

ANTICIPATORY PROCESSING IN SOCIAL ANXIETY

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Abstract. A psychometric study was conducted with the aim of collecting basic information about anticipatory processing and its relationship to social anxiety. A self-report measure of anticipatory processing was developed and utilized in a large student sample. The results confirmed that such processing is very common before an anticipated feared social event and a significant correlation ($r = 0.49$) between anticipatory processing scores and social anxiety was found, which remained when trait anxiety and depression were controlled. A factor analysis indicated that all items of the measure except for two loaded significantly on one factor and accounted for the 47.3% of the variance. Socially anxious individuals in the study reported that their thoughts about the event were recurrent, intrusive, interfered with their concentration and increased their state of anxiety. Also, they reported that they wished they could avoid the situation. The results are discussed in terms of the Clark and Wells cognitive model of social phobia.

Keywords: Social anxiety, anticipatory processing, cognitive processes.

Introduction

A recent cognitive model of social phobia (Clark & Wells, 1995; Wells & Clark, 1997) suggests that social phobics develop a series of problematic assumptions about themselves and their social world (e.g. “I must always sound intelligent and fluent”; “I am unworthy”), which lead them to appraise social situations as dangerous, which in turn generates anxiety. The anxiety and negative appraisals are maintained by a series of vicious circles. The authors proposed three stages of distorted processing that can be distinguished in social phobia: the anticipatory processing phase, the in-situation processing phase and the post-event processing phase. It is the first stage, the anticipatory processing, that is the study’s focus of attention.

Clark and Wells proposed a cognitive process that takes place in social phobics before they enter the feared social event and plays a role in maintaining social phobia. This anticipatory processing was supposed to bias thinking and have an influence on anxiety and mood. They suggest that people who are socially anxious, prior to a social event, are inclined to review in detail what they think might happen. “As they start to think about the situation, they become anxious and their thoughts tend to be dominated by recollections of past failures, by negative images of themselves in the situation, and by other predictions of poor performance and rejection. Sometimes these ruminations lead the phobic to completely avoid the situation” (1995, p. 74). Although they don’t make it explicit in the 1995 and 1997 account, it is evident

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that Clark and Wells attribute social phobics' negative experience of the social interaction (and, perhaps, their poorer performance) in some measure to the effects of anticipatory processing. Specifically, they go on to suggest that when the social phobic "enters the situation, he or she is likely to already be in a self-focused processing mode, to expect failure, and to be less likely to notice any signs of being accepted by other people" (1995, p. 74). Therefore, anticipatory processing could act for social phobics as a kind of "self-fulfilling prophecy".

Two sets of experimental studies have only partially investigated the phenomenon so far. First, Mansell and Clark (1999) carried out an experiment in which high and low socially anxious students encoded positive and negative words in three different encoding conditions: public self-referent (describes what someone who knows you, or who has just met you, would think of you), private self-referent (describes how you think about yourself), and other-referent (describes your next-door neighbour). Next participants were threatened with giving a speech or not threatened and, afterwards, were required to recall the words. The results showed that the high socially anxious individuals, compared to the low socially anxious individuals, recalled less positive public self-referent words and tended to recall more negative public self-referent words, but only when both groups were anticipating giving a speech. It therefore appears that anticipatory processing activates selective retrieval of negative impressions of one's observable self. However, Mellings and Alden (2000) failed to find any experimental evidence supporting their prediction that socially anxious subjects anticipating a second interaction will display signs of selective retrieval of negative information about the initial interaction.

It is evident that, before we start experimentally investigating the nature and potential critical consequences of anticipatory processing, it is necessary to establish that it does in fact occur, and describe the characteristics and cognitive processes that take place, its particular features or major consequences. Therefore, the purpose of this study is to collect basic information about anticipatory processing and to have a preliminary look at its relationship to social anxiety/phobia. Also, we should be able to answer whether it is confined to social anxiety or is it also a feature of other types of anxiety. After we have collected enough information about anticipatory processing, we will be in position to make more precise predictions about its effects and further explore its role in sustaining and exacerbating social anxiety in future experimental studies.

Method

Participants

One hundred and forty-seven students from the University of Patras, Department of Education, Greece, were recruited to take part in this study. Eighty-nine percent of the participants were female and the mean age was 21.3 years ($SD = 1.9$). All participants were attending a course in counselling and received partial course credits for their participation.

The Anticipatory Processing Questionnaire (APQ) consisted of 18 items and was based on the Clark and Wells theory of social phobia (Clark & Wells, 1995; Wells & Clark, 1997; Wells, 1998, 2000) as well as on the study of post-event processing (Rachman, Gruter-Andrew, & Shafran, 2000). The introductory paragraph of the questionnaire was the following: "According to recent research findings, most people experience anxiety *before* entering a *social* event-activity (such as a party, dating, acquaintance with unknown people). Did you happen to experience anxiety before a social event during the past few months? If yes, then please answer

Table 1. Mean scores on the questionnaires by all the participants

	Mean	SD
Fear of negative evaluation	18.3	6.9
Beck Depression Inventory II	11.9	7.7
State-Trait Anxiety Inventory (Trait version)	44.5	8.4
Social Phobia and Anxiety Inventory	57.7	25.2
Anticipatory processing	47.9	15.8

the questions below". All of the items were scored from 0 (not at all) to 100 (extremely), using a visual analogue scale. The only exception was item 17, which had a Yes/No response format. The participants were trained how to use the analogue scales to answer the questions.

Each participant was also asked to complete the Beck Depression Inventory II (BDI II, Beck, Steer, & Garbin, 1996) as a measure of depression, the Trait Anxiety Scale of the STAI (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) and the Fear of Negative Evaluation Scale (FNE, Watson & Friend, 1969) as a measure of social anxiety. Finally, participants completed the Social Phobia and Anxiety Scale (SPAI, Turner, Beidel, Dancu, & Stanley, 1989) when they were followed up between 6 and 9 months after the study. Missing data in the SPAI questionnaire were replaced with the mean score for the question. For the APQ scale it was noted as missing.

Results

Scale structure

All 17 questionnaire items were factor-analysed to evaluate the psychometric properties of the measure (item 17 was excluded from the analysis, because it had a Yes/No response format). A principal components analysis indicated that all items except for two (which were also excluded from the subsequent analyses) loaded significantly (>0.3) on one large factor and accounted for 47.3% of the variance. Thus, Factor 1 can be interpreted as the anticipatory processing factor. The two items that failed to load on this factor were the degree to which recollections of past events were positive (item 16) and whether anxiety about the event decreased more and more with repeated processing (item 9). Two more factors with eigenvalues greater than 1 also emerged from the analysis. Factor 2 (accounting for 9.8% of the variance) could be interpreted as the cognitions factor (e.g. recollections, predictions) and Factor 3 (accounting for the 9.2% of the variance) as the negativity factor (e.g. negative thoughts, negative predictions). The factorial structure and loadings are presented in Table 2. Also, a reliability analysis indicated that the APQ scale had high internal consistency (Cronbach's $\alpha = 0.91$).

Correlations

Based on the factor analysis presented previously, a composite score was constructed that omitted items 17, 9 and 16. Pearson correlation coefficient indicated a significant association between anticipatory processing and social anxiety ($r = 0.49$, $p < .001$) and between anticipatory processing and depression ($r = 0.46$, $p < .001$) or trait anxiety ($r = 0.57$, $p = .001$). The relationship between anticipatory processing and social anxiety remained significant

Table 2. Means (*M*), standard deviations (*SD*) and factor loadings of APQ items

APQ	<i>M</i>	<i>SD</i>	Factor 1	Factor 2	Factor 3
Item 1	58.4	21.1	.73	-.30	-.33
Item 2	65.8	24.8	.79	-.04	-.42
Item 3	53.6	28.2	.87	-.05	-.21
Item 4	47.1	27.9	.75	-.06	-.27
Item 5	38.9	25.3	.70	-.27	.41
Item 6	55.7	29.1	.80	-.08	-.22
Item 7	37.7	24.3	.65	-.38	.14
Item 8	55.9	28.6	.79	-.09	.00
Item 10	70.0	24.6	.74	.36	-.10
Item 11	42.3	26.7	.73	-.17	.32
Item 12	56.2	29.0	.69	.41	-.06
Item 13	53.7	28.4	.60	.49	.08
Item 14	48.5	29.3	.42	.61	.35
Item 15	30.2	24.3	.53	.14	.53
Item 18	22.1	25.9	.30	-.44	.47

Note: $n = 147$.

when controlling for the effects of depression ($r = 0.42, p < .001$) and trait anxiety ($r = 0.33, p < .001$) or for both of them ($r = 0.34, p < .001$). Also, the correlation between depression and anticipatory processing was not significant when controlling for the effects of trait anxiety ($r = 0.09, ns$).

Differences between groups

Participants were divided into groups of high socially anxious (one standard deviation above the mean on the FNE; $n = 23$) and low socially anxious (one standard deviation below the mean on the FNE; $n = 23$). The low social anxiety group consisted of 5 males and 18 females and the high social anxiety group of 1 male and 22 females, $\chi^2(1) = 3.07, ns$. Table 3 displays the characteristics of participants in each social anxiety group. An independent samples *t*-test indicated that there was a significant difference between anticipatory processing (composite score) in those with high social anxiety ($M = 63.7; SD = 10.8$) compared to those with low social anxiety ($M = 37.4; SD = 16.4$) ($t = 6.4; df = 44; p < .001$).

In view of this significant difference, an exploratory item-by-item analysis was conducted and is presented in Table 4. Compared to low socially anxious individuals, participants high in social anxiety reported that, before the event, they found themselves thinking about it a lot and that thoughts about the event intruded even when they did not wish to think about it. Also, the thoughts interfered in the high socially anxious individuals' ability to concentrate, were negative, and were resisted, but the event was difficult to forget. For the majority of high socially anxious participants, anticipatory processing made their feelings worse and worse, but for some low and high socially anxious individuals the feelings about the event got better and better, with repeated processing. Both high and low socially anxious individuals attempted to think of ways to deal with possible problems during the event and made predictions/estimates about the interaction, but these predictions were more negative for the socially anxious group.

Table 3. Characteristics of participants in each social anxiety group

Variable	Low social anxiety		High social anxiety		<i>t</i>
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	
FNE	7.22	(2.75)	28.08	(1.34)	32.73***
BDI II	9.52	(6.01)	16.39	(10.43)	2.74**
STAI-Trait	39.53	(8.05)	51.22	(8.23)	4.37***
SPAI	34.64	(21.64)	79.33	(21.99)	5.74***
Age	21.30	(1.69)	20.70	(0.88)	1.53

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

In addition, high socially anxious individuals tried to predict in every detail their behaviour and other peoples' reactions, as if they were watching a movie in which they were the protagonists. The two social anxiety groups did not differ significantly in their recollections of past similar social situations before the event. However, a Group (high – low social anxiety) X Valence (positive – negative recollections) repeated measures ANOVA revealed a significant interaction between social anxiety and valence of recollections, $F(1, 40) = 5.96, p < .05$. Follow-up t tests showed that, although both groups tended to recall more positive than negative (unpleasant) past events, this difference was significant for the low social anxiety group $t(20) = 4.03, p < .002$, but non-significant for the high social anxiety group, $t(20) = 1.31, ns$. Finally, 95.7% of the participants in both anxiety groups entered the situation. However, high socially anxious participants reported that they wished they could avoid the event.

Discussion

The results of the present study are in line with the Clark and Wells theory of social anxiety and provide strong evidence in favour of the occurrence of anticipatory processing, not only in high socially anxious individuals, but also in low socially anxious individuals. The main features to emerge from the present investigation are that the anticipatory processing before social situations was specific to high levels of social anxiety, and remained significant when controlling for general negative affect (trait anxiety and depression). In addition, the people with high social anxiety report that they (a) think a great deal about the forthcoming event, (b) such thoughts have an intrusive quality, (c) interfere with participants' ability to concentrate and (d) increase their anxiety more and more, compared to the people with low social anxiety.

High socially anxious participants also reported that the forthcoming event was difficult to forget even though they strongly resisted thinking about it. Both anxiety groups appear to have made some predictions or estimates about the event (the course and outcome of the event, consequences), but the predictions/estimates were more negative in those people who were high in social anxiety. Also, both groups reported that they have spent time trying to think of ways that they might deal with or avoid particular problems during the social situation and were similarly engaged in recalling past similar social situations (e.g. prior parties or dates) before the event. However, these recollections were markedly more positive and less negative in low socially anxious respondents, whereas the high socially anxious individuals showed a balance in their recollections, with the positive past social events slightly outnumbering the negative. This result appears to be consistent with the findings of Mansell and Clark (1999)

Table 4. Means and standard deviations (in parentheses) for ratings (0–100) of APQ items by high and low socially anxious individuals

Anticipatory processing questions	Social anxiety group		<i>t</i>
	High	Low	
1. How much anxiety did you believe you experienced?	71.7 (16.2)	48.6 (21.4)	4.13***
2. Did you find yourself thinking about the event a lot?	80.1 (12.8)	50.4 (24.9)	5.08***
3. Did the thoughts and ideas about the event keep coming into your head even when you did not wish to think about it again?	72.1 (15.6)	36.6 (27.6)	5.27***
4. Did you find the thoughts ever interfering with your concentration?	65.7 (22.1)	38.4 (28.4)	3.63**
5. How negative were your thoughts/ideas about the event?	45.7 (27.7)	28.0 (28.6)	2.13*
6. Did you find it difficult to forget about the event?	76.4 (16.8)	38.0 (28.4)	5.57***
7. Did you try to stop thinking about the event?	50.6 (24.1)	24.3 (16.3)	4.33***
8. If you did think about the event, over and over again, did you find your anxiety increasing more and more?	79.3 (12.1)	34.8 (26.4)	7.22***
9. If you did think about the event, over and over again, did you find your anxiety decreasing more and more?	17.2 (14.6)	22.0 (22.5)	0.85
10. Did you try to form some predictions and/or estimates about the event (the course and outcome of the event, consequences etc)?	81.8 (17.3)	58.7 (30.1)	3.18**
11. How negative were these predictions/estimates?	60.6 (25.7)	34.2 (26.5)	3.43**
12. Did you try to predict in every detail your behaviour and other people's reactions, as if you were watching a movie in which you were the protagonist?	69.4 (21.7)	41.7 (28.4)	3.71**
13. How much did you try to think of ways that you might deal with/avoid particular problems during the social interaction?	65.7 (25.7)	47.8 (29.1)	2.21*
14. Did you recall any past similar social situations (e.g. prior parties or dates)?	52.7 (30.5)	46.1 (30.4)	0.73
15. How negative were these recollections?	43.2 (21.3)	21.4 (24.8)	3.05**
16. How positive were these recollections?	53.0 (17.3)	61.8 (30.0)	1.16
17. Did you, finally, avoid the social event completely? Yes/No			
(% of participants answering yes)	4.3 (1/23)	4.3 (1/23)	
(% of participants answering no)	95.7 (22/23)	95.7 (22/23)	
18. If no, did you ever wish that you could avoid the event?	39.1 (32.0)	8.9 (8.8)	4.27***

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

Note: $n = 23$ for each social anxiety group.

mentioned in the introduction, because they also found that the significant group effect was on the reduction of positive memories about how the socially anxious participants were seen by others. Finally, although both groups entered the situation, respondents high in social anxiety reported that they wished they could avoid the event if there was a way to do it. Recently, Hinrichsen and Clark (2003) conducted a semi-structured interview (Study 1) in order to investigate anticipatory processing in social anxiety and appear to have arrived at similar results.

Two findings that emerged from the study are of particular interest. First, high socially anxious participants spend time and effort trying to predict in every detail their behaviour and other people(s)' reactions as if they were watching a movie in which they were the protagonist. Beck (1976) has already suggested that spontaneously occurring mental images in which patients "see" their fears realized are common in anxiety disorders and play an important role in enhancing the perception of threat. Furthermore, Clark and Wells (1995) suggested that, when in a social situation, social phobics are prone to experience spontaneously occurring images in which they see themselves as if viewed from outside (observer-perspective; Hackmann, Surawy, & Clark, 1998; Hackmann, Clark, & McManus, 2000; Wells, Clark, & Ahmad, 1998). Therefore, it appears that high socially anxious individuals, before the event, generate negative, distorted, observer-perspective images about how they might appear in the situation and how other people will respond to them, which further increase their emotional upset and lead them to enter the situation in a pre-activated self-focused processing mode. Second, as Rachman, Gruter-Andrew and Shafran (2000) suggested in their study of post-event processing, resistance to the intrusive ideas, images or impulses is not solely a prominent feature of obsessional disorders, but it is likely to occur in other disorders, both before and after the anxiety-provoking interaction.

How likely is it that anticipatory processing takes place in other disorders, or is it particular to social anxiety? Our opinion is that anticipatory processing may also be of some relevance in various phobias (e.g. in dental phobia, awaiting dental treatment), generalized anxiety disorder, panic disorder and obsessive-compulsive disorder. What appear to connect anticipatory processing to OCD are the common qualities of unwantedness, recurrency and intrusiveness, which are assumed to be characteristic of the obsessional thoughts. Also, the common theme, around which anticipatory processing centres in all these disorders, is the perception of imminent danger or catastrophe, which mobilizes the individual to avoid the situation or find ways of dealing with it effectively.

There is a striking similarity between anticipatory and post-event processing, as investigated both by Rachman et al. (2000) and here. The two information-processing stages appear to have similar features in social anxiety (recurrency, intrusiveness, observer-perspective imagery, and past event recollections) and involve pretty similar cognitive processes, with the difference that anticipatory processing is future-oriented whereas post-event processing is past-oriented. This increases the possibility that the two stages are closely interconnected and that each processing feeds into the other. Therefore, it is necessary to fully integrate anticipatory processing into the Clark and Wells theory as a whole, and further clarify its interconnection to the other two stages proposed, the in-situation and post-event processing stage.

In general, Clark and Wells (1995) appear to make a good case for the occurrence of anticipatory processing in association with high levels of social anxiety as well as for the untoward effects of certain types of anticipatory processing. None of the information we have collected so far is at variance with their cognitive model of social anxiety. However, they

tend to overlook anticipatory processing that is good and constructive. In the present study, respondents low on social anxiety tended to recall far more positive than negative information from their past, and some of them reported that anticipatory processing actually decreased their anxiety. Also, both groups were similarly engaged in making predictions or estimates and in trying to think of ways to deal with/avoid particular problems during the interaction. Therefore, it is possible that what differentiates low from high socially anxious individuals is not only the extent to which they engage in anticipatory processing, but also their ability to use the same processing in a more positive and constructive way, in order to control their state of anxiety and handle the forthcoming situation more effectively. For example, individuals low in social anxiety may avoid engaging in problematic processes (e.g. negative self-imagery), may be more realistic about the types of problems they expect to encounter, as well as more flexible, adaptive and resourceful in carefully planning beforehand, in order to maximize the gains from the situation and not simply prevent the catastrophe from happening. Indeed, in a recent experiment, Hirsch, Mathews, Clark, Williams and Morrison (2003) found that non-anxious participants who were trained to hold a negative image in mind lacked their normal non-threatening inferential bias, and also experienced higher levels of state anxiety. This point deserves further clarification as it is expected to have an impact on the direction of the therapeutic intervention: Anticipatory processing inhibition or anticipatory processing management training maximizes the therapeutic gains but in what way?

This study was exclusively conducted on student population. It is thus necessary to collect additional information on anticipatory processing by studying diagnosed social phobics and people with other kinds of psychological disorders. In addition, the question of the relation between anticipatory process and emotional processing (Rachman, 1980) should be addressed in future studies. Can anticipatory processing be regarded as a special form of emotional processing or as an entirely separate process? To what extent could any failure to satisfactorily process past feared situations be held responsible for the occurrence of anticipatory processing or is it an automate processing? The study of anticipatory processing is of great importance because it is thought to be the first stage in the sequence of social phobics' dysfunctional cognitive processes. If we manage to fully understand its nature, perhaps we will be in position to control and modify the maladaptive cognitions and behaviours that social phobics bring into the encountered social situation, with the result of making the experience of the interaction less negative.

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