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Understanding the psychological process of avoidance-based self-regulation on Facebook

RUNNING TITLE: Avoidance-based self-regulation on Facebook

Dr Ben Marder, University of Edinburgh, Edinburgh, Scotland. Ben.Marder@ed.ac.uk

Dr David Houghton*, University of Birmingham, Birmingham, B15 2TT, England.

d.j.houghton@bham.ac.uk

Prof. Adam Joinson, University of the West of England, Bristol, England. Adam.Joinson@uwe.ac.uk

Prof. Avi Shankar, University of Bath, Bath, England. A.Shankar@bath.ac.uk

Eleanor Bull, NHS Grampian Public Health Directorate, Aberdeen, Scotland. eleanor.bull@nhs.net

*Corresponding Author

Keywords: Facebook, Self-regulation, Self-awareness, Social Anxiety, Impression Management,
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Abstract

In relation to social network sites (SNS), prior research has evidenced behaviors (e.g., censoring) enacted by individuals used to avoid projecting an undesired image to their online audiences. However, no work directly examines the psychological process underpinning such behavior. Drawing upon the theory of Self-Focused Attention and related literature, a model is proposed to fill this research gap. Two studies examine the process whereby public-self awareness (stimulated by engaging with Facebook), leads to a self-comparison with audience expectations, and if discrepant, an increase in social anxiety, which results in the intention to perform avoidance-based self-regulation. By finding support for this process, this research contributes an extended understanding of the psychological factors leading to avoidance-based regulation, when online selves are subject to surveillance.

Introduction

Social network sites (SNS) such as Facebook are now omnipresent and deeply rooted in the lives of the majority of internet users.¹ These sites are hailed as technologies for self-presentation, affording the user a plethora of tools to create and maintain online personas.^{2,3,4} With increasing diversity in Facebook consumers' ages and backgrounds, users are likely to 'befriend' a variety of people on Facebook (e.g., college friends, parents, employers),^{5,6}. Research suggests that, rather than being liberating, having a diverse range of friend connections can be a challenge due to the blurring of traditional boundaries between multiple social spheres.^{5,6} Offline, different audiences may be segregated by time and space⁷ enabling people to adapt their self-presentation over the course of different interactions based on the perceived standards of the different audiences, but when interacting on SNS, a single comment or image can be seen by a multitude of audiences at once.^{5,8} The psychological and social impact of this may be substantial. Research suggests that to trying to maintain congruence with the standards or expectations of multiple audiences can cause negative affect and that users typically engage in a number of protective, or avoidance-based, behaviors.

Avoidance-Based Self-Regulation Behavior

The challenge of interacting with multiple audiences on Facebook has behavioral effects which are both wide-ranging and prevalent. One commonly enacted strategy is 'self-censoring'.^{9,10,11} Self-censoring in research into SNS describes this as a user deciding not to communicate content online, or providing a 'toned-down' version. Other avoidance-based behaviors reported by research include removing content once it has already appeared online associated with a user (e.g., de-tagging a photo)^{12,13} or behavior such as apologizing to a Facebook friend for an online action which may have offended or otherwise displeased them.¹⁴ An analysis of 3.9 million Facebook users' data found that in a period of 17 days, 71% started to write but discarded at least one of their posts, suggesting self-censoring and that users with a greater number of distinct friendship groups self-censored more often.⁹ In this paper we refer to these behaviors collectively as Avoidance-Based Self-Regulation

(ABSR) because in order to maintain a desired image, users act (or refrain from acting) to avoid projecting one which is undesired.¹⁵ Widespread adoption of ABSR may result in a ‘lowest common denominator’ effect, where users tend to project the ‘safest’ self-presentation to meet the expectations of their strictest audience.^{16,17}

Understanding the psychological and social process of ABSR

Despite strong evidence that Facebook and other SNS interactions produce effects on behavior, few studies have examined the underlying psychosocial processes, a gap which this research aimed to address. The theory of Self-Focused Attention¹⁸, which shares much in common with Self-Discrepancy Theory,¹⁹ is proposed to provide a useful basis to hypothesize. In the model proposed in Figure 1, when preparing to interact on Facebook (e.g., a college student begins writing a status recounting their alcohol-filled weekend) a user may direct conscious attention inwards^{20,21,22} known as Self-Focused Attention (SFA). This may stimulate a psychological comparator process, comparing the impression created (e.g., party-goer) with a salient perceived behavioral standard (e.g., user remembers their mother, who is a Facebook friend, doesn’t approve of drinking). If a discrepancy is detected, SFA proposes that this produces a negative emotional response, and self-regulatory behavior²³ such as ABSR is enacted to reduce the discrepancy (e.g., deciding not to post the status).¹⁵

In SFA theory, two types of SFA are associated with different standards for comparison and negative emotional responses. Private SFA involves comparison to one’s own standards, where discrepancy results in depressive feelings of failure, whereas public SFA relates to meeting the standards of others, where discrepancy causes anxiety about possibly harming a valued relationship^{23,24}. Research suggests that presenting participants with a mirror whilst they perform a task can stimulate private SFA; tasks involving presenting to an audience can stimulate public SFA. We propose that public SFA is the type which can be stimulated by Facebook use and that

discrepancy detection through comparison to audiences' behavioral standards leads to anxiety, resulting in the ABSR observed in prior research (Figure 1).

Present research

The research in the present paper addresses the questions outlined above. Specifically, we seek to examine the validity of the proposed model (see Figure 1) using a combination of experiment and survey methodology. Public-SFA has yet to be investigated in relation to SNS, despite calls for this from researchers in the field.²⁵ Study One addresses this gap in the research. In this study, participants complete measures of public and private self-awareness either before or after using Facebook. We hypothesize, based on our model, that using Facebook will increase participants' public self-awareness, and therefore propose the following hypothesis:

H1: Use of Facebook will increase participants' public-SFA.

As discussed in the literature review, we have hypothesized that increased public self-awareness will trigger a comparison process whereby discrepancies between an individual's self-presentation and audience standards would lead to an increase in social anxiety (see Figure 1). As a result of any discrepancy and the attendant increase in social anxiety, we predict that there would be an attempt to reduce any discrepancies – a phenomenon we have termed 'Avoidance-Based Self-Regulation'. If this is the case, then higher, or more strict audience expectations will produce greater social anxiety and motivation to engage in ABSR^{15,19,26}. Following this, we therefore predict:

H2: Audience expectations have a positive association with self-censorship when mediated by social anxiety.

Study two tested this hypothesis using a cross-sectional questionnaire design, with a mediation test to examine the role of social anxiety in mediating the link between audience expectations and self-regulation behavior. In Study Two, we focused on a specific form of avoidance-based self regulation: self-censorship. We focused on self-censorship as this is a prevalent practice and is prevention-focused: that is, success (e.g., not posting a photo) can mitigate the need for other ABSR behaviors^{9,12} (e.g., later removing the photo).

INSERT FIGURE 1 ABOUT HERE

Figure 1: Model of avoidance-based self-regulation for SNS users.

Study 1

Methods

Participants and procedure

Participants were university students ($N = 40$; 26 male) studying at a UK university (36 full-time). Most were young adults ($M = 23.40$ years, $SD = 3.17$). Participants were recruited through a course credit scheme ($n = 12$) or through departmental adverts and were rewarded for their participation with an item of confectionary. On arrival at the lab participants were randomly allocated to one of two conditions (Facebook Use vs. No Facebook Use) in a one-way, between-subjects design. The dependent variables were the level of public and private SFA reported by the participants. In the Facebook use condition, participants were asked to log into Facebook and use it ‘as normal’ for 20 minutes. This was then followed by completion of the SFA measures and then measures for the control variables. In the ‘no-use’ condition, participants completed a filler task (continuous subtraction of 13 from 217) for a set period of time, followed by the same SFA and control measures.

Participants were assured that their Facebook usage would be unobserved and unrecorded. During this period the researcher left the lab to minimize any experimenter effects upon participant self-awareness. Upon task completion all participants were given a demographics questionnaire and covariate measures for trait self-consciousness.

Measures

Participants completed the highly cited Private and Public state Self-Awareness Measure developed for post-computer-mediated communication testing by Matheson and Zanna.²⁷ This comprises four items (two for private state self-awareness and two for public state self-awareness) designed to measure participants' focal state during an experiment. The items measuring public self-awareness were adapted for this experiment to associate with imagined others rather than co-participants. The measures were 'In this study I am likely to be concerned about the way I've responded and presented myself in comparison to others who are of the same orientation to me', and, 'In this study, I have been thoughtful of how well I may get along with an acquaintance if we meet in the future'. Each item was answered using a 5-point Likert scale anchored at 'not at all' (1) and 'very much' (5). As this measure enquires about awareness during an experiment, the filler task was used for the non-Facebook group so the awareness measure was not the first task they were presented with. The Cronbach's alpha scores for the two measures are as follows, public state self-awareness scale ($\alpha = .42$), and private state self-awareness scale was ($\alpha = .58$). These figures would suggest that a longer scale would be better, however, the use of reduced item measures of self-awareness has been suggested²⁸ based on the "highly transitory" (p. 369) nature of situational self-awareness, i.e., that if a multi-item, longer scale were to be used then the earlier questions may serve to stimulate awareness of the self, biasing the responses to later items. Given this, and the moderate reliability of the two scales, they were retained for analysis. Fenigstein, Scheier & Buss's²¹ 10-item Trait Private Self-Consciousness Scale ($\alpha = .81$) and 7-item Trait Public Self-Consciousness Scale ($\alpha = .83$) were included to control for trait levels of self-consciousness.

Results

A one-way MANCOVA was conducted with condition (Facebook use vs. no use) as the independent variable, state private and state public SFA as the dependent variables, and trait public and trait private self-consciousness as covariates, the correlation matrix for which is provided in Table 1. The main effect of Facebook use was significant (Pillai's Trace $F_{(2, 34)} = 5.801, p = .007, \eta^2 = .254$), as were the univariate tests for state private self-awareness ($F_{(1, 35)} = 6.171, p = .018, \eta^2 = .150$) and state public self-awareness ($F_{(1, 35)} = 5.070, p = .016, \eta^2 = .127$). Private and public state self-awareness scores, respectively, for the Facebook use condition were ($M = 6.57, SD = 1.56$, vs. $M = 5.031, SD = 1.85$) and for the No Facebook condition were ($M = 7.83, SD = 1.56$, vs. $M = 3.67, SD = 1.86$).

INSERT TABLE 1 ABOUT HERE

Table 1: Correlation Matrix for variables included in the MANCOVA.

INSERT FIGURE 2 ABOUT HERE

Figure 2: Illustrates scores and standard error estimates (error bars) for state private and public SFA adjusted for trait self-consciousness.

The results support H1, that Facebook use increased state public SFA. Therefore using the technology can be considered to act as an audience stimulus, akin to previous research into the presence of audiences offline.^{18,29}

Study 2

Methods

Participants and procedure

Participants ($N = 386$; 268 female) were recruited using a snowball sample on Facebook. They were predominantly young adults ($M = 22.89$ years, $SD = 5.91$) and in full-time education (252 Undergraduates, 78 Postgraduates, 52 in employment, and 4 ‘other’). Participation was incentivized with a small cash donation to a choice of three charities. Participants completed surveys online. After initial demographic questions, they were asked how anxious they were about portraying a negative image related to certain self-attributes on Facebook to different audience groups. Subsequently, they were asked based on the same self-attributes to report the perceived expectation related to their projected image they believed each audience group to hold. Following this they were presented with the measure for ABSR (i.e., self-censorship).

Measures

To measure audience expectations participants completed a version of the Self-Attributes Questionnaire (SAQ),³⁰ a measure of the self-concept scored in comparison to peers using a 10-point scale. Participants were asked how they ‘ought’ to be in relation to four generally negative attributes (high alcohol consumption, recklessness, appearing overly sexual, use of swear words). In previous research, a young sample of Facebook users perceived these attributes as worrying³¹. These four attributes were measured across five ought / other guides – termed audiences hereafter (Guardians, Relational partners, Employers, Acquaintances, Close friends). Cronbach’s α ranged between .72 - .88 for the SAQ measures over the five ought / other guides. A mean score for expectation (Expectational level) was taken across the 4 attributes for each audience. Participants had the option to select ‘not-friended’ for any audience group which was not a ‘friend’ connection on Facebook or to select ‘privacy employed’ if participants used restrictive privacy settings with that group to prevent content such as photographs from reaching them. If either were selected, data were excluded for that audience group from the analysis since these other management strategies could preclude social anxiety or the ABSR strategies being studied.

To assess anxiety linked to the communication of content, participants were asked how worried they were about the different audience groups perceiving them to appear in-line with each of the four attributes on Facebook, e.g., appearing drunk or reckless. All four attributes across the five audience groups were measured using a 10-point scale from ‘not at all’ (1) to ‘extremely’ (10). Cronbach’s α ranged between .82 - .86 for the social anxiety measures over the five ought / other guides. A mean score for social anxiety (anxiety level) was taken across the four attributes for each audience. To measure self-censorship participants were asked how cautious they are when communicating content on Facebook (e.g., so as to NOT appear badly to others, how cautious are you when [posting status update, posting a photo, making a comment]), this was measured using three items, one for each activity ($\alpha=.86$) along a five-point scale ‘Not cautious at all’ (1) – ‘Very cautious’ (5). ABSR constituted the mean of these three items. The notion of caution has been associated with self-censorship in prior work³² and allows for a measure of the most major form of censorship that which occurs before information is communicated.^{12,16}

Statistical Analysis

Bootstrapped mediation tests³³ were performed, with resampling set to 10,000. In this process, the mediated pathways between the IV and the mediator (a), and the mediator and the DV (b), are multiplied (ab) to test for the combined effects of each pathway, and is known as the *indirect* path. A product calculation is preferable to an addition calculation for the indirect path, cf. Baron & Kenny’s methods, as the effect of one variable on another is more accurately a product than an addition (for more details see³⁴). This product is then bootstrapped to account for any skew that occurs as a result of such a multiplication. To establish mediation, it is only necessary for the effect of the direct path (c) to be reduced cf. the original total path (c'), as this suggests the mediating variable is participating in the relationship between the IV and DV. Thus a shift from significance to non-significance of the total and direct paths, respectively, represents a greater mediation effect, known as *competitive* or *complementary* mediation, depending on its direction.³⁴ For *indirect-only*

mediation, the direct path (*c*) needs to be established as non-significant, with the indirect path (*ab*) established as significant, meaning the connection between the IV and DV is through the mediating variable only.³⁴

Results

The mediation models were set up using expectation level (IV), anxiety level as the mediator (M) and self-censorship (DV), depicted in Figure 3 and a correlation matrix provided in Table 2. Five analyses were run in total, one for each of the five audiences. The confidence interval for the indirect effect was set to 99% to account for multiple testing ($.05/5=.01$). Statistical calculations were made using one-tailed hypotheses. Age and Gender were included as control variables throughout, but did not have a significant effect in any of the mediation models tested (all $ps > .05$).

INSERT TABLE 2 ABOUT HERE

Table 2: Correlation Matrix for variables included in the mediation analysis; two-tailed.

The findings support H2 (see Figure 3). Anxiety significantly mediated expectation level and ABSR for each audience. The non-significant direct path (*c*) suggests each audience is subject to an indirect-only mediation: such that increased expectations of each audience are significantly related to increased anxiety levels, which is positively associated with ABSR (i.e., self-censorship of content communicated). Thus, resultant anxiety is a necessary condition for ABSR. Moreover, the mediations differ in their strength of association and explanatory power. The model accounts for 6.4% of variance for partner audiences ($R^2=0.064$), 9.0% for close friends ($R^2=0.090$), 12.1% for employers ($R^2=0.121$), 5.6% for guardians ($R^2=0.056$), and 13.5% for acquaintances ($R^2=0.135$). The indirect effect (*ab* coefficient) is strongest for acquaintances and close friends, and least strong for partners and guardians, respectively.

INSERT FIGURE 3 ABOUT HERE

Figure 3: Mediation results for expectation level (IV), anxiety level (M), and ABSR (DV) for each of the five audience groups.

General Discussion

The present research supports the model theorized to understand the process underpinning ABSR on SNS, evidenced by prior work.^{11,12,16} Overall this study contributes a detailed psychological understanding of everyday behavior of SNS users, grounded in longstanding psychological literature. This is that people become publically self-focused when using SNS, which leads to comparisons between the selves projected online (current/potential) with the expectations of online audiences, and if discrepant, social anxiety will arise stimulating ABSR strategies such as self-censorship.

Study one provides evidence for the initiator in the behavioral process, specifically that general SNS usage increased public SFA and reduced private SFA. Given this, behavior enacted on SNS is likely to be shaped by the external standards of audiences rather than the internal standards of the individual.²⁹ This finding provides the additional contribution that the effect of SNS usage on SFA is at odds with the usage of more traditional forms of computer-mediated communication (e.g., email, instant messenger, chat rooms) that have been associated with increases in private SFA coupled in certain studies with a reductions in public SFA.^{27,35,36} Like many SNS, Facebook includes more traditional forms of communication within the technology (e.g., Facebook messenger), so the fact that attention was still shifted towards the public domain highlights the saliency of peer-to-peer surveillance within such sites. Although study one found overall the effect on SFA of general usage, it is likely that engagement with different aspects of the technology would produce different effects of SFA. Future research should address more nuanced effects on SFA of engagement with different parts of the Facebook site.

Study two provided support for the remainder of the process. For each of the five audiences, expectation level (a proxy for comparison) was positively related to social anxiety, which was in turn positively associated with ABSR. This supports existing work in psychology that has examined

relationships between these variables in an offline context.^{24,19,26} as well as qualitative accounts of SNS where users described this relationship being omnipresent¹⁶ The finding that expectational level is positively related to social anxiety also contributes to the limited literature associating online surveillance with negative psychological effects^{5,37}

At a broader level the findings of this research call into to question the so-called liberating nature of SNS with regards to the self that users project online.³⁸ Rather, peer-to-peer surveillance has the potential to be oppressive and anxiety provoking. Offline and online lives are becoming increasingly blurred, with the growing prevalence of mobile technologies and drive to make content instantly communicable online through links with online personas. Given this, public SFA may begin to increase in wider circumstances, when offline or not directly engaged in SNS. Although there is no existing academic work on this phenomenon, a recent account in the media suggests that offline avoidance based regulation may already be taking place because of the saliency of online audiences.³⁹ Future research can benefit by applying the model of behavior proposed in this paper to examine other forms of ABSR online (e.g., self-cleansing, the removal of content already made visible) as well as the intriguing notion that people may regulate their actions offline, ‘in reality’ due to the fear of what may be communicated online.

In addition to the core theoretical contribution of a model to understand self-regulation in SNS and furthering knowledge on the impact of using SNS on self-awareness this paper presents implications for users. It is recommended that users wishing to minimize social anxiety and possible repercussions associated with discrepant content communication across audiences should take three precautions. First, users should employ privacy settings to segregate content flows to different audiences. Second, ‘tag’ review settings should be activated to act as a safeguard against possibly discrepant content being linked to their timelines. Third, a ‘think twice, post once’ policy that urges thought to be given to the impressions that will be cast to others by the communication of particular content before it is broadcast.

A limitation of the study is the modest R-Squared values found in the analyses of study 2 suggesting there are other important variables not explored within the remit of this work. Other variables that contribute to the motivation to regulate behavior should be considered by further studies such as value of the audience, associations with self-esteem and potential social/economic gains/losses.²⁴ In particular, this may help understand the lower variance accounted for in the models of guardians and employers found here. These are two audiences, which have been found by previous research to be of particular concern for a similar sample⁵, therefore are likely to be of high value. Furthermore, based on the notion of ‘expectancy’ in discrepancy reduction,⁴⁰ users’ perceptions that undesired images may be resolved through self-regulatory practices such as apologies should also be considered.

The samples herein comprised young adult Facebook users, who were predominately native English speakers studying at UK universities, so generalizability may be limited. Future research should examine both teenage and older users from a range of cultural backgrounds. The latter is particularly important as cultures with traditionally stricter expectations with regards to the attributes considered here may experience stronger psychological and behavioral reactions to the challenges of modern day interactions on Facebook. A further limitation is the relatively small cell sizes in Study One; the implication of this is that it may be difficult to assess the significance of a small effect appropriately due to lack of power. It is worthy of note that although Study One provided a significant effect, this should be treated with caution and future research should aim to validate this finding with larger samples. In addition, the low reliability scores for the two-item measures²⁷ for the dependent variables in study one (public/private state self-awareness) must be acknowledged. While the difficulty of measuring state awareness with longer scales is recognized in previous research²⁸ (and is discussed earlier), the lack of internal consistency means that the findings of Study One should be considered with caution. Further research should endeavor to replicate this study with alternate measures of state self-awareness to substantiate the findings of this paper.

The final limitation acknowledged is that audience groups are considered homogenous within akin with prior research,⁵ further research should address heterogeneity that may exist within these groups (e.g., fathers expectations vs. mothers expectations). In addition, related models based on the present theorization could be used to examine online self-regulation associated with trait self-awareness. These would be open to testing using a one-study approach due to the non-transitory nature of trait self-awareness. Overall the research provides important psychological understanding of ABSR, an everyday phenomenon present when online selves are subject to surveillance.

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Table 1: Correlation Matrix for variables included in the MANCOVA.

	1	2	3	4
1. Private self-awareness – state aspect				
2. Public self-awareness – state aspect	-.120			
3. Public self-awareness – trait aspect	-.145	.133		
4. Private self-awareness – trait aspect	.001	-.064	.399*	

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 2: Correlation Matrix for variables included in the mediation analysis; two-tailed.

	1	2	3	4	5	6	7	8
1. Expectations of Partners								
2. Expectations of Close Friends	.638***							
3. Expectations of Employers	.517***	.382***						
4. Expectations of Guardians	.513***	.381***	.635***					
5. Expectations of Acquaintances	.545	.558***	.350***	.322***				
6. Social Anxiety in relation to Partners	.200***	.135*	.069	.185***	.239***			
7. Social Anxiety in relation to Close Friends	.185***	.239***	.130*	.205***	.272***	.689***		
8. Social Anxiety in relation to Employers	.061	.020	.185**	.156*	.112	.602***	.415***	
9. Social Anxiety in relation to Guardians	.141*	.189**	.116	.302***	.174*	.679***	.573***	.726***
10. Social Anxiety in relation to Acquaintances	.178**	.135*	.105	.175**	.261***	.659***	.748***	.596***
11. Avoidance-Based Self-Regulation	.111*	.067	.090	.144**	-.002	.243***	.296***	.313***

* $p < .05$; ** $p < .01$; *** $p < .001$

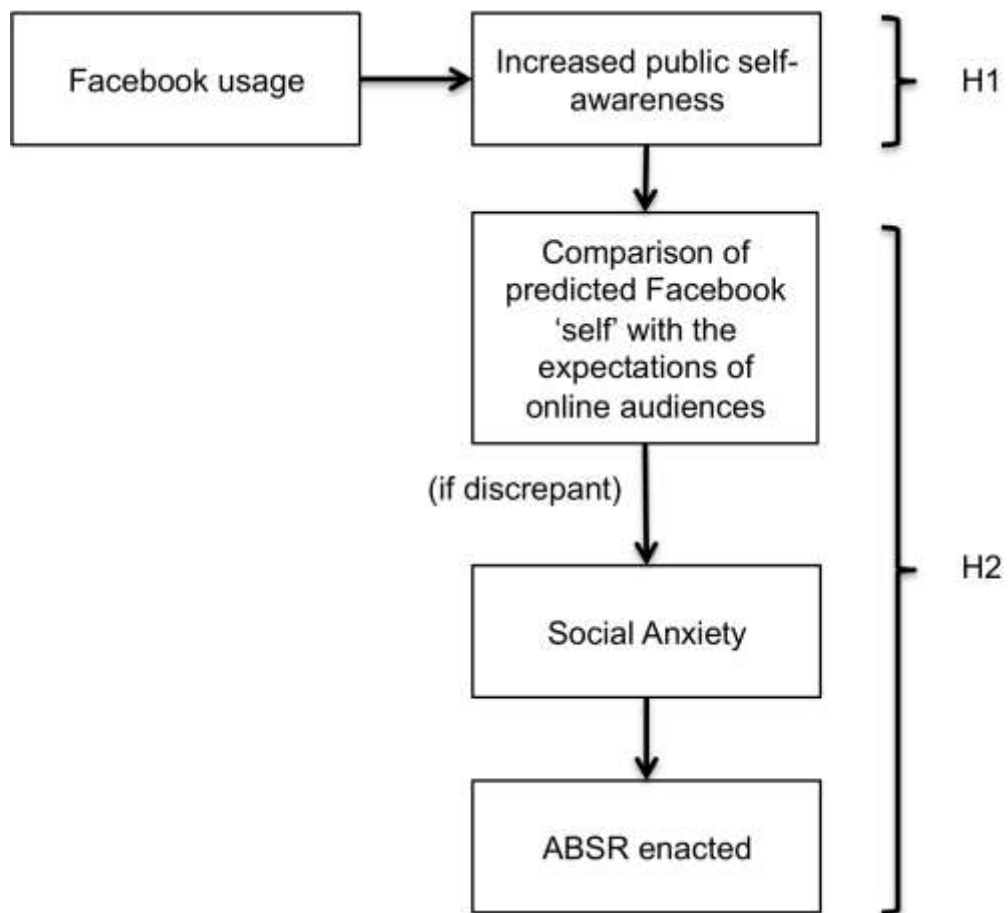


FIGURE 1

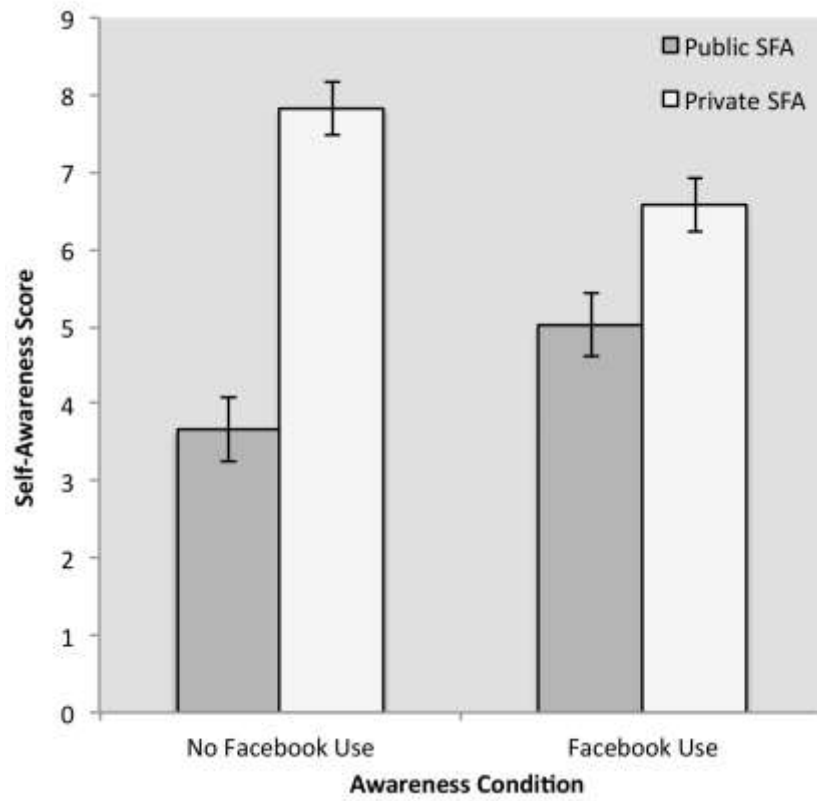
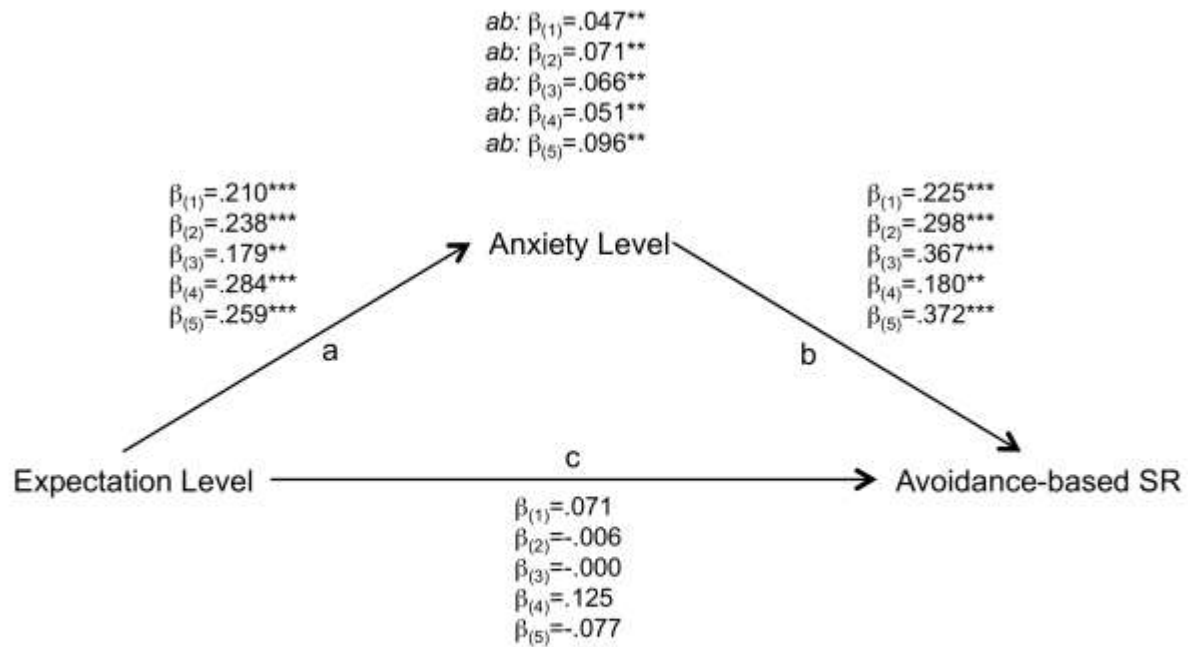


FIGURE 2



1=Partner; 2=Close friend; 3=Employer; 4=Guardian; 5=Acquaintance

* $p < .05$, ** $p < .01$, *** $p < .001$

NB: One-tailed hypotheses calculated.

FIGURE 3