

Measuring, Understanding, and Evoking Fear of Positive Evaluation in Social Anxiety

by

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Author's Declaration

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Abstract

We present a series of three studies designed to investigate fear of positive evaluation in social anxiety. In study 1, we developed the Positive Evaluation Beliefs Scale (PEBS) and administered it to a large undergraduate sample ($N= 258$) to assess two competing explanations for fear of positive evaluation: fear of social reprisal, and fear of inadequacy. In study 2, we recruited a second sample of undergraduate participants ($N = 101$), to confirm that the beliefs measured by the PEBS were distinct from fear of negative evaluation, and had unique utility in predicting social anxiety symptoms. In study 3, high socially anxious ($n = 36$) and low socially anxious ($n = 32$) undergraduates took part in a laboratory-based “getting acquainted” task where they provided ratings of affect, anxiety, and fears of positive and negative evaluation in anticipation of receiving public feedback on a filmed introduction of themselves that they had made for an unknown social partner whom they expected they would later meet. Results from studies 1 and 2 revealed that both types of beliefs assessed by the PEBS are associated with fear of positive evaluation, suggesting that fear of positive evaluation is a multifaceted construct comprised of a variety of overlapping beliefs. In study 3, all participants rated the prospect of positive evaluation as anxiety reducing, a finding which raises important questions about the ecological validity of the construct of fear of positive evaluation. The research and treatment implications of these findings will be discussed within the context of contemporary cognitive-behavioral and evolutionary models of social anxiety.

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Introduction

Social anxiety is a commonplace experience that can vary widely in its severity and, as such, is often conceptualized as a dimensional construct that can range from mild to clinically impairing symptoms (Ruscio, 2010). Most individuals can relate to the feeling of anxiety and autonomic arousal to some degree when they are in social situations, such as when presenting a speech to a large audience, or attending an important interview. In fact, a study found that 38.6% of respondents in a nationally representative health survey in the United States endorsed holding at least one social fear, with public speaking being the most commonly endorsed fear at 30.2% (Kessler, Stein, & Berglund, 1998). However, social anxiety disorder (SAD) can be distinguished from commonplace social fears and worries by the degree of impairment and distress caused by the symptoms, with recent estimates of a 10.7% lifetime prevalence rate of SAD in the United States (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012) .

Typically starting in adolescence, SAD usually has a chronic course if left untreated, and can have a severe impact on quality of life (Keller, 2003). It tends to be more prevalent in females than males, with a more pronounced gender difference in adolescence (APA, 2013). A retrospective study found the mean duration of the disorder to be 29 years (Charter, Hazen, & Stein, 1998) and a large epidemiological study found that over a 10 year period only 35% of patients with SAD experienced remission of symptoms with treatment (Keller, 2006). Those diagnosed with SAD have been found to be significantly less likely to be married (Witchen & Beloch, 1996) or employed (Lecrubier & Weiller, 1997), and more likely to have lower levels of education (Weiller et al. 1996). Moreover, SAD rarely occurs in isolation and has higher rates of comorbidity than other anxiety disorders, particularly with depression (Keller, 2006).

Pharmacological Treatment of Social Anxiety

Despite the potential severity and chronicity of SAD, several forms of treatment exist and have been demonstrated to be effective. A meta-analysis (Blanco et al, 2003) of 20 placebo-controlled medication trials concluded that there are several classes of medications that are reliably effective in the treatment of SAD, including benzodiazepines, selective serotonin reuptake inhibitors (SSRIs), and monoamine oxidase inhibitors. However, the authors noted that there was substantial variability in effect sizes across studies for each class of medications, and several of the medications were not well tolerated or had undesirable side-effects. The authors recommend SSRIs as the first-line pharmacological treatment due to its relatively high tolerability and the large effect size associated with symptom reduction. It should be noted, however, that the effect size estimates were based on clinical improvement, and not the absence of symptoms post-treatment. That is to say, pharmacotherapy has been demonstrated to lead to reliable change in symptoms, but does not necessarily result in one becoming asymptomatic following treatment. Moreover, a more recent meta-analysis by the same group (Blanco et al, 2013) noted rates of relapse between 23% and 50% within 2 to 6 months of cessation of medication.

These recommendations have been echoed in the Canadian practice guidelines for the management of anxiety disorders (Canadian Psychiatric Association, 2006), in which SSRIs or venlafaxine (a selective norepinephrine reuptake inhibitor; SNRI) are recommended as the first-line pharmacological treatment. If no response to medication is found following adjustment of dosage, second-line choices include a variety of SNRIs, monoamine oxidase inhibitors (MAOIs), reversible inhibitors of monoamine oxidase A (RIMAs), anticonvulsants, and benzodiazepines. In a recent review and update to Canadian practice guidelines, these medication

recommendations have remained relatively unchanged, with the exception of improved evidence for the efficacy of pregabalin (an anticonvulsant) as a second-line treatment (Katzman et al., 2014).

Psychological Treatment of Social Anxiety

In addition to the wide array of pharmacological interventions for SAD, there are several psychological treatments as well. A full review of the different psychosocial interventions for SAD is beyond the scope of this paper, and this paper will be limited to discussing cognitive behavioural therapy (CBT) and variants thereof, as it has the largest body of empirical research supporting its efficacy, and is considered to be the gold standard treatment approach (Mayo-Wilson et al, 2014). In a review of five meta-analytic studies by Rodebaugh and colleagues (2004), the authors noted that CBT showed moderate to large effect sizes in terms of symptom reduction post-treatment, as compared to a wait-list control. A more recent review of meta-analyses (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012) yielded similar results regarding the effect size of CBT for SAD, but also found that these gains tended to be maintained over a range of longer term follow-ups. In addition, CBT may have an advantage over pharmacological treatments, as it has been found to have lower relapse rates, with one study finding 50% of clients in a medication only group relapsing, as compared to 17% who received CBT (Liebowitz et al, 1999). Indeed, CBT seems to have superior performance over psychopharmacology in studies that tracked patients after treatment over longer periods of time (see Hofmann et al., 2012).

Despite the efficacy of both pharmacological and psychological interventions for SAD, there is little evidence to support the contention that combination therapy is superior to either intervention alone. In fact, a recent review and meta-analysis (Mayo-Wilson et al, 2014) found

that there were no additional gains by combining treatments as compared to medication or psychotherapy alone. The efficacy rates of pharmacotherapy were similar to that of psychotherapy at immediate follow-up. However the authors note that psychotherapy should be the first-line approach as medications tend to have unwanted side-effects, and an increased risk of relapse when discontinuing the medication.

Notwithstanding the clear evidence supporting the efficacy of CBT, clinically significant symptom reduction does not necessarily equate to remission of symptoms, with many studies failing to or being unable to distinguish between recovery and improvement (see Moscovitch et al., 2012). In fact, a treatment study by Heimberg and colleagues (1990) found that 65% of participants showed clinically significant change at 6-month follow-up after group CBT. Although this figure supports the efficacy of CBT, even long after completion of therapy, it also highlights room for improvement, as 35% of those who completed CBT did not improve significantly. In addition, CBT treatments tend to have high dropout and refusal rates - as high as 10-20% (Rodebaugh et al, 2004) in some studies. Moreover, treatment for SAD is underutilized compared to other anxiety disorders (Keller, 2006). Between the non-responders, those who dropout, those who relapse, and those who choose not to seek treatment, there is significant room for improvement in cognitive behavioural interventions for SAD. One effective way to improve upon existing therapies is to enhance our understanding of the cognitive underpinnings of SAD, which would, in turn, presumably allow clinicians to apply more targeted and efficacious interventions.

Fear of Evaluation in Social Anxiety

Contemporary cognitive-behavioural models of social anxiety have identified several processes that are thought to maintain the disorder (Clark & Wells, 1995; Rapee & Heimberg, 1997; Hofmann, 2007). One common theme that is central to all the CBT models of social anxiety is the fear of negative evaluation. Those who are socially anxious believe that they are in danger of behaving in a way that will lead to negative evaluation (either via a critical audience, their own lack of skills, etc.) and that this negative evaluation will have serious consequences (Clark & Wells, 1995, Rapee & Heimberg, 1997). This emphasis is matched by the diagnostic criteria for social anxiety disorder (SAD) in the DSM-5 (APA, 2013), in which the individual must fear that they will act in a way or show symptoms that will be negatively evaluated. Indeed much of the cognitive research in SAD has emphasized fear of negative evaluation without examining its counterpart: positive evaluation.

The notion that positive evaluation would be well-received by both socially anxious and nonanxious individuals seems logical, at least at first blush. If negative evaluation is aversive and must be avoided at all costs, positive evaluation may be particularly welcomed by those who are socially anxious, as it should preclude negative evaluation. Indeed, early cognitive models of anxiety postulated that positive social experiences and feedback should enhance perceptions of competence, and negative experiences should lower them (Beck, Emery, & Greenberg, 1985). However, empirical research has not supported this notion, and has painted a rather different picture of positive evaluation as a significant source of distress and anxiety for those with SAD.

One of the first studies to document this surprising phenomenon was conducted by Arkin and Appelman (1983), who investigated reactions to interpersonal evaluation among low and high social anxiety participants. The authors discovered that low socially anxiety individuals

experienced anger when they received negative evaluation, and joy when confronted with positive evaluation. However, those who were high in social anxiety experienced distress when presented with positive evaluation, and much lower levels of anger when receiving negative evaluation. The authors speculated that the distress was a by product of fear that the positive evaluation was inaccurate.

Response to Positive Evaluation

Since that original 1983 study, much more research has been conducted examining the impact of positive evaluation on socially anxious individuals, at both the interpersonal and intrapersonal levels. For example, Wallace and Alden (1995) instructed socially anxious and non-anxious men to participate in a conversation with a confederate who participants were led to believe was another participant. Unbeknownst to participants, the outcome of the conversation was manipulated to be either positive or negative. Specifically, one third of the participants were randomly assigned to a condition in which they received false positive feedback about their performance by the researcher in anticipation of a second conversation with the confederate. Another third of the participants were randomly assigned to receive negative feedback, while the remaining participants received no feedback. Socially anxious participants in all conditions rated their social ability as insufficient to meet the other's expected performance standards in the upcoming conversation. Conversely, non-anxious participants believed their social competence would exceed the standards of others in the positive and no feedback conditions, and would meet such standards in the negative feedback condition. In fact, feedback had no impact on socially anxious participants' perceived abilities, a pattern of results which stood in stark contrast to that observed amongst non-anxious participants, who rated their social abilities the highest when receiving positive feedback and lowest when receiving negative feedback. Moreover, the

socially anxious men who had been provided with positive feedback rated the other's expectations of them as higher than the negative and no feedback conditions. Two important conclusions were drawn from this study: positive feedback led to a belief of higher future evaluative standards that the socially anxious participants believed they were unable to meet, and socially anxious individuals did not incorporate feedback into their view of their social abilities in the same way as non-anxious individuals.

A follow-up study by the same group (Wallace & Alden, 1997) replicated and extended the 1995 experiment. Employing similar methodology as the original study, the authors added a within-subjects component by having participants rate their perceived social abilities and the standards of others before their initial conversation, and again after receiving feedback. Female participants were also included in this study. The experiment yielded similar results, with socially anxious participants who experienced a positive interaction predicting that the confederate would increase expected performance standards for the second anticipated interaction compared to the first. The authors also replicated the finding that socially anxious participants made no adjustment to their perceived social abilities following positive or negative feedback, while non-anxious participants adjusted upward after a positive interaction and downward after a negative interaction.

Expanding upon the burgeoning literature demonstrating that positive evaluation and positive social encounters may be threatening for high socially anxious individuals, Alden and colleagues demonstrated that framing an encounter in terms of positive outcomes carried more negative consequences than highlighting the absence of negative outcomes (Alden, Mellings, & Laposa, 2004). Using an elegant design, the researchers modified the paradigm used in the previously described studies to either provide feedback that highlighted positive social

behaviours and outcomes (e.g., you looked calm and talked well) or to highlight the absence of negative outcomes (e.g., you did not look anxious). Results from this study demonstrated that positive framing led to increased anxiety when anticipating a second interaction, compared to feedback highlighting the absence of negative outcomes.

Fear of Positive Evaluation

As evidence mounted supporting the negative impact of positive social events and evaluation, a separate, but related line of research was emerging investigating the prospective fear of positive evaluation (FPE). Unlike the former which was investigating reactions to positive events, this latter line of research was geared toward testing the notion that high socially anxious individuals may feel threatened by the prospect of positive evaluation (see Weeks & Howell, 2012). An initial study by Weeks and colleagues (Weeks, Heimberg, & Rodebaugh, 2008) validated the Fear of Positive Evaluation Scale (FPES), which was designed to assess prospective fears about positive evaluation among socially anxious individuals. The measure was validated using a large unselected undergraduate sample, and the authors found that FPE was normally distributed across the sample and that the scale had good internal consistency and acceptable test-retest reliability (α 's = .80 and .70, respectively). Importantly, FPES scores were found to predict unique variance in social anxiety symptoms, above and beyond that predicted by measures of fear of negative evaluation (FNE). This result was particularly intriguing, as prior research had left open the possibility that the negative outcomes associated with positive evaluation were nothing more than fear of *future* negative evaluation, and therefore not a distinct construct. However, the initial study by Weeks and colleagues (2008) demonstrated that FPE and FNE were correlated but distinct constructs, with each accounting for some unique variance in social anxiety symptoms.

Expanding upon the 2008 study, Weeks and Howell (2012) proposed the bivalent fear of evaluation (BFOE) model of social anxiety, positing that fear of evaluation *in general* is important in SAD. In this study, they replicated their findings that FNE and FPE are distinct constructs, both contributing unique variance to social anxiety symptoms. Through this study, the authors also discovered that FPE was uniquely negatively correlated with trait positive affect, whereas both FNE and FPE were positively correlated with trait negative affect. The correlation between FPE and positive affect was a particularly important finding because it highlighted FPE's unique role in explaining the low positive affect that socially anxious individuals tend to experience during social encounters, which is not accounted for by FNE. Indeed, several researchers have investigated this construct of a positivity deficit (the relative inability to draw positive affect from social encounters) in social anxiety (e.g., Brown, Chorpita, & Barlow, 1998), and have found that socially anxious individuals tend to experience lower overall levels of positive affect (for a meta-analysis, see Kashdan, 2007) as well as lower levels of state positive affect in response to positive news from romantic partners (Kashdan, Ferssizidis, Farmer, Adams, & McKnight, 2013).

Unique Role of Positive Evaluation in Social Anxiety

As mentioned previously, SAD has been found to be highly comorbid with other mood and anxiety disorders (see Brown, Campbell, Lehman, Grisham, & Mancill, 2001). There is substantial overlap between some of the features of SAD and other emotional disorders. For example, high trait negative affect and fear of negative evaluation are common features of depression and eating disorders as well as SAD (O'Connor, Berry, Weiss, & Gilbert, 2002; Gilbert and Meyer, 2003), and anxiety sensitivity is a common feature of both SAD and panic disorder (Grant, Beck, & Davila, 2007). However, further support for the importance of FPE as a

unique predictor of social anxiety was reported by investigators of a recent cross-sectional study that found FPE to be superior to FNE for distinguishing SAD from depression (Wang, Hsu, Chiu, & Liang, 2012). In this large study conducted on undergraduate students in East Asia, 612 participants completed a battery of questionnaires assessing FNE, FPE, depression, affect, and social anxiety. Using hierarchical regression and structural equation modelling, the authors found high negative affect, low positive affect, and fear of evaluation all to be shared features of both depression and anxiety, although FNE was found to be more important to social anxiety than depression. However, FPE was the only construct that was uniquely predictive of social anxiety, and was not significantly associated with depression. Recently, this finding was replicated using a large undergraduate sample in the United States, adding further evidence to FPE's unique importance in SAD (Weeks, 2015).

Through these studies and others, a picture has begun to emerge suggesting that positive evaluation might have a very different impact on those that are high in social anxiety, compared to those who are not. Positive evaluation and successful social encounters, rather than serving as evidence to disconfirm beliefs that one is socially unskilled, appear to heighten anxiety, decrease positive affect, increase negative affect, and facilitate negative predictions about future encounters for high socially anxious individuals. Moreover, such individuals fear positive evaluation, and this is a feature that might uniquely distinguish SAD from other mood and most other anxiety disorders, in which positive evaluation fears have not been shown to be elevated, at least within the context of cross-sectional studies based on self-report questionnaires (Laposa, Cassin, & Rector, 2010; Wang, Hsu, Chiu, & Liang, 2012). Indeed, in a study of participants with anxiety disorders, negative interpretations of positive social events was higher in SAD than in all other anxiety disorders with the exception of obsessive compulsive disorder (Laposa,

Cassin, & Rector, 2010). Despite this evidence that positive evaluation is important to our understanding of SAD, relatively little was known about the cognitive underpinnings that may help to explain the stark differences observed in responses to positive events for socially anxious individuals compared to non-anxious participants as well as those with other emotional disorders.

Beliefs about Positive Evaluation

In order to better understand these cognitions and beliefs, Alden and colleagues conducted a series of studies investigating how socially anxious individuals interpret positive events (Alden, Taylor, Mellings, & Lapsa, 2008). In these studies, the authors developed the Response to Positive Events Scale (RPES), which included two subscales: the Interpretation of Positive Events Scale (IPES) and the Face Value Scale (FV). Items on this measure assessed beliefs about, and responses to positive events and evaluation. The IPES subscale was comprised of items that focused on negative interpretations of positive events; for example, believing that a social success will inevitably lead to a future failure, or will lead to higher expectations. The FV subscale was comprised of items that focused on accepting positive events as true; for example, trusting others are being truthful when they pay a compliment. Through a series of studies employing this measure, the authors determined that IPES scores partially mediated the relation between social anxiety and low positive affect. Interestingly, this relationship was maintained even when controlling for depressive symptoms. These studies effectively supported the notion that socially anxious individuals do interpret positive events in a threat-maintaining manner, that they are less likely to accept positive social outcomes at face value, and that there are multiple beliefs that may be driving this interpretation. The results suggested that the belief held by socially anxious individuals that a positive social encounter is likely to lead to a future negative

encounter may indeed simply be a manifestation of fear of negative evaluation, which raises questions about the driving beliefs in FPE, as it has been well established to be distinct from FNE (Weeks et al. 2008; Weeks & Howell, 2012; Weeks, 2015). The authors concluded that these studies did not fully elucidate the belief systems driving the fear of, and reaction to, positive evaluation in social anxiety, and they acknowledged that more research was needed (Alden et al., 2008).

Over the past five years, new research has been conducted to better understand behavioural tendencies in FPE (Weeks, 2010; Weeks and Howell, 2012). One such study introduced the Disqualification of Positive Social Outcomes Scale (DPSO; Weeks, 2010), which assesses one's tendency to discount positive experiences and feedback as being inaccurate. This measure is quite similar to the IPES FV subscale (Alden et al, 2008), but expands upon the beliefs that lead one to discount positive experiences. Although the concept of disqualifying the positive is not novel (e.g., Beck, 1976), the DPSO allows for a greater nuanced understating of the phenomenon in the context of social anxiety, and more specifically, within the context of FPE. The DPSO scale has two subscales: other-oriented attributions (e.g., when others seem to be having a good time while talking with me, I wonder whether they are just being polite), and self-oriented attributions (e.g., I frequently dismiss my own social successes and accomplishments). The authors discovered that the tendency to disqualify positive experiences based on other-oriented attributions was more strongly related to social anxiety than depression and worry, and self-attributions were more strongly related to social anxiety than worry, but not depression (Weeks, 2010). In subsequent studies investigating the tendency to disqualify positive outcomes, it was found that FPE related most strongly to self-attributions on the DPSO (Weeks & Howell, 2012). These studies effectively demonstrate a tendency for socially anxious

individuals to discount positive experiences, and that this tendency may be particularly important for distinguishing social anxiety from depression and worry. Moreover, the discounting of positive experiences has less to do with other individuals “just being nice,” and more to do with something about the self that leads socially anxious individuals to reject the information. However, much like the series of studies by Alden and colleagues, the DPSO does not sufficiently explain why socially anxious individuals discount positive experiences more than non-anxious individuals and those with other disorders. It stands to reason that an in depth understanding of its cognitive substrates will facilitate the development of new intervention techniques for targeting this problem in therapy. What makes socially anxious individuals respond poorly to positive evaluation and encounters, what makes these individuals fear positive evaluation, and what makes them discount the positive aspects when they do occur remain important but at least partially unanswered questions.

The Evolutionary Perspective

One explanation for the fear of positive evaluation and the adverse reaction to positive encounters by socially anxious individuals may come from an evolutionary perspective (see Trower & Gilbert, 1989). In this model, the authors posit that two psychological systems have evolved to help maintain social order: a social rank system, responsible for assessing one’s standing within a social hierarchy, and a safety system, responsible for monitoring for opportunities to cooperate and connect with others. In a more recent elaboration on his 1989 paper, Gilbert (2001) argues that humans have evolved to compete for resources, much the same way as in the animal kingdom. He suggests that making good impressions and demonstrating attractiveness (in terms of one’s physical fitness, one’s character, or otherwise) are essential for competing for important social resources with others. In the same way that a beta wolf will be

deprived of food and sexual partners, someone who is low on a social hierarchy will have limited access to appetitive social resources (e.g., a promotion at work). According to this model, socially anxious individuals perceive themselves to be low on the social hierarchy, and therefore more likely to behave in a submissive manner in order to avoid having to compete with higher ranking others, whom they perceive to be more dominant. Gilbert posits that this cycle of self-defeating submissive behaviour interferes with confident performance and leads to eventual social failure.

Studies have supported various aspects of the evolutionary model of social anxiety. For example, high socially anxious individuals both display more submissive behaviours than those who are low in social anxiety (Heerey & Kring, 2007) and are less likely to engage in dominant behaviours (Walters & Hope, 1998). Individuals who are high in social anxiety also display a tendency to make more upward comparisons and fewer downward comparisons when assessing their standing in a group (Antony, Rowa, Liss, Swallow, & Swinson, 2005). One study concluded that social rank, as measured by self-reported submissive behaviour and social comparison tendencies, plays a significant role in the experience of social anxiety and subsequent depression (Aderka, Weisman, Shahar, & Gilboa-Schechtman, 2009). Taken together, these findings support the notion that socially anxious individuals perceive themselves to be low on a social hierarchy and believe they do not measure up to others around them.

Further support for the evolutionary model of social anxiety has emerged from research investigating the two proposed psychological systems: social rank and safety (also known as affiliation). Synthesizing the previous literature that emphasized cognitive and behavioural tendencies that were congruent with the model of an overactive rank system and an underactive affiliation system, two studies were conducted to investigate this pattern in social anxiety

(Weisman, Aderka, Marom, Hermesh, & Gilboa-Schechtman, 2011). Participants with major depressive disorder, other anxiety disorders, and healthy controls were compared to a sample diagnosed with SAD on a variety of self-report measures. The authors found strong support for the two systems in the evolutionary model, with SAD being related to perceptions of low social rank, behavioural submissiveness, and perceptions of inferiority, suggesting an overactive rank system. In addition, support for an underactive affiliation system was found, with SAD being associated with lower perceived intimacy and closeness to others, compared to all other groups. Although a comprehensive review of information processing research in social anxiety is beyond the scope of this paper, a review paper by Gilboa-Schechtman and Shachar-Lavie (2013) highlights important differences in how socially anxious individuals process non-verbal social cues in a manner that is consistent with the evolutionary model of social rank and affiliation. Individuals with SAD show biased attention toward social threat, have a tendency to avert their gaze in response to eye contact, and react physiologically to angry voices and prosody. The authors conclude that the way in which socially anxious individuals both receive and produce non-verbal social cues is consistent with heightened sensitivity to social rank.

Furthermore, the rank and affiliation systems have been investigated using laboratory paradigms. In a recent study, participants with SAD and non-anxious controls completed an impression formation task, where they were asked to rate characters on social rank and affiliation traits (Aderka, Haker, Marom, Hermesh, & Gilboa-Schechtman, 2013). After receiving an initial description of a character that was heavily weighted to be at the extreme of dominant versus submissive or friendly versus unfriendly, participants were given the option to request more information about the character, or if they believed they had sufficient information, to provide their ratings at that point. Each participant completed ratings for 18 different protagonists in

randomized order of character traits. Overall, participants with SAD sought significantly less information about the character before making judgements, and rated dominant characters as higher in social rank than the control group. In a follow-up study by the same group (Haker, Aderka, Marom, Hermesh, & Gilboa-Schechtman, 2014), similar methodology was employed except all participants were asked to rate their initial impressions after receiving an initial description of a dominant, neutral, or submissive character. Next, all participants were presented with additional information about the character that was either congruent with the original description, or represented a shift to one of the other two categories. The authors found that again socially anxious individuals rated dominant characters as more extreme on social rank, and rated all characters as less friendly compared to the nonanxious controls. They also found that when provided with additional information, socially anxious participants revised their impressions of others to a greater extent than the control group, suggesting sensitivity to cues signalling a shift in social rank. The authors concluded that there is an information seeking bias in social anxiety, and that this bias stems from higher activation of the dominance system and lower activation of the affiliation system.

Despite the support for the evolutionary model, this body of research has done little to directly explain the phenomenon of FPE in social anxiety. Given that positive evaluation should lead to an upward movement on a social hierarchy, one that individuals with SAD might fear they are at the bottom of, it would be logical for them to seek opportunities for positive evaluation to ensure they do not drop further or even out of the social hierarchy. One possible explanation that fits with the model is that any upward movement will lead to increased competition with higher ranking others, which will lead to a push back even further down the hierarchy. This can be seen as akin to a wolf challenging the position of the alpha, only to fail

and be excluded from the group entirely, losing its previous position. In fact, it has been posited that social anxiety may be evolutionarily adaptive as a form of de-escalating competition, as it leads to submissive behaviour that does not challenge more dominant others (Weeks, Heimberg, & Reinhardt Hueur, 2011).

Some initial support for this explanation of FPE has come from research examining concerns of social reprisal following positive evaluation (Weeks & Howell, 2012). The Concerns of Social Reprisal Scale (CSRS), which assesses beliefs that one will be ostracized or targeted by higher ranking others if they are to draw positive attention toward themselves, was administered to a large undergraduate sample. It was found that CSRS scores were more strongly associated with FPE scores ($r = .74$) than with FNE scores ($r = .53$), and CSRS scores mediated the relationship between FPE and the tendency to disqualify positive social outcomes. This disqualification of social outcomes was linked with a tendency to attribute any social success to qualities of others, rather than the self, which may serve as an important safety behaviour and form of submissiveness, as such a stance does not draw unwanted additional attention to oneself and does not challenge the position of others. The authors argue that concerns about social reprisal may represent an important feature of social anxiety and claim that FPE represents more than a fear of future negative evaluation, but rather captures immediate feelings of concern about the social repercussions of success (Weeks & Howell, 2012). To our knowledge, this is the only study to examine the beliefs underlying FPE and to attempt to explain the phenomenon.

Alternative Models and Explanations of FPE

There may be other cognitions at play that lead to FPE in high socially anxious individuals. Consistent with the evolutionary view that those with social anxiety perceive themselves to occupy a low position on the social hierarchy, positive evaluation could serve

simply to activate their negative beliefs and remind them of their perceived social inadequacies. For example, if a socially anxious individual receives positive evaluation after giving a speech in front of their peers, rather than accept this praise they may disqualify the information and have it remind them that they truly are incompetent at giving speeches, and that others are just being nice, or are mistaken. In fact, a recent model of social anxiety (Moscovitch, 2009) proposed that the core fear in SAD is not negative evaluation, per se, but rather that negative evaluation is a by-product or consequence of exposing one's social deficiencies to others. That is, socially anxious individuals believe that they are flawed, inept, or inadequate, in some way that leads to negative social evaluation when exposed to others.

This model has received some empirical support in more recent studies where individuals completed a scale assessing fears about exposing self-attributes that are perceived to be flawed or deficient to the scrutiny of others (Negative Self-Portrayal Scale, NSPS; Moscovitch & Huyder, 2011). In the initial study developing the measure, using a large undergraduate sample, it was found that the fears centered primarily on three domains: social competence, physical appearance, and visible signs of anxiety. These negative self-portrayal fears were highly correlated with symptom measures of social anxiety and with reported use of self-concealment behaviours. A follow-up study administering a battery of questionnaires to a community-based sample of participants with a diagnosis of SAD with or without depression, another anxiety disorder with or without SAD, and healthy controls demonstrated that a SAD diagnosis was associated with unique risk for higher NSPS scores (Moscovitch et al., 2013). A subsequent study replicated the initial findings in a treatment study comparing groups with diagnosed SAD, other anxiety disorders, and healthy controls (Moscovitch, Rowa, Paulitzki, Antony, & McCabe,

2015). NSPS score decreases were most robust in the SAD group, supporting the notion that these beliefs may be uniquely important in the experience of social anxiety.

Further support for the notion that individuals with SAD may perceive themselves to be flawed or inadequate comes from research on self-concealment in social anxiety. Researchers have discovered that individuals high in social anxiety do not reciprocate overtures of escalating intimacy, do not respond to highly disclosing partners with their own self-disclosures (Meleshko & Alden, 1993), and are less expressive of positive emotions (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005). Indeed, a self-report measure developed to measure self-concealment behaviour to prevent the true self from being rejected was found to be highly related to social anxiety symptoms, and predicted interpersonal dysfunction above and beyond that predicted by social anxiety (Rodebaugh, 2009).

Thus, positive social evaluation is discordant with firmly held beliefs about the self for socially anxious individuals, who believe they are flawed and socially inept. With this in mind, socially anxious individuals are likely to disqualify and reject positive social outcomes, as they do not fit their self-schema. In addition, positive evaluation could be associated with immediate negative emotional states as any positive feedback would serve as a reminder of their true low stature in the social hierarchy, and activate their beliefs about their social deficiencies. Moreover, this explanation may preserve the distinction between FNE and FPE, as positive evaluation can potentially be associated with an immediate unwanted negative emotional experience that is not reliant on receiving future negative evaluation.

However, with the exception of one study that investigated concerns about social reprisal, there have been no studies, to our knowledge, that have attempted to measure and understand the beliefs that drive FPE. Furthermore, no studies have clearly defined whether there are certain

aspects of FPE that are merely representative of fear of future negative evaluation, and others which are clearly distinct from FNE.

Current Research

In this paper we present three studies designed to better understand the driving beliefs in FPE, and how FPE operates. Based on social rank theory (see Gilbert, 2001), fear of positive evaluation may serve a self-protective function that helps to de-escalate potential competition with others. This theory has received some support in the literature, which has demonstrated a link between self-report measures of fear of positive evaluation and concerns about social reprisal (Weeks & Howell, 2012). However, this explanation does not seem to be in accordance with clinical observations and discussions with socially anxious clients who rarely express concerns about social conflict as a result of moving up the social hierarchy. Following from Moscovitch's (2009) conceptualization that the core fear in social anxiety is exposing self-attributes that are believed to be flawed or inadequate, as reviewed above, FPE may be driven by a negative affective state that is elicited when the evaluation is discrepant with firmly held beliefs about the self. These beliefs may account for the negative reactions to positive evaluation found in previous studies (e.g., Alden, Taylor, Mellings, & Lapsa, 2008). These previous studies, however, have investigated the *effects* of positive evaluation rather than participants' *prospective beliefs* about positive evaluation. Moreover, no previous research has attempted to test these two competing hypotheses about the primary cognitive factors underlying FPE – concerns about social reprisal vs. concerns about self-perceived inadequacy - within the same study.

Studies 1 and 2 were online correlational studies, whereas study 3 was a laboratory-based experiment. In study 1, we developed a measure to assess the two types of beliefs that may be

driving fear of positive evaluation (reprisal and inadequacy). In study 2, we expanded on study 1 by examining whether the beliefs driving positive evaluation are distinct from fear of negative evaluation. In study 3, we examined how fear of positive evaluation operates in the laboratory within the context of anticipating a standardized “getting acquainted” social task in which the potential for both positive and negative evaluation co-exist. We tested the degree to which individuals will show prospective fears of receiving a positive evaluation in front of an unknown other. We also examined the extent to which various beliefs about positive evaluation accounted for significant variance in levels of anxiety and negative affect that were elicited within the context of the in-vivo evaluative task. Guided by Moscovitch’s (2009) model of social anxiety, we tested our general hypothesis that beliefs about being socially inadequate rather than concerns about social reprisal would drive elicited fears of positive evaluation.

Studies 1 and 2

To investigate these competing accounts of the cognitions underlying FPE, we developed the Positive Evaluation Beliefs Scale (PEBS) a brief, 16-item self-report measure, designed to assess the two distinct but related constructs that may drive FPE: fear of reprisal (as per social rank theory) and fear of inadequacy (as per Alden et al., 2008 and Moscovitch, 2009), and administered it to a large undergraduate sample. We tested the psychometric properties of the measure, and hypothesized that fear of inadequacy, but not fear of reprisal, would account for significant variance in fear of positive evaluation and social anxiety. In a brief follow-up second study, we sought to establish that fears of inadequacy in FPE are distinct from FNE in accounting for significant unique variance in social anxiety symptoms, above and beyond that accounted for by FNE.

Method

Participants

Participants for both studies 1 and 2 consisted of an unselected sample of undergraduate students recruited through a centralized online recruiting system at the University of Waterloo. Participants were offered course credits in exchange for their participation in research studies. Inclusion criteria required participants to complete a general battery of questionnaires that are administered at the start of every semester, and the ability to read and speak fluently in English.

Using this recruitment process, 2805 students completed the general battery of questionnaires, out of which 514 participants took part in the first study. Of these participants, 256 did not fully complete the PEBS, which was the primary measure of interest, and were thus excluded from further analysis. The final sample for study one consisted of 258 participants who fully completed the PEBS. Any participants who were missing data on other measures of interest were excluded pair-wise.

Study 2 took place the following semester and required potential participants to complete the same general battery of questionnaires from the previous semester. Out of the 2551 students who completed the general battery, 271 participants took part in study 2. Subsequently, 170 cases were excluded from analyses due to having incomplete data on all of the measures. The final sample consisted of 101 participants, 13 of which had participated in study 1 the previous semester. Any participants who were missing data on some but not all measures were excluded pair-wise.

Measures

The Social Phobia Inventory (SPIN; Connor, Davidson, Churchill, Sherwood, Foa, & Weisler, 2000). The SPIN is a well-established measure of social anxiety symptoms. The measure consists of 17 items rated on 5-point scales. Items on the scale relate to physical and psychological symptoms associated with social anxiety, with higher scores representing higher severity of symptoms. The SPIN has been shown to have good convergent and discriminant validity, excellent overall internal consistency ($\alpha = .95$), and good test-retest reliability over 3 weeks ($r = .86$) (Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006). A cutoff score of 19 has been found to be useful in distinguishing those with SAD from nonanxious controls with 79% accuracy (Connor et al., 2000). In this sample the SPIN demonstrated excellent internal consistency ($\alpha = .94$) in both study 1 and study 2.

The Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995). The DASS 21-item version was employed in this study to assess the degree to which the participant endorses negative emotional states over the past week. It contains 3 subscales targeting depressive symptoms, symptoms of anxiety, and stress. All items are presented in a 4-point likert response format, with higher scores representing higher endorsement of the symptoms. The DASS 21-item version has demonstrated excellent internal consistency in both clinical and community samples (α 's = .87-.94), and clinically depressed individuals have elevated scores ($M = 29.74$) compared to non-clinical controls ($M = 2.18$) on the depression subscale (Antony, Bieling, Cox, Enns, & Swinson, 1998). For the purposes of these studies, only the DASS depression subscale was used in the analyses. In the current sample, the DASS depression subscale demonstrated excellent internal consistency in both study 1 ($\alpha = .90$) and study 2 ($\alpha = .91$)

The Fear of Positive Evaluation Scale (FPES; Weeks, Heimberg, Rodebaugh, & Norton, 2008). The FPES is a 10-item measure of apprehension and anxiety about receiving positive evaluation in a social context. Items are rated on a 10-point scale with higher scores indicating greater fear of positive evaluation. Of note, two of the 10 items are inversely worded and are not included in scoring, and are used to detect positive response patterns. The FPES demonstrated good internal consistency in the initial study ($\alpha = .80$), and good test-retest reliability after a 5-week delay (Weeks et al., 2008). In this sample the FPES demonstrated good internal consistency in study 1 ($\alpha = .81$) and study 2 ($\alpha = .85$).

The Positive Evaluation Beliefs Scale (PEBS). The PEBS is comprised of 16 items related to beliefs about positive evaluation. Items on this scale were developed to load onto two hypothesized factors: *fear of social reprisal* and *fear of inadequacy*. The fear of reprisal subscale consists of 9 items relating to beliefs that positive evaluation will lead to conflict and hostility from others. Several items were derived and adapted from the Concerns of Social Reprisal Scale (CSRS; Weeks & Menatti, 2011). However, the CSRS had several items that did not directly assess fear of reprisal, and reflected general fear of positive evaluation without assessing the associated beliefs. As a result, some items were modified and others were added, resulting in the 9 final items in the PEBS. The fear of inadequacy subscale consists of 7 items relating to beliefs that positive evaluation is erroneous, undeserved, and will lead to future disappointment. Several items were derived and adapted from the Interpretations of Positive Events Scale (IPES; Alden et al., 2008). Items were designed to reflect both immediate and future concerns about positive evaluation. The PEBS uses a 7-point likert response format with higher scores representing higher endorsement of the item (see Table 1 for a complete list of items).

The Brief Fear of Negative Evaluation Scale (BFNE; Leary, 1983). The BFNE is a 12-item scale that assesses one's fear of receiving negative evaluation. The BFNE employs a 5-point likert response format, with 4 of the items reverse worded and scored. Higher scores represent greater endorsement of fear of negative evaluation. The BFNE has demonstrated excellent internal consistency ($\alpha = .90$) and good 4-week test-retest reliability ($r = .75$). Several researchers have argued that scoring the measure with the eight straightforward worded items on the BFNE is more reliable and valid than using all of the BFNE items, including the reverse-worded ones (e.g., Rodebaugh, Woods, Thissen, Heimberg, Chambless, & Rapee, 2004; Weeks, Heimberg, Fresco, Hart, Turk, Schneier, & Liebowitz, 2005) and we have applied this approach in the present study. In this sample (study 2) the BFNE-straightforward items demonstrated excellent internal consistency ($\alpha = .92$).

The Negative Self-Portrayal Scale (NSPS; Moscovitch & Huyder, 2011). The NSPS is a 27-item questionnaire that assesses concerns about self-attributes that one perceives to be flawed or deficient in some way. The NSPS is based on Moscovitch's (2009) model and consists of 3 subscales assessing concerns about social competence (11 items), physical appearance (8 items), and displaying visible signs of anxiety (8 items). Items are scored on a 5-point score, with higher scores representing greater endorsement of that fear. The NSPS has demonstrated excellent overall internal consistency, and among the subscales (α 's = .85-.96) (Moscovitch & Huyder, 2011). In this sample (study 2), the NSPS demonstrated excellent overall internal consistency for both the total scale ($\alpha = .96$), and each of the three subscales (α 's = .88-.93).

Procedure

For study 1, after completion of the initial battery of mass testing questionnaires including the SPIN, DASS, and a brief measure to collect demographic information, participants

then completed the FPES and the PEBS in a counterbalanced order. Upon completion of the questionnaires, participants were debriefed with a description of the rationale for the measures and were compensated with course credit. Study 2 consisted of an identical procedure except for the addition of the NSPS to the initial mass testing battery, and the BFNE included alongside the PEBS and the FPES in the main study. All procedures were approved by the ethics committee at the University of Waterloo.

Results

Data Integrity and Preliminary Analyses

Data were first screened for missing and impossible values. As discussed in the method section, 256 participants were excluded from study 1 and 170 were excluded from study 2 due to missing data on key measures. In study 1, there were four participants who did not complete the DASS. In study 2, between 1 and 4 participants were missing data on the FPES, PEBS, and BFNE. All analyses excluded these participants pair-wise. The remaining sample was then screened for excessive skew and kurtosis on the key variables, and all data were within acceptable margins of normality (Kline, 2009). Next, data were screened for univariate and multivariate outliers and, again, all data were found to be within acceptable margins (no univariate outliers > 3 *SDs*, no Mahalanobis distance values critically deviant). Therefore, no further exclusion of participants was necessary, resulting in a final sample size of 258 in study 1, and 101 in study 2.

Participants in study 1 were, on average, 19.71 years old, female (62.8%) and Caucasian (44.2%). Participants in study 2 displayed very similar demographic characteristics, with the average participant being a 19.75 year old female (61.4%). Please see Table 2 for a complete list of demographic data (note that information about ethnicity and race were unavailable for study 2). Data from self-report measures indicate that the sample varied widely in social anxiety symptoms on the SPIN ($M = 24.66$, $SD = 14.90$ in study 1; $M = 24.84$, $SD = 14.55$ in study 2), and averaged slightly elevated scores compared to previous studies using non-clinical samples (mean of 12.1; Connor et al., 2000). Depressive symptom scores on the DASS were predominantly in the non-clinical range ($M = 5.99$, $SD = 5.09$ in study 1; $M = 5.80$, $SD = 5.14$ in study 2). Data for self-report measures can be found in Table 2.

Table 1. Principal axis loadings of the Positive Evaluation Beliefs Scale items

Item	FR	FI
I do everything I can to avoid envy from others who “out-rank” me, even in casual social situations	.472	
Upon impressing others, I worry that someone may get upset due to me having “shown them up”	.751	
Upon having done something well, I often worry that it will spark competition with others	.865	
I try to avoid coming off as a would-be leader, for fear of unintentionally challenging the authority of others	.586	
If I perform well, someone will just want to prove they are better at my expense	.717	
I am concerned that others will “put me in my place” if I draw the right kind of attention to myself	.497	
If people point out that I have done well, it will make someone feel bad about themselves	.682	
The major downside to impressing people is that it will make others feel like they are not good enough	.686	
If I felt that someone viewed me as their competition in a social situation, I would quickly try to show that person that I did not pose a threat to them	.392	
The disadvantage of doing well in a public presentation is that people then expect too much from me the next time	.372	.346
When a social event goes well, it means the next interaction will usually go less well		.344
When people give signs that they like me, I become concerned that I will disappoint them in the future		.514

When I am open and friendly with people, they expect more from me the next time we meet	.367
I have found that people who are positive toward me usually don't know what I'm really like	.426
When someone compliments me, it is because they did not notice my flaws	.921
If someone thinks positively of me, I know I will just let them down in the future	.844

Note. FR: fear of reprisal subscale; FI: fear of inadequacy subscale. Component loadings < .25 not shown.

Table 2. Participant characteristics and means of self-report measures

	Study 1 (<i>N</i> = 258)	Study 2 (<i>N</i> = 101)	Study 3 (<i>N</i> = 68)	
			Low SA (<i>n</i> = 32)	High SA (<i>n</i> = 36)
Demographic data				
Age M (SD)	19.71(2.86)	19.75 (1.45)	19.81 (1.65)	19.83 (2.18)
Gender				
Male	37.2%	38.6%	46.9%	22.2%
Female	62.8%	61.4%	53.1%	77.8%
Race/Ethnicity				
Caucasian	44.2%		37.5%	36.1%
Asian	40.7%		15.6%	30.6%
Hispanic/Latino	1.2%		3.1%	
Middle-Eastern	2.3%			
Native American	0.4%			
African American	1.2%		6.3%	2.8%
East Indian			12.5%	16.7%
Other	10.1%		25 %	13.9%
Scales M (SD)				
FPES total	34.17 (13.40)	33.38 (14.21)	19.58 (11.03)	34.19 (11.03)
PEBS total	36.35 (17.47)	33.01 (18.52)	15.69 (12.37)	27.53 (15.39)
PEBS reprisal	19.94 (10.34)	18.67 (10.77)	10.38 (8.05)	17.06 (10.41)
PEBS inadequacy	16.41 (8.48)	14.41 (8.56)	5.31 (5.43)	10.47 (6.43)
PEBS state total			18.16 (11.76)	27.06 (14.96)
PEBS state reprisal			12.47 (7.77)	16.32 (9.84)
PEBS state inadequacy			5.69 (4.82)	10.53 (6.54)
SPIN total	24.67 (14.90)	24.84 (14.55)	5.03 (3.49)	33.81 (10.39)
DASS depression	5.99 (5.09)	5.80 (5.14)	3.56 (4.30)	5.42 (4.54)
BFNE total		24.39 (7.51)	18.16 (6.39)	26.94 (8.09)
NSPS SC total			18.56 (7.70)	27.44 (10.33)

NSPS PA total	14.69 (6.76)	20.18 (7.98)
NSPS SA total	13.13 (4.68)	18.34 (6.83)
NSPS total	46.38 (16.15)	66.79 (20.68)
PANAS		
Time 1 positive	27.77 (8.34)	24.83 (6.76)
Time 1 negative	12.75 (3.06)	17.19 (6.21)
Time 2 positive	28.42 (8.64)	22.47 (7.21)
Time 2 negative	13.81 (4.23)	17.94 (5.65)
Time 3 positive	25.65 (9.59)	21.39 (6.81)
Time 3 negative	13.29 (3.64)	18.58 (6.39)

Note. FPES= Fear of Positive Evaluation Scale, PEBS= Positive Evaluation Beliefs Scale, SPIN = Social Phobia Inventory, DASS= The Depression Anxiety Stress Scale, BFNE = The Brief Fear of Negative Evaluation Scale, NSPS= The Negative Self-Portrayal Scale, NSPS SC= The Negative Self-Portrayal Scale social competence subscale, NSPS PA= The Negative Self-Portrayal Scale physical appearance subscale, NSPS SA= The Negative Self-Portrayal Scale displaying visible signs of anxiety subscale, PANAS= The Positive and Negative Affect Schedule.

Factor Structure of the PEBS

Data from study 1 were used to explore the factor structure of the PEBS ($n = 258$), using a principal axis analysis with maximum likelihood extraction. Items were subjected to an oblique rotation due to the predicted high degree of correlation between the hypothesized factors. Prior to the factor analysis, Pearson correlations were conducted with the items from the PEBS to ensure no violations of multicollinearity (no correlations exceeded .69). Furthermore, the Kaiser-Meyer-Olkin measure of sampling adequacy was obtained to ensure minimum standards were met. The obtained value of .92 was sufficient to proceed with analyses. Next, Bartlett's Test of Sphericity was conducted to test for an identity matrix. The null hypothesis was rejected ($p < .001$), and with all criteria met, we were able to proceed with the factor analysis.

Prior to exploring the factors, a parallel analysis (Horn, 1965) was conducted to determine how many factors were statistically significant, rather than relying on the conventional (but inferior) technique of retaining factors with eigenvalue cutoffs greater than 1 coupled with examining scree plots (see Ledesma & Valero-Mora, 2007). Using SPSS statistics software and a macro obtained from <https://people.ok.ubc.ca/briocconn/nfactors/rawpar.sps> to conduct the parallel analysis using principal axis analysis, eigenvalues were determined for 1000 randomly generated data sets (O'Connor, 2000). Using these values, the 95th percentile eigenvalue for each number of factors was determined and could be compared to the observed eigenvalue from the dataset. Based on these criteria, it was determined that one-factor, two-factor and four-factor solutions yielded statistically significant eigenvalues. However, trivial factors should be trimmed when using parallel analysis (Buju & Eyuboglu, 1992) and we were thus left with a two-factor solution.

The two factor model accounted for 50.7% of the total variance, with the first factor accounting for 43.3% of the variance, and the second factor accounting for an additional 7.4% of the variance, prior to rotation. All items loaded on to their hypothesized subscales with the exception of 1 item that cross-loaded (See Table 1 for rotated factor loadings from the EFA pattern matrix). However, removal of the item negatively impacted the reliability of the subscale and resulted in less variance explained, so the item was retained. The overall scale demonstrated excellent internal consistency ($\alpha = .91$). The two factors were named “fear of reprisal” and “fear of inadequacy,” with the individual items loading onto each factor in a manner that corresponded with expectations. Both the fear of reprisal subscale and the fear of inadequacy subscales demonstrated good internal consistency ($\alpha = .87$ and $.83$, respectively) and were relatively highly correlated ($r = .72, p < .001$).

PEBS and Positive Evaluation

To assess construct validity, a series of analyses was conducted to examine the relation between the beliefs measured by the PEBS and the more general construct of fear of positive evaluation. First, zero-order correlations demonstrated that both fear of inadequacy ($r = .57, p < .001$), and fear of reprisal ($r = .53, p < .001$) were significantly correlated with FPES scores. Similarly, at the zero-order level, both fear of reprisal ($r = .40, p < .001$) and fear of inadequacy ($r = .46, p < .001$) were significantly predictive of social anxiety symptoms as measured by SPIN scores.

Next, regression analyses were conducted to examine the individual and collective influence of fear of reprisal and fear of inadequacy on fear of positive evaluation, as well as social anxiety symptoms. A linear regression predicting FPES scores was conducted, with the two PEBS subscales entered as predictors. Prior to interpreting the regression, tolerance values

were examined to assess for multicollinearity. The tolerance value (.48) was found to be within acceptable margins (Cohen, Cohen, West, & Aiken, 2003), and we could therefore move forward with the regression analysis. The overall model was statistically significantly predictive of FPES scores, and accounted for 35% of the variance in scores, $F(2,255) = 69.05, p < .001$. Moreover, both fear of social reprisal, $\beta = .25, t(255) = 3.46, p < .001$, and fear of inadequacy, $\beta = .39, t(255) = 5.30, p < .001$, significantly contributed to the overall model.

PEBS and Social Anxiety

As predicted, and consistent with previous literature (Weeks & Howell, 2012), FPES scores were significantly correlated with social anxiety symptoms ($r = .50, p < .001$) as measured by the SPIN in this study. To investigate the combined and individual roles of the beliefs about positive evaluation measured in the PEBS, a regression analysis was conducted with the two PEBS subscales as predictors, and SPIN scores as the criterion. No violations of multicollinearity were found, and the overall model was found to be significantly predictive of SPIN scores, accounting for 22% of the variance, $F(2,255) = 35.35, p < .001$. However, only the fear of inadequacy subscale, $\beta = .36, t(255) = 4.44, p < .001$, and not the fear of reprisal subscale, $\beta = .14, t(255) = 1.75, p = .081$, contributed significantly to the model.

Convergent and Discriminant Validity

Data from study 2 ($n = 101$) was used to assess the overlap between the beliefs measured in the PEBS and the DASS-depression subscale. The PEBS subscales were significantly correlated with DASS-depression scores ($r = .31$ for reprisal, $p = .002$, $r = .37$ for inadequacy, $p < .001$). However, the PEBS demonstrated strong zero-order correlations with related constructs such as SPIN scores ($r = .54, p < .001$, for reprisal; $r = .60, p < .001$, for inadequacy), and FPES

scores ($r = .55, p < .001$, for reprisal; $r = .55, p < .001$, for inadequacy), with similar strengths of associations as those observed in study 1. Both fear of reprisal ($r = .53, p < .001$) and fear of inadequacy ($r = .52, p < .001$) were positively and significantly correlated with BFNE scores at the zero-order level.

To explore the unique contribution of the PEBS beliefs to social anxiety, over and above that already captured by FNE, a hierarchical linear regression was conducted with SPIN scores as the outcome variable. In step 1, the BFNE-straightforward scores were added, and in step 2 the two PEBS subscales were added. As expected, the step 1 model was significantly predictive of SPIN scores, and accounted for 28% of the variance, $F(1,92) = 36.19, p < .001$. The addition of the two PEBS subscales in step 2 yielded a statistically significant increase in the variance accounted for in the SPIN, with the model accounting for an additional 14% of the variance in social anxiety symptoms, $\Delta F(2,90) = 10.54, p < .001$. However, similar to what was found in study 1, only fear of inadequacy was found to contribute significantly to the model, $\beta = .39, t(90) = 2.65, p = .009$, with fear of reprisal yielding no statistically significant effect, $\beta = .06, t(90) = 0.40, p = .691$.

Discussion

The purpose of studies 1 and 2 was to gain insight into the underlying beliefs that are associated with FPE. The results of study 1 suggest that the PEBS has satisfactory psychometric properties, and provides information about two potential explanations for the phenomenon of FPE: fear of reprisal and fear of inadequacy. Exploratory factor analysis supported the hypothesized two-factor solution for the PEBS, with all items loading onto their hypothesized subscales with the exception of one cross-loading item. As anticipated, the subscales were highly correlated, suggesting that the beliefs are not fully orthogonal, and individuals may see positive evaluation as threatening for multiple overlapping reasons. The PEBS had good internal consistency, and demonstrated some discriminant validity from measures of depression. The PEBS was found to be significantly predictive of FPES scores, suggesting that it does indeed capture beliefs that drive the overarching construct of FPE. However, the PEBS was only moderately predictive of FPES scores (accounting for 35% of the variance), suggesting that there may be multiple beliefs in FPE that were not captured by the PEBS. For example, individuals with higher social anxiety tend to score lower on measures of self-compassion (Werner, Jazaieri, Goldin, Ziv, Heimberg, & Gross, 2012); as such, it is possible that FPE may be driven by a fear of compassion (see Gilbert, McEwan, Matos, & Rivas, 2011), or a fear of making others feel inadequate due to comparison processes. These remain empirical questions to be addressed by future research.

Study 1 also sought to examine which of these beliefs contribute to the experience of social anxiety symptoms. Results demonstrated that the fear of inadequacy subscale, but not the fear of reprisal subscale, was predictive of social anxiety symptoms (although the latter trended in the expected direction). In study 2, this result was expanded upon, demonstrating that one of

the beliefs measured by the PEBS was related to social anxiety in a manner that was distinct from FNE. The PEBS fear of inadequacy subscale predicted significantly more variance in social anxiety symptoms, above and beyond a measure of FNE, with fear of reprisal not significantly adding to the model. This suggests that FPE in social anxiety may not be driven by fear of social reprisal and competition as suggested by the evolutionary theory and the authors of the FPES (see Trower & Gilbert, 1989; Weeks & Howell, 2012). Although fear of reprisal may be one belief that plays a role in the broader construct of FPE, it seems that beliefs about inadequacy are more strongly associated with social anxiety symptoms. Taken together, our results suggest that FPE is associated with beliefs not only about the self (inadequacy), but also beliefs about others (reprisal), but that these negative beliefs about the self more strongly relate to the experience of social anxiety.

Results were consistent with the Moscovitch (2009) model of social anxiety that served as the theoretical framework for the fear of inadequacy subscale of the PEBS. Socially anxious individuals are proposed to perceive themselves as flawed or inadequate and fear exposing these flaws to others. Positive evaluation seems to be feared, in part, because individuals feel they are undeserving of the praise. This may result in fears of letting others down in the future, or having others raise their expectations, consistent with work by Alden and colleagues (e.g., Alden et al., 2008), which may have a high degree of overlap with FNE. However, the PEBS inadequacy subscale predicted social anxiety that was unique from FNE. Thus, it may be that positive evaluation is experienced as being highly dissonant with firmly held negative views about the self, and is viewed as aversive because it is seen as being undeserved, regardless of future consequences.

Study 3

Despite the wealth of research in recent years on FPE, the vast majority of these studies have been conducted using non-experimental designs relying on self-report measures. To date, only one study has examined the prospective fears of positive evaluation within the context of a laboratory-based paradigm in which investigators measured participants' reactions to films portraying positive and negative evaluation from others (Reichenberger, Wiggert, Wilhelm, Weeks, & Blechert, 2015). In that study, unselected participants watched several short films with actors portraying positive, negative, or neutral sentences directed at the viewer, and then rated their emotional response. Results demonstrated that BFNE scores were related to greater unpleasant responding to negative films, whereas higher FPES scores were related to greater unpleasant responding to the positive films. This is the first study, to our knowledge, that demonstrates a link between FPES scores and real-life responses to positive evaluation. However, this study relied on affective responses to positive evaluation after receiving it, rather than prospective fears of positive evaluation, which does not provide insight into how FPE operates when the potential for positive evaluation exists. The extent to which FPE might lead individuals to fear and avoid positive evaluation in a real-life context remains unclear.

In the present study, we developed an experimental paradigm in which we attempted to elicit and capture FPE within the context of an in-vivo stress task in the laboratory. Specifically, we sought to examine FPE and FNE when both positive and negative evaluation were potential outcomes following a social task, in order to better understand their relative roles. We had several hypotheses guiding this experiment. First, we hypothesized that high socially anxious (HSA) participants, relative to low socially anxious (LSA) participants, would predict a lower likelihood of receiving a positive evaluation following a filmed speech in which they introduce

themselves to another participant in the video. Next, we hypothesized that HSA participants would experience higher anxiety throughout the study, and that they would report a significant increase in anxiety from baseline when imagining the possibility of negative evaluation. We also predicted that LSA participants would report a proportionately smaller increase in anxiety relative to baseline at the prospect of negative evaluation. With respect to positive evaluation fears, we hypothesized that HSA but not LSA participants would anticipate an increase in state anxiety from baseline following imagined positive evaluation, but to a lesser degree than imagined negative evaluation.

As secondary hypotheses, we predicted that self-report PEBS scores and FPES scores would be higher in the HSA group than in the LSA group. We also hypothesized that scores on these self-report measures collapsed across groups would account for participants' predicted state anxiety about positive evaluation during the experiment in a manner consistent with previous research using self-reported social anxiety as an outcome. Specifically, we hypothesized that FPES scores would account for a significant amount of the variance in anticipated state anxiety about positive evaluation, and the PEBS inadequacy subscale but not the fear of reprisal subscale would account for significant variance in participants' anticipated state anxiety levels about positive evaluation during the experiment.

Method

Participants

Participants in study 3 were recruited in a similar fashion to those in studies 1 and 2. All potential participants were required to complete a large battery of online questionnaires at the start of the undergraduate academic term at the University of Waterloo. Data from this general battery were used to recruit participants who scored below 12 or above 19 on the SPIN to serve as members of the LSA and HSA groups. In addition, participants were required to answer affirmatively to two items in the online battery confirming they could speak and read English at a sufficiently high level (“Can you speak English fluently?”, and “Can you read and write English fluently”). Participants were unaware of these recruitment criteria. Employing this recruitment strategy, 89 participants were invited to the lab to take part in the study (46 LSA, 43 HSA), all of whom completed the experiment.

Measures

All participants completed the same measures as in studies 1 and 2 (see study 1 method for a description of these measures). Reliability of these measures ranged from acceptable ($\alpha = .78$ for FPES) to good ($\alpha = .89$ for PEBS reprisal, $\alpha = .82$ for PEBS inadequacy, $\alpha = .85$ for DASS depression, $\alpha = .83$ for NSPS signs of anxiety) to excellent ($\alpha = .91$ for PEBS total, $\alpha = .91$ for NSPS social competence, $\alpha = .93$ for NSPS physical appearance, $\alpha = .94$ for NSPS total, $\alpha = .94$ for SPIN and BFNE straightforward items).

Participants also completed The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1998), a 20-item self-report measure that assesses one’s current affect. Half the items measure negative affect (NA), and half the items positive affect (PA).

Higher scores on each subscale are indicative of greater endorsement of experiencing positive and/or negative affect. The PANAS has been demonstrated to be a reliable and valid measure of state affect, with each of the subscales demonstrating good reliability ($\alpha = .89$ for PA, $\alpha = .85$ for NA) (Crawford & Henry, 2004). The PANAS was administered as a manipulation check at three separate time-points in this study in order to monitor participants' emotional states and verify that the tasks led to the appropriate shifts in negative and positive affect. In this study the PANAS demonstrated acceptable reliability at all time-points (α 's = .87 - .91 for PA, α 's = .74 - .80 for NA).

In addition to the PEBS, participants completed a state version of the questionnaire (PEBS-state) with instructions and items slightly modified to reflect their beliefs about positive evaluation in their current situation, rather than in general. Participants were asked to rate the degree to which they felt the statements represented how they were feeling at the time of completion with respect to their videotaped introduction. Individual items were modified only to the extent necessary to reflect the current situation. Cronbach's alpha values for the inadequacy and reprisal subscales of the PEBS-state indicated acceptable internal consistency ($\alpha = .78$ and .81, respectively).

Procedure

Upon arrival to the lab, participants were provided with a brief description of the upcoming tasks. All participants were informed that the purpose of the study was to assess and evaluate one's social interaction abilities. Participants were told that they were to complete a 3-minute introductory video that will be exchanged with, and viewed by another participant, prior to having a face-to-face conversation with that other participant. Participants were informed that: *“The main purpose of this talk is to introduce yourself to the other participant. Afterwards, you*

will meet that person for a face-to-face conversation and a chance to continue to get to know one another a bit better.” They were informed that the social skills demonstrated in the introductory video would be evaluated by a trained researcher, and that their strengths and weaknesses would be publicly disclosed in front of the other participant prior to their face-to-face conversation.

After acknowledging that they understood the procedures, participants then provided consent and completed a baseline PANAS and a single-item rating of their current anxiety using a 0 – 100 scale. In the meanwhile the experimenter ostensibly checked on the (fictitious) other participant. Next, participants were asked to take 3 minutes to prepare for their introductory video. Participants were informed that they were free to talk about anything they wished, but not to discuss the experiment itself. At this time the experimenter left the room and allowed participants to sit and quietly contemplate their upcoming talk. After the 3-minute anticipation phase, participants were asked to complete the PANAS a second time, and they then rated, also on a 0-100 scale, their current anxiety, their anxiety about the upcoming evaluation, their predictions about the likelihood of receiving an overall positive evaluation, their predictions about receiving an overall negative evaluation, their expected anxiety should they receive a positive evaluation, and their expected anxiety should the evaluation be negative. Upon completion of the measures, participants were instructed to begin their video introduction. The experimenter explained to all participants that they were free to discontinue by raising their hand, and would be informed when the 3 minutes were complete. The camera was mounted on the wall opposite the participant. The experimenter activated the camera and then sat underneath it and directly across from the participant throughout the entirety of the video recording while maintaining a neutral facial expression.

Upon completion or discontinuation of the video, the experimenter left the room while the participant completed the PANAS a third time, along with the same single-item ratings as after the anticipation phase. After completion of the measures, the experimenter returned to the room and explained to the participant that their video was in the process of being downloaded and evaluated by another researcher, and would soon be ready to be exchanged with the other participant. At this time, the experimenter emphasized the evaluative process that would highlight both strengths and weaknesses shown in the video, and that it would be publicly discussed in front of the other participant prior to their getting acquainted task. Specifically, the experimenter told the participant that: *“I will go back to the video control room to deactivate the video camera, download the video from our server, and submit the video to the researcher who is standing by to provide immediate ratings and feedback, on both your strengths and your weaknesses, displayed in the video. Once your ratings are complete, you will then have the opportunity to watch the other participant’s video while they watch yours and then you, the other participant, and I will all meet up for your evaluation prior to your face to face conversation”* After priming participants to the upcoming evaluation and interaction, the experimenter instructed them to complete the battery of questionnaires including the SPIN, DASS, modified and original PEBS, FPES, BFNES, and demographics questionnaire, in counterbalanced order (with the exception of the PEBS-state and the original PEBS always completed first and last, respectively). They were informed that the video exchange, evaluation, and face-to-face interaction would occur after completion of the questionnaires.

After completion of the counterbalanced questionnaire battery, the experimenter returned to the room to inform the participant that the study was over and to complete a funnel debriefing probing for suspicion of deception. Each participant was ranked on a 3-point system from 0 to 2,

with 0 representing no suspicion, and 2 representing complete doubt of the study narrative.

Finally, participants were fully debriefed to the true nature of the study, and were provided with a second consent as well as an opportunity to ask any questions or voice any concerns.

Results

Data Integrity and Preliminary Analyses

Prior to conducting any analyses for violations of normality, any participant who scored a 2 (complete doubt) during the funnel debriefing was excluded from all subsequent analyses. Of the initial 89 participants who completed the study, 21 were removed from further analyses due to suspicion of deception, resulting in a sample size of 68 participants. Of the remaining participants, 32 were in the low social anxiety group (LSA; total SPIN score < 12), and 36 were in the high social anxiety group (HSA; total SPIN score > 19).

Next, data were screened for missing and impossible values, with no participants having to be excluded due to excessive missing data. In the event that an item was not completed on a measure or a rating was not completed during the study, that participant's data were excluded pair-wise (in this study it resulted in a maximum loss of 2 participants on any given measure). Data were then screened for extreme skew and kurtosis, and all data was found to be within acceptable margins and did not require correction (Kline, 2006). When screening for univariate outliers (> 3 *SDs* from the mean), there was one participant who was an outlier on age, and one participant who was an outlier on the PANAS negative affect subscale at all time points. Furthermore, one participant's total score on the NSPS was an outlier. Due to scores of this extreme being quite plausible, these data were retained and no changes were made prior to subsequent analyses. There were no multivariate outliers. Any violations of the sphericity assumption when conducting ANOVA analyses were addressed using the Greenhouse Geisser correction.

Thus, the final sample consisted of 68 participants, 32 in the LSA group and 36 in the HSA group. On average, participants were 19.82 years old and female (66.2%). A total of 36.8% of the sample was Caucasian. The LSA group had a mean SPIN score of 5.03 ($SD = 3.49$), and the HSA group had a mean SPIN score of 33.81 ($SD = 10.39$); please see Table 2 for complete demographic data and statistics from self-report measures.

Equivalence of Groups

A series of independent samples t -tests were conducted to test for differences between the LSA and HSA groups. There were no significant differences between the groups for mean age, $t(66) = 0.04, p = .97$, or depressive symptoms as measured by the DASS, $t(66) = 1.72, p = .09$. However, there were significantly more females in the HSA group than the LSA group, $t(66) = 2.19, p = .03$. To explore this issue further, partial correlations were conducted between the key outcome variables and gender, controlling for SPIN scores. It was found that gender was not significantly correlated with any key variables, and therefore the gender difference was not deemed to be problematic and was not controlled for in subsequent analyses.

Several baseline differences were found between the HSA and LSA groups, with the HSA group reporting significantly higher negative affect on the PANAS, $t(52.33) = 3.81, p < .001$, and significantly higher self-reported anxiety, $t(66) = 3.65, p = .001$ at the start of the study – both expected findings that are consistent with inherent differences between the groups. No differences were found between the groups for baseline positive affect on the PANAS, $t(65) = 1.59, p = .116$.

Manipulation Check: Impact on Affect

To explore the impact of the manipulation on affect, a 2 X 3 mixed factorial ANOVA was conducted, with group (high and low SA) as the between subjects factor, and time (baseline, pre-speech, post-speech) as the within subjects factor. For positive affect, a significant main effect of time was found, $F(1.61,104.71) = 11.60, p < .001, \eta_p^2 = .15$, as was a significant effect of group, $F(1,65) = 5.88, p = .018, \eta_p^2 = .08$, and a marginally significant interaction, $F(1.61,104.71) = 3.23, p = .054, \eta_p^2 = .05$. Follow-up *t*-tests conducted to explore the interaction revealed that the LSA group experienced an increase in positive affect while anticipating the speech, which declined after completing the speech. As anticipated, the HSA group experienced a significant drop in positive affect at each time point (see Figure 1). The HSA and LSA groups did not differ in baseline positive affect, but the HSA group reported significantly lower positive affect at the next two time points.

Next, a 2 X 3 mixed factorial ANOVA was conducted in the same manner as previous, investigating the impact on negative affect. A significant main effect of time was found, $F(2,130) = 3.87, p = .023, \eta_p^2 = .06$, as well as a significant main effect of group, $F(1,65) = 18.63, p < .001, \eta_p^2 = .22$, but no significant interaction. As expected, the HSA group experienced significantly more negative affect than the LSA group at all time points (see Figure 2).

Estimated Likelihood of Positive Evaluation

To test the hypothesis that those in the HSA group will predict that receiving a positive evaluation would be less likely overall, a 2 X 2 mixed factorial ANOVA was conducted with group (high and low SA) as the between subjects factor, and time (pre-speech, post-speech) as

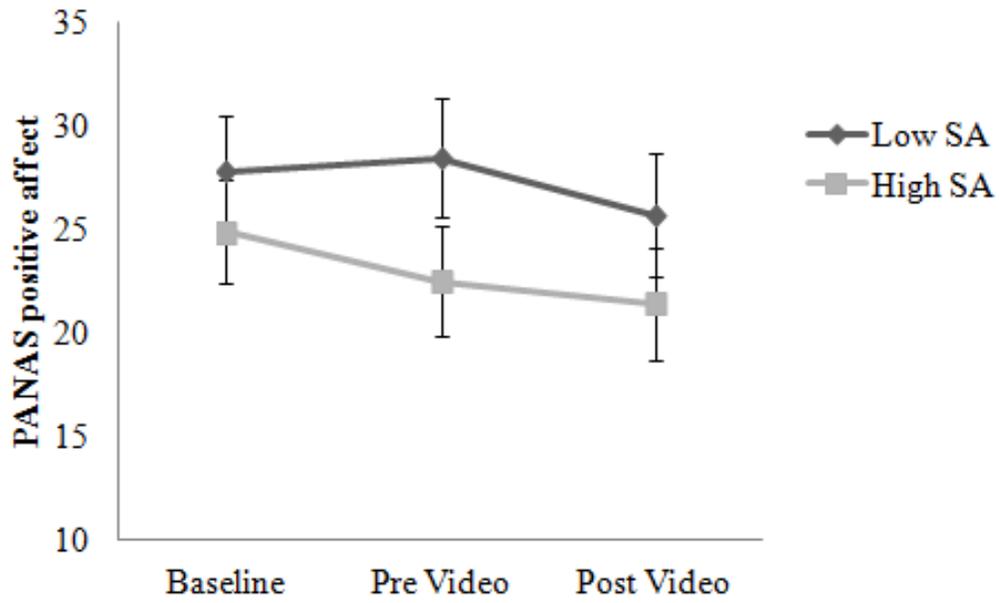


Figure 1. Ratings of positive affect at baseline, immediately prior to the speech task, and after completion while anticipating evaluation; PANAS = Positive and Negative Affect Schedule; Error bars represent 95% CI.

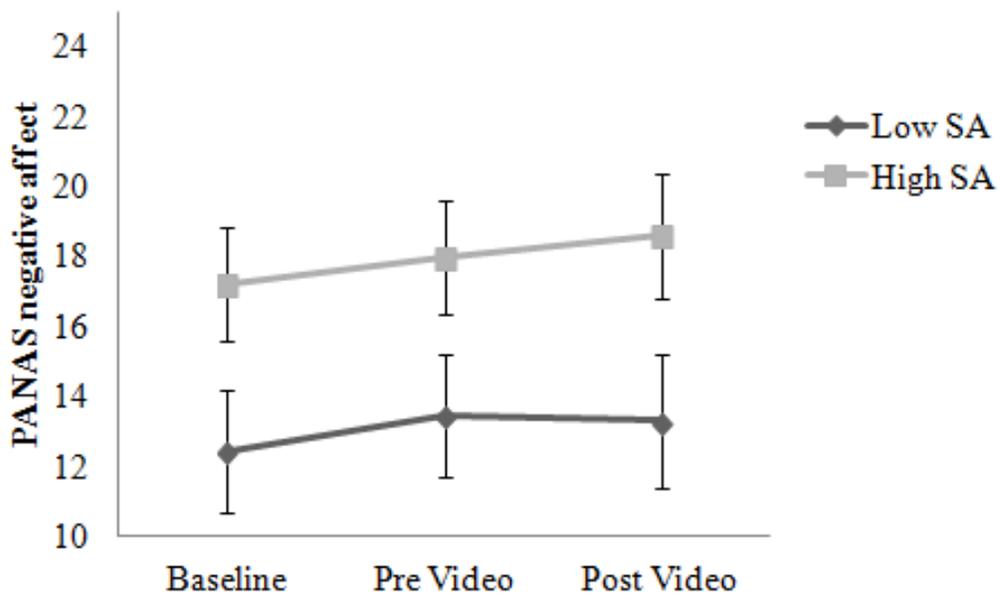


Figure 2. Ratings of negative affect at baseline, immediately prior to the speech task, and after completion while anticipating evaluation; PANAS = Positive and Negative Affect Schedule; Error bars represent 95% CI.

the within subjects factor. Time was included in the analysis to ensure that the effects were not exclusively driven by performance on the video speech task. In support of the hypothesis, a significant main effect of group was found, $F(1,65) = 25.88, p < .001, \eta_p^2 = .29$, as well as significant main effect of time, $F(1,65) = 24.90, p < .001, \eta_p^2 = .28$. Interestingly, perceived likelihood of receiving a positive evaluation dropped after completing the speech for both the HSA and LSA groups (see Figure 3). However, at both time points, the LSA group rated the likelihood of receiving positive evaluation as being greater than chance (68.77% at time 1, 59.32% at time 2), whereas the HSA group rated that likelihood as being at or below chance (49.47% at time 1, 40.22% at time 2).

Fear of Negative Evaluation

To test the hypothesis that the HSA group would report a greater increase in anxiety in response to imagined negative evaluation, a series of 2 X 2 mixed factorial ANOVAs were conducted. Participants predicted shift in anxiety was the within-subjects factor, and group was the between-subjects factor. When this ANOVA was conducted using anxiety ratings taken prior to delivering the speech, a main effect of negative evaluation was found, $F(1,66) = 18.60, p < .001, \eta_p^2 = .22$, as well as a main effect of group, $F(1,66) = 17.81, p < .001, \eta_p^2 = .21$, with the HSA group reporting overall higher anxiety, as predicted. However, contrary to hypotheses no significant interactions were found, $F(1,66) = 0.00, p = .972, \eta_p^2 < .00$. These results demonstrate, in partial support of hypotheses, that all participants predicted an increase in their overall levels of state anxiety at the prospect of receiving negative evaluation, and this effect was equivalent across anxiety groups.

To verify these results were not exclusively accounted for by anticipatory anxiety for the speech performance, the ANOVA was conducted again using anxiety ratings taken after

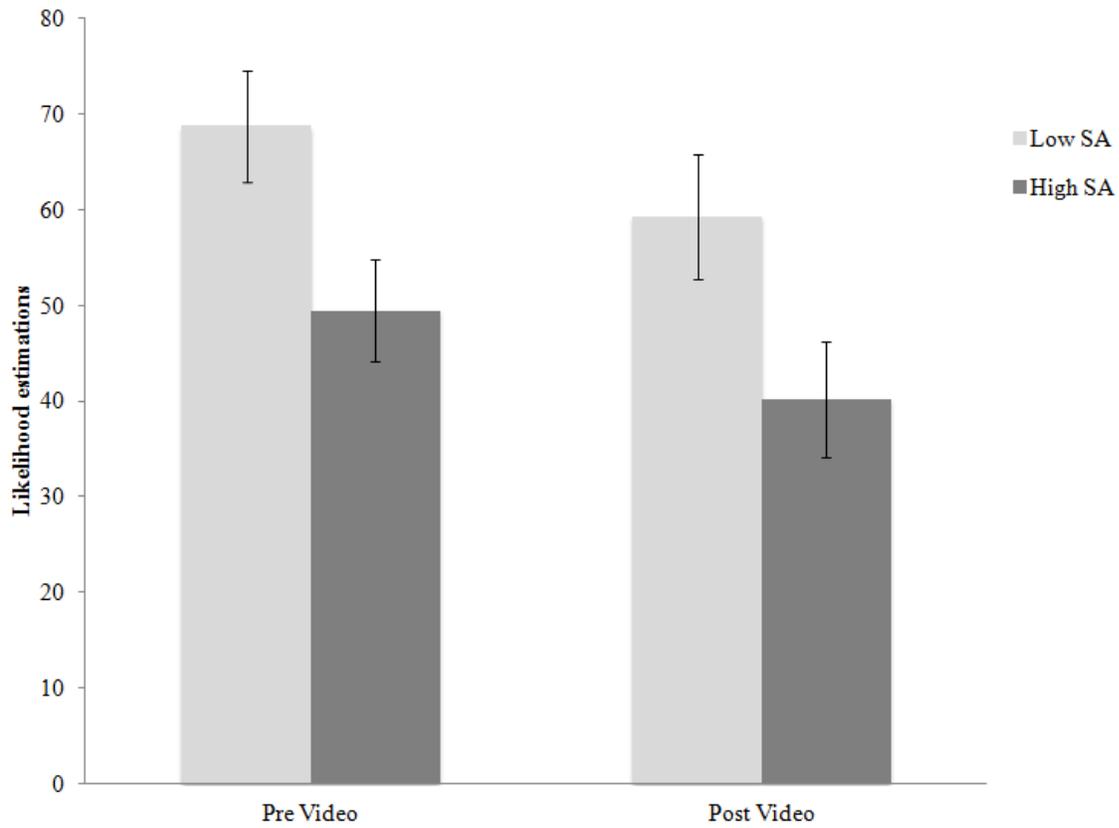


Figure 3. Estimated marginal means of predictions about the likelihood of receiving an overall positive evaluation; Error bars represent 95% CI.

completing the speech and a similar effect was found. The HSA group had higher overall anxiety ratings than the LSA group, $F(1,66) = 16.42, p < .001, \eta_p^2 = .20$, but both groups predicted a significant increase in anxiety, $F(1,66) = 13.69, p < .001, \eta_p^2 = .17$. The predicted impact of negative evaluation on anxiety over time was equivalent for both groups, as no interactions were found, $F(1,66) = 0.23, p = .631, \eta_p^2 < .00$, (See Figure 4).

Fear of Positive Evaluation

To test the hypothesis that HSA participants will display a fear of positive evaluation in response to imagined positive evaluation, 2 X 2 mixed factorial ANOVAs were conducted in the same manner as those used for fear of negative evaluation. Participants' predicted shift in anxiety from their current state as a result of receiving positive evaluation was used as the within-subjects factor, and group was the between-subjects factor. Analyses revealed, using ratings taken prior to their speech task, that the HSA group had overall higher anxiety ratings than the LSA group, $F(1,66) = 29.55, p < .001, \eta_p^2 = .31$. Follow-up *t*-tests revealed that the HSA group's anxiety was higher for both current anxiety, $t(66) = 4.08, p < .001$, and for anxiety they imagined feeling if they received positive evaluation $t(66) = 4.83, p < .001$. Interestingly, and contrary to hypotheses, overall we found that participants predicted a significant downward shift in anxiety at the prospect of receiving positive evaluation, $F(1,66) = 5.20, p = .026, \eta_p^2 = .07$, and there was no interacting effect of group, $F(1,66) = 0.00, p = .937, \eta_p^2 < .00$.

When conducting the ANOVA using ratings taken after completion of the speech, with participants awaiting their evaluation, a similar pattern of results was found. HSA participants had overall higher levels of anxiety than the LSA participants, $F(1,66) = 30.42, p < .001, \eta_p^2 = .32$. Follow-up *t*-tests confirmed that this difference existed for both current anxiety, $t(66) = 4.42, p < .001$, and for predicted anxiety at the prospect of receiving positive evaluation, $t(66) = 4.29,$

$p < .001$. Participants overall predicted a downward shift in anxiety as a result of imagined positive evaluation, $F(1,66) = 14.46, p < .001, \eta_p^2 = .18$, but no interactions were found, $F(1,66) = 0.77, p = .385, \eta_p^2 = .01$. (See Figure 4).

Secondary Hypotheses: Positive Evaluation Fears and Beliefs

To test the hypothesis that those in the HSA group would have significantly higher FPES scores than participants in the LSA group, an independent samples t -test was conducted. As predicted, and consistent with previous literature, the HSA group demonstrated significantly higher FPES scores than the LSA group, $t(65) = 5.41, p < .001$. Independent samples t -tests also supported the hypothesis that HSA participants would have higher PEBS scores. This was found for both the reprisal subscale $t(66) = 2.93, p = .005$, and the inadequacy subscale $t(66) = 3.55, p = .001$, on the originally designed PEBS. However, when the same analyses were run using the state version of the PEBS, only the inadequacy subscale was significantly higher for HSA participants, $t(66) = 3.44, p = .001$, and not the reprisal subscale, $t(64) = 1.76, p = .08$, although the means trended in the expected direction (see Table 2).

FPES and Imagined Positive Evaluation

Next, to test the hypothesis that FPES scores would predict reported anxiety about positive evaluation during the experiment collapsed across groups, a hierarchical linear regression was conducted using reported anxiety after completion of the speech, while anticipating the impending feedback as a dependant variable. Because there were no interactions between group and participants' anticipated reactions to positive evaluation, and scores on the PEBS and FPES were normally distributed across the sample, we were able to collapse across groups as planned for the regression analyses. In step 1, current anxiety was included as a control

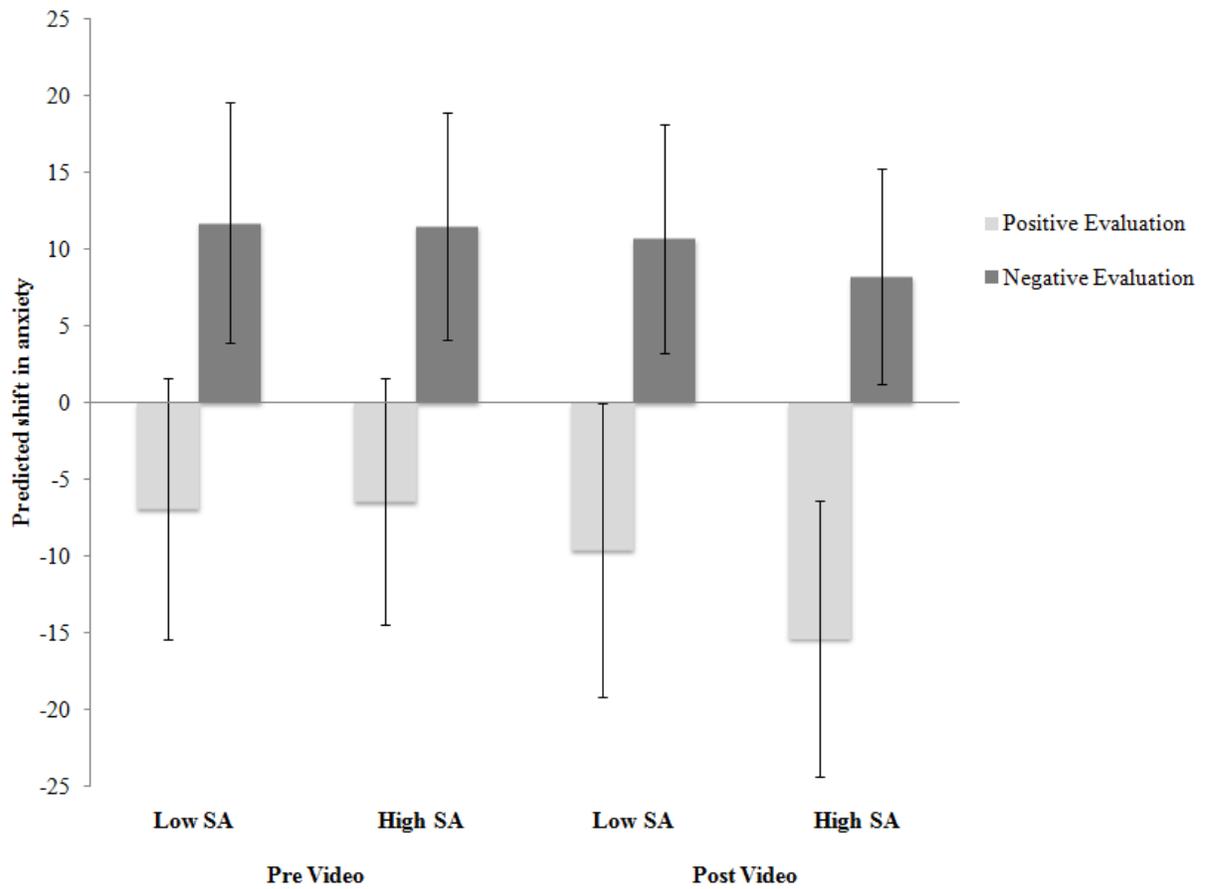


Figure 4. Estimated marginal means of participants' predicted shift in anxiety (predicted anxiety minus current anxiety) following positive or negative evaluation (positive values represent predicted higher levels of anxiety, whereas negative values represent predicted lower levels of anxiety). Error bars represent 95% CI.

for group differences in state anxiety. Next, FPES scores were entered in a second step, with participants' predicted anxiety levels should they receive positive evaluation entered as the outcome variable. The control variable of current anxiety was a significant predictor of positive evaluation anxiety, $F(1,65) = 9.70$, $R^2_{\text{adj}} = .12$, $p = .003$. In support of the hypothesis, the addition of FPES scores explained a marginally significant increase in remaining variance in positive evaluation anxiety, $\Delta F(1,64) = 4.01$, $\Delta R^2 = .05$, $p = .050$, supporting the notion that FPE was indeed predictive of anxiety during the experimental paradigm, and allowed us to proceed with testing our next hypotheses about underlying beliefs.

PEBS and Imagined Positive Evaluation

Next, a similar regression was conducted to test the degree to which the beliefs in the PEBS predicted positive evaluation anxiety during the experiment. In step 1, current anxiety was controlled for, and was significantly predictive of positive evaluation anxiety. $F(1,64) = 9.57$, $R^2_{\text{adj}} = .12$, $p = .003$. In step 2, scores from the state version of the PEBS were added to the model. However, contrary to hypotheses, the overall model did not predict significantly more variance in positive evaluation anxiety, $\Delta F(2,62) = 1.52$, $\Delta R^2 = .04$, $p = .228$. Neither the fear of inadequacy subscale, $\beta = -.055$, $t(62) = 0.32$, $p = .750$, nor the fear of reprisal subscale, $\beta = .24$, $t(62) = 1.51$, $p = .137$, significantly contributed to the model.

Discussion

The primary purpose of study 3 was to capture the phenomenon of FPE in a real-life context using an experimental paradigm. Results from the experiment demonstrated that although high socially anxious participants experienced higher levels of state anxiety throughout the study, both groups anticipated an equivalent increase in anxiety at the prospect of negative evaluation. As expected, low socially anxious participants predicted a lower likelihood of their video receiving an overall positive evaluation. However, interestingly and contrary to hypotheses, all participants expected their anxiety to drop at the prospect of positive evaluation, relative to current anxiety. Despite the reduction in anxiety from positive evaluation, the self-report measure of FPE was predictive of the anxiety that participants expected to feel, consistent with hypotheses. However, the data did not support that beliefs measured by the PEBS were predictive of anxiety about positive evaluation in the experiment.

Although these results are preliminary, as this study is the first to attempt to capture prospective fears of positive evaluation in a laboratory setting, they cast some doubt onto the importance of FPE in a real-life context. Results suggest that, although the idea of positive evaluation does result in some anxiety for all individuals, it is significantly less anxiety-provoking than the prospect of negative evaluation. Thus, FPE may be trumped by FNE in most organic evaluative situations. It is possible that fear of evaluation in general is still important, but only in that socially anxious individuals fear drawing any additional attention to themselves. Perhaps when explicitly asked questions about positive evaluation, as is the case with self-report measures, socially anxious individuals will endorse several beliefs consistent with a fear of positive evaluation, but when faced with the potential for either negative or positive evaluation, the latter is preferred.

These results are not necessarily in conflict with previous literature demonstrating that socially anxious individuals react negatively to positive evaluation. However, it is possible that negative interpretations of positive evaluation amongst socially anxious individuals only occur after they receive it (i.e., during post-event processing) rather than in anticipation of receiving it. For example, socially anxious individuals would prefer to receive a positive rather than negative evaluation in the workplace, but after receiving a glowing review from the boss, they might then begin to fear an increase in expectations, worry that they will not keep up the standard, and discount the positive points as erroneous. In this manner, both positive and negative evaluation are important for different reasons in social anxiety, but there is still little evidence supporting the relevance of prospective fear of positive evaluation amongst socially anxious individuals.

In this study the beliefs measured by the PEBS were not predictive of anxiety about positive evaluation during the experiment and there are several potential explanations for this finding. One possibility is that the study failed to elicit adequate levels of FPE. The design of the study did not include any real interaction with a partner, and involved an evaluation in front of an imagined partner that the participant knew they would likely never see again, in a relatively private setting consisting of only a maximum of three people including the experimenter. Furthermore, there were group differences in participants' reports of their perceived likelihood of positive evaluation, with HSA participants reporting that they believed a positive evaluation to be lower than chance likelihood. Perhaps high socially anxious participants did not fear positive evaluation to the degree that they would have if they considered it to be a highly likely possibility.

General Discussion

The overarching goal of this series of studies was to gain a greater understanding into the beliefs that are associated with, and may underlie and drive FPE, and to assess FPE in a manner other than via exclusive reliance on self-report measures and correlational designs. Study 1 demonstrated that FPE is comprised of multiple cognitions, and beliefs about inadequacy or not deserving positive evaluation seem to play a prominent role in FPE's link to social anxiety. Study 2 established that these beliefs remain distinct from the construct of FNE, and explain variance in social anxiety symptoms above and beyond FNE. Finally, study 3 demonstrated that self-report measures of FPE do account for some of the anxiety that participants anticipate experiencing should they receive positive evaluation in a simulated evaluative "getting acquainted" social task. However, participants expected that positive evaluation would lead to a decrease in state anxiety regardless of whether they were high or low in trait social anxiety.

Taken together, these findings cast some doubt on the contention that fear of social reprisal and competition, as indicated by the evolutionary perspective, is the driving force behind FPE. In fact, the social reprisal subscale of the PEBS was not predictive of social anxiety in any of the 3 studies. Consistent with the Moscovitch (2009) model of social anxiety contending that socially anxious individuals perceive themselves to be socially inept and fear exposing these flaws to others, studies 1 and 2 supported that notion that beliefs about inadequacy and being undeserving of positive evaluation may be a prominent belief that underlies FPE. However, study 3 raised questions about the importance of prospective FPE in real-life evaluative contexts, as the prospect of positive evaluation was perceived to be *state anxiety reducing* relative to negative evaluation.

The potential generalizability of these findings is limited. First, participants in all three studies were selected from a single undergraduate program at a single Canadian university, and may not be representative of community or clinical samples. Questionnaires in the first two studies were completed online, and a substantial number of participants had to be discarded due to incomplete data. In addition, our study design did not allow us to assess the test-retest reliability of the PEBS. Moreover, study 3 relied on an analogue sample using self-report data to select the high and low social anxiety groups. Future research should investigate if this pattern of results remains consistent for a sample with a clinical diagnosis of SAD. The experimental paradigm, although novel, relied on participants reporting anticipated anxiety, and did not include any physiological or behavioural measures. Several participants had to be excluded due to high levels of suspicion about aspects of the experimental paradigm, which raises the question of how realistic and ecologically valid the experiment truly was. The evaluative scenario was somewhat artificial in nature, and may not generalize to how individuals fear positive evaluation in a more casual social encounter, or in a situation where the outcome of the evaluation has significant personal value or meaning to the individual. In addition, questions about positive and negative evaluation were asked to participants in close temporal proximity to each other, which may have biased participants to view positive evaluation as favourable in contrast to the perceived alternative of negative evaluation.

These studies leave many intriguing and important questions unanswered for future research. The role of fear of reprisal remains partially unclear, as it was linked to measures of FPE, but not to measures of social anxiety. This is a particularly intriguing disconnect, as it suggests that believing that individuals will respond to your successes with competitiveness and hostility is associated with fearing positive evaluation, but has little bearing on feeling socially

anxious. It may be that beliefs about the self, rather than beliefs about others, are of greater importance in social anxiety, although this remains an empirical question. Researchers should also seek to examine under which circumstances FPE operates for the socially anxious individual. Under what conditions do people perceive the possibility of positive evaluation, specifically, to be anxiety provoking, and what kind of impact does that have on the life and behaviour of the socially anxious individual? These issues also raise the question of the clinical utility of understanding FPE. During which situations should FPE be specifically targeted in CBT? Will FPE decrease along with FNE even when not directly addressed in treatment? One possibility is that both FNE and FPE would change during interventions that target perceptions of social inadequacy and incompetence. Indeed, such perceptions may represent the more central problem that drives social anxiety symptoms.

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