Evaluation of the Social Phobia Scale and Social Interaction Anxiety Scale as assessments of performance and interaction anxiety

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1 INTRODUCTION

Social anxiety disorder involves an excessive fear of social situations and is characterized by a fear of negative evaluation from others (Hofmann and DiBartolo, 2010). The most recent version of the DSM (DSM-5; American Psychiatric Association, 2013) introduced a 'performance only' option as a specifier for a diagnosis of social anxiety disorder. This specifier is applicable when an individual's fears are restricted to speaking or performing in public and replaced the previous 'non-generalized' specifier which related to fear of one or two specific social situations. Although a qualitative separation of performance anxiety and the more general form of social anxiety (typically involving interactional concerns) has not been unequivocally supported (Caballo et al., 2015), some evidence suggests performance anxiety exhibits a later onset, reduced genetic contribution, different personality correlates, stronger associations with physiological reactivity during speech and greater responsiveness to beta-blocker medication than general social anxiety (Blöte et al., 2009; Bögels et al., 2010; Hook et al., 2013). Broadly speaking, performance anxiety can be characterized as a phobia-like, hyperarousal reaction to performance situations, whereas the generalized form is a more diffuse anxiety response to a broad range of social-evaluative situations.

Mattick and Clarke's (1998) companion Social Interaction Anxiety Scale (SIAS) and Social Phobia Scale (SPS) are uncommon among social anxiety instruments in providing separate assessments of general interactional anxiety (SIAS) and non-interactional, social performance fears (SPS). The two scales are typically administered together and are two of the most widely used instruments for measuring social anxiety in both clinical and non-clinical populations (Hofmann and DiBartolo, 2010). Both scales have shown good internal consistency (alphas typically around .90), test-retest reliability (typically .65-.90) and are

correlated with other social anxiety self-report measures in both clinical and non-clinical samples (Antony et al., 2006; Mattick and Clarke, 1998; Heimberg et al., 1992; Carleton et al., 2009). Evidence for the ability of the scales to discriminate between interaction and performance anxiety is, however, equivocal. The SIAS has demonstrated stronger correlations than the SPS with other interaction anxiety scales, and the SPS has exhibited stronger correlations with performance/observation anxiety scales (Brown et al., 1997; Heimberg et al., 1992). Some factor analytic studies have also supported the proposed two-dimensional structure (see Mörtberg et al., 2017). However, several other studies have failed to identify a two-factor model (Mörtberg et al., 2017). In addition, the SIAS and SPS are often highly correlated (Mattick and Clarke, 1998), and a recent confirmatory factor analysis (Gomez and Watson, 2017) suggested both scales assess a single, dominant general social anxiety factor with little evidence of measurement specificity. Collectively, these findings offer mixed support for the ability of the SIAS and SPS to distinguish between performance and interaction anxiety, suggesting further evidence of their discriminant validity is needed (Gomez and Watson, 2017).

One way of rigorously evaluating validity is with the use of criterion measures. An examination of the pattern of correlations of the SIAS and SPS with actual anxiety response to interaction and performance stressors provides an ecologically-valid assessment of their convergent and discriminant criterion validity. Only two studies appear to have employed social-evaluative stressors, and found the SIAS and SPS to be correlated with indirect anxiety measures (e.g., time spent in a speech task) in 41 individuals with social anxiety disorder (Ries et al., 1998) and with self-reported anxiety in 37 college students (Gore et al., 2002). The same studies produced some evidence consistent with discriminant criterion validity, with the SPS more highly correlated than the SIAS with reduced speech time (Ries et al., 1998) and self-reported anxiety (Gore et al., 2002) during a performance task. However, Ries found only small differences between correlation coefficients (SPS r=-.31 vs.

SIAS r=-.23) that may simply represent chance variation, whereas Gore et al. used a videotaped dating/interaction task which invokes both interactional and performance concerns. In addition, neither study included physiological criterion measures of anxiety. Given increasing evidence that performance anxiety may be best characterized as a hyperarousal response (Blöte et al., 2009), the use of autonomic arousal indicators such as heart rate and skin conductance (Cacioppo et al., 2007) as criterion measures is important in establishing measurement validity. If interaction and performance anxiety do represent distinct dimensions with different causes and manifestations, which might therefore require different intervention approaches, it is imperative to establish whether the SPS and SIAS accurately measure and differentiate between these dimensions. This has become increasingly important following the DSM-5 classification that categorizes performance anxiety as a distinct dimension of social anxiety.

We therefore examined the criterion validity of the SIAS and SPS using multimodal criterion measures of self-reported anxiety, heart rate and skin conductance obtained during performance and interaction challenges. We also used observer-rated anxiety ratings as an additional criterion measure as they minimize potential biases inherent in self-report ratings. As evidence suggests social anxiety exists on a continuum, we used a non-clinical sample varying in social anxiety, as this represents the largest sector of the population (Carleton et al., 2009). Specific aims of the study were to assess: (1) convergent validity, which would be supported by correlations of the SIAS and SPS with anxiety response measures; and (2) discriminant validity, which would be supported by stronger correlations of the SIAS (vs. the SPS) with anxiety responses during the interaction task, with the reverse pattern observed for the performance task.

2 METHOD

2.1 Participants

Ninety-three adults (45 males and 48 females) with a mean age of 25.6 (SD = 7.7, Range = 18-53) were recruited through an advertisement for paid (£10) psychological research posted around the campus of a University in London, UK. Exclusion criteria were (i) age <18 years, and (ii) any previous acquaintanceship with staff involved in the study, (which might otherwise have compromised the effectiveness of the social challenges).

2.2 Behavioral Assessment Tests (BATs)

An unstructured opposite-sex interaction task and an impromptu speech task were used for the behavioral assessment tests, with both tasks previously shown to be effective social stress manipulations (Beidel et al., 1985). Maximum BAT duration was 3 minutes, although participants were told they could terminate either task at any time. Three confederates (one male and two female), blind to participants' scores on social anxiety measures, assisted with BATs.

For the p*erformance* BAT, participants were asked to speak on a select topic in front of the 3 confederates. Three minutes' preparation time was allowed for the speech, which was to be a persuasive argument based on either 'Sometimes it is ok to lie' or 'Can any crime be justified?'.

For the *interaction* BAT, participants were told that they would be introduced to someone they had never met and to 'get to know' this person. An opposite-sex confederate from the pool of three was used for this task as this typically maximizes socially-evaluative challenge (Stravynski et al., 2010). The confederate had previously undertaken multiple practice sessions until they felt confident they were able to give minimal responses, avoid asking questions and not to smile/frown or initiate conversation with the participant unless there was a pause of >15 seconds (Edelmann and Baker, 2002). Nobody other than the

participant and the confederate was present during the interaction, as additional observers may have precipitated general performance fears and compromised the task as an assessment of interaction anxiety. The interaction BAT commenced approximately 1 minute after task instructions were given.

For both BATs, time can be used as a dependent measure of anxiety if participants withdraw before the maximum task time (Ries et al., 1998).

2.3 Predictor Variables

The *Social Interaction Anxiety Scale* (SIAS; Mattick and Clarke, 1998) is designed to assess anxiety over social interaction (e.g., 'I have difficulty talking with other people'). The companion *Social Phobia Scale (SPS)* assesses social anxiety based on non-interactional situations, where one's social performance may be subject to observation by others (e.g., 'I can get tense when I speak in front of other people'). Both scales consist of 20 items rated on a 5-point scale (0 = min, 4 = max), with higher scores indicating greater social anxiety.

2.4 Criterion measures

2.4.1 Self-rated state anxiety

State anxiety was assessed at baseline, immediately pre-task and during-task with a discrete single-item rating scale from 1 ('not at all anxious') to 10 ('extremely anxious'). The during-task anxiety measure was administered immediately following each social challenge task, to avoid interruption of performance, with participants rating how anxious they had felt during the task. Single-item anxiety ratings are quickly administered and have previously shown good reliability and validity (Davey et al., 2007).

2.4.2 Observer-rated state anxiety

Behavioral ratings of participants' anxiety were provided by confederates using the five-point discomfort item from Fydrich et al. (1998), with higher ratings given to greater

observable anxious discomfort (fidgeting, throat clearing etc.). Ratings were assigned immediately after each task by the conversation partner (interaction BAT) or the three-confederate audience (performance BAT). Rater consistency was computed using an average absolute-agreement intraclass correlation (ICC), which requires both high inter-rater correlations and minimal discrepancy in ratings to produce a high ICC. An ICC = .73 was observed suggesting good rater agreement for the performance task, with ratings subsequently averaged. Only one set of ratings was available for the interaction task (to preserve task integrity as previously described), this is not considered problematic given the scale's typically high reliability (Fydrich et al., 1998) and the fact that the aim of the analysis was not to compare scale correlations across the two types of BAT (but across the different dimensions within each BAT). Anxiety ratings on this scale were applicable only to the task itself, so no baseline or pre-task ratings were assigned.

2.4.3 Physiological indices

Physiological data was continuously recorded throughout the study and segmented into 2-minute baseline, pre-task and during-task epochs. Physiological data were assessed at pre-task, in addition to during-task, as (a) such data is uncontaminated by any task-related motor movement or vocalization artefact, and (b) anxiety response may differ across anticipatory and reactive phases (Barlow et al., 1996).

For the baseline epoch, the final 2 minutes of a 5-minute relaxation period were extracted as this should represent the period of optimal relaxation. For during-task epochs, the first 2 minutes were extracted for both tasks, as fewer participants took part in both BATs for the full 3 minutes (performance = 24%; interaction = 87%) relative to the first 2 minutes (performance = 54%; interaction = 100%). After extraction, any obvious artefact was removed and median heart rate and skin conductance readings for each participant were computed for all epochs for use in further analyses (median values for pre-task epochs were

based on the final minute, as this was the earliest point at which instructions for both BATs had been issued).

2.4.4 Heart rate and skin conductance recording

Physiological data were acquired with a Mindmedia Nexus-4 system. Data were continuously recorded at 128Hz via electrodes attached to the skin and transmitted wirelessly to a nearby laptop. The laptop was placed out of sight of participants to allow unobtrusive recording. Epoch markers were registered with a key press which embedded an event marker in the data.

For *heart rate* measurement, 3 disposable Ag-AgCl electrodes were attached using a modified lead-II placement, which is less sensitive to body movements than standard electrode placements (Cacioppo et al., 2007). The R-to-R wave interval from the raw ECG signal was processed with proprietary BioTrace software to produce heart rate readings in beats per minute. For *skin conductance* measurement, a bipolar placement was deployed with electrodes placed on the thenar and hyperthenar eminence of the participant's cleansed non-dominant hand, as these areas contain a high number of eccrine sweat glands responsive to stress (Cacioppo et al., 2007). Skin conductance was measured in microSiemens (μS) using a small constant voltage applied to the skin. Electrodes remained in place throughout the duration of the experiment to avoid impedance changes and measurement degradation that can result from removal and reattachment (Thompson et al., 2008). Participants remained seated throughout the study in order to prevent major physiological artefact resulting from gross motor movement.

2.5 Ethics

Ethical approval for the study was granted by the institutional review board of the University hosting the study and all procedures performed were in accordance with the 1964 Helsinki declaration. Informed consent was obtained from all study participants.

2.6 Procedure

A brief overview of the study's broad aims was provided upon the participant's arrival. Care was taken not to disclose details of the BATs at this stage, as doing so might precipitate anxiety and compromise assessment of baseline physiological activity. Participants were told that the study involved recording physiological activity, an entirely safe procedure, and the completion of several questionnaires. Participants were then made aware of their right to withdraw at any time and provided their written consent to take part.

After completion of questionnaires, physiological recording commenced. During the baseline phase, participants watched a 5-minute video of seascapes with relaxing sounds and then completed the state anxiety measure. The testing phase then began, with participants taking part in interaction and performance BATs, completing state anxiety measures before and immediately after each BAT. Order of task presentation was counterbalanced, with a rest period of around 5 minutes between BATs.

2.7 Analytical method

Convergent criterion validity was assessed by computing Pearson's correlations of the SIAS and SPS with anxiety response criterion measures as validity coefficients. Discriminant validity was assessed separately for each BAT by a statistical comparison of the size of the SIAS vs. SPS correlation coefficients for each anxiety response criterion measure. Given that preliminary analysis indicated a high shared variance between the two scales (r^2=.58), we used William's test to compare correlation coefficients. This test allows a comparison of two dependent correlations obtained from within the same sample by appropriate adjustment of the standard errors. This adjustment is based on the degree of association between the correlated variables (the SIAS and SPS) and successfully maintains a nominal type I error rate (see Steiger, 1980 for details). Consistent with Heimberg et al. (1992), if the SIAS was more highly correlated than the SPS with anxiety responses during

the interaction BAT, and vice-versa for the performance BAT, this would provide evidence of discriminant validity.

Preliminary analysis revealed the SIAS and SPS were correlated with anxiety criterion measures at baseline (mean r = .26), possibly due to the anticipation of a socially stressful event. As such, all analyses were performed without controlling for baseline anxiety due to the interpretational problems this can create (Cacioppo et al., 2007). Analyses were conducted using R version 3.5.1 (R Core Team, 2018).

2.8 Power Analysis

A priori power analysis conducted using G*Power 3 revealed that a sample of N=88 provided a minimum of 80% power to detect (a) a correlation of r=.30 or more between SPS/SIAS and criterion measures (for convergent validity), and (b) a difference in correlations of 0.20 or more across social anxiety scales with criterion measures (for discriminant validity). For (b), we used an estimated correlation between the SIAS and SPS of r =.72 (Mattick and Clarke, 1998) and social anxiety-criterion correlations varying from r =.30-.80 (reflecting the diverse criterion measures used). We chose these values in the absence of any definitive guidelines for what constitutes meaningful correlations in this context, and with the premise that correlations <.30 or correlation differences <.20 can reasonably be argued to be relatively insubstantial.

2.9 Variable screening

Boxplots identified extreme values of skin conductance for three participants and heart rate for one (of the same three) participants with physiological data indicative of poor electrode contact, and thus these data were excluded. An inspection of participant characteristics indicated negligible differences in age, gender proportion, SPS/SIAS and baseline anxiety scores across omitted and retained participants, suggesting removal of these participants did not affect the generalizability of the analysed sample.

Residual plots showed good approximations to normality for all variables, except extremely negatively skewed BAT times due to the 3-minute time limit ceiling (performance M = 127s, SD = 40.9; Interaction M = 177s, SD = 13.3). Accordingly, p-values for analysis of BAT times were computed using a reference distribution of 10,000 bootstrapped samples of the original data. Some positive skew (due to a floor effect) was also observed for 1-10 anxiety ratings at baseline. This was not considered problematic for the analysis, however, as central limit theorem dictates that the sampling distribution of non-normal individual data converge to a normal distribution for sample sizes of around 30 or more unless extreme non-normality is present (Miles, 2005).

3 RESULTS

3.1 SIAS/SPS internal consistency

Good internal consistency was exhibited by the SPS (Cronbach's α = .89) and SIAS (α = .92). Both scales were also highly correlated (r = .76, p < .001) exhibiting a shared variance of 57.8%.

3.2 Sample characteristics

Compared to Mattick and Clarke's (1998) reference data, the mean SIAS score of 24.7 for the current sample (Table 1) was lower than for individuals with social anxiety disorder (M = 34.6; SD = 16.4) but higher than that of community volunteers (M = 18.8, SD = 11.8). A similar pattern was observed for the SPS. Further examination revealed that 17% (n = 16) of the current sample scored higher than the mean SIAS of Mattick and Clarke's (1998) clinical sample.

3.3 BAT manipulation check

Successful induction of anxiety was confirmed with paired *t*-tests, which found significant increases (*p's* < .001) in mean self-reported anxiety (Table 1), heart rate and skin conductance in pre/during-BAT anxiety compared to baseline. A detailed picture of physiological response to BATs is shown in loess-smoothed data in Figure 1, with curves fitted as 2nd order polynomials with a bandwidth parameter of 0.25. This indicates a sharp rise in physiological response during the pre-task anticipatory period, with a sustained skin conductance response and an initial heart rate peak that rapidly declines during the BATs themselves.

Correlations amongst the different types of anxiety criterion measures revealed that self-report anxiety ratings and observer ratings were moderately correlated (*r* = .32-.56, *p's* < .001), but heart rate, skin conductance and self-report measures were weakly correlated (*r* = .13-.21, *p* = .22-.05).

3.4 Convergent criterion validity

Convergent criterion validity was assessed by examining the correlations of the SPS and SIAS with criterion anxiety response measures shown in Table 2. For self-reported and observer-rated anxiety, each scale showed significant and generally moderate (mean r = .45) positive correlations for both social challenges. For physiological indices, both scales showed uniformly positive correlations, although correlations were generally lower (mean r = .20) with only around half of these significant. As some research has suggested that the psychometric properties of the SIAS may be adversely affected by the three reverse-coded items (Rodebaugh et al., 2007), correlations involving the SIAS were recomputed after excluding these items. No substantive change in correlations was observed.

As participants varied in their engagement time with the BATs (section **Error! Reference source not found.**), we also computed correlations of the SIAS and SPS with BAT times, an indirect measure of anxiety, but found no significant associations (r's = -.20 to .13, p = .13 to .77).

3.5 Discriminant criterion validity

For the *interaction* BAT, Table 2 shows that the SIAS is not consistently more highly associated with anxiety response criterion measures than the SPS. A similar finding can be observed for the *performance* BAT. Furthermore, William's test showed no significant differences in the size of the correlations of the SPS vs. SIAS for all but one criterion measure. Specifically, the SPS (r = .58) was more highly correlated than the SIAS (r = .44) with pre-task self-reported anxiety prior to the interaction task (correlation difference = .14, p = .023), the reverse of what would be expected if the SIAS was a specific measure of interaction anxiety.

4 DISCUSSION

The aim of the study was to evaluate the convergent and discriminant criterion validity of the SIAS and SPS by examining their associations with multimodal anxiety responses to social-evaluative challenges.

4.1 Convergent criterion validity

Convergent criterion validity was largely supported, with higher scores on the SIAS and SPS generally associated with higher anxiety ratings and, to a lesser extent, increased physiological arousal. For self-reported and observer anxiety ratings, both social anxiety scales demonstrated moderate positive correlations. For physiological anxiety indicators, evidence of convergent validity was weaker, with lower correlations of social anxiety scales with heart rate activity and skin conductance with around half of these correlations

significant. Differences in the sizes of the significant and non-significant correlation coefficients of the SIAS and SPS with physiological arousal measures were nevertheless largely insubstantial. The fact that correlations were uniformly positive and were comparable in magnitude, suggests that the association between the SPS/SIAS and physiological response is likely to be a genuine but relatively weak one. The low associations of the SPS and SIAS with physiological measures (compared to self-report criterion measures) is likely to be influenced by the contrasting modes of assessment and the vulnerability of physiological indices to artefact which attenuates correlation coefficients (Cacioppo et al., 2007). It is also interesting to note that physiological and anxiety-rating criterion measures were weakly correlated with each other, consistent with previous research (Mauss et al., 2004) and the notion of parallel but relatively independent anxiety response systems (McNeil et al., 1995). The fact that positive associations of the SIAS/SPS were found at varying degrees for different and relatively independent response measures thus offers further support of the scales' convergent criterion validity.

The current findings are in line with previous clinical research demonstrating significant correlations of the SIAS and SPS with negative thoughts and escape behavior following interaction and performance challenges in individuals with social anxiety disorder (Ries et al., 1998). Gore et al. (2002) also reported similar results in a non-clinical sample for an interaction task. The current findings corroborate and extend the results of these studies by demonstrating that the SIAS and SPS are predictive of the physiological aspects of social anxiety (elevated heart rate and sweat gland responses) in socially challenging situations as well as self-reported and other-reported anxiety ratings. Although Gore et al. (2002) found both scales to be correlated with *perceived* physiological sensations, self-assessments of physiological activity are generally poor indicators of actual arousal (Avero and Calvo, 1999). The fact that other social anxiety scales have traditionally shown to be inadequate predictors of physiological response in non-clinical samples (Baggett et al., 1996; Mauss et

al., 2004) further strengthens the utility of the SIAS and SPS as assessments of social anxiety at the subclinical level.

4.2 Discriminant criterion validity

Overall, results do not support the SPS or SIAS as distinct measures of performance and interaction anxiety. The scales were highly intercorrelated, exhibiting a shared variance of 57.8%, suggesting a size degree of measurement of a common construct. Most notably, the SIAS did not demonstrate consistently higher correlations than the SPS with interaction anxiety criterion measures, nor did the SPS consistently demonstrate higher correlations for performance anxiety criterion measures. In fact, the only significant difference across scales found the SPS to be more highly correlated with self-reported anxiety than the SIAS for the interaction challenge, the reverse of what would be expected if the SIAS primarily measures interaction anxiety. While genuine differences between correlations across scales with criterion measures may exist at a smaller magnitude than the current study was powered to detect, the lack of any consistent pattern of higher correlations for either scale for both BATs suggests little evidence for superior measurement specificity at any level.

These results are broadly consistent with the single previous study that used both interaction and performance stressors to examine discriminant validity of the SIAS and SPS in a clinical sample. Ries et al. (1998) found that, although only the SPS was significantly negatively associated with time spent in a speech task, differences between the SPS (r=-.31) and SIAS (r=-.23) were minimal and likely to be attributable to chance.

The apparent lack of measurement specificity is surprising given that the SIAS focuses on interaction situations and the SPS on non-interactional performance/observation situations. Three explanations for this finding can be considered. First, although performance anxiety is considered as a distinct dimension in the DSM-5 based on specific empirical evidence (Blöte et al., 2009), such a distinction is not universally supported and it may be

that social anxiety is, in fact, a single, unidimensional construct (Boyers et al., 2017; Caballo et al., 2015). Second, if performance anxiety *does* exist as a distinct dimension of social anxiety, this could potentially exist only at the clinical level. This possibility has not been extensively examined, although recent work has found the dimensional structure of performance anxiety may be more complex in individuals with social anxiety disorder (Mörtberg et al., 2017). Third, the SPS might reliably assess general performance anxiety, but simply contain insufficient public speaking items (Safren et al., 1998) to reliably assess the type of anxiety induced by the speech BAT. However, factor analytic studies have thus far generally provided little support for speech anxiety as distinct from more general performance anxiety (Ruscio et al., 2008; Heidenreich et al., 2011).

4.3 Implications

To the authors' knowledge, the current study is the first to use performance and interaction stressors to examine the validity of the SIAS and SPS at either the subclinical level or by using multimodal response measures. As such, the current study has a number of important implications. First, these findings go beyond identifying that the SIAS and SPS are correlated with other similar social anxiety scales, and suggest they are also able to predict increased subjective, behavioral and physiological anxiety responses in real and commonly encountered social situations. Given that negative consequences of social anxiety can be severe even at the subclinical level (Fehm et al., 2008), the SIAS and SPS may be useful for identifying vulnerable individuals potentially benefitting from social anxiety management techniques or for those at risk of developing clinical levels of social anxiety. Second, findings show the SIAS and SPS do not appear to provide specific assessments of interaction and performance anxiety, at least at the subclinical level, and should not be used for this purpose. Third, given this lack of measurement specificity, the use of a single instrument or

averaged scores across both instruments to give an overall score may be the most appropriate way to score these scales (Gomez and Watson, 2017).

4.4 Limitations

Several study limitations should be noted. First, the use of a non-clinical sample means findings may not necessarily generalize to a clinical population. Although the psychometric properties of social anxiety assessment instruments are frequently similar across clinical and subclinical social anxiety (Carleton et al., 2009), further studies are required to establish clinical generalizability. Second, the sample size used was relatively small. While the study was sufficiently powered to detect a minimum correlation difference of 0.20 between the SPS and SIAS with criterion measures, sample size was insufficient to reliably detect smaller differences. Nevertheless, if there are genuine population differences in the correlations across the SIAS and SPS with criterion measures, the power level of the current study suggests that the differences in the size of the correlations are unlikely to exceed 0.20.

4.5 Conclusions

Findings from the current study support the use of SIAS and SPS for the assessment of social anxiety, with both scales generally correlated with self-reported anxiety ratings, observer anxiety ratings and physiological responses to social-evaluative stressors. However, no evidence was found for discriminant validity, with neither scale demonstrating superior measurement specificity for anxiety induced by performance or interaction stressors. Collectively, these findings suggest that both scales are valid instruments for the assessment of social anxiety. However, there was little evidence for their use as specific measures of performance and general interaction anxiety at the subclinical level. Given that the most recent version of the DSM distinguishes performance anxiety as a distinct dimension of social anxiety, it is important that further work is performed to evaluate the ability of

different social anxiety assessment instruments to provide specificity of measurement in clinical samples.

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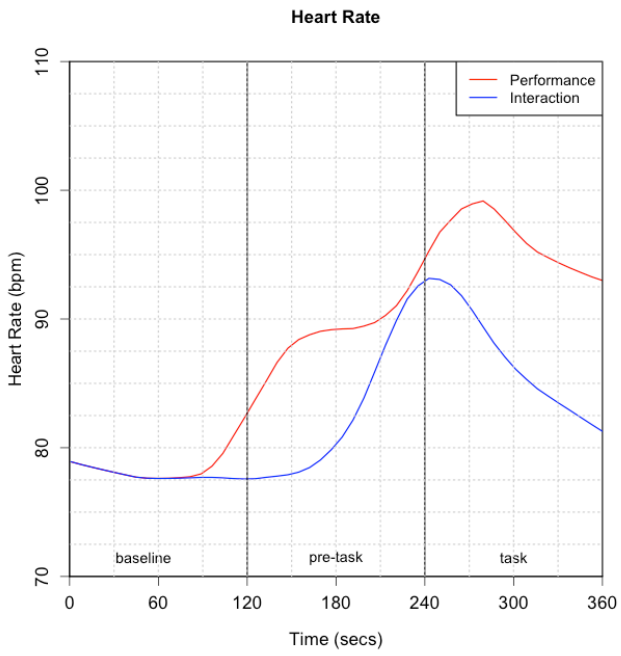
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Performance
Interaction
baseline
pre-task
task
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Time (secs)
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90
100
110
0
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120
180
240
300
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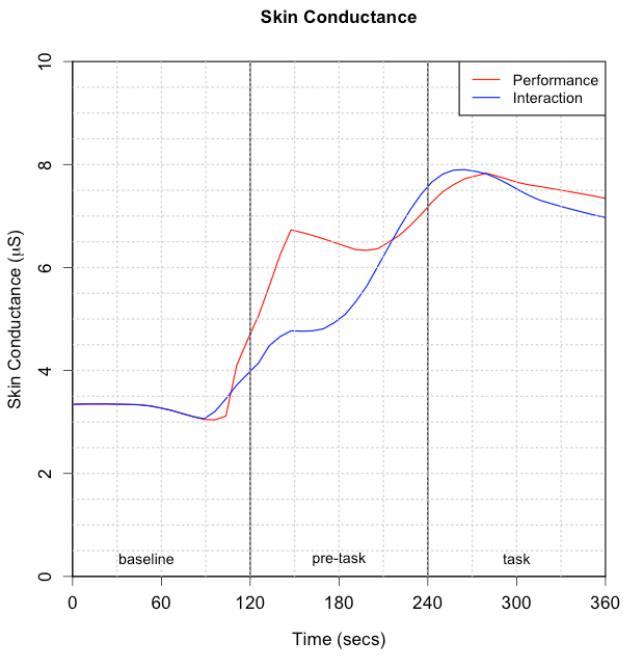
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Performance
Interaction
baseline
pre-task
task
Skin Conductance (µS)
Time (secs)
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4
6
8
10
0
60
120
180
240
300
360

Table 1. Means and SDs for self-report scales and BAT times.

				Performance BAT			Interaction BAT		
	SPS	SIAS	Anxiety (Base)	Anxiety (P)	Anxiety (D)	Time	Anxiety (P)	Anxiety (D)	Time
M	20.0	24.7	3.5/3.0*	4.8	6.0	127s	4.6	5.0	177s
SD	11.6	14.4	2.0/3.0*	2.2	2.4	40.9s	2.2	2.5	13.3s

SPS=Social Phobia Scale, SIAS=Social Interaction Anxiety Scale, Anxiety = 1-10 State Anxiety ratings (Base: Baseline, P: Pre-task, D: During-task)

*These values indicate the median and inter-quartile range for baseline anxiety, given that positive skew was observed for this variable

Table 2. Correlations of SIAS and SPS with anxiety response measures pre-task (immediately after providing task details) and during-task. Shaded correlations should be consistently higher than unshaded correlations within each BAT for each criterion measure to demonstrate discriminant validity.

		Anxiety-SR		Heart Rate		Skin Conductance		Anxiety-OR
		Pre	During	Pre	During	Pre	During	During
Performance BAT	SPS	.62**	.47**	.07	.07	.25*	.28**	.42**
	SIAS	.52**	.47**	.16	.07	.34**	.35**	.44**
Interaction BAT	SPS	.58**	.52**	.29**	.17	.13	.17	.29**
	SIAS	.44**	.44**	.36**	.20†	.11	.18†	.21*

Key: Anxiety-SR = Self-rated anxiety, Anxiety-OR = Observer-rated anxiety

*p < .05, **p <. 01, †p = .05-.10