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### **Paper:**

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## **Abstract**

We sought to investigate situation specific inflated sense of responsibility and explanatory style in social anxiety disorder (SAD) according to Clark and Wells' cognitive model. Participants aged 17 - 68 years ( $M = 31.9$   $SD = 11.1$ ) included waiting list patients referred to a primary care mental health service for CBT for SAD ( $n = 18$ ); and non-anxious control participants ( $n = 65$ ). A battery of psychometric measures, including a bespoke measure of responsibility beliefs, was used. Compared with controls, participants with SAD were more likely to demonstrate an inflated sense of responsibility ( $p = \leq 0.001$ ), and to adopt a negative explanatory style specific to social interaction ( $p = < 0.01$ ). Inflated sense of responsibility was found to correlate with SAD symptomatology ( $r = 0.47$   $p = < 0.05$ ), and with increased usage of safety behaviours ( $r = 0.47$   $p = < 0.05$ ). Caseness ( $\beta = 1.45$   $p = < 0.01$ ) and stability of causal attribution ( $\beta = 0.25$   $p = \leq 0.001$ ) were found to predict inflated responsibility in our sample. To our knowledge this study represents the first attempt to investigate inflated responsibility within the context of SAD. Our results support the notion of inflated responsibility as a feature of SAD.

### **Learning objectives:**

- To understand the cognitive-behavioural components of Clark and Wells' model of SAD, and their bidirectional nature
- To understand what the term 'inflated sense of responsibility' refers to, and how it relates to CBT
- To understand what the term 'explanatory style' refers to, and how this concept can also relate to CBT

## **Background**

The clinical term social anxiety disorder (SAD) is used to describe pathological anxiety characterized by an excessive fear of scrutiny from others, and avoidance of social interaction (American Psychiatric Association, 2013). SAD can follow a chronic and pernicious course resulting in significant functional impairment in terms of education, employment and in forming and maintaining meaningful relationships (Van Ameringen, Mancini, & Farvolden 2003; Grant et al., 2005; Greca & Lopez, 1998; Bruce et al., 2005; Kessler, Berglund, Demler, Jin & Walters, 2005). Despite being a common psychological complaint, SAD is often left undiagnosed and untreated (Fink et al., 2009).

In the UK, and in many other healthcare systems around the world, CBT is a first line therapy for SAD. Although CBT is an effective treatment for social anxiety, attrition ranges from 10-20% (Swift & Greenberg, 2014; Fernandez, Salem, Swift, & Ramtahal, 2015) and response rates are often less than 50% (Loerinc et al., 2015). However, estimates vary greatly, and response rates of 84-85% have been reported using Clark and Wells' (1995) model of CBT for social anxiety (Clark et al., 2006; Yoshinaga et al., 2016). Clark and Well's model has been found to be an effective model for delivering CBT, and is widely utilized in the UK (Clark et al., 2003; Mortberg, Clark, Sundin & Wistedt, 2007). We chose to conceptualize and measure SAD in reference to Clark and Wells' cognitive model so that any findings of interest may be translatable in to practice. Clark and Wells' posit that pathological social anxiety develops from negative schemata regarding the self and others, and is maintained by four interrelated and bidirectional cognitive-behavioural processes. These processes include: excessive self-focused attention towards internally generated information (such as sensations of nausea or heart palpitations); negatively biased mental representations of one's outward appearance as it is thought to be

perceived by others; utilization of maladaptive safety behaviours; and excessive worry and rumination related to social interaction events. The presentation is theorized as arising from negative core beliefs which underpin intermediate level assumptions about the self and others, resulting in an exaggerated fear of social rejection and the rendering of others as phobic objects. See figure 1 for an illustrative example of the model with example cognitive, behavioural and somatic symptoms and characteristics.

**(Figure 1 Adapted from Clark and Wells (1995) goes here)**

From an attribution theory perspective, SAD is associated with negative explanatory style (Arkin, Appleman & Burger, 1980; Stopa & Clark, 1993; Teglasi & Fagan, 1984). Explanatory style refers to how people tend to attribute causation for outcomes to situations or events along a set of dimensions related to their own and other's agency. Causation can be perceived as being negative or positive (Wiener, 1986). Psychologically healthy people tend to operate a positive explanatory style, sometimes dubbed a 'self-serving bias'. When a positive explanatory style is adopted, outcomes perceived as being good are attributed to internal, stable and controllable causes; and bad outcomes are attributed to external, unstable and uncontrollable causes. For example, one might make sense of a good exam result as being due to their own intelligence and hard work; and make sense of failing an exam by attributing their poor performance to the 'wrong' questions being set for the exam paper. When a negative attributional style is adopted, causation is attributed opposingly, so that good outcomes are perceived as external, unstable and uncontrollable; and poor outcomes as internal, stable and controllable: implying greater personal responsibility for poor outcomes and less responsibility for good outcomes. For example, a socially anxious person might enter in to a conversation with a stranger, selectively attending to threat related cues, becoming highly aware of potentially critical statements or evidence of lack

of rapport (such as failing to elicit laughter with a joke). They may then decide the conversation had a poor outcome (e.g. they felt rejected and embarrassed), and that the reasons for this were internal (a result of their own actions), stable (due to their own innate lack of social ability which may be related to a core belief such as being ‘useless’ or ‘different’), and controllable (that is, it is within their power to employ safety seeking behaviours to avoid poor outcomes such as this).

Inflated responsibility refers to the inclination to readily and excessively accept personal responsibility for actual or potential events which the majority of people are likely to deem separate and independent from themselves. First described and measured within the context of obsessive compulsive disorder (OCD), Salkovskis et al. (2000) describes inflated responsibility as “the belief that one has power which is pivotal to bring about or prevent subjectively crucial negative outcomes. These outcomes are perceived as essential to prevent. They may be actual, that is, having consequences in the real world, and/or at a moral level” (pp.350). Inflated responsibility is considered characteristic of OCD and has been well researched in this context. However, there are data to suggest that inflated responsibility may be a transdiagnostic feature of anxiety disorder (Pozza & Dettore, 2014a; Startup & Davey, 2003). Pozza & Dettore (2014b) conducted a comprehensive meta-analysis of the available evidence, and found that, depending on the psychometric measures being employed, responsibility was not more strongly associated with OCD over anxiety and depression. In the lead author’s clinical experience, fear related cognitions elicited during CBT for social anxiety describe a fear of embarrassment or humiliation directly attributed to the patient’s own actions e.g. “I will say something stupid”. The authors hypothesized that patients experiencing social anxiety are prone to fear aversive outcomes which arise as a result of their own actions because, to some unknown degree, they are predisposed to accept personal responsibility for these outcomes.

The purposes of this study were 1) to establish to what extent SAD participants exhibited an inflated sense of responsibility specific to social interaction situations compared to non-anxious control participants; and 2) if a propensity for inflated responsibility were apparent, to establish if a relationship existed between this inflated responsibility and other features of SAD including worry, rumination, use of safety behaviours, self-focussed attention and severity of symptoms .

## **Methods**

### **Participants**

We recruited 18 patients awaiting CBT for SAD from the waiting list of a primary care mental health service in the UK to act as cases. Patients who were 18 years or older and had received a GP referral to the service for therapy to manage pathological social anxiety. Patients with a previous or current diagnosis of OCD or other co-morbid condition that may be causative of social anxiety symptoms (such as panic disorder or PTSD) were excluded.

To act as controls, we recruited 65 healthy individuals from the general public via online advertisements. This was slightly less than the 72 participants needed for a 4:1 allocation ratio, optimal to boost statistical power in case-control studies (Dos Santos Silva, 1999). Inclusion was dependent on potential participants completing the ultra-brief four item Patient Health Questionnaire screening measure (PHQ-4; (Kroenke, Spitzer, Williams & Löwe, 2009) consisting of a two item depression scale and a two item generalised anxiety scale. Potential participants scoring higher than the recognised healthy population mean for the screening measure were excluded and presented with a message explaining why, and advising them to speak to their GP if they felt they could benefit from help with anxiety or low mood. The measure has demonstrated good reliability and validity in terms of total item correlations ( $r =$

0.62), internal consistency (*Cronbach's alpha* = 0.78) and convergence with similar, more comprehensive measures (Löwe et al. 2010).

Waiting list patients eligible to participate were given an information leaflet regarding the study at their initial assessment appointment. These patients were asked if they would be willing to be contacted by telephone at a later date to discuss possible participation in the study. Those who agreed were contacted by the lead author to answer any queries about the study, and to confirm consent to participate. Ethical approval for the study was given by Wales Rec 7 Research Ethics Committee (15/WA/0117). Cambridge and Peterborough NHS Foundation Trust gave site-specific approval, and approval was given by the University of Oxford as study sponsor. In cases where consent was obtained, the participant was sent a secure web link to access the study questionnaires, or offered an appointment to complete the questionnaires at the practice if they were unable to access the internet at home. However, no participants were unable to access the internet at home.

Control group participants were recruited using online advertisements placed on social media and local news websites, and offered entry in to a raffle for a £50 online shopping voucher.

Participants found to be eligible following completion of the brief screening measure completed the SRAS and CDS-II questionnaires via secure web link.

Both groups provided demographic information (age and gender). Cases provided information of current medication usage, and control group participants who wished to enter the raffle provided an email address. This data was held securely in an encrypted folder on a password protected computer at the practice. No identifiable information such as name, address, or date of birth were sought from participants in either group.

## Materials and Procedures

### Self-Report Measures

To measure inflated responsibility specific to social interaction we developed the Social Responsibility Attitudes Scale (SRAS). The SRAS is based upon the original Responsibility Attitudes Scale (RAS), developed by Salkovskis and colleagues (2000). The original RAS was designed to measure perceived sense of responsibility in general terms. Both the RAS and the SRAS are comprised of 26 items, each of which are answered along a 7 point Likert scale allowing for a possible minimum numerical score of 26 and a maximum of 182, representing lower and higher perceived responsibility. SRAS items were contextually altered so that they could be applied only to social interaction situations rather than a multitude of general situations. For example, the first item of the original RAS would read as “I often feel responsible for things which go wrong”, whilst the SRAS reads “I often feel responsible for things which go wrong *during social interactions*”. We found that the SRAS demonstrated internal consistency (*Cronbach's alpha* = 0.95) greater than that of the original RAS (*Cronbach's alpha* = 0.90 - 0.92) (Mather & Cartwright-Hatton, 2004; Salkovskis et al., 2000), likely due to the increased specificity of the concept being measured.

The Causal Dimensions Scale (Revised) (CDS-II) (McAuley, Duncan & Russell, 1992) was used to measure explanatory style. The CDS-II is a situation specific measure of explanatory style in accordance with Weiner's (1985) theory of causal attribution. Prior to completing the CDS-II, participants are asked to recall a specific situation or event to complete the measure in reference to. For the purposes of our study we asked participants to recall a social interaction situation perceived to have had a poor outcome leading to embarrassment, humiliation or rejection felt by



themselves or others. The measure consists of 12 items along four subscales. Each subscale pertains to a domain of perceived causality: locus of causality as being perceived as internal or external; perceived degree of personal control over outcomes; enduring stability of causal attribution; and perceived degree of external control over outcomes. Each item is anchored by two opposing statements related to the outcome of the reference situation or event, and are separated by a numerical scale used to denote agreement. For the purposes of the study we inverted the scoring of the personal control subscale, so that a higher total score represented an increasingly negative explanatory style and a lower score a positive explanatory style. In terms of reliability, average internal consistency across all subscales of the CDS-II (as calculated using Cronbach's alpha coefficient) has been found to range from the lower end of acceptable (locus of causality, *Cronbach's alpha* = 0.67, stability, *Cronbach's alpha* = 0.67), to good (personal control, *Cronbach's alpha* = 0.79, external control, *Cronbach's alpha* = 0.82) (Boisvert & Faust, 1999). Based on factor analysis carried out by Watkins, Sachs & Regmi (1997) and Crocker, Eklund & Graham (2002), the external control subscale was dropped for this study in order to increase internal consistency across subscales.

To measure symptom severity the Social Phobia Inventory (SPIN; Connor et al. 2000). The SPIN is a widely used measure which forms part of the IAPT (Improving Access to Psychological Therapies) minimum dataset used in NHS organisations in England. The SPIN consists of 17 items along 3 subscales, each using a 5 point Likert scale to denote agreement with statements related to fear, avoidance and physiological symptoms of SAD. The SPIN has been found to demonstrate good test-retest reliability ( $r = 0.78 - 0.89$ ) and internal consistency (*Cronbach's alpha* = 0.82 - 0.92) (Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006; Connor et al., 2000). A cut off score of 19 (out of a total of 72) is recognised as a reliable predictor of SAD.

We employed a battery of self-report tools to measure the cognitive-behavioural processes through to characterise SAD according to Clark and Wells' model (Clark & Wells, 1995 cited in Heimberg et al., 1995). The Anticipatory Processing Questionnaire (APQ) (Vassilopoulos, 2004) was used to measure anticipatory anxiety prior to engagement in social situations. The APQ consists of 18 items, each answered using a visual analogue scale to denote agreement with opposing statements related to anticipatory anxiety prior to social interaction situations. A total score for each individual item (excluding item 17 which requires a yes/no answer) represents lower or higher anticipatory anxiety. The APQ has been found to demonstrate good internal consistency (*Cronbach's alpha* = 0.91) (Vassilopoulos 2004).

The Post-Event Processing Questionnaire (Revised) (PEPQ-R) (McEvoy & Kingsep, 2006) was used to measure negatively valenced ruminative thought following engagement in social situations. The PEPQ-R consists of 13 items each answered using a visual analogue scale to denote agreement with opposing statements regarding ruminative thought related to social interaction situations. The PEPQ-R has been found to exhibit good internal consistency (*Cronbach's alpha* = 0.89 - 0.90) (Brozovich & Heimberg, 2011; McEvoy & Kingsep 2006).

The Self Focussed Attention (SFA) (Bogel, Albert, & Jong, 1996) scale was used to measure degree of inwardly focussed attention. Each of the SFA's 11 items are answered using a numerical scale to denote agreement with a statement related to self focussed attention along two subscales of autonomic arousal and behavioural indicators of inwardly focussed attention. The SFA has been found to demonstrate good internal consistency (*Cronbach's alpha* = 0.78 - 0.86) (Bogels et al. 1996).

Finally, the Subtle Avoidance Frequency Examination (SAFE) (Cuming et al., 2009) was used to measure frequency of overt and covert safety seeking behaviour. The SAFE is comprised of 32

items, answered using a 5 point Likert scale to denote the frequency with which respondents engage in safety seeking behaviours prior to and during social interaction situations. The measure has been found to demonstrate good internal consistency (*Cronbach's alpha* = 0.91) (Cuming et al., 2009).

## **Results**

### **Descriptive statistics**

Descriptive data and between group differences including t-value and effect size (Cohen's d) for cases and control participants are presented in table 1. Median SRAS, CDS-II, and CDS-II locus of causality and stability subscale scores were significantly higher for cases than for control group participants. There was no significant difference in age between the two groups, but the control group had significant gender imbalance (85% female).

(table 1 goes here)

Median scores for psychometric measures specific to social anxiety presentation are presented in table 3.

### **Correlation analysis**

Pearson's product moment correlation was carried out using case group participant's data, and included demographic variables and psychometric test scores. The results are presented in table 2. A higher SRAS score was found to be correlated with higher SPIN and SAFE scores; and female gender was found to correlate with higher SRAS and SFA scores.

(table 2 goes here)

## **Regression analysis**

Ordinal logistic regression was carried out to find predictors of higher SRAS scores for all participants after controlling for age and gender. 'Group' was assigned as a binary factor with the control group as the reference category. SRAS scores were square root transformed prior to regression analysis, as although the dataset could be considered normally distributed, the distribution did exhibit some skewness (-0.19) and kurtosis (2.12). Regression coefficients are presented in table 3.

Caseness was found to be a significant predictor of higher SRAS score, as was higher CDS-II stability subscale score. CDS-II personal control subscale scores did not differ significantly between groups and were omitted from regression analysis to avoid hyper-collinearity.

(table 3 goes here)

(table 4 goes here)

## **Discussion**

We found that cases scored significantly higher on a measure of inflated responsibility specific to social interaction compared to healthy control participants. Furthermore this measure exhibited good internal consistency and correlated well with an existing and well validated measure of social anxiety symptomatology. Inflated sense of responsibility specific to social interaction correlated highly with social anxiety symptomatology, and with usage of safety seeking behaviours. We also found statistically significant positive correlations between female gender, inflated responsibility and self-focussed attention. At regression analysis, caseness was found to be a significant predictor of inflated sense of responsibility specific to social interaction.

Although more rigorous validation is needed, these data suggest that the SRAS is measuring what it is designed to measure, and that inflated sense of responsibility specific to social interaction is associated with SAD.

Cases reported an increasingly negative explanatory style within the context of social interaction situations compared to controls. Regression analysis suggested that stability of causal attribution - but not overall negativity of explanatory style nor externality or internality of locus of control - predicted inflated responsibility. These results suggest that an inability to consider different potential causes for poor outcomes contributes to social anxiety symptoms. e.g. the patient may not have sufficient cognitive flexibility to view an awkward date as being due to a lack of shared interests, as opposed to being due to a lack of social skills on their part – therefore accepting responsibility for the poor outcome. Based on these findings it would appear that an emphasis on cognitive restructuring with a view to increase cognitive flexibility by encouraging the patient to entertain a range of different possible causations would be beneficial. Techniques such as the ‘responsibility pie’ (Veale, 1999) could be a useful tool to this end, as could the inclusion of compassion-focussed therapy techniques to reduce self-blame and self-criticism (Gilbert, 2009). Please see figure 2 for an illustrative example of how this approach might fit in to the existing Clark and Wells (1995) model.

(Figure 2 goes here.)

Our study suffered from a lack of a structured diagnostic interview to define caseness, which may have had a deleterious effect on the validity of our results; though all cases scored significantly higher than the recognised cut-off of 19/72 indicating SAD when completing the SPIN measure. As patients were on a waiting list, there is a possibility that an undiagnosed co-morbid problem such as OCD or GAD may have contributed to inflated responsibility in one or

more cases. The study was limited by a sample of cases, and an insufficiently matched control group. Though our results lack sufficient power to confidently assert clear between group differences in inflated responsibility and explanatory style, these data do highlight the need for further study.

Future research should involve clinical participants and assess whether a tendency to accept excessive moral responsibility for outcomes associated with social interaction contributes to social anxiety presentation, and to what degree. The ramifications for cognitive-behavioural case formulation should also be investigated. For example, it may be advantageous to explore the role of maladaptive beliefs and attitudes related to inflated responsibility when working with SAD, and make use of techniques such as the responsibility pie to encourage cognitive change.

### **Summary**

- Inflated sense of responsibility may form part of anxiety presentations other than OCD
- When formulating SAD, inflated responsibility may be an underlying feature of the presentation
- Inflexible thinking in making sense of outcomes to situations and events may play a role in SAD presentations

### **Further reading:**

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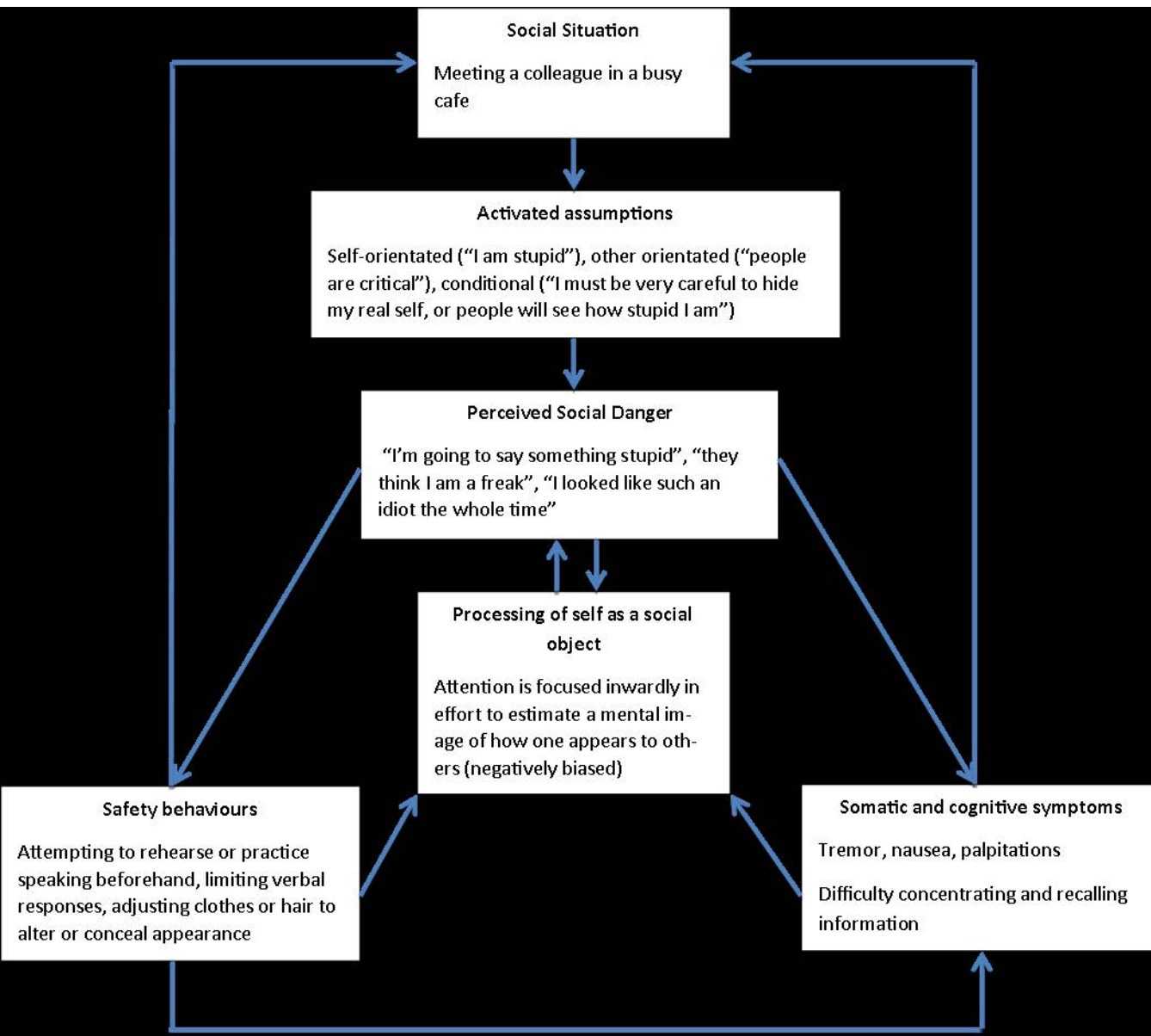
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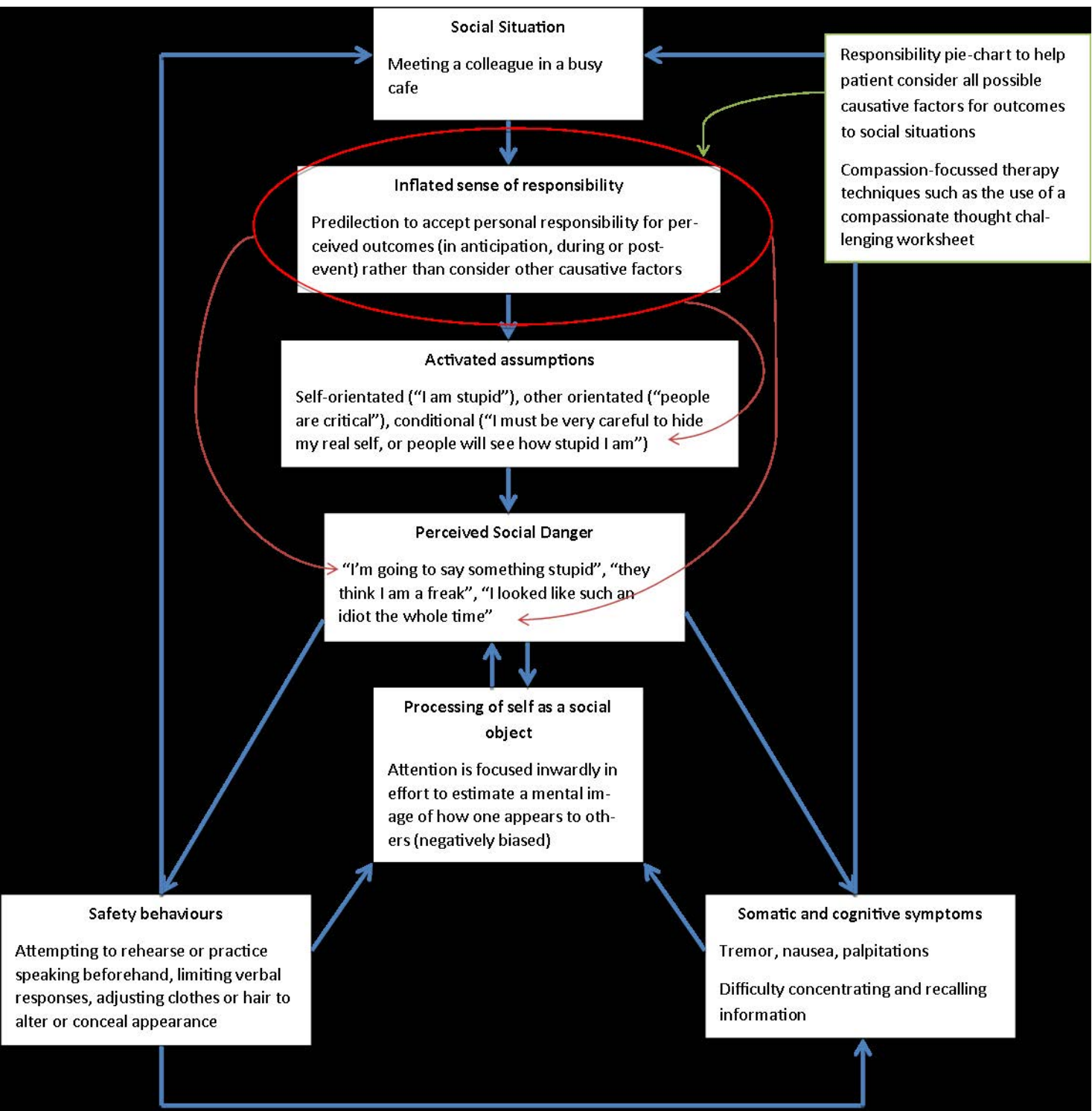
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**Table 1: Descriptive data and between group differences**

Variable	Participant group			
	Controls <i>n</i> = 65	SAD <i>n</i> = 18	<i>t</i>	<i>d</i>
Gender (% female)	84.62%	67.86%	-	-
Age Mean (SD)	32.74 (11.32)	30.07 (10.47)	-1.07 <i>p</i> = 0.29	<i>d</i> = 0.24
SRAS Median (SD)	91 (32.96)	124 (23.26)	4.71 <i>p</i> = 0.001	<i>d</i> = 1.13
CDS- II Median (SD)	46 (11.57)	54.5 (9.54)	2.78 <i>p</i> = 0.007	<i>d</i> = 0.63
CDS-II Sub-scales	LOC Median (SD)	22 (5.23)  18 (5.46)	2.75 <i>p</i> = 0.007	<i>d</i> = 0.62
	Personal Control Median (SD)	16 (5.72)	18 (6.86)  0.34 <i>p</i> = 0.73	<i>d</i> = 0.07
	Stability Median (SD)	11 (5.4)	16 (3.7)  2.9 <i>p</i> = 0.005	<i>d</i> = 0.68

(SD)=Standard Deviation; SPIN=Social Phobia Inventory; SRAS=Social Responsibility Attitudes

Scale; CDS-II=Causal Dimension Scale; LOC=Locus of Control

**Table 2: Regression coefficients for demographic and psychometric variables**

Predictor Variables	All Participants			
	<i>n</i> = 83			
	$\beta$	<i>SE</i>	<i>t</i>	<i>p</i>
Group*	1.45	0.46	3.14	0.002
CDS-II LOC	0.03	0.05	0.62	0.54
CDS-II Stability	0.25	0.05	4.55	0.001
CDS-II Total	-0.006	0.03	-0.21	0.84

\*Control group used as reference category. CDS-II = Causal Dimension Scale 2<sup>nd</sup> Revision; LOC = Locus of Control; PC = Personal Control.



**Table 3: Descriptive statistics for cases (n = 18)**

	Age*	SPIN	SRAS	APQ	SFA	SAFE	PEPQ-R
M	30.07	52	136.5	121.5	35	104.5	75.5
SD	10.47	10.29	16.3	15.98	6.72	17.44	23.22
Range	17-53	35-67	110-166	82-140	23-44	66-131	9-131

M=Median Average (Mean Average for Age\*); SD=Standard Deviation. SPIN = Social Phobia Inventory; SRAS = Social Responsibility Attitudes Scale, APQ = Anticipatory Processing Questionnaire; SFA = Self-Focussed Attention scale; SAFE = Subtle Avoidance Frequency Examination; PEPQ-R = Post-Event Processing Questionnaire-Revised.

1 **Table 4: Pearson's product moment correlation**

	Age	Gender	Meds	SPIN	SRAS	APQ	SFA	SAFE	PEPQ-R
Age		-0.09	0.10	0.41	0.13	0.21	-0.02	0.09	-0.39
Gender*	-0.09		-0.08	0.25	0.60**	0.18	0.48*	0.24	0.15
Meds**	0.10	-0.08		-0.22	0.34	0.17	-0.06	0.25	0.34
SPIN	0.41	0.25	-0.22		0.47*	0.14	0.14	0.20	-0.23
SRAS	0.13	0.60**	0.34	0.47*		0.32	0.19	0.47*	0.09
APQ	0.21	0.18	0.17	0.14	0.32		0.08	0.24	0.41
SFA	-0.02	0.48*	-0.06	0.14	0.19	0.08		0.29	-0.07
SAFE	0.09	0.24	0.25	0.20	0.47*	0.24	0.29		-0.11
PEPQ-R	-0.39	0.15	0.34	-0.23	0.09	0.41	-0.07	0.11	

2 \*Gender 1= Female;\*\* Meds 1 = currently using prescribed anti-anxiety medication. SPIN = Social

3 Phobia Inventory; SRAS = Social Responsibility Attitudes Scale, APQ = Anticipatory Processing

4 Questionnaire; SFA = Self-Focussed Attention scale; SAFE = Subtle Avoidance Frequency

5 Examination; PEPQ-R = Post-Event Processing Questionnaire-Revised.

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