



Review

Social anxiety and internet use – A meta-analysis: What do we know? What are we missing?



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ABSTRACT

Objective: The present meta-analysis quantitatively reviewed existing literature on social anxiety (SA) and internet use, examining the relationships between SA and three internet use variables: (1) feelings of comfort online; (2) time spent online; and (3) problematic internet use (PIU). In addition, it considered developmental level (age) as a moderator of the social anxiety-internet use relationship.

Method: We conducted a literature search using PubMed and PsycINFO databases. Our meta-analysis was based on 22 studies and included 13,460 participants.

Results and discussion: Results indicated that social anxiety (a) is correlated positively with feelings of comfort online, (b) is not correlated with total time spent online, email use and IM, but is correlated positively with time spent on gaming, and (c) is correlated positively with PIU. The study also found developmental level to be a moderator of the correlations between social anxiety and internet use variables. Research and clinical implications are discussed.

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1. Introduction

Over the last decade, the internet has profoundly affected our lives, especially how we communicate. Although the internet is a common medium of communication, it may have special significance for individuals with elevated social anxiety, as it provides opportunities for less stressful interactions (Caplan, 2007). Research in the field of social anxiety and internet use has been focused on understanding the relationship between social anxiety and use of computer mediated communication (CMC). However, this is still a relatively new area. Tellingly, there are over 10,000 studies on the internet in general but only about 40 on internet and social anxiety. Moreover, the few existing studies have mixed findings, arguably attributable (at least partially) to the diverse methodologies used. To shed light on the issue, the present study systematically and quantitatively reviewed the literature on social anxiety and internet. Its aims were to further examine the internet use-social anxiety nexus based on existing work, to highlight issues requiring more analysis and to suggest useful methodologies for future research.

The present meta-analysis considered four main aspects of the social anxiety-internet use relationship: (1) comfort online – how socially anxious individuals perceive CMC interactions; (2) time spent online – whether socially anxious individuals exhibit a behavioral preference for CMC interactions; (3) problematic internet use (PIU) – whether socially anxious individuals are at greater risk of developing problematic internet use; (4) developmental aspects of the relationship - how developmental level (or age) affects the relationship between social anxiety and internet use.

2. Four aspects of the anxiety-internet relationship

2.1. Perceptions of CMC: comfort online

CMC and unmediated face-to-face (FTF) interactions differ in characteristics which are highly relevant for socially anxious individuals, especially because of their wish to minimize the probability of making an undesirable impression on others (Leary & Kowalski, 1995; Schlenker & Leary, 1982). More precisely, CMC uses *text-based communication* with reduced audio and visual cues (e.g., “my physical appearance is not a problem”; “no one can see me blushing”). CMC also provides *anonymity* (e.g., “no one will know who I am if I’ll mess it up”), and *a-synchronized communication* (e.g., “I don’t have to respond right away”) (McKenna & Bargh, 2004; Suler, 2004; Walther, Loh, & Granka, 2005).

Considering these characteristics (e.g., lack of non-verbal cues), it is not surprising that socially anxious individuals find CMC more comfortable and prefer it over FTF interactions (Caplan, 2007; Gross, Juvonen, & Gable, 2002; Lee & Stapinski, 2012; Shepherd & Edelman, 2005). They perceive their self-presentational efficacy as greater in online than in FTF interactions (Caplan, 2007). Compared to non-anxious individuals, they find CMC more comfortable and believe it more effective for developing relationships (Pierce, 2009; Valkenburg & Peter, 2007).

2.2. Behavioral preference for CMC: time online

Considering the greater comfort socially anxious individuals seem to feel in CMC interactions, a positive correlation between social anxiety and time spent online might be expected. Interestingly, this expectation is not borne out in all cases: although some studies have noted a positive correlation between social anxiety and total time spent online (Gordon, Juang, & Syed, 2007; Mazalin & Moore, 2004), others have found a negative one (Campbell, Cumming, & Hughes, 2006; Madell & Muncer, 2006).

Other studies have not considered total time but have differentiated between time spent on specific uses of the internet, such as email, instant messaging (IM), games, and, most recently, social networks. Because it is a popular interpersonal platform, IM has received much empirical attention as a potentially important medium of communication for socially anxious individuals (Pierce, 2009; Schouten, Valkenburg, & Peter, 2007; Selfhout, Branje, Delsing, ter Bogt, & Meeus, 2009). Again, however, findings have been inconsistent. Some studies have indicated individuals with higher levels of social anxiety tend to use IM more intensively than those with lower levels (Erwin, Turk, Heimberg, Fresco, & Hantula, 2004; Lee & Stapinski, 2012; Mazalin & Moore, 2004), with other studies reporting the opposite (Bonetti, Campbell, & Gilmore, 2010; Campbell et al., 2006; Madell & Muncer, 2006; Wang, Jackson, & Zhang, 2011). Similarly inconclusive results have been reported for email use. Some studies have found a positive correlation between email use and levels of social anxiety (e.g., Mazalin & Moore, 2004), while others have discovered a negative one (Erwin et al., 2004; Madell & Muncer, 2006). When considering these inconsistent findings, it is important to note that email use has changed over the years. In the past, email was used primarily as a medium of communication among friends, but with the rise of social networks and smartphones enabling alternative and highly accessible modes of communication with friends, email use has shifted to be primarily work-related.

Data linking the use of online social networks with social anxiety are sparse, given the fairly recent arrival of these networks on the social scene. There is already contention among researchers, however, with two studies finding a positive correlation (Murphy & Tasker, 2011; Shaw, Timpano, Tran, & Joormann, 2015), and two others failing to do so (Fernandez, Levinson, & Rodebaugh, 2012; McCord, Rodebaugh, & Levinson, 2014). Importantly, while all four studies examined social networks and social anxiety, only two considered time spent using social networks (Fernandez et al., 2012; Murphy & Tasker, 2011). Studies focused on related issues (loneliness, shyness, unwillingness to communicate in FTF) have also failed to find significant correlations between these social inhibition variables and time spent using online social networks (Baker & Oswald, 2010; Sheldon, 2008). Findings on online games have been more consistent, with three studies finding a positive correlation between time spent on online games and social anxiety (Campbell et al., 2006; Lo, Wang, & Fang, 2005; Mazalin & Moore, 2004).

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