1, pp. 34-39.
- Darcin, A. E., Kose, S., Noyan, C. O., Nurmedov, S., Yilmaz, O. and Dilbaz, N. 2016. Smartphone addiction and its relationship with social anxiety and loneliness. *Behaviour and Information Technology*, 35(7), pp. 520-525.
- Dreifus, C. 2017. *Why We Can't Look Away From Our Screens - A Conversation with Adam Alter*. The New York Times. Available from: [https://img1.wsimg.com/blobby/go/f9d96c99-e738-4d6b-a324-997a9d599423/downloads/1c46b9jdh\\_666253.pdf](https://img1.wsimg.com/blobby/go/f9d96c99-e738-4d6b-a324-997a9d599423/downloads/1c46b9jdh_666253.pdf) [Accessed February 5th, 2019].
- Farquhar, L. K. and Davidson, T. 2015. Facebook Frets: The Role of Social Media Use in Predicting Social and Facebook-Specific Anxiety. *Journal of Alabama Academy of Science*, 85(1), pp. 1-33.

Gopalakrishnan, S. & Ganeshkumar, P. 2013. Systematic Reviews and Meta-analysis: Understanding the Best Evidence in Primary Healthcare. *Journal of Family Medicine and Primary Care*, 2(1), pp. 9-14.

Gould, M. 2018. *Socialization in Schools - Research Starters Sociology* [Online]. Available from: <http://eds.b.ebscohost.com/eds/detail/detail?vid=1&sid=0145a729-8443-4095-8c0d-7fbd264046f6%40sessionmgr120&bdata=#AN=89185737&db=ers> [Accessed February 9th, 2019].

Haug, T.T., Blomhoff, S., Hellstrom, K., Holme, I., Humble, M., Madsbu, H. P. and Wold, J. E. 2003. Exposure therapy and sertraline in social phobia: 1-year follow-up of a randomised controlled trial. *British Journal of Psychiatry*, 182, pp. 312-318.

Higuera, V. 2016. *Social Anxiety Disorder: Causes, Symptom & Diagnosis* [Online]. Available from: <https://www.healthline.com/health/anxiety/social-phobia> [Accessed February 7th, 2019].

Hofmann, S. G. 2000. Treatment of Social Phobia: Potential Mediators and Moderators. *Clinical Psychology (New York)*, 7(1), pp. 3-16.

Hong, W., Liu, R., Oei, T., Zhen, R., Jiang, S. and Sheng, X. 2019. The mediating and moderating roles of social anxiety and relatedness need satisfaction on the relationship between shyness and problematic mobile phone use among adolescents. *Computers in Human Behavior*, 93, pp. 301-308.

Honnekeri, B. S., Goel, A., Umate, M., Shah, N. and de Sousa, A. 2017. Social anxiety and Internet socialization in Indian undergraduate students: An exploratory study. *Asian Journal of Psychiatry*, 27, pp. 115-120.

Hoskin, R. 2012. *The dangers of self-report* [Online]. Available from: <http://www.sciencebrainwaves.com/the-dangers-of-self-report/> [Accessed May 7th, 2019].

- International Telecommunications Union. 2019. *Statistics* [Online]. Available from: <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx> [Accessed February 3rd, 2019].
- Kamalou, S., Shaughnessy, K. and Moscovitch, D.a A. 2019. Social anxiety in the digital age: The measurement and sequelae of online safety-seeking. *Computers in Human Behavior*, 90, pp. 10-17.
- King, A. L. S., Valenca, A. M., Silva, A. C. O., Baczynski, T., Carvalho, M. R. and Nardi, A. E. 2013. Nomophobia: Dependency on virtual environments or social phobia? *Computers in Human Behavior*, 29(1), pp. 140-144.
- Kvale, S. 1983. The Qualitative Research Interview – A Phenomenological and A Hermeneutical Mode of Understanding. *Journal of Phenomenological Psychology*, 14(2), pp. 171-196.
- Kwon, M., Lee, J., Won, W., Park, J., Min, J., Hahn, C., Gu, X., Choi, J. and Kim, D. 2013. Development and Validation of a Smartphone Addiction Scale (SAS). *PLoS One*, 8(2): e56936. DOI: [10.1371/journal.pone.0056936](https://doi.org/10.1371/journal.pone.0056936)
- Lee, B. W. and Stapinski, L. A. 2012. Seeking safety on the internet: Relationship between social anxiety and problematic internet use. *Journal of Anxiety Disorders*, 26(1), pp. 197-205.
- Leiner, B. M., Cerf, V., & Clark, D., Kahn, R. E., Kleinrock, L. Lynch, D. C., Postel, J., Roberts, L. G., Wolff, S. S. 2001. Internet Society (ISOC) All About the Internet: A Brief History of the Internet. *ACM SIGCOMM Computer Communication Review*, 39(5), pp. 22-31.
- Lin, X., Li. S. and Qu, C. 2017. Social network sites influence recovery from social exclusion: Individual differences in social anxiety. *Computers in Human Behavior*, 75, pp. 538-546.
- Markovitzky, O., Anholt, G. E., and Lipsitz, J. D. 2012. Haven't we met somewhere before? The effects of a brief internet introduction on social anxiety in a subsequent face to face interaction. *Behaviour Research and Therapy*, 50(5), pp. 359-365.

Mazer, J. P. and Ledbetter, A. M. 2012. Online Communication Attitudes as Predictors of Problematic Internet Use and Well-Being Outcome. *Southern Communication Journal*, 77(5), pp. 403-419.

McLean, C., Asnaani, A., Litz, B. T. and Hofmann, S. G. 2011. Gender differences in anxiety disorders: Prevalence, course of illness, comorbidity and burden of illness. *Journal of Psychiatric Illness*, 45(8), pp. 1027-1035.

Moitra, E., Herbert, J. D. and Forman, E. M. 2008. Behavioral avoidance mediates the relationship between anxiety and depressive symptoms among social anxiety disorder patients. *Journal of Anxiety Disorders*, 22(7), pp. 1205-1213.

Pierce, T. 2009. Social anxiety and technology: Face-to-face communication versus technological communication among teens. *Computers in Human Behavior*, 25(6), pp. 1367-1372.

Rao, P. A., Beidel, D. C., Turner, S. M., Ammerman, R. T., Crosby, L. E. and Sallee, F. R. 2007. Social anxiety disorder in childhood and adolescence: Descriptive psychopathology. *Behaviour Research and Therapy*, 45, pp. 1181–1191.

Ressing, M., Blettner, M. & Klug, S. J. 2009. Systematic Literature Reviews and Meta-Analyses, Part 6 of a Series on Evaluation of Scientific Publications. *Deutsches Arzteblatt International*, 106(27), pp. 456-463.

Salehan, M. and Negahban, A. 2013. Social networking on smartphones: When mobile phones become addictive. *Computers in Human Behaviour*, 29, pp. 2632-2639.

Salkind, N. J. 2010. *Encyclopedia of research design*. Thousand Oaks, CA: SAGE Publications, Inc.

Shah, S. 2016. *The History of Social Media* [Online]. Available from: <https://www.digitaltrends.com/features/the-history-of-social-networking/> [Accessed February 3rd, 2019].

- Shephard, R. and Edelman, R. 2005. Reasons for Internet use and social anxiety. *Personality and Individual Differences*, 39(5), pp. 949-958,
- Siddaway, A. 2014. *What is a Systematic Literature Review and How Do I Do One?* University of Stirling: Stirling, UK. Available from:  
<https://pdfs.semanticscholar.org/2214/2c9cb17b4baab118767e497c93806d741461.pdf>  
[Accessed February 20th, 2019].
- Statista. 2019a. Facebook users worldwide 2018 [Online]. Available from:  
<https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/> [Accessed February 6th, 2019].
- Statista. 2019b. Instagram - Statistics & Facts [Online]. Available from:  
<https://www.statista.com/topics/1882/instagram/> [Accessed February 6th, 2019].
- Stein, M. B. & Stein, D. J. 2008. Social anxiety disorder. *Lancet*, 371(9618), pp. 1115–1125.
- Sosteric, M. 2018. *What is Socialization* [Online]. Available from:  
<https://www.sociology.org/what-is-socialization/> [Accessed February 9th, 2019].
- Tu, C-H. 2000. On-line learning migration: From social learning theory to social presence theory in a CMC environment. *Journal of Network and Computer Applications*, 23(1), pp. 27-37.
- Van Zalk, N., Van Zalk, M., Kerr, M. and Stattin, H. 2011. Social Anxiety as a Basis for Friendship Selection and Socialization in Adolescents' Social Networks. *Journal of Personality*, 79, pp. 499-525.
- Uysal, S., Ozen, H., Canan, M. 2016. Social Phobia in Higher Education: The Influence of Nomophobia on Social Phobia. *The Global eLearning Journal*, 5(2), pp. 1-8.
- Weidmann, A.C., Fernandez, K.C., Levinson, C.A., Augustine, A.A., Larsen, R.J., & Rodebaugh, T.L. 2013. Compensatory Internet Use among Individuals Higher in Social

Anxiety and Its Implications for Well-Being. *Personality and Individual Differences*, 55(3), 191-195.

Weinstein, A. and Dannon, P. N. 2015. Internet addiction is associated with social anxiety in young adults. *Annals of Clinical Psychiatry*, 27(1), pp. 2-7.

Yen, J. U., Yen, C., Chen, C., Wang, P., Chang, Y. and Ko, C. 2012. Social Anxiety in Online and Real-Life Interaction and Their Associated Factors. *Cyberpsychology, Behaviour and Social Networking*, 15(1), pp. 7-12.

Yucens, B. and Uzer, A. 2018. The relationship between internet addiction, social anxiety, impulsivity, self-esteem, and depression in a sample of Turkish undergraduate medical students. *Psychiatric Research*, 267, pp. 313-318.