

## Social Anxiety and the Internet: Positive and Negative Effects

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### Abstract

The present study sought to partially replicate the Erwin et al. (2004) study of positive and negative Internet effects. The participants were 37 individuals who met the clinical criteria for social anxiety disorder. The Internet effects were explored in relation to the severity of social anxiety and the length of time spent online. The results both confirmed and disconfirmed aspects of the original Erwin et al. study. Both positive and negative effects were indicated and caution should therefore be taken in viewing the Internet as a direct causal factor. The findings are discussed in relation to the contradictory research literature that has investigated social anxiety and emotional disturbance on the Internet.

**Keywords:** *Social anxiety; internet use*

### Introduction

The Internet has grown far beyond being a basic tool for acquiring information, to meeting the specific needs for sub-groups of individuals. For instance, in the area of psychological health, the Internet is not only being used to gather mental health information by people suffering from a psychological illness, but is also becoming a significant means for providing psychological therapies (Klein et al., 2006; Ritterband et al., 2003; Ritterband et al., 2006). The use of the Internet may help improve service delivery to specific clinical groups such as those with social anxiety disorder (Erwin et al., 2004; Titov et al., 2007), particularly as most therapy services are still provided in the face-to-face mode (Spek et al., 2007).

Little is known of the costs or the benefits of Internet use for individuals with social anxiety disorder (SAD). Investigators have posited that they may be attracted to the Internet because of its anonymity and perceived 'safety', at least partially satisfying their social needs (McKenna & Bargh, 2000; Campbell, 2003). This idea is consistent with the Clark and Wells (1995), and Rapee and Heimberg (1997) cognitive models of social anxiety. These models proposed that the socially anxious have formed negatively biased thoughts and images of their appearance and behaviours in 'real life'

social situations. Therefore, the presence of other people tends to make them overestimate the visibility of anxiety-related symptoms, causing them to exaggerate the likelihood of negative evaluation.

Erwin et al. (2004) developed an Internet survey to assess what the socially anxious thought the positive and negative effects of their Internet use were. To our knowledge, this research is the only prior Internet study to use a clinically diagnosed sample with SAD. Most other studies have used university samples, measuring levels of social anxiety among non-clinical samples. The present endeavour was to replicate the Erwin et al. study, and also use a clinical sample.

Both positive and negative Internet effects were indicated in the Erwin et al. (2004) study. The Internet was found to be associated with various positive aspects such as social support, particularly for socially anxious individuals spending greater lengths of time online. This supports the growing evidence that spending more time online may increase social support (e.g., Parks and Floyd, 1995; Haythornthwaite and Wellman, 1998; Hampton and Wellman, 1999; Birnie and Horvath, 2002, and Baym et al., 2004). Furthermore, individuals who were shown to have higher levels of social interaction anxiety indicated that the Internet led to more encouragement from other people online regarding their social anxiety. However, further research regarding the use of the Internet and social support for people who have clinical levels of SAD is needed.

Other positive effects in the Erwin et al. (2004) study were that the Internet significantly assisted in the acquisition of information about social anxiety for individuals displaying higher levels of social anxiety. However, this was not shown to lead to action about engaging in treatment beyond the information gathering stage.

The negative effects in the Erwin et al. (2004) study included the Internet increasing the avoidance related to feared aspects of face-to-face interactions, particularly for the most socially anxious participants, and to a lesser extent for those spending the most time online. For the most anxious Internet users, the Internet was

shown to strengthen maladaptive beliefs, and the Internet also led to a fear of negative evaluation online.

Erwin et al. (2004) stated that the findings relating to negative Internet effects were consistent with those found by other Internet research teams (e.g., Kraut et al., 1998). That is, individuals spending greater lengths of time online tended to report more comfort and reliance on the Internet to the exclusion of the offline world. Moreover, they indicated that although socially anxious individuals also emphasised the perceived gains of cyberspace interactions, these perceived gains may be ineffective because of the diminished opportunities to nurture healthy face-to-face relationships.

This position suggested that compromising quality face-to-face relationships may increase social isolation and entrench maladaptive beliefs related to anxiety and perceived social incompetence. However, other studies found that psychological states such as stress and depression decreased as Internet self-efficacy rose (La Rose et al., 2001), and that more Internet use paradoxically related to both social connectedness and also emotional difficulty (Moody, 2001). The broader research findings continue to be contradictory. It was therefore of interest to further explore both the positive and negative Internet effects by replicating the Erwin et al. (2004) study, particularly considering the lack of studies to have included participants clinically diagnosed with SAD.

## Method

### Participants

Participants were recruited over a 6 month period through a variety of means: random selection from an existing pool of participants who have taken part in other university research projects; the posting of research information on a prominent anxiety disorder website, and a newspaper volunteer registry. Individuals were screened over the telephone for SAD or other Axis I disorders with the Mini International Neuropsychiatric Interview (MINI) (Version 5.0.0), developed by Sheehan et al. (1997). The screening was conducted by the first author (a clinical psychology doctoral candidate) and supervised to international standards by a registered and experienced clinical psychologist. Of the thirty-seven participants that were clinically diagnosed with SAD, 20 were women and 17 were men.

### Materials

The 37-item Internet survey designed by Erwin et al. (2004) was used. This survey asked participants to respond to statements relating to positive effects of their Internet use: the degree to which (a) they received social support on the Internet; (b) the Internet provided information that led them to understand more fully and

to seek treatment for their social anxiety; and also the negative effects of their Internet use: the degree to which (c) they communicated with others on the Internet so as to avoid face-to-face interactions; (d) the use of the Internet strengthened their maladaptive beliefs; and (e) they feared negative evaluation from others with whom they communicated on the Internet. Responses were made on a 5-point Likert-type scale: 1 = "extremely not true for me", 2 = "not true for me", 3 = "neutral", 4 = "true for me", 5 = "extremely true for me". The authors did not report on this measure's psychometrics. As in the Erwin et al. study, the 20-item *Social Interaction Anxiety Scale (SIAS)* (Mattick & Clarke, 1998) was used to assess social interaction anxiety. The items described anxiety-related reactions to a variety of social situations. Responses were rated on a 5-point Likert-type scale from 0 = "not at all characteristic" to 4 = "extremely characteristic". Possible scores ranged from 0 to 80, with higher scores suggesting greater social interaction anxiety. The reliability of the SIAS as a measure of social anxiety is very good, with an internal consistency, as measured by Cronbach's alpha, of 0.94, and test-retest reliability of 0.92. The convergent validity with other measures of social anxiety/social phobia and/or avoidance is high (Brown et al., 1997; Mattick & Clarke, 1998). Participants were also asked to record their daily Internet use in minutes, over a one week period. An Internet diary was devised for the recording of time in minutes spent online. Participants were directed to record the length of their use into morning, afternoon, and evening sessions, and to then provide a total.

### Procedure

The Standing Committee on Ethics in Research Involving Humans at Monash University granted the permission to conduct this research. Participants were provided with a plain language statement and an informed consent form. Upon receiving the returned consent form, the participants were telephoned by the assessor and the clinical assessment was conducted. Once the diagnosis of SAD was confirmed using the MINI, the participant was provided further instructions regarding the completion of the survey and it was posted to them in the mail. Participants received \$15 once the survey had been returned in the mail.

## Results

### Characteristics of Participants

The age range of the 37 participants was 18 to 55 years, and the mean age was 28.20 years ( $SD = 5.70$  years). From the sample, 54.1% were female, and 45.9% were male. University degrees were achieved by 31.4%. The employment rate was 48.6%. Home Internet access was 86.5%.

### Statistical Analyses Procedures

As in the Erwin et al. (2004) study, Bonferroni correction was utilised for these analyses. That is, for each group of correlations, 0.05 was divided by the number of correlations to determine a new alpha level. The following adjustments were made for the self-rated positive effects of Internet use: alpha was set to 0.006 for the 'social support from the Internet' items; and alpha was set to 0.007 for the 'Internet provided information and led to action' items. The following adjustments were made for the self-rated negative effects of Internet use: alpha was set to 0.004 for the 'Internet increased avoidance of feared aspects of face-to-face interactions' items; alpha was set to 0.01 for the 'Internet strengthened maladaptive beliefs' items; and alpha was set to 0.008 for the 'fear of negative evaluation on the Internet' items. Descriptive statistics are presented below in Table 1 for the time spent online and anxiety variables.

Table 1: Means, Standard Deviations, and Range for the Internet time and Anxiety Variables

Variable	M	SD	Range
1	729.51	491.03	220 - 2048
2	57.80	6.40	30 - 68

*Note.* 1 = total internet time (1 week in minutes); 2 = social interaction anxiety scale (SIAS).

### Self-Rated Positive effects of Internet use

The Erwin et al. (2004) survey of self-reported positive and negative aspects of Internet use was completed by participants. Correlation analyses were used to assess the degree to which scores on the Social Interaction Anxiety Scale (SIAS), and the amount of time per week spent interacting on the Internet, were associated with participant reported benefits of Internet use (social supports, and social anxiety information and the extent to which the information is acted upon for treatment). These analyses are presented in Table 2.

All of the item correlations indicated that there was no relationship between the SIAS scores and the use of the Internet for social support, to gather information about social anxiety and its treatment, to take action towards treatment or the development of new friendships.

There was a positive and significant relationship between the amount of time reportedly spent on the Internet and 'development of new friendships', and 'strengthening of face-to-face friendships'. Therefore, there was some support for the Internet being used as a means of social support for those socially anxious individuals who spent greater amounts of time online.

### Self-Rated Negative effects of Internet use

The degree to which self-reported negative effects of Internet use (Internet increased avoidance of feared aspects of face-to-face interactions, Internet strengthened maladaptive beliefs, and fear of online negative evaluation) were correlated with scores on the SIAS, and the amount of time per week spent interacting online, are presented below in Table 3.

There were no significant correlations between SIAS scores and the items representing Internet increased avoidance of feared aspects of face-to-face interactions. For many of the items either no relationship was found, or some extremely small, non-significant correlations. However, for the fear of negative evaluation items, a large significant positive relationship was shown to exist between SIAS scores and 'fear of negative evaluation of Internet communication'.

After Bonferroni correction, there were no significant correlations between the amount of time spent on the Internet and the items representing Internet increased avoidance of feared aspects of face-to-face interactions (most of the item correlations were very small). However, for the fear of negative evaluation items, there was a large significant positive relationship between the time spent on the Internet and 'belief that those with social anxiety should be cautious about using the Internet'.

### Discussion

The replication of the Erwin et al. (2004) study overall yielded mixed results. There were no significant associations between social interaction anxiety and any of the positive Internet effects. In regards to social support, this result was largely in line with Erwin et al. (2004), who also found that the most anxious individuals did not find the Internet to be a significant provider of social support. It is likely that these individuals require more extensive support than what can reasonably be gained online.

These results also indicated that participants experiencing greater levels of anxiety did not use the Internet as a significant means of gathering information about social anxiety or its treatment, or that it led to significant action about treatment. This partly contradicted the Erwin et al. (2004) study, which found some support for the acquisition of online information. This result is counter-intuitive considering the degree to which the Internet is used as a means of informing people about health matters (Ritterband et al., 2003). Additionally, researchers have suggested that the Internet may be a 'safer' option for socially anxious individuals than face-to-face (e.g., McKenna & Bargh, 2000; Campbell, 2003). An explanation may be that most socially anxious individuals have already accessed social anxiety resources through offline means.

Table 2: Self-Rated Positive effects of Internet use.

	M	SD	SIASr	Timer
Social support from the internet (Internet use has led to):				
Support from others on the internet	3.62	0.98	-.07	.29
Encouragement regarding social anxiety from others on the Internet	3.19	1.18	-.06	.19
Development of new friendships	3.24	1.19	.26	.44*
Increased confidence when interacting face-to-face	2.73	0.93	-.02	.38
Strengthening of face-to-face friendships	2.97	1.01	-.16	.58***
Empathy regarding social anxiety and others on the internet	3.03	1.09	-.06	.17
Encouragement to confront anxiety provoking situations from others on the internet	2.70	1.02	-.04	.00
Perceptions that the average person is tolerant of those with social anxiety	2.73	0.90	-.18	.13
Internet provided information and led to action (Internet use has led to):				
Acquisition of new information about social anxiety	4.14	0.78	-.05	.19
Seeking psychotherapy treatment for social anxiety	3.19	1.29	-.02	-.33
Seeking medication treatment for social anxiety	2.70	1.15	-.06	-.17
Obtaining self-help books mentioned on the internet	2.86	1.08	-.12	.04
Understanding that social anxiety disorder is treatable	3.78	0.98	-.17	-.04
Learning about psychotherapy and medication treatments of social anxiety disorder	3.81	1.05	.01	-.13
Understanding that social anxiety is a common problem	3.81	0.88	-.11	.26

*Note.* N = 37. SIASr = correlation between the Social Interaction Anxiety Scale and individual items representing the self-rated positive effects of internet use. Timer = correlation between the hours per week internet respondents reported interacting on the internet and individual items representing the self-rated positive effects of internet use. Bonferroni-corrected *p*-values of .006 (.05/8) and .007 (.05/7) were employed in these analyses.

\*\*\* *p* < .001.

\*\* *p* < .006.

\* *p* < .007.

Table 3: Self-Rated Negative effects of Internet use.

	M	SD	SIASr	Timer
Internet increased avoidance of feared aspects of face-to-face interactions (I use the Internet because):				
Increased comfort interacting on the internet vs. face-to-face	3.43	1.04	-.02	-.02
I talk about my problems more with people on the internet than face-to-face	3.00	1.23	-.04	.12
Others on the internet cannot hear mistakes in my speech	3.32	1.40	.20	-.06
I have more time to think about what I want to say than in a face-to-face conversation	4.08	0.80	.15	-.17
It is easier for me to avoid interacting face-to-face	3.57	1.19	.26	-.32
It is easier to initiate and maintain conversations than face-to-face	3.49	0.93	.04	.11
I used to spend more time interacting with people face-to-face before using the internet	4.05	1.03	.13	.19
Others cannot see visible signs of my anxiety	2.54	1.27	.28	.32
Others cannot judge me by my physical appearance	3.16	1.32	-.09	.10
Encouraged to avoid anxiety-producing social situations	3.38	1.06	.07	.16
I don't have to talk and can just listen if I want	3.49	1.12	.19	.16
Internet strengthened maladaptive beliefs (Internet use has led to):				
Belief that others view social anxiety as a weakness	2.76	0.86	.24	.17
Belief that others will be critical and reject those with social anxiety	2.62	0.79	.27	.23
Distrust of people	2.65	1.09	.24	.17
Belief that others have better social skills than those with social anxiety	3.27	0.96	-.07	.11
Misinformation about treatments for social anxiety	2.57	0.80	.30	-.13
Fear of negative evaluation on the internet (Internet use has led to):				
Fear interacting on the internet due to lack of feedback	2.54	0.96	.30	.08
Fear that internet communications will be misunderstood	2.78	1.06	.26	-.20
Increased observance and decreased participation on the internet	2.70	1.15	.17	.09
Fear of negative evaluation of internet communication	2.84	1.07	.53**	-.19
Discomfort that others are observing my internet discussions	2.73	1.05	.29	.16
Belief that those with social anxiety should be cautious about using the internet	2.49	1.10	.16	.50**

Note. N = 37. SIASr = correlation between the Social Interaction Anxiety Scale and individual items representing the self-rated positive effects of Internet use. Timer = correlation between the hours per week Internet respondents reported interacting on the Internet and individual items representing the self-rated negative effects of Internet use. Bonferroni-corrected *p*-values of .006 (.05/8) and .007 (.05/7) were employed in these analyses.

\*\*\* *p* < .001; \*\* *p* < .006; \* *p* < .007.

Online resources may be more readily sought by individuals who have less severe social anxiety, or who are newly diagnosed. The reluctance of the most socially anxious participants to take therapeutic action online may also be due to the fact that most of the therapeutic options are still in the face-to-face realm (Spek et al., 2007), and require a considerable amount of interpersonal contact.

As in Erwin et al. (2004), the current results provided evidence that spending more time online was associated with positive effects relating to social supports. So while the more anxious participants did not report significant use of online social supports, it may be speculated that spending more time online may have helped develop greater online social competence, thereby increasing confidence and friendships.

The social support results were among the strongest in the replication of the Erwin et al. (2004) study. Erwin et al. adopted a cautious and even sceptical position, stating that higher levels of Internet use may result in diminished opportunities to nurture offline relationships and social networks. Some Internet research has provided tentative evidence of this, such as the study by Kraut et al. (1998). However, the research literature has been shown to be inconclusive and contradictory. Taking the current confirmation of the Erwin et al. findings and the supporting literature into account (e.g., Parks & Floyd, 1995; Baym et al., 2004), there appears to be growing evidence that spending more time online may increase social support. However, until more research is conducted using clinical samples, any assertions regarding the Internet and social support for the socially anxious should still remain tentative.

The present results indicated that increased Internet use was not associated with acquiring information online about social anxiety and its treatment, or taking therapeutic action based on that information. This was consistent with the results of the Erwin et al. (2004) study. It may once again be the case that information and treatment for social anxiety were dominated by traditional offline sources.

The current investigation of self-rated negative effects of Internet use did not indicate any significant associations between higher anxiety levels and using the Internet to avoid feared aspects of face-to-face interactions, or with Internet strengthened maladaptive beliefs. These results were not expected and strongly contradicted the results of the Erwin et al. (2004) study.

As expected, individuals reporting the greatest level of anxiety indicated a significant fear of negative evaluation of their Internet communication. This strong correlation was also found in the Erwin et al. (2004) study. Commensurate with this, fear of negative evaluation was an important construct in both the Clark and Wells (1995) and Rapee and Heimberg (1997) cognitive models of social anxiety.

Contrary to expectations, the current results indicated that spending more time online was not significantly associated with Internet increased avoidance of feared aspects of face-to-face interaction. This finding contradicted the Erwin et al. (2004) study, which found moderate support. More time spent online was also not significantly associated with Internet strengthened maladaptive beliefs about social anxiety, which similarly contradicted Erwin et al. An explanation for this finding may be that greater Internet use led to more online competency, and it was therefore less likely to be implicated with negative thinking. Similarly, La Rose et al. (2001) found that stress and depression abated as Internet self-efficacy increased.

Contrary to expectations, there was some support for greater Internet use being significantly associated with concerns of negative evaluation on the Internet. Specifically, this involved believing that those with social anxiety should be cautious about using the Internet. This suggested that they maintained a degree of online apprehension, or anxiety, despite also reporting significant social support when spending lengthened periods of time online.

A limitation of the study was that it did not discern individuals presenting with non-generalised from generalised SAD. Some caution may therefore need to be applied when interpreting the results with this general clinical group. Also, the research design was correctional in nature and caution should be taken to not interpret the Internet as being a direct cause of either the positive or negative effects. In addition, the limited range of scores on the survey items made it difficult to identify individual correlations.

The current results, and those of Erwin et al. (2004), indicate how contradictory the findings on Internet research and emotional well-being can be. Taking this into account, and the position of a growing number of researchers (e.g., McKenna & Bargh, 2000; Baym et al., 2004), investigating emotional disturbance in relation to Internet use should move beyond the 'all good' or 'all bad' approach. It is therefore recommended that future theory driven investigations continue to use specific clinical groups to target specific Internet behaviours. For example, a better understanding of how to promote online therapy resources to highly socially anxious individuals may help increase their treatment participation on the Internet and in general. It may also be helpful to examine the positive and negative Internet effects of sub-groups of individuals with non-generalised SAD.

Overall, both positive and negative Internet effects were found, and these results both supported and contradicted aspects of the Erwin et al. (2004) study. The main positive effect was that greater Internet use appeared to enhance online social support. Although the negative Internet effects resulted in the greatest

discordance between the two studies, there was an emerging indication that the fear of negative evaluation continued for socially anxious individuals on the Internet.

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