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HANNE WARREN, LICENCIADA

**AN INVESTIGATION OF SOCIAL APPEARANCE ANXIETY  
AND THE PERCEPTION OF BEING LOOKED AT BY OTHERS**

**Section A: Social Appearance Anxiety in Body Image and Mental Health: A  
Literature Review**

Word Count: 7,998 (42)

**Section B: The Perception of Being Looked at by Others in Low and High  
Social Appearance Anxiety**

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## Summary

Section A presents a systematised literature review of publications regarding social appearance anxiety (SAA) relevant to the fields of body image and mental health. The review included 26 papers which fell into three overarching categories: psychometric studies of measures of SAA, and studies of SAA in clinical and non-clinical samples. It is argued that clinicians may benefit from considering the potential role of SAA when working with people experiencing body image disorders or social anxiety. Future research is recommended to target the cognitive processes underpinning SAA, and hypothetical social experiences consisting of heightened perceptions of being ‘looked at’ in SAA.

Section B presents an experimental study of the perception of being ‘looked at’ in high and low SAA and tests whether self-focussed evaluative attention (SFEA) increases this perception. High SAA individuals estimated more people were looking at them than low SAA individuals, possibly due to higher trait self-focussed attention found in high SAA. Increasing SFEA increased high SAA perceptions of being ‘looked at’ and did not affect perceptions of non-social control stimuli. Psychoeducation and attention training may be beneficial in high SAA. Research focussing on additional cognitive mechanisms underpinning SAA and with minority gender identity groups is recommended.

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## Section A

# Social Appearance Anxiety in Body Image and Mental Health: A Literature Review

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### Abstract

This review answered the question “what is currently known about social appearance anxiety (SAA) in relation to the fields of body image and mental health?”. This question was addressed by identifying relevant search terms and conducting literature searches of four major databases. Literature quality was assessed, and inclusion and exclusion criteria were applied. A total of 26 papers were included in this review. The results indicated that SAA, possibly a subtype of social anxiety, is a unique construct. There are two well-established measures of SAA in use in international research. SAA is associated with high levels of psychological distress and difficulties in social interactions. The concept associates with measures of social anxiety, depression, body image disturbance and body image disorders and may act as a vulnerability for social anxiety and eating disorders. SAA may differ across genders, ages and ethnic groups but further research is required. SAA is perhaps a clinically important variable which is currently poorly understood. Future research could focus on elucidating the cognitive processes underpinning SAA and the factors involved in its development. It may be beneficial for clinicians to consider the role of SAA when working with people experiencing body image disorders and/or social anxiety.

**Keywords:** Social appearance anxiety; fear of negative appearance evaluation; appearance-based social anxiety; body image; mental health.

## Introduction

Fear of being negatively evaluated by others in terms of one's appearance is a concept which has historically received limited attention in research (Hart et al., 2008). However, research has emerged in recent years in which this situational fear has been identified and explored. In the literature, this construct has received various names, including social appearance anxiety (Hart et al., 2008), fear of negative appearance evaluation (Lundgren, Anderson, & Thompson, 2004), appearance-based social anxiety (Titchener & Wong, 2015) and appearance-related social-evaluative anxiety (Anson, Veale, & de Silva, 2012). Despite the differing denominations, the authors all refer to a similar concept: the experience of fear that one's appearance will be judged negatively by others. For ease, this construct will be referred to as social appearance anxiety (SAA) throughout this work.

A related concept is that of social physique anxiety which focuses specifically on physique concerns. Despite some overlap, SAA has a broader focus and includes more general appearance concerns such as complexion, hair and size of facial features as well as physique concerns (Hart et al., 2008; Levinson & Rodebaugh, 2011). SAA also exhibits some similarities with social anxiety disorder (SAD). However, these constructs differ in that SAA refers to fear of negative evaluation specifically of one's appearance. What SAD refers to are fears of negative evaluation by others more generally, and frequently centres on aspects of self-presentation such as showing signs of anxiety, speaking awkwardly or making a mistake, for example (Heckelman & Schneier, 1995, as cited by Clark & Beck, 2010).

It is thought that regardless of a person's actual physical characteristics, their own beliefs, feelings and perceptions about their appearance may be more central in determining how they believe they are viewed by others (Cash & Pruzinsky, 2002). Consequently, a person with an overall negative internalised sense of what they look like, or body image (Veale, Willson & Clarke, 2009), could therefore experience confidence in social

interactions. Those with a more negative body image may experience social inhibition and anxiety (Cash & Pruzinsky, 2002). Indeed, body image disorders such as anorexia nervosa, bulimia nervosa and body dysmorphic disorder are frequently associated with anxiety in social situations (Veale et al., 2009). In recent years, SAA has been proposed as a construct with the potential to increase our understanding of these disorders (Lundgren et al., 2004). It has been conceptualized as a unique construct which taps into both body image and social anxiety issues (Hart et al., 2008).

Until relatively recently, the empirical evidence concerning the relationship between body image and social functioning was sparse (Cash & Pruzinsky, 2002). However, there has been a surge in research interest in SAA within the fields of body image and mental health since it began to be conceptualized within academic literature less than fifteen years ago. To the author's knowledge, no review has yet taken place which summarizes the theoretical and empirical developments in this field. This work seeks to address this gap by providing an overview of the relevant literature, answering the question, "what is currently known about social appearance anxiety in relation to the fields of body image and mental health?".

### **Methodology**

A systematised literature review was carried out. This is defined as a review process in which some, but not all, elements of the systematic review process are included (Grant & Booth, 2009). The databases PsycInfo, Medline, Cochrane Database of Systematic Reviews and Web of Science were searched electronically up to the date 30<sup>th</sup> August 2016. The search terms used are displayed in Table 1.

Table 1

Search terms used for literature review

Category 1 terms	Category 2 term	Category 3 terms
Social-evaluative anxiety	Body image	Fear of negative appearance evaluation
Social anxiety		Appearance-based social anxiety
Social evaluation		Social appearance anxiety
		Appearance-related social anxiety
		Appearance-related social evaluative anxiety

The category one terms were combined using the Boolean operator OR and combined with the category two term ‘body image’ using the Boolean operator AND. The resulting combination of terms were then combined further, using the Boolean operator OR, with the category three terms. The reference lists of relevant articles were then also searched manually. The process of literature selection is elucidated in Figure 1.

### **Inclusion and Exclusion Criteria**

Articles were included if they made reference to the fear of being negatively evaluated by others for one’s appearance whilst also bearing relevance to theory and/or practice within the fields of body image and/or mental health. Due to the scarcity of literature in this area unpublished research was included and no time restrictions were imposed. Articles were excluded if they were not written in English and/or if quality was inadequate.

### **Assessment of Quality**

The quality of the studies was evaluated using the standard quality assessment criteria for evaluating primary research papers from a variety of fields (Kmet, Lee & Cook, 2004) which offers a systematic, reproducible and quantitative assessment system of the quality of a broad range of research designs. Limitations of these evaluation scales include the fact that evaluation and scoring of the literature is subjective and, despite the provision of guidelines for scoring, inter-rater differences can be anticipated. Furthermore, utilising percentage scores for rating the literature does not inform the reader as to the specific strengths and

weaknesses of a publication and literature with the same quality score may vary greatly with regards to their individual methodological limitations. In line with previous literature, any study with a quality percentage score lower than 50 was considered to possess poor methodological quality (Ghannouchi, Speyer, Doma, Cordier, & Verin, 2016) and was consequently excluded.

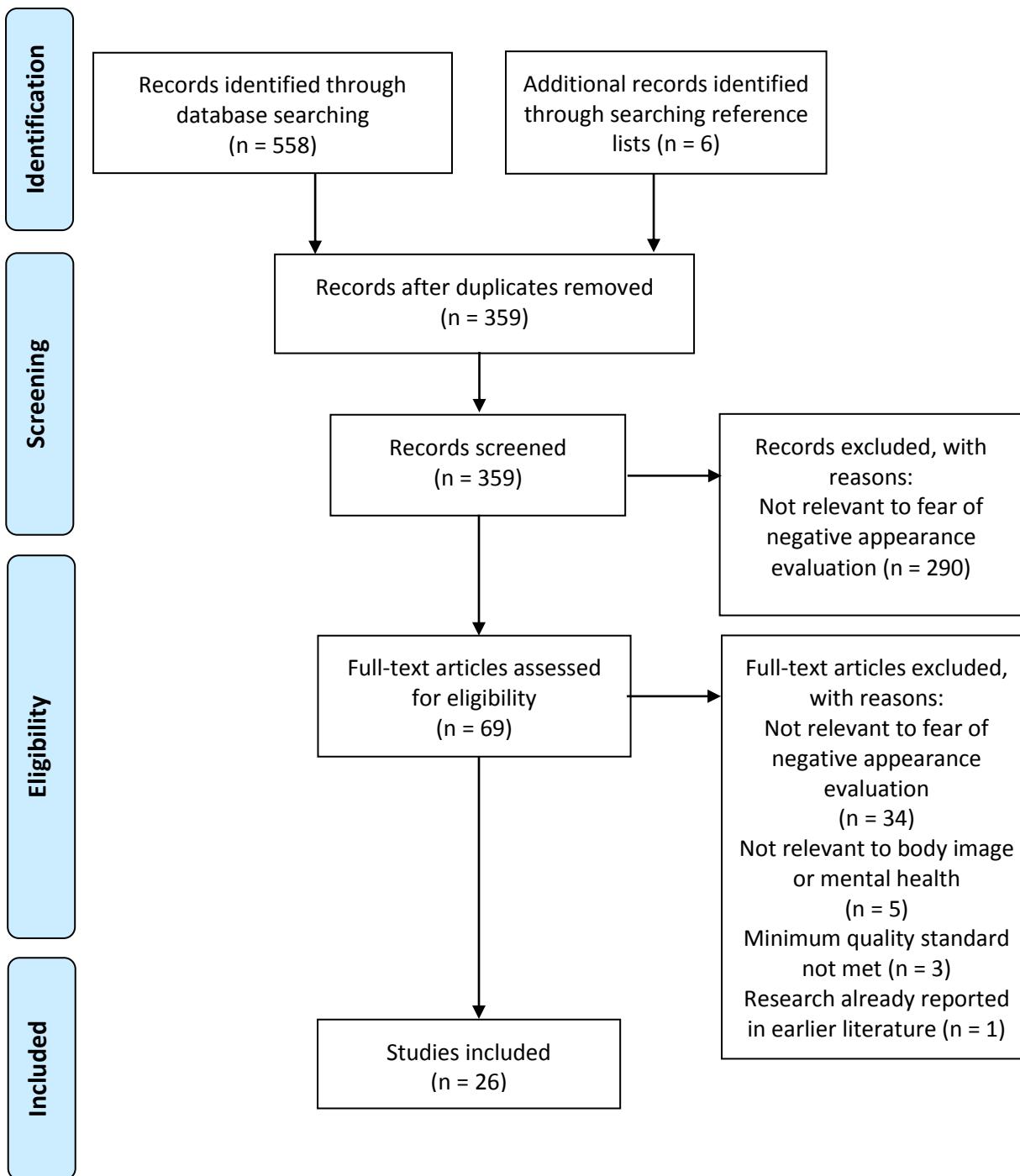


Figure 1. Adapted PRISMA flow diagram (Moher, Liberati, Tetzlaff , Altman, The PRISMA Group, 2009) depicting the process of literature selection.

## Results

As can be appreciated in Figure 1, a total of 26 papers were selected for inclusion in this review. A summary of these papers is presented in Table 2. All of the publications reported quantitative research studies.

To describe what is known about the concept of social appearance anxiety in relation to the fields of body image and mental health, the 26 studies have been arranged into three overarching groups. Psychometric studies are reported first. These are then followed by a discussion of what the remaining studies have suggested about this concept, firstly in relation to clinical samples and then in relation to non-clinical samples. The studies are grouped as follows:

- psychometric studies of instruments of measurement of SAA, comprised of:
  - psychometric studies of the Fear of Negative Evaluation Scale (Thomas, Keery, Williams & Thompson, 1998, as cited in Lundgren et al., 2004) (n = 2)
  - psychometric studies of the Social Appearance Anxiety Scale (Hart et al., 2008) (n = 5)
- studies in which SAA was measured in clinical samples, comprised of:
  - samples of people with body image conditions (n = 2)
  - physical health-related samples (n = 2)
- studies in which SAA was measured in non-clinical samples, comprised of:
  - mixed gender adult samples (n = 4)\*
  - female-only adult samples (n = 7)\*
  - child and adolescent samples (n = 5)

One publication (Levinson et al., 2013) presented two studies with distinct samples.

Each of these studies is presented in the corresponding category (denoted with an asterisk

above), hence the total number of studies described is 27. The following review is structured according to the groups described above.

Every piece of literature has been given a quality percentage score, based on the standard quality assessment criteria for evaluating primary research papers from a variety of fields (Kmet et al., 2004). These scores are presented in Table 2. In line with the literature (Ghannouchi et al., 2016) these quality scores can be interpreted as follows: a score of at least 80% indicates literature of strong quality, a score of 60-79% indicates good quality and scores of 50-59% indicate adequate quality. A score less than 50% was considered to indicate poor methodological quality and resulted in exclusion of the research. The studies included in this review were found to have percentage scores ranging from 67 – 100 indicating that every study included had at least good methodological quality. Generally, the strengths of the studies contained in this review included good descriptions of the research questions and objectives, easily identifiable and appropriate study designs, and the use of well-defined and robust outcome measures. Methodological issues encountered included, at times, incomplete descriptions of the participant selection strategy and methods and a lack of reporting of estimates of variance for all main results. There was also a bias towards the selection of white, female undergraduate samples which produced some limitations to the generalisability of a subset of the findings in this review. Whilst some authors provide a rationale for the selection of samples of these specific characteristics, many do not. It could therefore be suggested that perhaps convenience sampling strategies have at times been favoured at the expense of the external validity of a proportion of the studies. Finally, the majority of the studies used a cross-sectional design, which limits the conclusions which can be drawn regarding causal relations between the variables examined.

Table 2.

List of reviewed studies.

Author & date	Sample details	Method	Relevant measures	Relevant findings	QS
Altabe, Wood, Herbozo, and Thompson (2004) USA	241 females aged 18- 25	Correlational design to assess convergent validity	FNAES and Physical Appearance Ambiguous Feedback Scale (PAAFS) -Appearance Subscale	SAA was significantly correlated with the PAAFS-Appearance subscale	78%
Anson, Veale, and de Silva (2012) UK	41 mixed gender adults with BDD and 41 adult healthy controls	Between groups comparison using measures of social-evaluative and self-evaluative appearance concerns	FNAES and Self-Social Appearance Concerns Scale (SSACS)	BDD participants reported significantly higher SAA than controls, including when BDD patients with/not assessed for social phobia were excluded. Every item of the SSACS except one was found to correlate moderately or strongly with the FNAES for participants as a whole	77%
Baratelli (2008) <sup>a</sup> Venezuela	336 women aged 18 to 21	Correlational design to assess the relationships between body image dissatisfaction and a range of socio-cultural variables	FNAES, Body-Esteem Scale for Adolescent and Adults (BESAA) and Sociocultural Attitudes Toward Appearance Questionnaire - Revised (SATAQ-R).	SAA was a significant predictor of body image dissatisfaction. SAA significantly correlated with internalisation of socio-cultural standards of beauty and awareness of these standards	94%
Bissell and Hays (2011) USA	601 boys and girls aged 7 to 13	Experimental design assessing predictors of attitudes of explicit anti-fat bias	FNAES and explicit anti-fat bias measured by the child's attitudes towards pictures of overweight/thin boys/girls and a general measure of anti-fat bias	SAA was found to be a significant predictor of explicit anti-fat attitudes	69%

Table 2 (continued)

Author & date	Sample details	Method	Relevant measures	Relevant findings	QS
Boersma and Jarry (2013) Canada	240 women aged 18 to 53, 116 control group and 117 intervention	Experimental study examining the effects of exposure to weight-based derogatory media on body image self-esteem and moderating variables	FNAES, Body Image States Scale (BISS), State Self-Esteem Scale (SSES), Appearance Schemas Inventory-Revised (ASI-R), Rosenberg Self-Esteem Scale (RSES) and BDI-II	Weight-based derogatory media contributed to greater SAA. SAA correlated positively with investment in body image and depression and negatively with state appearance self-esteem, self-esteem and body satisfaction. Weaker correlations were found with negative affect and (negatively) with age. No association was found with BMI.	85%
Claes et al. (2012) Belgium	60 female eating disorder patients aged 15 - 57	Study of psychometric properties of the SAAS in new population (factor structure, internal consistency and convergent validity)	SAAS, Patient Health Questionnaire-9 (PHQ-9), Eating Disorder Inventory – 2 (EDI-2), and Dimensional Assessment of Personality Pathology-Short Form (DAPP-SF)	The SAAS was found to robustly assess anxiety about negative evaluation of one's appearance in this population. It was unifactorial and had adequate internal consistency. Significant positive relations were found with eating disorder symptoms, emotional problems and interpersonal problems.	78%
Dakanalis et al. (2016) Italy	Community (n = 1995) and clinical eating disorder (n = 703) male and female adolescents aged 11 to 18	Study of psychometric properties of SAAS in new population (factor structure, discriminant validity, convergent validity and factor analysis)	SAAS, Social Avoidance and Distress Scale (SADS), Body-Image Ideals Questionnaire (BIQ), Eating Attitudes Test-26 (EAT-26), Social Interaction Anxiety Scale (SIAS), Social Phobia Scale (SPS), Brief Fear of Negative Evaluation Scale (BFNE), measure of eating disorder psychopathology (EDE-12.OD) and depressive symptoms (K-SADS-P)	One-factor structure upheld across samples, gender, age and diagnoses. The SAAS showed high internal consistency and test-retest reliability. Construct validity and discriminant validity were appropriate. Only SAA strongly differentiated those with any ED from those with comorbid social anxiety disorder.	94%

Table 2 (continued)

Author & date	Sample details	Method	Relevant measures	Relevant findings	QS
Hart et al. (2008) Canada	Three mixed gender undergraduate samples: N = 512, N = 853 and N = 541	Study of psychometric properties of the SAAS (factor structure, test-retest reliability, internal consistency and convergent validity)	SAAS, Social Physique Anxiety Scale (SPAS), Brief Fear of Negative Evaluation Scale (BFNE), Social Interaction Anxiety Scale (SIAS), Social Phobia Scale (SPS), Appearance Schemas Inventory (ASI), Body Image Ideals Questionnaire (BIQ), MBSRQ and BDI	The 16-item SAAS had good reliability. Convergent validity with measures of social anxiety and negative body image was demonstrated. SAAS better predicted social anxiety than negative body image indicators. SAAS also predicted depression when controlling social anxiety and negative body image.	89%
Hart, Rotondi, Souleymano, and Brennan (2015) Canada	389 racially diverse Canadian gay and bisexual men	Study of psychometric properties of the SAAS in new population (factor structure, internal consistency, convergent validity, and associations with new variables)	SAAS, Drive for Muscularity Scale (DMS), Male Body Attitudes Scale (MBAS), Eating Attitude Test (EAT-26), Internalized Homophobia Scale, Racism and Life Experiences Scale (RALES), HADS, Sexual Objectification Experiences Scale (SOES) and Multidimensional Scale of Perceived Social Support (MSPSS)	SAAS was unifactorial with good internal consistency. Convergent validity was demonstrated with measures of anxiety, body image dissatisfaction and depression. SAAS was associated with racist experiences after controlling for anxiety and body image dissatisfaction. A significant association was also found with social support.	100%
Herbozo and Thompson (2006) USA	246 undergraduate female students aged 18–25	Correlation and regression analyses of a measure of verbal commentary on physical appearance	FNAES, Verbal Commentary on Physical Appearance Scale (VCOPAS), MBSRQ-Appearance Evaluation subscale, Eating Disorders Inventory – Body Dissatisfaction Subscale (EDI-BD) and Rosenberg Self-Esteem Scale (RSES)	Lower appearance and body satisfaction and greater SAA were associated with higher ratings of harmful effect of negative body-related commentary. SAA also displayed a small and positive association with frequency of negative appearance-related commentary. The negative weight and shape effect subscale significantly and strongly predicted SAA.	78%

Table 2 (continued)

Author & date	Sample details	Method	Relevant measures	Relevant findings	QS
Kinner (2015) <sup>a</sup> USA	Routine (n = 78) and emergency (n = 42) dental patients aged 18 – 75	Quantitative analyses examining variables related to dental anxiety, dental-procedure phobia, dental avoidance, and oral health-related quality of life	SAAS, Short-Form Oral Health Impact Profile (OHIP-14), Modified Dental Anxiety Scale (MDAS) and experiential avoidance measured by Acceptance and Action Questionnaire-II (AAQ-II), specific phobia module of the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV), clinical severity rating (CSR) of phobias	SAA associated with significant weak-moderate positive correlations with dental anxiety, clinical severity rating of phobia of dental procedures, and impairment in oral health-related quality of life. Avoidance of dental care was not related with SAA. Those with phobia scored more highly on the SAAS than those without phobia.	85%
Koskina et al. (2011) UK	Women with bulimia nervosa (n = 30) and healthy controls (n = 40)	Between groups and correlational designs to examine SAA and eating disorder variables in these samples	SAAS and the Eating Disorder Examination Questionnaire (EDE-Q)	Women with bulimia nervosa had significantly higher SAA than controls. In bulimia nervosa, SAA significantly and positively correlated with global ED subscales and dietary restraint but not weight or shape concern or BMI. In controls, SAA correlated with shape, weight and eating concerns, global eating disturbance subscales and BMI.	82%
Levinson and Rodebaugh (2011) USA	Mixed gender, predominantly White and female undergraduates Study 1: N = 323, Study 2: N = 118	Study of psychometric properties of the SAAS (factor structure, convergent and divergent validity)	Study 1: SAAS, Social Interaction Anxiety Scale (SIAS), Brief Fear of Negative Evaluation Scale (BFNE), Mini-International Personality Item Pool and the Positive and Negative Affect Schedule (PANAS). Study 2: SAAS, height, weight, body fat content, Rosenberg Self-Esteem Measure (RSEM), State-Trait Anxiety Measure (STAII-A), Sympathy Facet, and Brief State Anxiety Measure	The 16-item unifactorial structure of the SAAS was confirmed. Strong associations with anxiety, moderate correlations with self-esteem, negative affect, neuroticism and extraversion were found. Divergent relationships with personality factors were also found. SAAS was the best predictor of social anxiety, fear of negative evaluation and social interaction anxiety. SAAS best predicted state anxiety during the SAA-inducing behavioural task.	94%

Table 2 (continued)

Author & date	Sample details	Method	Relevant measures	Relevant findings	QS
Levinson and Rodebaugh (2012) USA	118 undergraduates mostly White and female	Correlation analyses of 5 domains of social anxiety and indicators of disordered eating.  Evaluation of two models of social anxiety, fear of negative evaluation (FNE) and disordered eating	SAAS, Social Interaction Anxiety Scale (SIAS), Brief Fear of Negative Evaluation Scale (BFNE), Social Phobia Scale (SPS), Fear of Positive Evaluation Scale (FPES), Eating Disorder Inventory-2 (EDI-2), Eating Disorder Examination-Q (EDE-Q)	SAAS correlated with four domains of social anxiety, all EDE-Q subscales and the subscales of the EDI-2. SAA predicted body dissatisfaction, bulimic symptoms, shape, weight and eating concerns over and above fear of scrutiny, social interaction anxiety, and fear of positive evaluation. A vulnerability model of SAA and FNE for both ED symptoms and social anxiety was supported.	83%
Levinson and Rodebaugh (2015) USA	N = 160 predominantly White college women	Experimental design to test the vulnerability model of fear of negative evaluation (FNE) and SAA to social anxiety and disordered eating	SAAS; adapted SAAS measuring state SAA, Brief Fear of Negative Evaluation Scale (BFNE), adapted BFNE measuring state FNE, state social anxiety measured with Subjective Units of Distress Scale (SUDS), state body dissatisfaction measured with Eating Disorder Inventory-2 (EDI-2), eating behaviour measured by weight of food consumed	Women high in trait and state SAA experienced the highest levels of body dissatisfaction. Those with increased state FNE increased food consumption; those who experienced increased SAA decreased food consumption. Both increased FNE and SAA were associated with elevated social anxiety.	83%
Levinson et al. (2013) USA	Study 1: N = 236 mixed gender undergraduates. Study 2: N = 156 female undergraduates	Study 1: Correlational design testing a vulnerability model of SAA, fear of negative evaluation (FNE) and perfectionism to social anxiety and ED symptoms. Study 2: replication and addition of negative affect and depression	Study 1: SAAS, the Frost Multidimensional Perfectionism Scale (FMPS), Brief Fear of Negative Evaluation Scale (BFNE), social anxiety symptom composite, SIAS, Social Phobia Scale and EDI-2  Study 2: The above plus BDI-II and Positive and Negative Affect Schedule-Trait Version (PANAS)	Study 1: SAA was the only shared risk factor for ED symptoms and social anxiety. Study 2: The above finding was maintained after adding trait negative affect and depression to the model.	83%

Table 2 (continued)

Author & date	Sample details	Method	Relevant measures	Relevant findings	QS
Lundgren et al. (2004) USA	N = 183 college students	Study of psychometric properties of the Perception of Teasing Scale-Underweight (POTS-U)	FNAES and POTS-U subscales: weight event, weight impact, competency event and competency impact	Competency-related teasing correlated moderately with SAA, but not weight-related teasing.	78%
Lundgren, Anderson and Thompson (2004) USA	Study 1: N = 165 college females. Study 2: N = 160 undergraduates (58% female)	Two studies of psychometric properties and correlates of the FNAES	Study 1: FNAES, Body Shape Questionnaire (BSQ), Body Image Assessment – Obesity (BIA-O), Three-Factor Eating Questionnaire: Cognitive Restraint Scale (TFEQ-R), Restraint Scale (RS), BDI-II, State-Trait Anxiety Inventory (STAI), Fear of Negative Evaluation Scale. Study 2: MBSRQ Appearance Scales, Multi-Axial Eating Disorder Scale, Social Physique Anxiety Scale (SPAS), BDI-II, Rosenberg Self-Esteem Inventory (RSE)	Two items were eliminated producing a six-item unifactorial measure with good internal consistency. Significant associations found with measures of body image and eating disturbance. FNAES was able to predict eating disturbance beyond that explained by fear of negative evaluation or body image disturbance. Study 2: FNAES correlated significantly with measures of social physique anxiety (SPA), body image, eating attitude and mood. It predicted body image, eating attitude and mood beyond that explained by SPA. No correlation found with BMI.	89%
Mackey and La Greca (2008) USA	N = 236 adolescent girls from diverse ethnic backgrounds	Cross-sectional design to examine associations between peer crowd affiliation, peers and weight control behaviours	FNAES, Peer Crowds Questionnaire, Body Esteem Scale for Adolescents and Adults, Peer Dieting Scale, Perceived Sociocultural Pressure Scale, McKnight Risk Factor Survey for peer teasing about weight	SAA correlated positively and highly with body esteem, moderately with weight satisfaction, peer dieting, peer pressure to be thin, and weakly with peer teasing, BMI percentile and weakly and negatively with Black ethnicity.	94%
Maïano, Morin, Lanfranchi and Therme (2013) France	N = 285 adolescents aged 11-18 years	One of three studies. Study 3: Convergent validity of the Eating Attitudes Test-18 (EAT-18)	Eating Attitudes Test-18 (EAT-18), French version of the FNAES	The French FNAES was a criterion measure for this study. All six scales of EAT-18 moderately associated with the FNAES.	83%

Table 2 (continued)

Author & date	Sample details	Method	Relevant measures	Relevant findings	QS
Maïano, Morin, Monthuy- Blanc and Garbarino (2010) France	3 studies: N = 22, N = 507, N = 155. Aged 9-13, 11-18 and 11-18 respectively	3 studies of content, factorial and convergent validities of FNAES adapted for French children and adolescents	FNAES - version for French children and adolescents, French versions of the Eating Attitudes Test (EAT), Fear of Negative Evaluation Scale and Rosenberg Self Esteem Inventory (RSEI)	Content and formulation of items was adequate. One item removed leaving a five-item measure. Factor validity was demonstrated. Reliability and convergent validity was adequate. The latent mean structure was not invariant across genders; girls had higher latent mean scores.	82%
Morin and Maïano (2011) France	N = 2029 adolescents aged 11-18	Study of psychometric properties of Physical Self-Inventory (PSI-S) short-form	PSI-S and FNAES	Global self-worth subscale correlated moderately and negatively with SAA. SAA correlated weakly and negatively with physical self-worth, physical condition and physical attractiveness.	89%
Seki and Dilmaç (2015) Turkey	N = 600 adolescents aged 13-18	Structural equation modelling to test relationships between variables	SAAS-Adolescent Form (SAAS-A) - Turkish version, Adolescent Subjective Well-being Scale, Human Values Scale (HVS)	Human values were found to correlate weakly and negatively with, and predict, SAA. Human values correlated moderately and positively with subjective well-being. SAA correlated weakly and negatively with subjective well-being.	67%
Titchener and Wong (2014) Australia	N = 90 female undergraduates	Examined associations between SAA, social anxiety and BMI and mediating roles of body dissatisfaction and emotional eating	SAAS, BMI, Depression Anxiety Stress Scale (DASS), Demographic Health and Lifestyle Questionnaire (DHLQ), Social Phobia Scale (SPS), Social Interaction Anxiety Scale (SIAS), Physical Appearance Subscale of Negative Self-Portrayal Scale, Body Dissatisfaction subscale of the Eating Disorder Inventory (EDI-BD), emotional eating measured by Anxiety subscale of the Emotional Eating Scale (EES)	BMI was associated with SAA but not social anxiety. Body image dissatisfaction mediated the relationship after controlling for age, ethnicity, medical conditions and medications, smoking, alcohol consumption and depression. Emotional eating did not mediate the relationship.	83%

Table 2 (continued)

Author & date	Sample details	Method	Relevant measures	Relevant findings	QS
Versnel et al. (2012) Netherlands	N = 59 adults with severe congenital facial disfigurement, N = 59 adults with traumatically acquired facial deformity, N = 120 control group	Quantitative study examining psychological functioning of adults with severe congenital facial disfigurement versus those with acquired facial disfigurement and controls	FNAES, Rosenberg Self-Esteem Scale, HADS, Adult Self-Report (assessing adaptive functioning/behavioural problems), 36-Item Short-Form Health Survey (measuring quality of life), and satisfaction with facial appearance	The congenital deformity group did not differ from the acquired deformity group in SAA or satisfaction with facial appearance but differed significantly from the control group. SAA was a significant predictor of anxiety, depression, and internalising problems, externalising problems and total problem score in this group.	73%
White (2013) <sup>a</sup> USA	N = 904 ethnically diverse college students	Quantitative study examining a relationship model between body checking cognitions and body checking behaviour with eating pathology, SAA, Social Physique Anxiety (SPA) and clinical impairment	SAAS, Eating Disorder Examination Questionnaire (EDE-Q), Body Checking Questionnaire (BCQ), Body Checking Cognitions Scale (BCCS), Clinical Impairment Assessment (CIA), Social Physique Anxiety Scale (SPAS)	Re-specified models indicated that SAA was more salient to the prediction of body checking behaviours in men than women, for whom SPA was a better predictor.	89%

Note: BDD = body dysmorphic disorder; BDI = Beck Depression Inventory; BDI-II = Beck Depression Inventory II; BMI = body mass index; ED = eating disorder; FNAES = Fear of Negative Appearance Evaluation Scale; HADS = Hospital Anxiety and Depression Scale; MBSRQ = Multidimensional Body-Self Relations Questionnaire; QS = quality score; SAA = social appearance anxiety; SAAS = Social Appearance Anxiety Scale.

<sup>a</sup>This is unpublished post-graduate research and it will therefore not have undergone the rigorous processes of evaluation characteristic of published material. Additionally, this material will not have been subject to the same word limitation constraints as the published literature included in this review, which is likely to facilitate this unpublished material scoring more highly when using quality evaluation checklists.

### **Psychometric Studies of Measures of Social Appearance Anxiety**

The literature search identified several psychometric studies relating to two different measures of the concept of social appearance anxiety. These are now presented.

**Fear of Negative Appearance Evaluation Scale (FNAES).** This measure of social appearance anxiety was originally developed from the Brief Fear of Negative Evaluation Scale (Leary, 1983 as cited in Lundgren et al., 2004). The Fear of Negative Appearance Evaluation Scale (FNAES) is an eight-item self-report measure that aims to assess apprehension about appearance evaluation by others (Lundgren et al., 2004). The measure was first presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Washington, DC by Thomas, Keery, Williams and Thompson (1998).

Unfortunately, the paper could not be located for the purpose of this review. It was reported in other literature (Maiano, Morin, Monthuy Blanc, & Garbarino, 2010) that Thomas et al. (1998) used a sample of 272 North American women and found support for the eight-item structure, evidence of good internal consistency and support for convergent validity through correlations with measures of body image and internalisation of media images and messages. Lundgren et al. (2004) published two studies examining the psychometric properties and correlates of this measure. The first study, with college females, found that the measure, as theoretically expected, was unifactorial. However, two reverse-scored items had low factor loadings and were eliminated. The six-item scale had high internal consistency. The measure demonstrated convergent validity through significant correlations with measures of eating disturbance and body image, including a measure of fear of negative evaluation. The FNAES was also able to predict variables measuring eating disturbance beyond that accounted for by fear of negative evaluation or body image disturbance. The second study with mixed gender college students found that the FNAES correlated sufficiently with social physique anxiety to demonstrate convergent validity but without excessive concept overlap.

It also correlated with and predicted levels of body image, mood and eating attitude beyond the variance explained by social physique anxiety. Interestingly, the FNAES did not correlate with levels of body mass index (BMI). Methodological issues within these studies is the introduction of bias towards young Caucasian females in the first study, and towards young Caucasian adults generally in the second.

Later, a French version of the FNAES for children and adolescents was developed and the psychometric properties were examined (Maïano et al., 2010). The content and formulation of the items were found to be adequate. One item was highly correlated with the other items and was therefore eliminated, leaving a five-item measure. The predicted unifactorial factor structure was found. The temporal stability of the measure was tested with a small sample ( $n = 23$ ) over a two-week period and was adequate. Convergent validity was confirmed through significant moderate associations with French versions of measures of fear of negative evaluation, disturbed eating attitudes, social physique anxiety and (negatively) with self-esteem. The latent mean score of the FNAES was significantly higher in girls than in boys.

**Social Appearance Anxiety Scale (SAAS).** Psychometric studies of the second measure of the construct of social appearance anxiety identified are now discussed. The Social Appearance Anxiety Scale (SAAS) was published by Hart et al. in 2008. It is a self-report measure purporting to measure a person's fear of situations in which their overall appearance, including but not limited to body shape, may be evaluated. The items of the measure were derived from measures of social anxiety, body image dissatisfaction and body dysmorphic disorder (BDD). The SAAS originally contained 17 items; however the authors dropped one item due to its low factor loading, resulting in a measure of 16 items. Respondents are asked to indicate how characteristic each of the 16 statements are of them on a Likert-type scale ranging from 1 (not at all) to 5 (extremely). An example of the items

includes: "I worry that others talk about flaws in my appearance when I'm not around". The authors analysed the psychometric properties of the measure with large samples of undergraduate students. In line with studies of the FNAES, the measure was found to be unidimensional. Internal consistency and one-month test-retest reliability were both good. Scores on the SAAS correlated strongly with measures of social anxiety and the authors concluded that SAA could be thought of as falling with the broader class of social anxiety. The SAAS also associated with other measures of appearance-related concerns; significant moderate associations with social physique anxiety and measures of negative body image provided evidence of convergent validity. Moderate correlations were also found with a measure of depression and, in fact, SAA was shown to significantly predict levels of depression when controlling for both social anxiety and negative body image. No gender differences were found in SAA scores. An omission of the study was the lack of appraisal of the divergent or predictive validity of the scale. Additionally, the participant selection strategy introduced bias towards young female adults.

Levinson and Rodebaugh (2011) further examined the psychometric properties of the SAAS in undergraduates who were mostly White females aged around 19 years of age. These authors, like Hart et al. (2008), concluded that SAA might be best conceptualised as a form of social anxiety. Factor analysis also confirmed the 16-item unifactorial structure proposed by Hart et al. (2008) as the best fit. Convergent validity was demonstrated through strong associations with measures of social interaction anxiety, fear of negative evaluation and trait anxiety. Moderate correlations were found with self-esteem, negative affect, neuroticism and extraversion in the theoretically logical directions. Appropriate divergent relationships were found with the personality factors of agreeableness, openness and conscientiousness. SAAS scores were found to be a unique predictor of social anxiety over and above trait anxiety, negative affect, self-esteem and certain personality variables. They were the best predictor of

both social interaction anxiety and fear of negative evaluation, better than negative affect, neuroticism and extraversion. SAA also predicted social interaction anxiety better than trait anxiety and self-esteem. A behavioural task was designed which purported to activate people's SAA. SAA scores predicted individuals' feelings of state anxiety during this task better than other, relevant variables examined. This provided strong evidence of validity of the measure.

Claes et al. (2012) later assessed the validity of the SAAS in a sample of young ( $M = 27.82$  years,  $S.D. = 9.76$ ) females with a DSM-IV diagnosis of an eating disorder (ED) (45% anorexia nervosa, 27% bulimia nervosa, 28% eating disorder not otherwise specified). The SAAS was found to be adequate in assessing anxiety about being evaluated negatively about one's appearance in this group. As already discussed, the instrument was theoretically predicted to have one factor. This was upheld through confirmatory factor analysis. Internal consistency was excellent. Convergent validity was demonstrated through significant, moderate and positive associations with ED symptomatology (drive for thinness and body dissatisfaction) and depression. The SAAS was also associated with other emotional problems (anxiety, emotional lability and identity problems) as well as interpersonal problems (low affiliation, suspiciousness and submissiveness) in this group. Again, predictions regarding significant associations with BMI were not sustained. Although this study had good methodological quality, it did not examine the discriminant or predictive validity of the measure and generalisation of the findings to, for example, males or older adults was hindered by the specificity of the sample characteristics.

The next psychometric study of the SAAS sought to extend research of this measure to Canadian gay and bisexual men (GBM) of colour (Hart, Rotondi, Souleymanov, & Brennan, 2015). SAA was predicted to be a relevant construct for GBM as both social anxiety and ED had been demonstrated to be more prevalent among this group than in

heterosexual men, as had body image dissatisfaction. As predicted, and in line with previous psychometric studies, the scale was found to be unifactorial and to have good internal consistency. Convergent validity was demonstrated through significant and expected associations with measures of body image dissatisfaction, ED symptoms and concerns, and symptoms of anxiety and depression. SAA was also found to weakly associate with levels of internalised homophobia and gay racism in these men, even when controlling for anxiety and body image dissatisfaction. Additionally, SAA was found to associate weakly and negatively with social support.

Finally, Dakanalis et al. (2016) carried out a validity study of an Italian version of the SAAS with large samples of non-clinical adolescents and adolescents with ED in Italy. In line with previous studies, the one-factor structure was upheld and high internal consistency and 3-week test-retest reliability were demonstrated. Within the non-clinical sample, the expected association was found between SAA and body image dissatisfaction in addition to a strong association with teasing about appearance, in line with earlier findings by Herbozo and Thompson (2006). Significant associations were also found with ED symptoms, in line with previous studies, and also with social avoidance. Within the clinical sample, the expected association was found with depression severity and strong associations were found with severity of ED pathology, fear of interacting with others and fear of being scrutinized and negatively evaluated by other people. Importantly, the association between SAA scores and the brief fear of negative evaluation scale was too low to indicate significant construct overlap. As well as evidence of convergent validity, the authors also, and possibly for the first time, provided evidence of discriminant validity of the SAAS. The SAAS was able to discriminate community adolescents with low and high levels of ED symptomatology as well as being able to discriminate community adolescents from those with an ED. Finally, when compared to measures of fear of scrutiny, fear of negative evaluation and fear of social

interactions, the SAAS was the only measure which could differentiate each ED diagnostic group (anorexia nervosa, bulimia nervosa, eating disorder not otherwise specified) with comorbid SAD from each ED diagnostic group without SAD. People with social anxiety as well as an ED scored more highly on the SAAS than those with only an ED.

### **Studies with Clinical Samples**

Studies investigating the concept of SAA with clinical samples are now presented. Studies with samples of people with body image-related conditions are described first, followed by studies with physical health-related samples.

**People with body image-related conditions.** The construct of SAA has been researched in body image-related clinical samples using both the SAAS and the FNAES.

Firstly, SAA and ED cognitions and behaviours were investigated in women with bulimia nervosa (BN) and healthy controls (Koskina, Van den Eynde, Meisel, Campbell, & Schmidt, 2011). As expected, women with BN scored significantly more highly in SAA than the controls. In those with BN, SAA scores were significantly and positively correlated with global ED subscales and dietary restraint. However, they were not associated with weight or shape concern or BMI. In the control sample, SAA correlated with shape, weight and eating concerns, global eating disturbance subscales and, for the first time, BMI. However, despite the overall good methodological quality, the relatively small sample sizes used in this study limit the strength of the findings.

The following year, a UK clinical study compared levels of SAA in people with BDD and healthy controls (Anson et al., 2012). SAA scores were significantly higher in the BDD group than in the controls and neared maximum possible scores. This difference was retained even when those with BDD with ( $N = 5$ ) or not assessed for ( $N = 15$ ) a diagnosis of social phobia were excluded. The authors also developed a 12-item measure asking about individuals' own views, and their beliefs about others' views, of their physical appearance

called the Self-Social Appearance Concerns Scale (SSACS). Correlation analyses showed that, for all the participants together, every item of the SSCAS correlated at least weakly, and most moderately or strongly, with the measure of SAA. As would be theoretically expected, the highest correlations were found for the items of the SSACS representing anxiety ratings when considering the perceived beliefs of others regarding both overall ( $r = .83$ ) and specific ( $r = .87$ ) physical appearance. A limitation of this study was the lack of inclusion of a pertinent clinical control group to assess the extent to which the findings were specific to people with a diagnosis of BDD.

**Studies of SAA with physical health-related samples.** Firstly, a study was carried out with a sample of adults with severe congenital facial disfigurements (Versnel, Plomp, Passchier, Duivenvoorden, & Mathijssen, 2012). The authors found that this group did not differ in its average level of SAA or facial appearance satisfaction from a group with acquired facial deformity. A difficulty with the publication was that the quantitative results were not always reported fully; although the authors reported that those with a severe congenital deformity differed significantly from a control group in their levels of SAA, they did not report all group means or explain in what way the groups were different in their levels of SAA. Nonetheless, SAA was found to be a significant predictor of anxiety, depression, and internalising problems, externalising problems and total problem score for this clinical group.

Second, Kinner (2015) aimed to examine the correlates of dental anxiety, specific phobia of dental procedures and oral health-related quality of life in adult dental patients. SAA was found to associate weakly/moderately and positively with these variables. Those with dental phobia reported significantly higher levels of SAA than those without dental phobia. Despite predictions, no association was found between SAA and avoidance of dental procedures.

### **Studies with Non-Clinical Samples**

Studies researching the SAA construct with non-clinical samples are now presented.

Studies with mixed gender adult samples are discussed first followed by those with female-only adult samples. Finally, studies researching child and adolescent samples are outlined.

**Studies with mixed gender adult samples.** Firstly, a measure of SAA was administered to a sample of college students as a potential indicator of convergent validity for a new measure, the Perception of Teasing in Underweight Persons (POTS-U) (Lundgren, Anderson, Thompson, Shapiro, & Paulosky, 2004). SAA was found to correlate significantly and moderately with competency-related teasing. No association was found with weight-related teasing. A methodological limitation of this study was the participant selection strategy which was biased towards young, Caucasian, female adults.

Several years later, Levinson and Rodebaugh (2012) examined five domains of social anxiety which included SAA, as well as social interaction anxiety, fear of scrutiny, fear of positive evaluation, and fear of negative evaluation (FNE) in predominantly young (mean age = 19.31, S.D. = 1.2), White, female undergraduates. In line with earlier studies, SAA correlated moderately with social interaction anxiety, FNE and social phobia. SAA associated significantly but weakly with fear of positive evaluation. SAA also correlated with subscales of an ED measure. SAA was shown to predict body dissatisfaction; shape, weight and eating concerns; and bulimic symptoms better than social interaction anxiety, fear of positive evaluation or fear of scrutiny. The authors also examined two models of constructs related to social anxiety, disordered eating and SAA. The model in which both SAA and FNE act as vulnerabilities for ED symptoms and social anxiety was supported.

Continuing the previous work, Levinson et al. (2013), in the first of a two-study publication, examined a hypothetical model in which FNE, SAA and perfectionism were shared vulnerabilities for social anxiety and ED symptoms. The sampling strategy used

introduced similar biases to previous studies and produced a sample comprised of mostly White (90%) females (74%) around 19 years of age. SAA resulted to be the only variable which acted as a risk factor for both social anxiety and ED symptoms. FNE and high standards only associated with social anxiety. This finding was replicated in the second, female-only study (see the following section).

Finally, White (2013) produced a Master's thesis which, despite not being published in a peer-reviewed journal, is included in this review as it meets the inclusion criteria and aids refinement of the SAA construct. White (2013) sought to expand findings by Haase, Mountford and Waller (2007) which indicated that, for women, the relationship between body checking beliefs and behaviors was mediated by social physique anxiety. White (2013) aimed to test this model in both women and men and, additionally, to test an expanded model which also included the social appearance anxiety, trait eating pathology and clinical impairment constructs. White's (2013) data did not support Haase et al.'s (2007) model or the expanded model for males or females. Re-specified models were developed which demonstrated better fit in which trait eating pathology was predictive of body checking cognitions and social anxiety concerns (SAA in males and social physique anxiety in females), and these social anxiety concerns were, in turn, predictive of body checking behaviour. Finally, body checking behaviour was predictive of clinical impairment. Models which included both social physique anxiety and SAA demonstrated poor fit which improved significantly when only one of these constructs was included. Despite questions raised by the author regarding construct independence, the level of association between these variables did not indicate multicollinearity. This was in line with previous literature which had found only moderate associations between these variables (Lundgren et al., 2004; Hart et al., 2012). Lastly, college women were found to score significantly higher in SAA than college men.

**Studies with samples of adult females.** The following studies all examined the

concept of SAA in female-only non-clinical samples.

Firstly, SAA was measured to explore the convergent validity of a new measure of appearance-based cognitive bias, entitled the Physical Appearance Ambiguous Feedback Scale (PAAFS) (Altabe, Wood, Herbozo, & Thompson, 2004). A sample of women of a narrow age range (18-25 years) was used but no reasoning for this was offered. These sample characteristics limit the external validity of the study. Within these constraints, SAA was found to have a significant, weak linear relationship with the PAAFS-Appearance subscale.

Later, Herbozo and Thompson (2006) also selected a sample of female undergraduates aged 18 to 25 for a study on appearance-related commentary using the Verbal Commentary on Physical Appearance Scale (VCOPAS) which assesses the frequency and effect of both positive and negative appearance-related commentary over the past two years. The authors found that women with lower overall body appearance satisfaction and higher SAA rated negative body-related commentary (teasing) as producing a more harmful effect on them. SAA also displayed a weak and positive association with frequency of negative appearance-related commentary. Regression analyses indicated that the Negative Weight and Shape Effect subscale of the VCOPAS strongly predicted SAA, explaining nine per cent of the variance.

Two years later, Baratelli (2008) wrote a doctoral dissertation which examined the relationship between body image dissatisfaction and SAA in college-aged Venezuelan women using an adapted version of the FNAES. The study demonstrated strong methodological quality. As would be expected theoretically, the author found that SAA was a significant predictor variable of body image dissatisfaction. SAA also demonstrated a weak to moderate correlation with internalisation of socio-cultural beauty standards and a weak correlation with awareness of socio-cultural beauty standards.

In one of the very few experimental studies identified, Boersma and Jarry (2013) sought to understand the impact of weight-based derogatory media on adult women's body satisfaction, appearance self-esteem and SAA. Maladaptive appearance investment was hypothesised to act as a moderator variable. The authors found that being exposed to weight-based derogatory media led to increased SAA. Contrary to expectations, women with low versus high maladaptive appearance investment did not differ in their levels of SAA following exposure to the weight derogation. In line with previous studies, SAA correlated significantly and weakly-moderately (in the theoretically expected directions) with state appearance self-esteem, body satisfaction, self-esteem, depression and negative affect. It was also found to associate moderately with investment in body image and, for the first time, weakly and negatively with age. In line with several previous studies no association was found with BMI.

In the same year, Levison et al. (2013), in the second of their two-study publication, sought to replicate the first study (reported above) which examined a model in which FNE, SAA and perfectionism were shared vulnerabilities for social anxiety and ED symptoms. In the mixed-gender study only SAA had been found to act as a risk factor for both. These findings were replicated in this second study with a sample of undergraduate females of diverse ethnicities and with a median age of 19 (S.D. = 4.3). This sample was selected as undergraduate women were considered to be at high risk of developing eating disorders.

More recently, Levinson and Rodebaugh (2015) went on to test the proposed vulnerability model of SAA and FNE to social anxiety and ED in an experimental design with predominantly White (69%), young ( $M = 19.01$  years,  $SD = 1.1$ ) women. The authors proposed that the college women sampled were an ideal population due to their high risk of developing an ED and the likelihood that these people place high importance on their appearance and how others view it. The authors found that increasing state SAA led to

increases in state FNE, but not vice versa. They proposed that SAA was a specific form of FNE. Women who were high in both trait and state SAA experienced the highest levels of body dissatisfaction, in line with earlier literature. Furthermore, while the women high in state FNE increased their food consumption, those who experienced high state SAA demonstrated decreased food consumption. As expected, both increased FNE and SAA were associated with elevated social anxiety. Overall, the results offered further support to the idea that negative evaluation fears (FNE and SAA) are shared vulnerabilities for both social anxiety and eating disorders but that the way in which they produce effects may lead to specific disordered eating behaviours such as emotion-regulation through eating or restricting.

Finally, Titchener and Wong (2015) presented a paper in which they examined the associations between social anxiety, SAA and BMI in undergraduate females. They found that BMI was associated with SAA but not social anxiety. They created an appearance based social anxiety composite which demonstrated a positive association with BMI. However, the confidence intervals reported demonstrated that this relationship might be close to zero ( $r = .21$ , 95% BCCI [.02, .40],  $p < .04$ ). Nonetheless, the authors found that body image dissatisfaction mediated this relationship but not emotional eating, after controlling for age, ethnicity, medical conditions and medications, smoking, alcohol consumption and depression.

**Studies with child and adolescent samples.** A total of five studies were identified in which the concept of SAA was researched in non-clinical child and adolescent populations. In the first of these, Mackey and La Greca (2008) sought to understand the relationships between peer crowd affiliations, peers and weight control behaviours in American adolescent girls of diverse ethnicities. They proposed a socialization model in which girls' attitudes and perceptions of their peers' appearance norms and weight were routes via which peer crowd

identification could influence weight control behaviour. SAA was found to correlate positively and highly with body esteem, more moderately with weight satisfaction, peer dieting and peer pressure to be thin, and weakly with peer teasing and BMI percentile. SAA was also found to associate weakly and negatively with girls being of Black ethnicity.

Bissell and Hays (2010) later examined the role of SAA in children's explicit anti-fat attitudes. The authors used a specifically-adapted measure of SAA with children aged between seven and thirteen years in an experimental design. It was found that SAA was a significant predictor of explicit anti-fat attitudes and that the children with the highest levels of SAA gave the most negative ratings when asked to judge a picture of an overweight girl.

Morin and Maïano (2011) used the French version of the FNAES for adolescents, as developed by Maïano et al. (2010) and described above, as a measure of convergent validity in their study investigating the psychometric properties of a short form of the Physical Self-Inventory, a measure of physical self-concept, with French adolescents. Levels of SAA were found to correlate most highly with the global self-worth subscale (moderate and negative correlation). SAA scores also correlated weakly and negatively with the physical self-worth, physical condition and physical attractiveness subscales. No correlation was found with sport competence or physical strength.

The French version of the FNAES for adolescents was then used again as a measure of convergent validity in a psychometric study of the Eating Attitudes Test-18 in French adolescents (Maïano, Morin, Lanfranchi, & Therme, 2013). This is a measure of general eating disorder pathology (Anderson et al., 2004, as cited in Maïano et al., 2013). As was predicted, levels of SAA associated weakly or moderately with all six subscales of the EAT-18. The highest association was found with the Fear of Getting Fat subscale.

Finally, Seki and Dilmaç (2015) carried out a study with a sample of Turkish adolescents and also found a significant negative correlation between SAA and subjective

well-being, with SAA acting as a predictor for subjective well-being. These authors used a Turkish scale purporting to measure adolescent's humanistic values, such as friendship, honesty and tolerance. These values were found to predict SAA with a weak negative linear relationship. Methodological issue of note for this study was the use of a scale measuring human values with questionable levels of internal consistency, as well as a limited description of sample characteristics and incompletely described sampling methods.

### **Discussion**

The experience of fear that one's appearance will be judged negatively by others has received different names in the literature including social appearance anxiety (SAA) and fear of negative appearance evaluation (FNAE). The construct has been referred to as SAA throughout this work for consistency regardless of the instrument of measure utilised.

This review sought to summarise the literature regarding the construct of SAA within the fields of body image and mental health. A wide range of literature was found which was characterised by being quantitative in nature and predominantly cross-sectional in research design. More than half was produced in North America. A research quality evaluation scale (Kmet, Lee & Cook, 2004) was used to appraise the quality of the literature and quality percentage scores were assigned. Despite the evaluation tool possessing guidelines containing definitions and instructions for scoring, the process of evaluation retains a clear element of subjectivity which reduces the reliability of the quality evaluation. Furthermore, quality percentage scores do not indicate the specific strengths or weaknesses of any given publication and could therefore be considered somewhat reductionistic. The literature quality scores should be considered with these limitations in mind.

The results indicated that SAA is a relevant construct for both males and females, for clinical and non-clinical populations, and for adults, adolescents and children. Two measures of SAA were found to be in use in research with these groups. Both measures have been

found consistently to be unifactorial, to have good internal consistency, and to possess some evidence of test-retest reliability. The first to be developed was the eight-item Fear of Negative Appearance Evaluation Scale (FNAES), developed by Thomas et al. (1998). This was revised by Lundgren et al. (2004) to produce a six-item measure. Variation was found across later studies regarding whether the six or eight-item FNAES was employed in research. The second measure of SAA, the 16-item Social Appearance Anxiety Scale (SAAS), was developed by Hart et al. (2008). This has received relatively more attention from international researchers carrying out investigations into the measure's psychometric properties. This research application preference of the SAA construct and questionnaire may be due to the ease of availability of Hart et al.'s (2008) publication, which is available in an online peer reviewed academic journal. In contrast, to the author's knowledge, the original FNAES was presented at an academic meeting by Thomas et al. (1998) but not published further than this, limiting the research community's access to this work. The SAAS has been found apt for use in diverse populations, including North American undergraduates (Hart et al., 2008; Levinson & Rodebaugh, 2011), Belgian young females with eating disorders (Claes et al., 2012), Canadian gay and bisexual men of colour (Hart et al., 2015) and Italian adolescents with and without a diagnosis of eating disorder (Dakanalis et al., 2016).

Evidence regarding the potential associations between SAA and gender, BMI, age and ethnicity was found. Regarding gender, there were conflicting findings with respect to gender differences in SAA, with some authors finding no differences (Hart et al., 2008) and others finding that females report higher levels of SAA (Maïano et al., 2010; White, 2013). Nonetheless, the research thus far has tended to favour female samples and research with men and those with non-conforming gender identities would be helpful. Interestingly, SAA has been found to not demonstrate association with BMI in a variety of samples including undergraduates (Lundgren et al., 2004), adult women (Boersma & Jarry, 2013) and women

with a diagnosis of eating disorder (Claes et al., 2012; Koskina et al., 2011). However, other authors have found evidence of some association between BMI and SAA in female undergraduates (Titchener & Wong, 2015) and mixed gender adult samples (Koskina et al., 2011), although the small sample size of the latter and confidence intervals approaching zero of the former weaken these findings. Nonetheless, a weak association was found between SAA and BMI in adolescent girls (Mackey & La Greca, 2008). In relation to age, only one study reported findings regarding potential associations between age and SAA. This was found in a sample of adult women and the relation was weak and negative in nature, indicating that perhaps SAA decreases to a slight degree with age in adult females (Boersma & Jarry, 2013). The lack of reported findings in this respect is likely to be related to the populations typically sampled in the identified literature, which has been heavily skewed towards younger University-aged adults. Research representing individuals from across the life-span would be advantageous. Finally, there is some evidence that SAA might differ between different ethnic minority groups (Mackey & La Greca, 2008) and that minority stress-related variables, such as experiences of racism, are associated with SAA (Hart et al., 2015). Again, much further research would be warranted to explore these findings further.

The construct of SAA has been found to straddle the body image and mental health fields and to demonstrate important relationships with other concepts in these areas, in both clinical and non-clinical populations and in adults, adolescents and children. SAA has been shown repeatedly in both adolescents and adults to positively and significantly correlate with body image dissatisfaction (Baratelli, 2009; Boersma & Jarry, 2013; Hart et al., 2015), fear of negative evaluation (Dakanalis et al., 2016; Hart et al., 2008; Levinson & Rodebaugh, 2012), eating disorder symptomatology (Dakanalis et al., 2016; Hart et al., 2015; Koskina et al., 2011; Levinson & Rodebaugh, 2015) and depression (Boersma & Jarry, 2013; Hart et al., 2008), and to associate negatively with self-esteem (Boersma & Jarry, 2013; Dakanalis et al.,

2016; Morin & Maïano, 2011). The relationship between SAA and difficulties in social functioning has also been evidenced repeatedly, with associations found between SAA and experiences of interpersonal problems (Claes et al., 2012), social interaction anxiety (Levinson & Rodebaugh, 2011) and fear of interacting with others and social avoidance (Dakanalis et al., 2016).

With regard to clinical populations, SAA has been shown to be an important concept to consider in relation to those with diagnosed body image disorders: women with bulimia nervosa (Koskina et al., 2011) and adults with BDD (Anson et al., 2012) report significantly higher levels of SAA than controls. Additionally, SAA is also relevant for some service users of physical health settings: Kinner (2015) demonstrated that those with dental phobia score more highly in SAA than those without dental phobia and, in the Netherlands, Versnel et al. (2012) demonstrated SAA is a significant predictor of anxiety and depression levels for people with congenital facial disfigurement. It could be argued that there are many further potential avenues of research in relation to the role of SAA in body image, mental health and physical health clinical settings which remain unexplored but appropriate to investigate.

Despite significant associations between SAA and concepts such as social anxiety, social physique anxiety, body image disturbance and fear of negative evaluation, there is much evidence to suggest that they possess sufficient independence for SAA to be considered a unique construct (Levinson & Rodebaugh, 2015). Some authors argue that SAA might be best conceptualized as a specific form of anxiety that sits within the broader group of social anxiety (Hart et al., 2008). Other authors indicate that it may be best thought of as a specific type of fear of negative evaluation, distinct from and more limited than fear of negative evaluation as it is currently conceptualized (Levinson & Rodebaugh, 2015), but also still a form of social anxiety. What is clear is that SAA appears to be a highly important variable in relation to both eating disorders (Lundgren et al., 2004; Maïano et al., 2013) and social

anxiety (Hart et al., 2008; Levinson & Rodebaugh, 2011). Furthermore, it is thought to act as a vulnerability for the development of these disorders (Levinson & Rodebaugh, 2012; Levinson & Rodebaugh, 2015; Levinson et al., 2013). This could perhaps explain the high comorbidity that is frequently found between eating disorders and social anxiety symptoms (Veale et al., 2009). Furthermore, recent research demonstrates that fear of negative evaluation and SAA may produce effects in women with ED in different ways, leading to specific presentations including emotion-regulation through increased eating (fear of negative evaluation) or restricting (SAA) (Levinson & Rodebaugh, 2015). If these findings are upheld in future research, they would be highly important to incorporate into models of understanding of social anxiety and, particularly, eating disorders and would potentially inform clinical practise with these populations.

Given that SAA is relevant in such a broad range of people, and given its concomitant distress and difficulties with social functioning, it would be important to understand how SAA develops in people in the first instance. Nonetheless, this question was not addressed in the majority of the identified research and little appears to be known about what causes SAA to develop. One of the few experimental studies included in this review indicated that being exposed to weight-based derogatory media may lead to increases in self-reported SAA in women (Boersma & Jarry, 2013). It has also been demonstrated that SAA is associated with the internalisation of socio-cultural beauty standards (Baratelli, 2009). It is clear that much more research is needed to understand the factors which contribute to the development of SAA in different people.

Finally, SAA is not only associated with negative experiences and distress for the individual, but it might also be associated with negative effects – including discrimination – for others in society. For example, levels of SAA have been shown to predict anti-fat bias in children in the U.S.A. (Bissell & Hays, 2011), with those scoring more highly in SAA

demonstrating greater explicit anti-fat attitudes in response to an overweight girl. Conversely, humanistic values including friendship, tolerance and respect for others have been shown to be negatively associated with SAA in Turkish adolescents (Seki & Dilmac, 2015), although the level of association was weak and methodological issues limit the strength of these findings.

### **Implications for Future Research**

A limitation of the identified research was the lack of diversity in many of the samples used, given that research with young, often white, North American adult females was over-represented. Future research should seek to work with more heterogeneous populations in terms of ethnicity, nationality, age and gender identity. Initial research has found that, in Northern American samples, SAA may differ among people of different ethnicities and that it is associated with certain minority-group experiences. There is also limited evidence to suggest that SAA may change in adulthood with age. No research was identified in which people with non-traditional gender identities were identified or specifically included. These might all be valuable future lines of research.

The FNAES and the SAAS are being used increasingly in research. However, currently, no evidence of development of norms for the scoring and interpretation of these measures was found. The development of good quality norms would allow for the clinical interpretation of scores for specific individuals within particular groups.

Use of longitudinal and experimental designs in the research of SAA might be beneficial. Very limited evidence of how SAA develops in individuals was found. Greater understanding of the variables involved in the development of high levels of SAA could be helpful to inform preventative interventions.

Finally, very little appears to be known about the psychological mechanisms behind the experience of SAA. Some authors have proposed that SAA could be conceptualized as a

specific situational fear in social anxiety (Hart et al., 2008) or domain of social anxiety (Levinson & Rodebaugh, 2012). Therefore, some cognitive processes underpinning SAA may well be similar to some of those proposed to underpin experiences of social anxiety more generally. A key cognitive process which has been proposed to maintain experiences of social anxiety is self-focussed attention (Clark & Wells, 1995). Future research in SAA may therefore aim to examine a potential maintaining role of self-focussed attention. Additionally, people with social anxiety are reported to experience increased perceptions of ‘being looked at’ by other people in social situations (Bolt, Ehlers, & Clark, 2014) which has been shown to be related to their increased levels of self-focussed attention (Canvin, Janecka, & Clark, 2016). The perception of ‘being looked at’ by others in SAA was not explored in the identified literature in relation to either the SAAS or FNAES but may conceivably be a relevant experience for those with appearance-related anxiety and might be investigated in relation to self-focussed attention in SAA.

### **Implications for Clinical Practice**

It seems clear that SAA is associated with psychological distress and difficulties with social functioning. It is therefore a highly relevant variable to consider within clinical practice. Clinical psychologists would be recommended to focus on the development of theoretical models of understanding of SAA which could inform individual formulation and guide clinical intervention.

Furthermore, SAA associates with serious body image disorders such as anorexia nervosa, bulimia nervosa and body dysmorphic disorder, as well as social anxiety disorder. This, in addition to the indications that SAA may in fact make people vulnerable to the development of social anxiety disorder and eating disorders, makes it important that clinicians working in these areas incorporate an understanding of the role of SAA within their formulations of individuals’ experiences of body image and social anxiety disorders. This

improvement in formulation may also lead to improvements in clinical practice and intervention with these vulnerable groups.

### **Conclusions**

There is a growing body of international evidence indicating that social appearance anxiety may be a unique construct which shares some overlap with, but is more specific than, fear of negative evaluation, social anxiety and body image dissatisfaction (Levinson and Rodebaugh, 2012). SAA exhibits some similarities with the concept of social physique anxiety but SAA encompasses appearance concerns more broadly (Hart et al., 2008). SAA might be a relevant construct in males and females, children, adolescents and adults. SAA may be associated with psychological distress and difficulties with social functioning in both clinical and non-clinical populations. SAA might be particularly relevant to understanding disorders of body image, such as eating disorders and body dysmorphic disorder, as well as social anxiety disorder. This could make it an important construct to be incorporated into psychological theory and practice.

However, currently, very little is known about how SAA develops or about the psychological processes underpinning this very specific form of anxiety. This presently makes clinical formulation and intervention in SAA a difficult task. It will be important for future research to focus on improving the construct validity of the concept of SAA by developing a coherent theoretical model to underpin the construct.

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## Section B

# The Perception of Being Looked at by Others in Low and High Social Appearance Anxiety

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### Abstract

As with social anxiety, people with high social appearance anxiety (SAA) might experience increased perceptions of being looked at by others and elevated levels of self-focussed evaluative attention (SFEA). As with social anxiety, these factors may play a role in maintaining difficulties in social functioning which are thought to be associated with SAA. This study tested whether individuals with high SAA perceive more people look at them than do those with low SAA, and whether SFEA increases this perception. A sample of 52 low SAA and 48 high SAA participants completed questionnaires and experimental tasks online. Participants estimated the proportion of people looking at them in numerous matrices of faces. A control task of matrices of clocks was used. SFEA was experimentally manipulated. Those high in SAA estimated more people looking at them, and reported higher trait self-focussed attention. Increasing SFEA increased these individual's estimates of faces looking at them but did not affect perceptions of non-social stimuli. People with high SAA may benefit from clinical interventions aimed at reducing SFEA in social situations in addition to psychoeducation about SFEA and individual's perceptions of being looked at in low versus high SAA. Future lines of research are recommended.

**Keywords:** Social appearance anxiety, perception of being observed, self-focussed attention, self-focussed evaluative attention, body image.

## Introduction

In the literature, fear of being negatively evaluated by others due to one's appearance has been given different names, including social appearance anxiety (Hart et al., 2008) and fear of negative appearance evaluation (Lundgren, Anderson, & Thompson, 2004). This study will use the term social appearance anxiety (SAA) to refer to this concept.

SAA has been conceptualised as a negative social evaluative fear which is focussed specifically on the fear of being judged by others based on personal appearance (Levinson & Rodebaugh, 2011). It is the requirement that the fear is appearance-related that differentiates SAA from the concept of social anxiety, which need not bear any relation to physical appearance (American Psychiatric Association, 2013). SAA also displays some overlap with social physique anxiety. However, the latter is concerned with anxiety related to limited aspects of appearance including weight, muscle tone and height, whereas SAA is concerned with physique as well as other important aspects of appearance, including complexion, hair and facial features (Hart et al., 2008; Levinson & Rodebaugh, 2011).

Increased levels of SAA are known to be associated with a broad spectrum of difficulties including psychological distress, difficulties with social functioning and clinical body image and social anxiety disorders. Specifically, research has repeatedly demonstrated significant associations between SAA and body image dissatisfaction (Baratelli, 2009; Boersma & Jarry, 2013; Dakanalis et al., 2016) and eating disorder symptomatology (Claes et al., 2012; Levinson & Rodebaugh, 2015). Significantly higher levels of SAA have been found in women who have bulimia nervosa (Kinner, 2015) and people with body dysmorphic disorder (BDD) (Anson, Veale, & de Silva, 2012) than healthy controls. Furthermore, high levels of SAA are associated with higher levels of depression (Claes et al., 2012; Hart et al., 2008), low self-esteem (Boersma & Jarry, 2013; Morin & Maïano, 2011), social avoidance (Dakanalis et al., 2016) and interpersonal problems (Claes et al., 2012). SAA is also a known

predictor of social interaction anxiety and social anxiety (Levinson & Rodebaugh, 2011).

Thus, SAA has emerged in the literature as a significant construct which straddles both the fields of body image and social anxiety disorders and whose associated psychological distress and difficulties with social functioning seem clear. What are less clear in the literature are the psychological processes underpinning the experiences of people with elevated levels of SAA. To prevent and treat body-image related difficulties such as SAA it is important that research begins to examine the ways in which people experiencing these difficulties think and process information in social contexts, and to consider how this affects their experiences of social interactions (Cash & Pruzinsky, 2002). An interesting line of research in this vein has demonstrated that in BDD – a disorder in which social functioning is often affected (Neziroglu, Khemlani-Patel, & Veale, 2008) - a high proportion of people believe that other people take special notice of them (Phillips, McElroy, Keck, Hudson, & Pope, 1994). Similarly, people with high levels of social anxiety have increased perceptions that they are the focus of other people's attention (Bolt, Ehlers, & Clark, 2014; Canvin, Janecka, & Clark, 2016). Given the significant associations that exist between social anxiety, BDD and SAA, and the common difficulties in social functioning experienced by these groups, it seems plausible that those who are high in SAA might experience a heightened perception that other people are observing them in social situations. An increased perception of being observed by others is not currently a criterion included in the major measures of this construct, which include the Social Appearance Anxiety Scale (Hart et al., 2008) and the Fear of Negative Appearance Evaluation Scale (Thomas, Keery, Williams & Thompson, 1998, as cited in Lundgren et al., 2004). To date, the perception of being looked at has been little researched in SAA. Defining worries of SAA include thinking that people will judge one's appearance negatively or that others will find one unattractive (Hart et al., 2008). If these worries were indeed combined with an increased perception of being observed, it seems

possible that the result would be an experience of heightened distress and difficulties in social situations - as are known to occur in individuals with high levels of SAA.

Increased perceptions of being looked at by others may be due to high levels of self-focussed attention being misinterpreted as the observation of another (Bolt et al., 2014). Canvin et al. (2016) demonstrated experimentally that specifically increasing people's levels of evaluative self-focussed attention led to increased perceptions of 'being looked at' when attending to social stimuli. It is thought that people with high levels of social anxiety (Bolt et al., 2014) and body image problems (Veale, Willson & Clarke, 2009), including BDD (Neziroglu et al., 2008), habitually experience elevated trait self-focussed attention. This could explain increased perceptions of 'being looked at' in these groups. However, there is currently little evidence regarding trait levels of self-focussed attention in SAA and it might be helpful to investigate this further. It would seem plausible, given the theoretical and empirical overlaps between SAA, social anxiety and body image disorders such as BDD, that a significant positive association between SAA and self-focussed attention might exist.

Canvin et al. (2016) asserted that increases in state evaluative self-focussed attention might increase perceptions of being observed by others, without affecting perceptions of non-social stimuli, in all people. These authors demonstrated this to be true in those with low and high social anxiety. Replication of these findings in those with low and high SAA would be helpful as it would provide further evidence regarding whether increasing self-focussed evaluative attention affects perceptions of being looked at in all people or just those habitually high in self-focussed attention.

The current study, therefore, sought to investigate the perception of 'being looked at', and the potential contributory role of self-focussed attention to this, in SAA. The aim was to increase theoretical understanding of SAA and thereby inform potential clinical interventions for this form of anxiety. The study sought to create an analogue sample of individuals with

low and high SAA for the first time. The study built upon previous work by Bolt et al. (2014) and particularly Canvin et al. (2016). The present study aimed to replicate Canvin et al.'s (2016) study in individuals with low versus high SAA for the first time. The experimental task stimuli utilised by Bolt et al. (2014) and Canvin et al. (2016) were used in this study with permission. New appearance-related stimuli were developed specifically for use in the self-focussed evaluative attention manipulations in the present study. These manipulations were longer in duration and required active engagement and response from participants, making them more demanding than the manipulations used by Canvin et al. (2016).

This study was designed to test three hypotheses. Firstly, that people with high levels of SAA will estimate that more faces are 'looking at you' in a face perception task than those with low levels of SAA. It was hypothesised that this will remain true after controlling for social anxiety and depression. It was important to control for these variables given the important associations that exist between SAA and social anxiety and depression (Hart et al., 2008) and the potential for these constructs to act as confounding variables when examining the phenomenon of people's perceptions of 'being looked at' by others (Bolt et al., 2014; Canvin et al., 2016). Second, it was predicted that increasing self-focussed evaluative attention will increase estimates of the proportion of people 'looking at you' in a face perception task in both those with low and high levels of SAA, and that these increases will have no effect on estimates of the number of clocks 'facing you' in a non-social perception task. Finally, it was hypothesised that those with high levels of SAA would have higher levels of trait self-focussed attention than those with low levels of SAA.

## Methods

### Design

The study consisted of two phases. In phase one cross-sectional, self-report

questionnaires were completed using Qualtrics online data collection software. Eligible participants were then allocated to SAA groups (low or high) based on their scores on the Social Appearance Anxiety Scale (Hart et al., 2008; see below). A quasi-experimental design was then utilised in phase two, which also took place online. During phase two, people with high SAA and low SAA completed a face perception task and a non-social control task (clocks task). Participants completed both these tasks twice, once under a condition of high self-focussed evaluative attention (SFEA) and once under a low SFEA condition. To increase internal validity, both the SFEA conditions and the task completion order were counterbalanced through computer-randomised participant allocation to one of four arms: faces task first and high SFEA condition first, faces task first and low SFEA condition first, clocks task first and high SFEA condition first, and clocks task first and low SFEA condition first. The dependent variables consisted of participants' estimates of the proportion of people 'looking at you' in the faces task, and the proportion of clocks 'facing you' in the clocks task.

## **Participants**

Inclusion criteria were that participants should be aged 18 years or over and possess sufficient levels of English reading comprehension skills to be able to read and understand the participant and consent information unaided. This was to support informed consent. A non-probabilistic purposive sampling method was used. Undergraduate students studying at a university in south England were invited to participate through the university research participation scheme and received credits for their participation. Study advertisements were placed on campuses and in student and staff newsletters at two further universities in the south of England. Advertisements were also placed on social media sites and a research participation website. All participants were offered the opportunity to enter a prize draw to win one of two £50 online shopping vouchers.

A priori power calculations were carried out using G\*Power 3.1.9.2 (Faul, Erdfelder, Buchner & Lang, 2009) to determine the sample size required to test the principal hypotheses in phase two. To test the overall model fit utilising linear multiple regression (fixed model,  $R^2$  deviation from zero) with an effect size of .15, alpha = .05, power = .8 and with seven predictors, a sample size of 103 was needed. To test the difference of each beta coefficient from zero using linear multiple regression (fixed model, single regression coefficient) with an effect size = .15,  $\alpha = .05$ , power = .8 and with seven predictors, a sample size of 55 was required. The target sample size for phase two was therefore 103. A total of 371 people completed phase one and of these 100 people went on to complete phase two (48 high SAA and 52 low SAA), meaning the target sample size was almost achieved.

The characteristics of those completing phase one ( $N = 371$ ) are displayed below (Table 1). Ages ranged from 18 to 81 years. The characteristics of participants completing phase two are also displayed (Table 2). Participants were of a wide age range (low SAA: 18 – 81 years; high SAA: 18 – 43 years). As hypothesised, those with high levels of SAA had statistically higher levels of trait self-focussed attention than those with low SAA. Gender identity could not be compared as the requirements for a chi-square test for independence were not met. Otherwise, the low and high SAA groups were found to differ significantly with regard to all variables examined except ethnicity. The high SAA group were, on average, significantly younger than the low SAA group. All other differences were found in the expected directions.

Table 1  
Characteristics of Participants Completing Phase One

	N / Mean	% / SD
Age (years)	26.24	10.59
Gender identity		
Female	283	76%
Female to male transgender	1	<1%
Male	81	22%
Male to female transgender	1	<1%
Other	5	1%
Ethnicity		
White British	238	64%
Any other White background	61	16%
Any other mixed/multiple ethnic backgrounds	12	3%
African	10	3%
Mixed White and Asian	10	3%
White Irish	9	2%
Other	31	9%
Social appearance anxiety <sup>a</sup>	40.58	16.52
DASS-21 <sup>b</sup>		
Depression	5.01	4.45
Anxiety	4.03	3.46
Stress	6.92	4.07

Note. DASS-21 = Depression Anxiety Stress Scales 21.

<sup>a</sup>Total scores can range from 16 to 80. <sup>b</sup>Subscale scores can range from 0 to 21.

Table 2  
Characteristics of Participants Completing Phase Two

	Low SAA (n = 52) N / Mean (% / SD)	High SAA (n = 48) N / Mean (% / SD)	t / $\chi^2$
Age (years)	33.13 (15.73)	23.46 (5.83)	4.14***
Gender identity <sup>a</sup>			-
Female	35 (67%)	37 (77%)	
Female to male transgender	0 (0%)	1 (<1%)	
Male	17 (32%)	9 (19%)	
Other	0 (0%)	1 (<1%)	
Ethnicity			
Any White background	42 (81%)	39 (81%)	.00
Social appearance anxiety <sup>b</sup>	21.01 (2.37)	57.98 (7.61)	-32.23***
DASS-21 <sup>c</sup>			
Depression	2.02 (2.14)	4.52 (2.79)	-5.00***
Anxiety	1.90 (2.01)	3.85 (1.99)	-4.87***
Stress	4.63 (3.41)	7.46 (3.80)	-3.92***
Self-focussed attention <sup>d</sup>	6.69 (4.45)	18.54 (8.16)	-8.91***
Self-consciousness <sup>e</sup>	24.42 (7.47)	45.15 (9.99)	-11.89***
Social anxiety <sup>f</sup>	8.79 (5.87)	30.17 (11.40)	-11.64***
MBSRQ-AS			
Appearance evaluations	26.02 (4.22)	16.83 (5.73)	9.07***
Body areas satisfaction <sup>g</sup>	33.44 (4.8)	23.33 (4.84)	10.48***
Appearance orientation <sup>i</sup>	34.67 (7.22)	45.25 (8.07)	-6.92***

Note. DASS-21 = Depression Anxiety Stress Scales 21; MBSRQ-AS = Multidimensional Body-Self Relations Questionnaire - Appearance Scales.

<sup>a</sup>Results for the chi-square test for independence are not reported as criteria regarding minimum expected cell frequencies were not met. <sup>b</sup>Scores can range from 16 to 80. <sup>c</sup>Subscale scores can range from 0 to 21. <sup>d</sup>Scores can range from 0 to 44. <sup>e</sup>Scores can range from 0 to 66. <sup>f</sup>Scores can range from 0 to 68. <sup>g</sup>Scores can range from 7 to 35. <sup>h</sup>Scores can range from 9 to 45. <sup>i</sup>Scores can range from 12 to 60.

\*\*\* p < .001

To create the high and low SAA groups, in phase one, all participants completed online versions of a sociodemographic questionnaire (Appendix A), the Social Appearance Anxiety Scale (SAAS) (Hart et al., 2008) (Appendix B) and the Depression Anxiety Stress

Scale 21 (DASS-21) (Lovibond & Lovibond, 1995) (Appendix C). Those whose SAAS scores fell within the top or bottom 25% of the distribution of scores expected according to the individual's gender identity were allocated to high or low SAA groups respectively and invited to take part in phase two. This procedure for creating an analogue sample was in line with previous literature (Bolt et al., 2014). Cut-off scores were gender specific as previous studies have found gender differences in SAA (Maïano, Morin, Monthuy Blanc, & Garbarino, 2010; White, 2013). Those scoring in the middle 50% of the expected spread of SAAS scores did not take part in phase two. Any participant scoring more than ten or seven on the depression and anxiety subscales of the DASS-21 respectively did not take part in phase two regardless of their SAAS score. This was to protect vulnerable individuals as scores greater than these can indicate severe or very severe depression and anxiety (Lovibond & Lovibond, 1995).

As no standardised normative data for the SAAS was available, the upper and lower quartile cut-off scores were calculated a priori using data provided by White (2013) in her study with south-western USA college students. White's data was considered adequate for this purpose due to the large sample size (female n = 567; male n = 337) and because, in the current study, the primary population to be targeted for recruitment was also university students. Those identifying as transgender were excluded from the White (2013) dataset. In this study, as no suitable norms were available, transgender participants and those who identified with other non-traditional gender categories were allocated to SAA groups based on cut-offs derived from White's whole sample (N = 904) distribution in line with recommendations (Webb, Heyne, Holmes & Peta, 2016). Following data collection, the validity of the SAA groups was checked in two ways. First, the validity of the cut-off points used to allocate people to low/high SAA groups, calculated from the White (2013) data, was checked by comparing them to the 25<sup>th</sup> and 75<sup>th</sup> centiles of the spread of the SAAS data

collected in phase one (Table 3). They were found to be reasonably similar. The least similar quartile scores were those of the ‘other’ gender identity group, which were higher than estimated. The male upper quartile cut-off was also slightly different. A further check was carried out by comparing the groups’ scores on the most relevant subscales from the Multidimensional Body-Self Relations Questionnaire – Appearance Scales (MBSRQ-AS) (Cash, 2000) (Table 2). As would be expected, high SAA participants scored significantly more highly on the Appearance Orientation subscale and significantly lower on the Body Areas Satisfaction and Appearance Evaluation subscales, thus supporting the validity of the groups.

Table 3

Estimated and Actual Scores Falling Within the Lower and Upper Quartiles in the Distributions of Social Appearance Anxiety Scores According to Gender Identity

	Estimated Quartile Scores Derived from White (2013)			Actual Quartile Scores In Phase One		
	n	Lower	Upper	n	Lower	Upper
Females	567	≤ 24	≥ 52	283	≤ 27	≥ 54
Males	337	≤ 23	≥ 43	81	≤ 23	≥ 49
Other	904 <sup>a</sup>	≤ 25	≥ 48	7	≤ 30	≥ 56

Note. The estimated quartile scores were those calculated a priori from the White (2013) data and used for assigning people to social appearance anxiety groups. The actual quartiles scores were those calculated from the data collected in phase one upon completion of the study. The Social Appearance Anxiety Scale (Hart et al., 2008) minimum and maximum possible scores are 16 and 80 respectively.

<sup>a</sup>As those with non-traditional gender identities were eliminated from the White (2013) dataset the whole sample data were used to estimate quartile scores for these participants.

The flow of participants through this project is demonstrated in Figure 1.

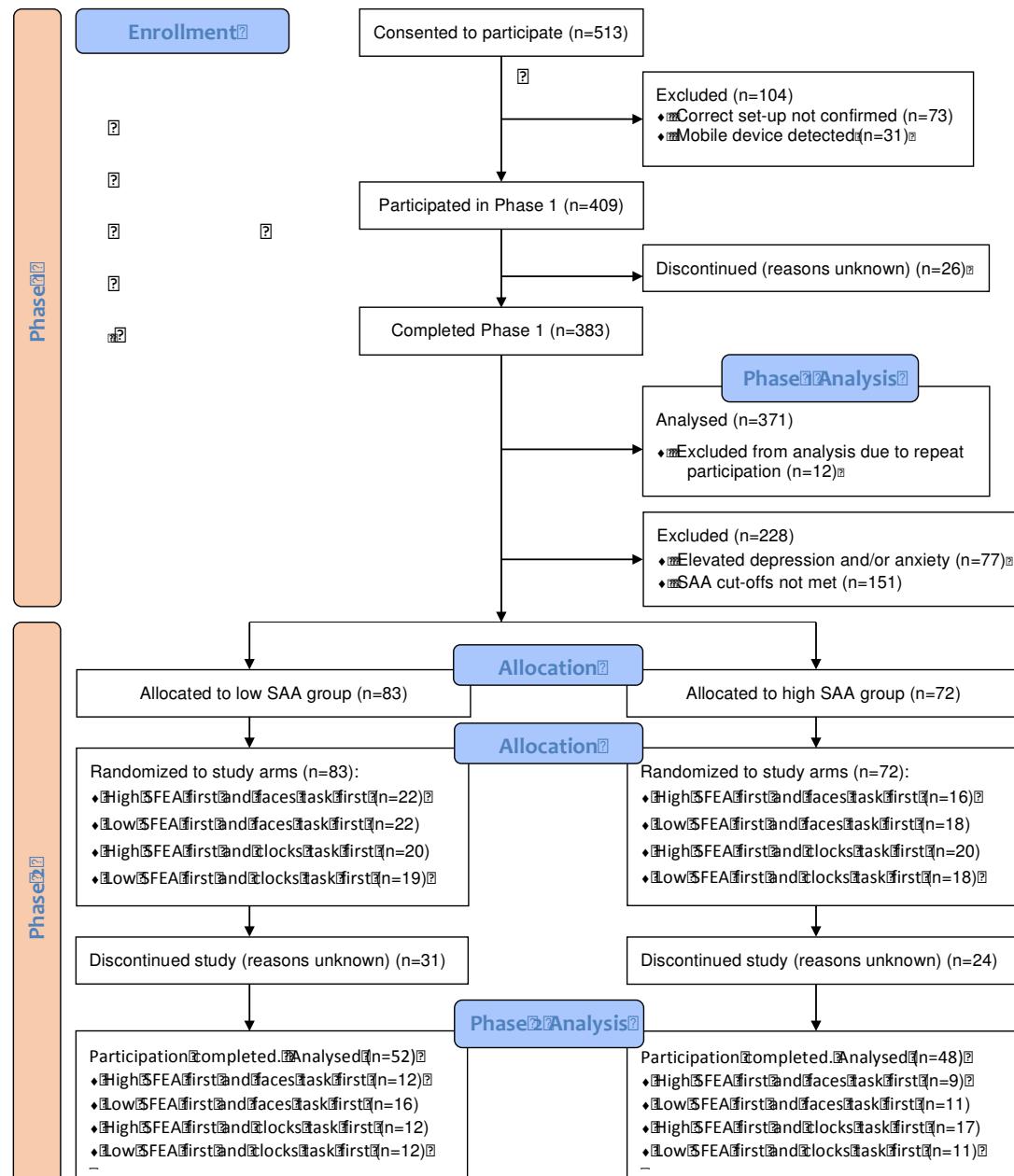


Figure 1. CONSORT flow diagram (Schulz, Altman, Moher, for the CONSORT Group, 2010) depicting the progress of participants through the two study phases. SAA = social appearance anxiety; SFEA = self-focussed evaluative attention.

## Materials: Phase One

### Questionnaire measures.

**The Social Appearance Anxiety Scale (SAAS) (Hart et al., 2008).** This 16-item self-

report questionnaire measures anxiety regarding negative evaluation from others based on one's appearance. Total scores range between 16 and 80. It has good test-retest reliability,

internal consistency, factor validity, incremental validity and divergent validity in samples of nonclinical undergraduates (Hart et al., 2008; Levinson & Rodebaugh, 2011).

**The Depression Anxiety Stress Scales 21-item short form (DASS-21) (Lovibond & Lovibond, 1995).** This measure consists of three seven-item subscales measuring depression, anxiety and stress. It produces scores between zero and 21 for each subscale. The total scale has excellent internal consistency and sound construct validity (Henry & Crawford, 2005) as well as acceptable concurrent validity and excellent factor structure (Antony, Bieling, Cox, Enns, & Swinson, 1998).

### **Materials: Phase Two**

#### **Questionnaire measures.**

**The Multidimensional Body-Self Relations Questionnaire – Appearance Scales (MBSRQ-AS) (Cash, 2000).** These 34-item scales (Appendix D) assess appearance-related aspects of body image. The following subscales were analysed: Appearance Evaluation (feelings of physical attractiveness and satisfaction with one's looks) with seven items and possible scores between 7 and 35; Appearance Orientation (the extent of importance and attention placed on how one looks) with twelve items and possible scores between 12 and 60; and Body Areas Satisfaction (satisfaction with discrete aspects of one's appearance) with nine items and possible scores between 9 and 45. These subscales were chosen as they were most pertinent to overall appearance concerns. Adequate internal consistency and test-retest reliability for these subscales have been found (Cash, 2000).

**The Self-Focussed Attention Scale (SFAS) (Bögels, Alberts & de Jong, 1996).** This 11-item self-report measure of trait self-focussed attention (Appendix E) produces scores between zero and 44. It possesses satisfactory internal consistency and convergent validity (Bögels et al., 1996).

**The Revised Self-Consciousness Scale (SCS-R) (Scheier & Carver, 1985).** This 22-

item self-report questionnaire (Appendix F), a revised version of the original scale by Fenigstein, Scheier and Buss (1975), measures private self-consciousness, public self-consciousness, and social anxiety. It produces scores between zero and 66. The scale has been shown to be psychometrically sound (Scheier & Carver, 1975).

**The Social Phobia Inventory (SPIN) (Connor et al., 2000).** This 17-item self-report questionnaire (Appendix G) measures social anxiety and produces scores between zero and 68. The scale has excellent internal consistency and good test-retest reliability (Connor et al., 2000), and good convergent and discriminant validity (Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006).

### **Experimental task stimuli.**

**Face perception task.** This task was shown to be valid in research by Bolt et al. (2014) and Canvin et al. (2016). Participants were shown matrices of 18 different faces (Figure 2). The matrices were composed of 20 rectangles in which the 2 central rectangles were blank and the remaining 18 rectangles displayed images of people with neutral facial expressions. The people were either ‘looking at you’ or looking 45° to the right, left, down or up. The gender composition of the people shown was evenly split between males and females, 14 people were white, and the remaining four people were from Black and minority ethnic groups. There were 11 proportions of people ‘looking at you’ in each matrix ranging from 22% (4 of 18) to 78% (14 of 18). Four matrices were made for each of the 11 possible percentages, resulting in a total of 44 matrices. During the task, every matrix was shown once and in a randomized order, resulting in 44 randomised trials. Prior to each trial, a fixation cross was displayed for 1000ms to focus attention. A picture matrix immediately followed this for 2750 milliseconds, allowing individuals to scan but not count the faces (Bolt et al., 2014). Participants were then immediately asked to estimate the percentage of people ‘looking at you’ by clicking on a visual analogue scale which ranged from 0% (nobody) to

100% (everybody). Once the response had been entered, a blank screen was then displayed between trials for 1000ms prior to the fixation cross being displayed again for the next trial. Participants completed the 44 trials twice, once under the high SFEA condition and once under the low SFEA condition.



Figure 2. The stimuli used in the faces tasks. This picture matrix is displaying 67% (12 of 18) faces ‘looking at you’.

**Clocks task.** This task, intended to be as similar to the faces task as possible but presenting non-social stimuli, was developed and validated by Canvin et al. (2016). Participants were presented with matrices of 18 different clocks (Figure 3) and required to estimate the percentage of clocks ‘facing you’ using a visual analogue scale. In each trial a percentage of the clocks faced forwards and the remainder faced backwards. There were 11 proportions of clocks facing forward created, ranging between 22% (4 of 18) and 78% (14 of 18). Four matrices were created for each proportion and, during the task, each of the 44 matrices were shown once in a randomized order. Presentation of the clocks matrices occurred identically to the faces matrices. Participants also completed this task twice, once under the high SFEA condition and once under the low SFEA condition.

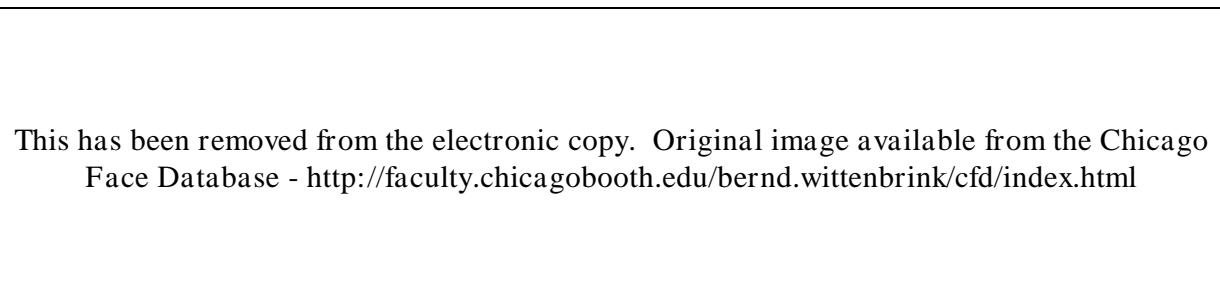


Figure 3. The stimuli used in the clocks tasks. This picture matrix is displaying 67% (12 of 18) clocks ‘facing you’.

### **Attention manipulation.**

**High self-focussed evaluative attention manipulation.** A manipulation was designed for the present study which encouraged people to pay evaluative attention to themselves with an emphasis on their appearance. This manipulation used images of people obtained from the Chicago Face Database (University of Chicago, 2016) which were then colour graded to make the images appear more natural when grouped together. Participants were shown an image of four people (Figure 4) displaying neutral expressions, of varied genders, ethnic groups and ages, together with the prompt ‘I’d like you to imagine that, after taking part in this study, you are selected to be interviewed in person by the four researchers shown above. *Imagine, in as much detail as possible, what you think you’ll look like to them when they see you for the first time’.* After this, a series of prompts (Appendix H) was displayed sequentially, each only allowing the person to proceed to the next after a minimum time (ranging from 15-30 seconds) had elapsed. Each prompt was accompanied by the image of the four people, a text entry box and the instruction ‘please describe what you are imagining

freely in the box below'. This was to encourage active engagement with the attention manipulation. Following this, participants then began either the clocks or faces task. To maintain increased levels of SFEA, both halfway through and in between the clocks and faces tasks, the image of the four people was displayed again and some prompts were briefly repeated.



This has been removed from the electronic copy. Original image available from the Chicago Face Database - <http://faculty.chicagobooth.edu/bernd.wittenbrink/cfd/index.html>

Figure 4. The stimuli used to produce high self-focussed evaluative attention during the attention manipulation. The images, obtained from the Chicago Face Database (University of Chicago, 2016) were colour graded to increase naturalness.

**Low self-focussed evaluative attention manipulation.** This manipulation was designed to produce low SFEA by encouraging participants to focus evaluatively but outwardly. The manipulation utilised an image with neutral emotional content and high level of detail. This was expected to help participants to engage with the activity. The copyright-free image was obtained online from Pixabay (2016). Participants were shown an image of a town (Figure 5) together with the prompt 'I'd like you to look at the above picture. What is your initial impression of the town shown?'. After this a series of prompts (Appendix I) were displayed sequentially with the same minimum time imposition and text box entry prompts as the high SFEA manipulation. Mid-task and between task low SFEA reminder prompts were given, as occurred in the high SFEA manipulation.



Figure 5. The stimuli used to produce low self-focussed evaluative attention during the attention manipulation.

**Self-focussed evaluative attention manipulation measures.** To evaluate the effectiveness of the high and low SFEA manipulations, participants completed four one-item visual analogue scale measures of task focus, self-focussed attention, anxiety, and self-evaluation after each experimental task (Appendix J). The scales ranged from 0% (not at all) to 100% (totally). The first measure (i.e. of task focus) was included to help participants understand the self-focussed attention measure (Canvin et al., 2016) and was not included in analyses.

### **Procedure**

An Internet-mediated research approach was chosen due to the associated reduced use of physical and human resources, automatic checks for item completion, and recruitment of samples which might be otherwise unmatched in size and scope (Gosling & Mason, 2015). Comprehensive checks for Internet-based experiments, developed to increase the validity and reliability of Internet-mediated research, were utilised (Reips, 2002). These included checking for multiple submissions, using incentives to minimise drop out and comprehensive instructions and checks to increase standardization of experimental settings. Pretesting of the experiment occurred through an initial piloting phase ( $n = 10$ ) after which comprehensive

feedback was elicited regarding issues affecting clarity of the instructions and any difficulties arising during participation. Some minor changes were introduced as a result.

Participation occurred entirely online and in one sitting. To begin, participants were required to read the information sheet (Appendix K) and then agree to every item of the consent form (Appendix L). They were given information about what participation would require and detailed instructions on the physical set-up of their computers, web browsers and preparation of their environment prior to beginning phase one (Appendices M & N). This was to increase the standardisation of participation contexts and control of procedural aspects of the study. Participants were unable to proceed without confirming these instructions had been followed. The phase one measures (SAAS and DASS) were then completed. Those meeting the predetermined criteria were allocated to low or high SAA groups as appropriate and were randomly assigned to an intervention arm (described above) ready to begin phase two. Those not meeting the criteria stopped at this point. Phase two participants then completed the MBSRQ, SFAS, SCS and SPIN. After this the tasks were explained using the instructions designed by Canvin et al. (2016), ‘In this task, 18 pictures of [faces/clocks] will flash up on the screen, but for a short period of time. These [people/clocks] will either be [*looking at/facing*] you, or [*looking/facing*] away from you. It’s your job to estimate the proportion of [people/clocks] that were [*looking at/facing you*] by clicking on a horizontal line that goes from 0-100%’. Initially, participants were given four practice trials of each task. They then began with either the low or high SFEA manipulation, followed by the clocks or faces task first, depending upon their individual randomization to counterbalancing groups. Both tasks were completed in one SFEA condition and then again in the second SFEA condition. Following each task participants completed the single-item SFEA manipulation measures. For those who completed both phases, the average total participation time was 73 minutes. All participants who completed the study (either phase one or phases

one and two if eligible) were offered the opportunity to take part in a prize draw to win one of two £50 prizes.

### **Ethical Considerations**

The Salomons Advisory Group of Experts (SAGE) was consulted prior to data collection to consider participant well-being protection. People with high levels of anxiety or depression were excluded from participation due to potential vulnerability. All participants gave consent online after reading the participant information sheet. British Psychological Society human research ethical guidelines (BPS, 2010) and guidelines for Internet-mediated research (BPS, 2013) were followed. Contact information was provided at the end of the study for those feeling affected (Appendix O). University ethical approval was received for this project (Appendix P).

### **Data Analysis**

To assess for multiple submissions from individuals, in line with Bowen, Daniel, Williams and Baird (2008), Internet protocol addresses and personal data were examined. In phase one 12 entries were identified as repeat responders and excluded from all analyses. None were identified in phase two.

To verify the SFEA manipulations, participants' levels of self-focussed attention, self-evaluation and anxiety following each task (clocks/faces) in both the high and low SFEA conditions were analysed. A series of three-way ANOVAs were conducted using IBM SPSS Statistics version 23. SAA group (low vs. high) and SFEA order (high vs. low SFEA first) were between-subjects factors and SFEA condition (high vs. low SFEA) was the within-subjects factor. As the data were not always normally distributed and homogeneity of variances was not always met, the data were log transformed so that parametric assumptions would be met (Field, 2009). Self-evaluation data from the faces task was the exception as this met parametric assumptions following a square root transformation (Field, 2009). When

analysing the ANOVAs, in line with Cohen (2008), where interaction effects were found the highest-order interactions were interpreted, the plotted means were inspected and appropriate post hoc tests were conducted. All post hoc t-tests utilised bootstrap procedures with 1000 samples (Field, 2009). Bonferroni adjustments were applied to alpha levels for post hoc tests to reduce the likelihood of Type I errors: adjustments were determined by the number of post hoc tests carried out for each dependent variable separately (Tabachnick & Fidell, 2014).

To test the principal hypotheses, in line with Canvin et al. (2016), linear mixed effects analyses were carried out separately on participants' estimates of the proportion of people and clocks looking towards them using R (version 3.2) (R Core Team, 2015), package lme4 (Bates, Maechler & Bolker, 2012). The fixed effects entered into the model were SAA group (low vs. high), SFEA condition (low vs. high), number forward (the objective number of faces/clocks facing forward), task order (clocks vs. faces first), SFEA order (low SFEA first vs. high SFEA first), social anxiety score and depression score. Participant ID was entered as a random effect around the intercept. Interaction effects were also estimated. No obvious deviations from homoscedasticity or normality were detected when inspecting residual plots.

## Results

### **Self-Focussed Evaluative Attention Manipulation**

Prior to presenting the main study analyses, the SFEA manipulation checks are first described. All means and standard deviations for the non-transformed data are displayed in Table 4.

Table 4

Means and Standard Deviations for Participants' *Self*-Focussed Attention, Self-Evaluation and Anxiety Levels Across Self-Focussed Evaluative Attention Manipulation Conditions and Condition Order

Low SAA (n = 52)												High SAA (n = 48)												
Low SFEA Condition				High SFEA Condition				Total				Low SFEA Condition				High SFEA Condition				Total				
SFEA Condition Order	M (SD)			M (SD)			M (SD)			M (SD)			M (SD)			M (SD)			M (SD)			M (SD)		
	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total			
<b>Faces Task</b>																								
Self-focussed attention	17.57 (24.42)	7.38 (13.29)	12.87 (20.54)	12.75 (23.91)	11.25 (14.15)	12.06 (19.84)	15.16 (24.07)	9.31 (13.72)	12.46 (20.10)	28.50 (22.92)	22.04 (25.50)	25.00 (24.31)	22.77 (25.53)	42.88 (30.26)	33.67 (29.68)	25.64 (24.15)	32.46 (29.64)	29.33 (27.33)	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total
Self-evaluation	26.79 (30.85)	15.50 (21.50)	21.58 (27.29)	18.93 (30.09)	19.88 (26.92)	19.37 (28.39)	22.86 (30.45)	17.69 (24.20)	20.47 (27.73)	48.00 (29.94)	37.88 (33.37)	42.52 (31.92)	34.27 (29.15)	61.92 (32.75)	49.25 (33.85)	41.14 (30.02)	49.90 (34.93)	45.89 (32.90)	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total
Anxiety	8.39 (14.20)	6.54 (8.12)	7.54 (11.72)	5.64 (11.55)	10.25 (21.77)	7.77 (17.02)	7.02 (12.90)	8.40 (16.36)	7.65 (14.54)	18.23 (20.70)	17.92 (20.44)	18.06 (20.34)	19.41 (23.89)	33.38 (28.60)	26.98 (27.20)	18.82 (22.10)	25.65 (25.82)	22.52 (24.30)	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total
<b>Clocks Task</b>																								
Self-focussed attention	13.32 (22.66)	8.42 (15.61)	11.06 (19.69)	11.89 (23.74)	9.38 (12.03)	10.73 (19.11)	12.61 (23.00)	8.90 (13.79)	10.89 (19.31)	23.27 (23.65)	15.96 (18.86)	19.31 (21.27)	20.82 (28.28)	30.92 (28.27)	26.29 (28.43)	22.05 (25.79)	23.44 (24.96)	22.80 (25.22)	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total
Self-evaluation	25.25 (29.69)	10.38 (13.24)	18.38 (24.53)	20.71 (31.94)	22.54 (25.44)	21.56 (28.86)	22.98 (30.64)	16.46 (20.98)	19.97 (26.70)	41.27 (33.11)	36.27 (30.70)	38.56 (31.58)	34.91 (31.98)	56.96 (31.62)	46.85 (33.35)	38.09 (32.33)	46.62 (32.58)	42.71 (32.57)	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total
Anxiety	6.82 (12.53)	7.29 (12.16)	7.04 (12.24)	6.50 (15.19)	8.37 (17.67)	7.37 (16.24)	6.66 (13.79)	7.83 (15.02)	7.20 (14.31)	21.36 (24.89)	17.38 (19.21)	19.21 (23.72)	17.23 (27.56)	22.50 (26.85)	20.08 (27.02)	19.30 (26.04)	19.94 (24.89)	19.65 (25.29)	Low SFEA First	High SFEA First	Total	Low SFEA First	High SFEA First	Total

Note. SAA = social appearance anxiety; SFEA = self-focussed evaluative attention.

**Faces task.** The SFEA manipulation verifications for the faces task, utilising transformed data, are presented first.

**Self-focussed attention.** A main effect of SAA group was found  $F(1, 96) = 15.551, p < .001$ , with high SAA demonstrating overall higher self-focussed attention (high SAA:  $M = 1.17, SD = 0.08$ ; low SAA:  $M = 0.75, SD = 0.08$ ). A significant interaction between SFEA condition and SFEA order was found  $F(1, 96) = 17.953, p < .001$ . The plotted means (Figure 6) revealed the highest scores were in the high SFEA condition. Post hoc testing with bootstrapping revealed that those undertaking the high SFEA condition second ( $M = 0.86, SD = 0.61$ ) versus first ( $M = 1.12, SD = 0.64$ ) reported lower average self-focussed attention by -0.26, BCa 95% CI [-0.50, -.03], which was significant,  $t(98) = -2.088, p = .039$ , but not with Bonferroni-adjusted  $\alpha = .025$ . These results, which might represent a participant fatigue effect, should be treated with more caution (Clark-Carter, 1997). No significant differences were found in the low SFEA condition.

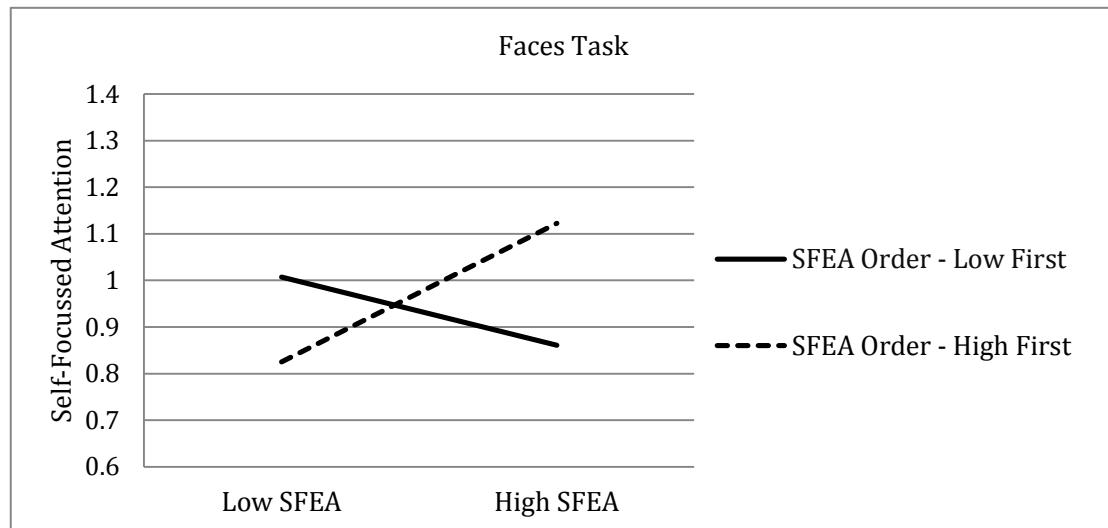


Figure 6. Graph displaying log transformed self-focussed attention levels in the low and high SFEA conditions in relation to SFEA order during the faces tasks. SFEA = self-focussed evaluative attention

**Self-evaluation.** A main effect of SAA group  $F(1, 96) = 22.532, p < .001$  and an interaction effect between SFEA condition and SFEA order  $F(1, 96) = 32.028, p < .001$  were

qualified by a significant three-way interaction effect  $F(1, 96) = 5.708, p = .019$ . Post hoc two-way ANOVAs with factors SFEA condition and SFEA order were performed for each SAA group (Figure 7).

High SAA participants. Simple interaction effects were found  $F(1, 46) = 27.059, p < .001$ , significant with Bonferroni-adjusted  $\alpha = .006$ . High SAA participants reported greatest self-evaluation in the high SFEA condition: however, a significant fatigue effect was observed as those experiencing the high SFEA condition first ( $M = 7.45, SD = 2.59$ ) displayed significantly higher levels than those experiencing it second ( $M = 5.03, SD = 3.06$ ), with a bootstrapped mean difference of -2.42, BCa 95% CI [-3.93, -0.75],  $t(46) = -2.964, p = .005$ , significant with the Bonferroni adjustment. No significant differences were found in the low SFEA condition. High SAA participants reported overall higher self-evaluation than low SAA participants (Figure 7).

Low SAA participants. Simple interaction effects were found although these were not significant with Bonferroni adjustments  $F(1, 50) = 6.467, p = .014$ . Cautious inspection of the profile plot indicated only small differences between SFEA conditions and highest mean self-evaluation in the low SFEA condition.

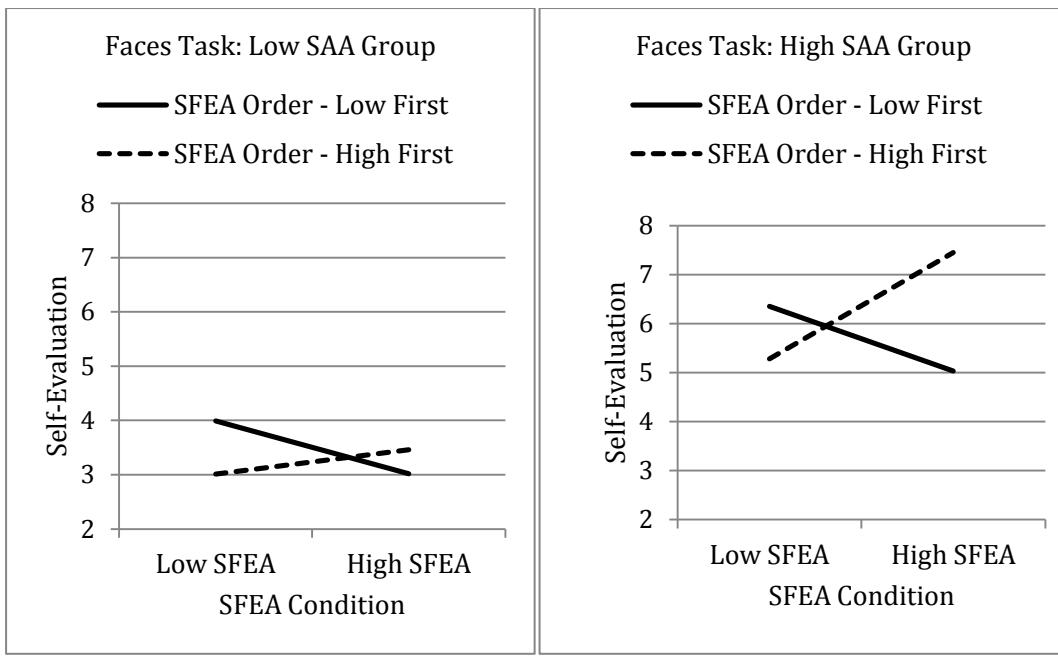


Figure 7. Graphs displaying high and low SAA participants' square root transformed levels of self-evaluation in the SFEA manipulation conditions during the faces tasks. SAA = social appearance anxiety. SFEA = self-focussed evaluative attention.

**Anxiety.** Anxiety levels were expected to increase with SFEA (Clark & Wells, 1995).

Main effects of SAA group  $F(1, 96) = 16.334, p < .001$  were found and qualified by an interaction between SFEA condition and SAA group  $F(1, 96) = 4.768, p = .031$ .

High SAA participants. The profile plot (Figure 8) revealed that anxiety was higher in the high SFEA condition ( $M = 1.09, SD = 0.67$ ) compared to low SFEA ( $M = 0.95, SD = 0.61$ ), with a bootstrapped mean difference of 0.14, BCa 95% CI [-0.26, -0.01], demonstrating a trend toward significance,  $t(47) = 1.971, p = .055$  (Bonferroni adjusted  $\alpha = .025$ ). This should be interpreted with caution: nonetheless, this result may mirror the higher levels of self-evaluation found in the high SAA group in the high SFEA condition.

Low SAA participants. Anxiety levels were lower than for high SAA (Figure 8). No statistically significant change across SFEA conditions was found, consistent with the minimal changes in self-evaluation across SFEA conditions for this group in the faces task.

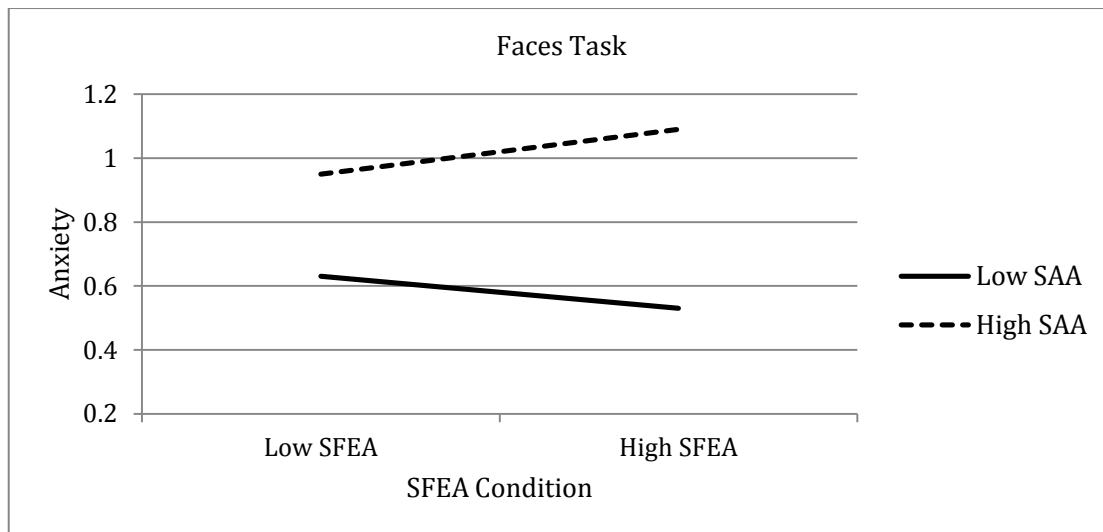


Figure 8. Graph displaying high and low SAA participants' log transformed levels of anxiety across the SFEA manipulation conditions during the faces tasks. SAA = social appearance anxiety. SFEA = self-focussed evaluative attention.

**Clocks task.** The SFEA manipulation verification for the clocks task using log transformed data is presented.

**Self-focussed attention.** A main effect of SAA group  $F(1, 96) = 10.615, p = .002$ , and an interaction effect of SFEA condition and SFEA order  $F(1, 96) = 12.158, p = .001$  were qualified by a three-way interaction effect  $F(1, 96) = 4.953, p = .028$ . Post hoc two-way analyses of SFEA condition and SFEA order for both SAA groups were conducted (Figure 9).

High SAA participants. A simple interaction effect was found  $F(1, 46) = 13.871, p = .001$ , significant with Bonferroni-adjusted  $\alpha = .006$ . The highest self-focussed attention was in the high SFEA condition (Figure 9). Potential fatigue effects in this condition, visible on the plotted means, did not reach significance. A smaller fatigue effect observed in the low SFEA condition was not significant. Overall, high SAA participants reported higher self-focussed attention than low SAA.

Low SAA participants. The post hoc two-way analysis was not significant: differences between SFEA conditions were minimal (Figure 9).

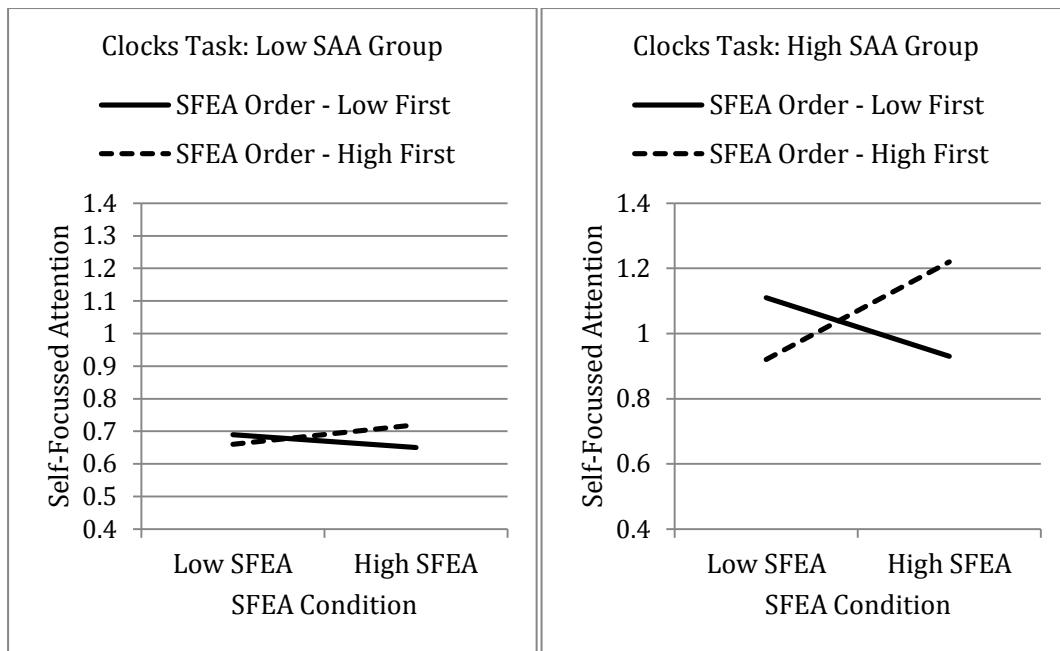


Figure 9. Graphs displaying high and low SAA participants' log transformed levels of self-focussed attention in the SFEA manipulation conditions during the clocks tasks. SAA = social appearance anxiety. SFEA = self-focussed evaluative attention.

**Self-evaluation.** A main effect was found for SAA group  $F(1, 96) = 17.595, p < .001$ . High SAA reported higher self-evaluation ( $M = 1.39, SD = 0.09$ ) than low SAA ( $M = 0.90, SD = 0.08$ ). A significant interaction between SFEA condition and SFEA order  $F(1, 96) = 31.894, p < .001$  was found. Self-evaluation was highest in the high SFEA condition (Figure 10). The interaction was observable as a fatigue effect in high SFEA, with those experiencing high SFEA first reporting greater self-evaluation ( $M = 1.34, SD = 1.17$ ) than those experiencing it second ( $M = 0.99, SD = 0.72$ ) with a bootstrapped mean difference of  $-0.348, BCa 95\% CI [-0.60, -0.08], t(98) = -2.609, p = .011$ , significant with Bonferroni-adjusted  $\alpha = .025$ . Means did not differ in the low SFEA condition.

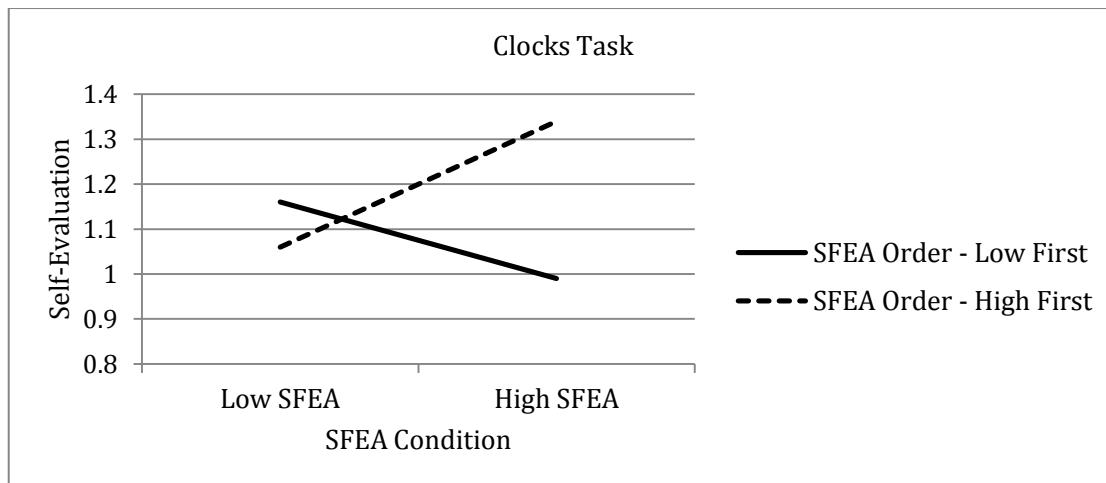


Figure 10. Graph displaying log transformed self-evaluation levels in the low and high SFEA conditions in relation to SFEA order during the clocks tasks. SFEA = self-focussed evaluative attention.

**Anxiety.** A main effect was found for SAA group  $F(1, 96) = 10.000, p = .002$  with high SAA reporting greater anxiety ( $M = 0.91, SD = 0.08$ ) than low SAA ( $M = 0.56, SD = 0.08$ ), in line with high SAA's higher levels of self-focussed attention and self-evaluation in this task. A two-way interaction was found for SFEA order and SFEA condition  $F(1, 96) = 4.840, p = .03$  (Figure 11). In line with self-focussed attention and self-evaluation in the clocks tasks, the highest anxiety was found in the high SFEA condition but a potential fatigue effect in this condition, visible on the plotted means, did not reach significance.

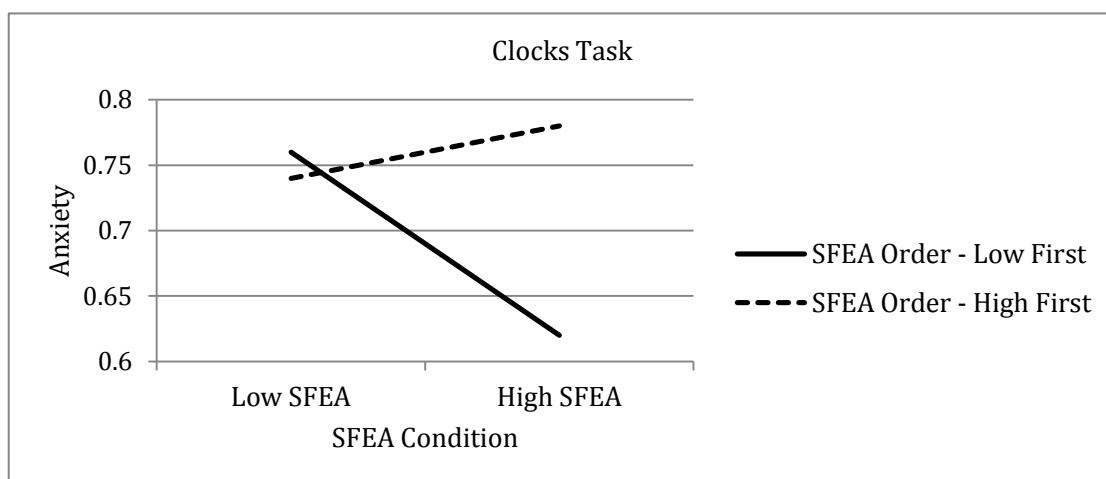


Figure 11. Graph displaying log transformed anxiety levels in the low and high SFEA conditions in relation to SFEA order during the clocks tasks. SFEA = self-focussed evaluative attention.

**Summary.** Higher levels of self-focussed attention, self-evaluation and anxiety were reported by the high SAA group than the low SAA group in both tasks, consistent with pre-existing differences in trait self-focussed attention (Table 2). As expected, the high SFEA condition was consistently linked to the highest means of self-focussed attention, self-evaluation and anxiety in both tasks. However, there were frequent indications of fatigue effects in this condition when experienced second. Furthermore, the apparent increases in SFEA in the high SFEA condition were often not experienced by the low SAA group in the tasks. In contrast, the high SAA group results suggested increases in SFEA in this group in the high SFEA conditions in both tasks. In conclusion, the high SAA group responded to the SFEA manipulation as expected, with increases in SFEA in the high SFEA condition. This conclusion is not supported for the low SAA group.

### Main Hypotheses Testing

The following hypotheses were tested: people with high levels of SAA will estimate that more faces are ‘looking at you’ in a face perception task than those with low levels of SAA, even after controlling for social anxiety and depression; and increasing SFEA will increase estimates of the proportion of people ‘looking at you’ in a face perception task in both those with low and high levels of SAA, but won’t affect estimates of the number of clocks ‘facing you’ in a non-social perception task for either group.

**Faces task.** Table 5 presents the results of the linear mixed effects analyses of participants’ estimates of the number of people ‘looking at you’. The objective number of faces forward was a significant predictor and estimates increased as the objective number facing forward increased (Figure 12), demonstrating that participants were attending to the stimuli and did not respond at random.

Table 5

*Results of the Linear Mixed Effects Analyses on Participants' Estimates of the Proportion of People 'Looking at You'*

Predictors	B	SE	t	p
Number forward	3.98	0.05	82.76	<.001
SAA group	-7.13	3.14	-2.27	.023
Task order	-2.01	1.94	-1.04	.300
SFEA order	1.75	1.93	0.91	.364
SFEA condition	-1.96	0.44	-4.46	<.001
Social anxiety	0.02	0.11	0.17	.862
Depression	0.04	0.39	0.10	.920
SAA group x SFEA condition	2.01	0.61	3.30	<.001

Note. SAA = social appearance anxiety; SFEA = self-focussed evaluative attention.

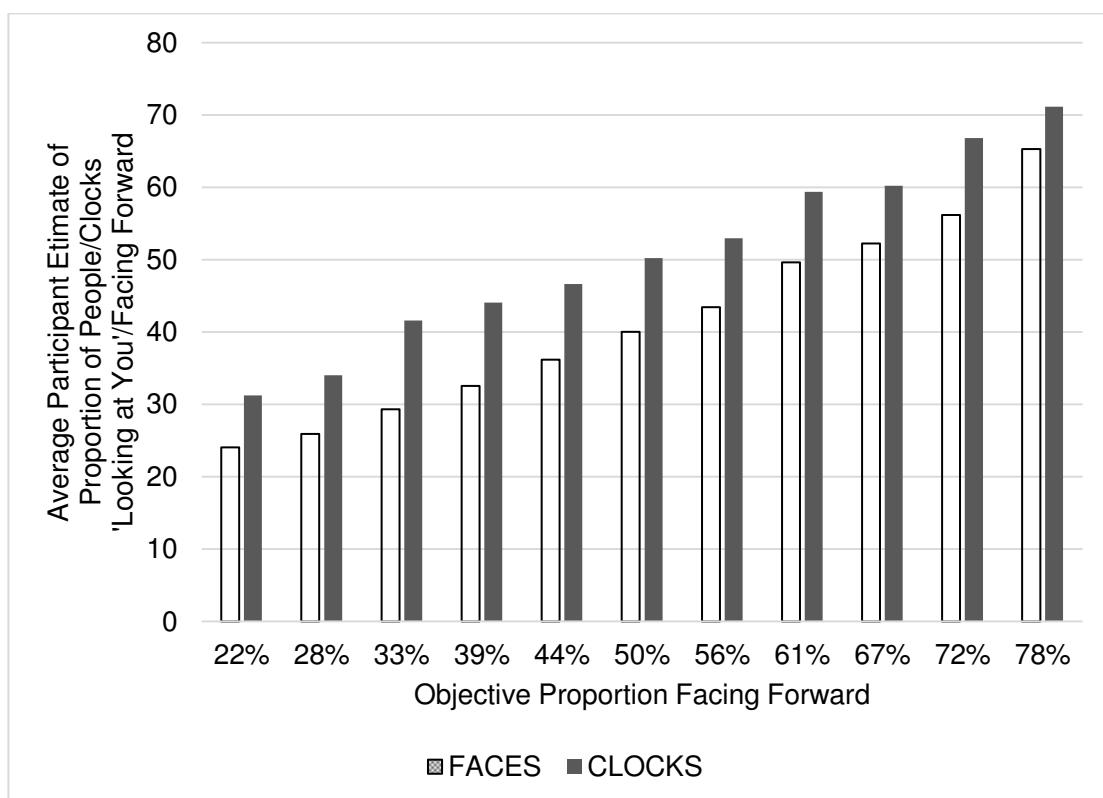


Figure 12. Graph displaying participants' average estimates of the proportions of people 'looking at you' and clocks facing forward in relation to the objective proportion.

As hypothesised, SAA group was a significant predictor of the number of people 'looking at you' with those in the high SAA group producing higher overall estimates than the low group (Table 6; Figure 13).

Table 6

*Means, Standard Deviations and Confidence Intervals for Low and High SAA Participants' Estimates of the Proportion of People 'Looking at You'*

SAA Group	M	SD	95% CI	
			LL	UL
High SAA	44.88	21.74	44.22	45.53
Low SAA	38.15	20.59	37.56	38.75

Note. CI = confidence interval; LL = lower limit; SAA = social appearance anxiety; UL = upper limit.

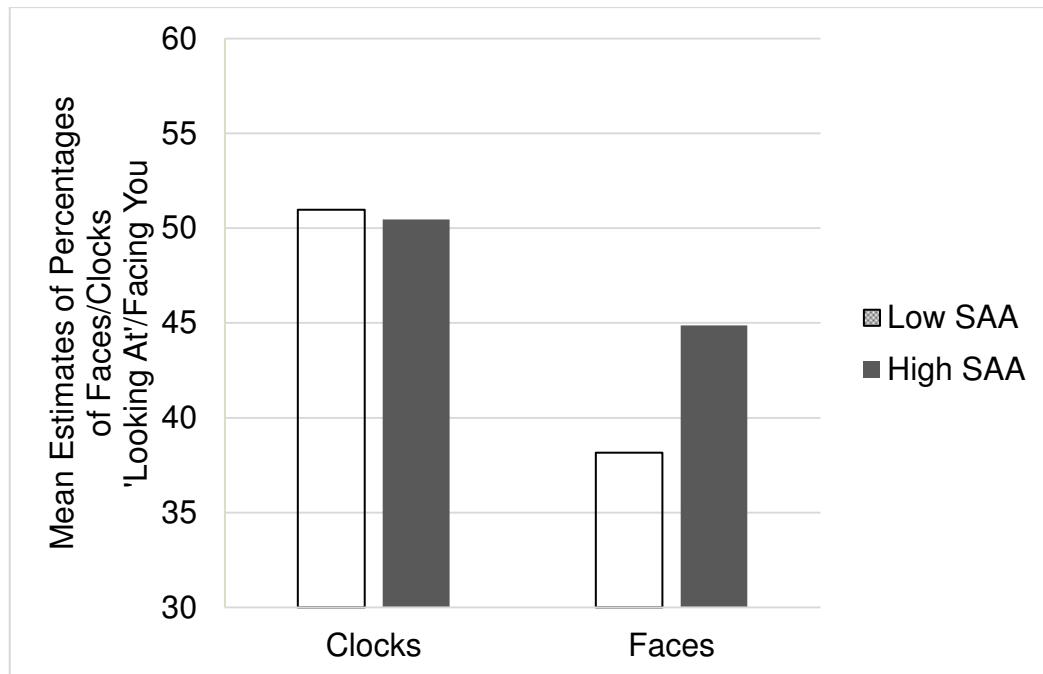


Figure 13: The mean estimates of the proportion of people 'looking at you' and clocks facing forward for each social appearance anxiety group. The objective mean proportion for both tasks was 50%. SAA = social appearance anxiety.

Also as hypothesised, SFEA condition was a significant predictor of the number of people 'looking at you', with people estimating more people looking at them when in the high SFEA condition compared to the low SFEA condition (Figure 14). Nonetheless, the confidence intervals around the means overlapped (Table 7), possibly due to the lack of effect of the SFEA manipulation on the low SAA group.

Table 7

*Means, Standard Deviations and Confidence Intervals for Participants' Estimates of the Proportion of People 'Looking at You' in the Low and High SFEA Conditions*

SFEA Condition	M	SD	95% CI	
			LL	UL
High SFEA	41.84	21.38	41.20	42.47
Low SFEA	40.93	21.44	40.29	41.56

Note. CI = confidence interval; LL = lower limit; SFEA = self-focussed evaluative attention; UL = upper limit.

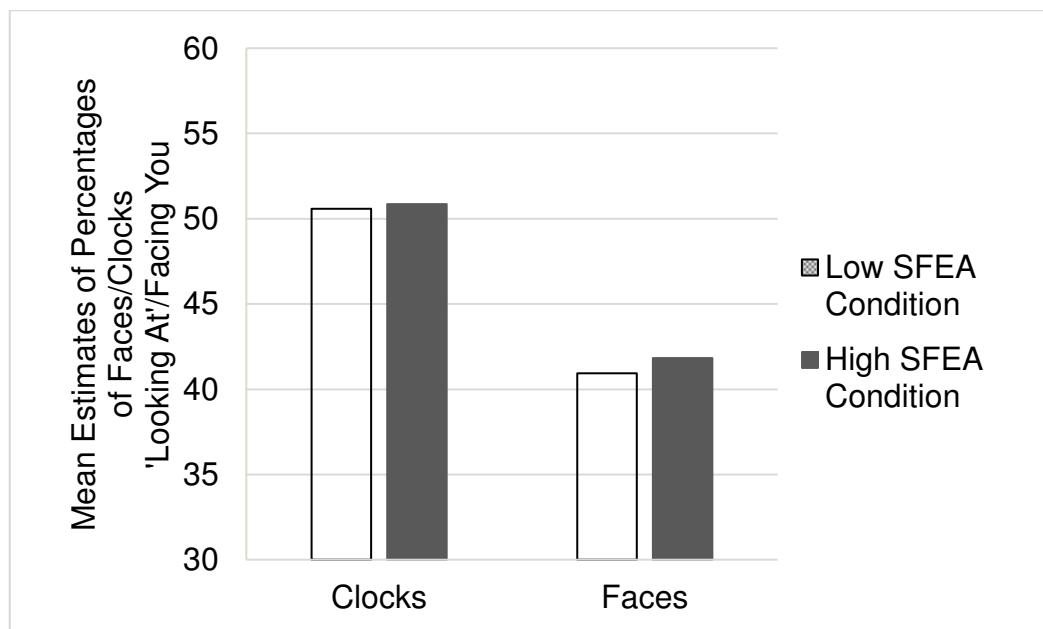


Figure 14: The mean estimates of the proportion of people 'looking at you', and clocks facing forward, for each self-focussed evaluative attention condition. The objective mean proportion for each condition was 50%. SFEA = self-focussed evaluative attention.

A significant interaction was found between SAA group and SFEA condition. The highest estimates of people 'looking at you' were found for the high SAA group in the high SFEA condition followed by the high SAA group in the low SFEA condition (Figure 15), reflecting significantly increased perceptions of 'being looked at' when SFEA was increased in this group. The low SAA group, in the high and low SFEA conditions, produced similar, low estimates, possibly reflecting the lack of effect of the high SFEA manipulation in this group. A comparison of the confidence intervals around the means for the SAA groups when

in the low SFEA condition (Table 8) clearly supports the hypothesis that those high in SAA perceive that they are being ‘looked at’ more than the low SAA group.

Table 8

Means, Standard Deviations and Confidence Intervals for Low and High SAA Participants '*Estimates of the Proportion of People ‘Looking at You’ in the Low and High SFEA Conditions*

SAA Group / SFEA Condition	M	SD	95% CI	
			LL	UL
High SAA / High SFEA	45.86	21.92	44.92	46.79
High SAA / Low SFEA	43.90	21.52	42.98	44.82
Low SAA / High SFEA	38.13	20.18	37.30	38.95
Low SAA / Low SFEA	38.18	20.99	37.32	39.04

Note. CI = confidence interval; LL = lower limit; SAA = social appearance anxiety; SFEA = self-focussed evaluative attention.; UL = upper limit.

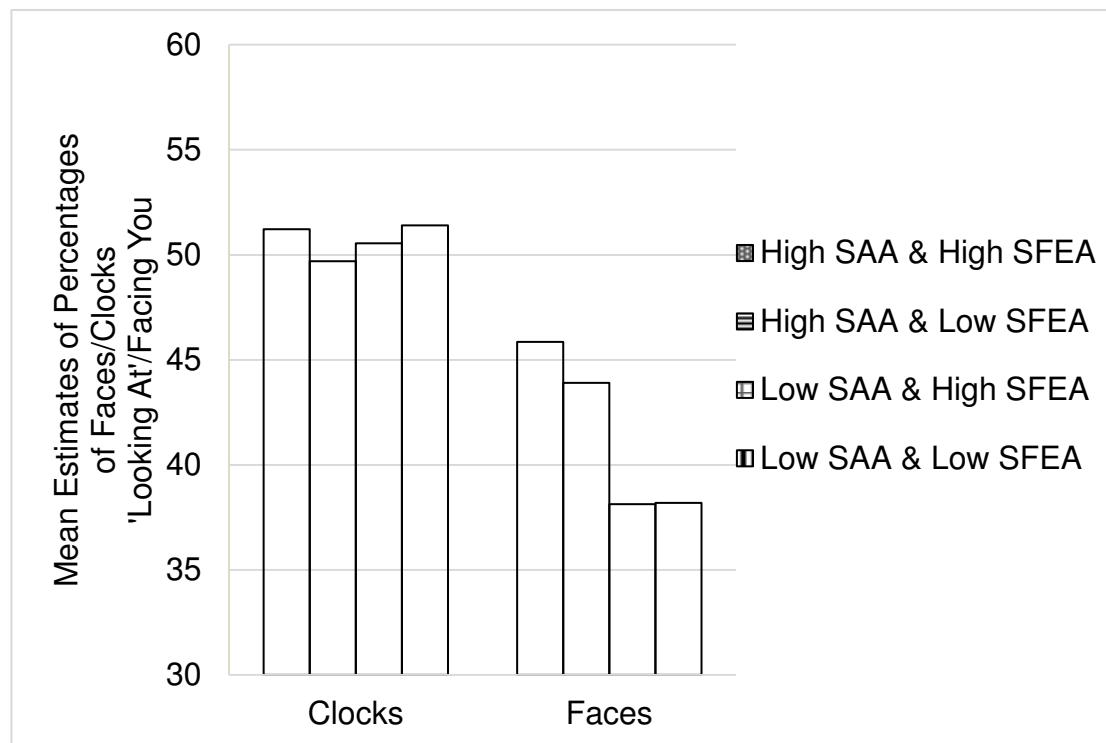


Figure 15: The mean estimates of the proportion of people ‘looking at you’, and clocks facing forward, for the low and high social appearance anxiety groups in each self-focussed evaluative attention condition. The mean objective percentage for each condition was 50%. SAA = social appearance anxiety. SFEA = self-focussed evaluative attention.

Depression, SFEA order and task order were not found to produce main effects in estimates of the number of people ‘looking at you’. In contrast to previous literature (Bolt et

al., 2014; Canvin et al., 2016), social anxiety was not found to be a significant predictor. To ascertain whether this was due to SAA group explaining a high proportion of the variance, post hoc linear mixed effects analyses were run. The results, shown in Table 9, indicated that when SAA group was not controlled for, social anxiety became a significant predictor.

Table 9

*Results of the Post Hoc Linear Mixed Effects Analyses on Participants' Estimates of the Proportion of People 'Looking at You' Which Excludes Social Appearance Anxiety Group*

Predictors	B	SE	t	p
Number forward	3.98	0.05	82.72	<.001
Task order	-2.29	1.96	-1.17	.243
SFEA order	1.46	1.95	0.75	.455
SFEA condition	-0.91	0.30	-2.99	.003
Depression	0.24	0.38	0.63	.529
Social anxiety	0.17	0.08	2.26	.024

Note. SFEA = self-focussed evaluative attention

**Clocks task.** The results of the analyses of participants' estimates of the number of clocks 'facing you' are presented (Table 10). The objective number of clocks facing forward was a significant predictor, and estimates increased as the objective number facing forward increased (Figure 12), thus providing evidence of the validity of this task.

Table 10

*Results of the Linear Mixed Effects Analyses on Participants' Estimates of the Proportion of Clocks 'Facing You'*

Predictors	B	SE	t	p
Number forward	3.86	0.05	79.56	<.001
SAA group	4.16	2.90	1.44	.151
Task order	-1.10	1.79	-0.61	.540
SFEA order	2.01	1.78	1.13	.259
SFEA condition	-1.5	0.44	-3.41	<.001
Social anxiety	0.19	0.10	1.90	.057
Depression	0.32	0.36	0.88	.378
SAA group x SFEA condition	2.36	0.61	3.85	<.001

Note. SAA = social appearance anxiety; SFEA = self-focussed evaluative attention.

SFEA condition was found to be a significant predictor of the estimates of clocks ‘facing you’. However, this was not supported by the significant overlap in the confidence intervals around the means for the SFEA conditions (Table 11).

Table 11

*Means, Standard Deviations and Confidence Intervals for Participants’ Estimates of the Proportion of Clocks ‘Facing You’*

SFEA Condition	M	SD	95% CI	
			LL	UL
High SFEA	50.86	20.83	50.25	51.48
Low SFEA	50.58	20.73	49.97	51.19

Note. CI = confidence interval; LL = lower limit; SAA = social appearance anxiety; SFEA = self-focussed evaluative attention; UL = upper limit.

An interaction effect between SAA group and SFEA condition was found. Again, this was not supported by the overlapping confidence intervals around the means (Table 12). These results therefore support the hypothesis that increases in SFEA do not produce changes in the perceptions of non-social stimuli.

Table 12

*Means, Standard Deviations and Confidence Intervals for Low and High SAA Participants’ Estimates of the Proportion of Clocks ‘Facing You’ in the Low and High SFEA Conditions*

SAA Group / SFEA Condition	M	SD	95% CI	
			LL	UL
High SAA / High SFEA	51.21	21.27	50.30	52.11
High SAA / Low SFEA	49.70	20.40	48.83	50.57
Low SAA / High SFEA	50.55	20.41	49.71	51.38
Low SAA / Low SFEA	51.40	21.00	50.54	52.26

Note. CI = confidence interval; LL = lower limit; UL = upper limit; SAA = social appearance anxiety; SFEA = self-focussed evaluative attention.

SAA group, task order, SFEA order and depression were not found to significantly predict estimates of the proportion of clocks ‘facing you’. Social anxiety approached but did not reach significance as a predictor, in line with Bolt et al. (2014) and Canvin et al. (2016).

In line with Canvin et al. (2016), overall, participants provided on average more accurate estimates (objective M = 50) for the clocks stimuli (M = 50.72, SD = 20.78) than for the faces stimuli (M = 41.38, SD = 21.41).

## Discussion

This was an Internet-mediated experimental study which investigated the perception of ‘being looked at’ in an analogue sample of people with low versus high SAA, and in relation to their experimentally manipulated SFEA levels. The study aimed to test several hypotheses. Firstly, that individuals with high levels of SAA would estimate that more faces are looking at them in a face perception task than those with low SAA, even after controlling for social anxiety and depression. Second, that increasing SFEA would increase estimates of the proportion of people ‘looking at you’ in the faces task in both people with low and high SAA, but that the increases would have no effect on estimates of the numbers of clocks ‘facing you’ in a non-social task. Third, that people with high SAA would have higher levels of trait self-focussed attention than those with low SAA.

An analogue sample of people low and high in SAA was successfully created for the first time, using the Social Appearance Anxiety Scale (Hart et al., 2008). Cut-off scores for the groups were gender-specific and based on previous research with a USA sample (White, 2013). Males highest in SAA in the current sample had higher levels than those in White’s (2013) sample, perhaps reflecting cultural differences between the populations sampled. Unsurprisingly, the least similar cut-offs were those created for the transgender and ‘other gender identity’ group as these were estimated from whole sample data. Despite the small size of this group, its data and results were reported as accurately as possible, in line with guidelines for working with transgender and ‘gender nonconforming’ people (Anderson & Kazak, 2015) and upholding the core NHS value ‘everyone counts’ (Department of Health, 2012). The low and high SAA groups differed significantly in appearance evaluation, body areas satisfaction, appearance orientation, depression, stress, anxiety and social anxiety in the theoretically anticipated directions. The high SAA group was found to be of a significantly lower age, and to vary much less in age, than the low SAA group, supporting previous reports

of an inverse relationship between SAA and age (Boersma & Jarry, 2013).

As hypothesised, the high SAA group estimated more faces were looking at them than the low SAA group across SFEA conditions and overall, after controlling for social anxiety and depression. Additionally, increases in SFEA caused increases in the perception of being looked at in those high in SAA. Canvin et al.'s (2016) proposal that this mechanism can be seen in all people could not be verified due to the SFEA manipulation not producing the desired effect in the low SAA group. There were no differences in the perceptions of non-social stimuli (clocks) between the SAA groups and, as hypothesised, perceptions of non-social stimuli did not differ between SFEA conditions. This supports Canvin et al.'s (2016) assertion that changes in SFEA will affect social stimuli only. Surprisingly, in contrast to Canvin et al. (2016) and Bolt et al. (2014), social anxiety was not found to significantly predict estimates of faces 'looking at you'. Post hoc analyses suggested this may have been due to a large amount of the variance of estimates being explained by SAA; when SAA was not included in the analyses social anxiety became a significant predictor. This finding potentially attests the magnitude of the relationship between the perception of being looked and appearance-related social anxiety. Finally, also as hypothesised, those high in SAA reported higher trait levels of self-focussed attention than those low in SAA.

These results suggest that self-focussed attention, a key cognitive process thought to be a maintaining factor in experiences of social anxiety (Clark & Wells, 1995), may also be relevant to understanding SAA. As SAA is thought to be a subtype of social anxiety (Hart et al., 2008; Levinson & Rodebaugh, 2012), it may be that self-focussed attention in SAA produces effects in similar ways to self-focussed attention in social anxiety. In line with the Clark and Wells (1995) model of social phobia, it may be that in social situations people with high SAA become self-focussed and use internally generated information about their appearance, often based on anxiety and negative cognitions, to build an impression of

themselves which they believe is the impression that is observed by others. This distorted impression may appear to the individual to be perceived by an increased number of people as, as indicated by these results, in high SAA greater self-focussed evaluative attention appears to be linked to an increased perception of being looked at by others. Self-focussed attention is also associated with reduced attention to the objective external environment (Clark & Wells, 1995), which may impede disconfirmation of negative fears about the way their appearance is regarded by others. Thus, the experience of SAA may be maintained.

Both this and Canvin et al.'s (2016) study found that people provided more accurate estimates for the clocks task than the faces task, possibly because people found the clocks task less complex as the clocks were only depicted facing forwards or backwards, whereas the faces were shown looking in five different directions.

### **Limitations**

The SFEA manipulations were verified using a series of visual analogue scales (VAS) measuring self-evaluation, self-focussed attention and anxiety. Although this approach had been used in previous literature (Canvin et al., 2016), the criterion validity of these scales has not been empirically demonstrated. Furthermore, the data collected using the VAS were analysed using analyses of variance (ANOVAs), whereas a linear mixed effects analysis might have been more appropriate given the presence of repeated-measures data (Gueorguieva & Krystal, 2004). Use of an Internet-mediated approach, whilst offering considerable benefits, is associated with a reduction in experimental control which may have reduced the internal validity of this study. Additionally, using an Internet-mediated approach is likely to have impeded the participation of certain groups of people, such as older adults or those who only have access to the Internet in their workplace (Dutton & Helsper, 2007). Finally, the sample obtained in this study was skewed towards people who are younger adults, White, and female which limited the extent to which the results can be generalised to

other cohorts or the general population.

The SFEA manipulation had limited effect in the low SAA group. Participants were asked to imagine that they were to be interviewed by four people and to imagine how their appearance would come across. For those low in SAA perhaps the task was not sufficiently powerful to produce changes in SFEA. Less hypothetical manipulations might be more effective for those who are generally less anxious and may produce the desired changes in SFEA.

Significant fatigue effects appear to have interacted with the high SFEA manipulation. The average time spent participating was 72 minutes. Future research should seek to significantly reduce the length of the tasks to decrease participant fatigue.

### **Practice Implications**

The data indicated that females tended to report slightly higher levels of SAA than males. The low and high SAA groups could not be compared for gender differences as statistical requirements were not met. Nonetheless, the high SAA group was comprised of a greater percentage of females (77%) than the low group (67%). Together these results indicate that females may be a particularly relevant population for further assessment and treatment of SAA. Additionally, the high SAA group was significantly younger and had a smaller variance and range of ages than the low SAA group indicating that SAA may be particularly relevant for younger adults and that this cohort may also benefit from further assessment and treatment of SAA.

Psychoeducation may help people with high SAA to know that they perceive more people looking at them than those with less appearance-related anxiety, and that this perception increases when they focus attention on themselves. Additionally, attention training to help people to learn to focus externally may enable these individuals to decrease their own SFEA levels and thereby reduce their perceptions of ‘being looked at’, and the concomitant anxiety, in social situations.

To the author's knowledge, this is the first study within the body image literature to demonstrate experimentally the experience of increased 'being looked at'. Nonetheless, this experience has been reported anecdotally previously: Phillips, McElroy, Keck, Pope and Hudson (1993) described ideas of reference in people with BDD with these individuals believing that others take special notice of them and their appearance. People with BDD are known to experience marked appearance-related social anxiety (i.e. SAA) (Anson et al., 2012; Pinto & Phillips, 2005). In BDD, it is proposed that preoccupation with appearance is maintained through biases of attention, appraisal and interpretation of information which confirm negative beliefs about the self (Neziroglu et al., 2008), for example regarding the person's 'ugliness'. This distorted processing of information is more likely to occur during high arousal such as in social situations. Heightened self-focussed attention forms a core part of cognitive models of BDD (Neziroglu et al., 2008; Veale, 2004). This study offers evidence of a further way in which heightened self-focussed attention may be interfering with social functioning in BDD: by increasing perceptions of 'being looked at'. Increased 'being looked at', coupled with tendencies in BDD to misinterpret self-referent neutral emotional expressions in others as angry and contemptuous (Buhlmann, Etcoff, & Wilhelm, 2006), could prevent disconfirmation of these individuals' fears about negative appearance evaluation by others and their beliefs about their ugliness. Thus, their heightened SAA and BDD are maintained.

Finally, the theoretical implications which have been developed as a result of this study may be usefully applied in clinical work with other groups for whom SAA is thought to be relevant, including those with eating disorders (Koskina et al., 2011; Levinson & Rodebaugh, 2015), social anxiety (Levinson et al., 2013; Levinson & Rodebaugh, 2015) and people with facial disfigurements (Versnel et al., 2012).

## Future Research

The BDD literature highlights other mechanisms which may also underlie increased perceptions of being looked at in addition to self-focussed attention. These include selective attention to stimuli relating to current concerns or specific threat (Buhlmann, McNally, Wilhelm & Florin, 2002; Toh, Castle, & Rossell, 2017), which in social situations could include worries about the gaze of others, and negative interpretive bias for social scenarios (Buhlmann et al., 2002). Further studies are required to examine the role of these and other potential cognitive processes in relation to perceptions of being looked at in SAA.

The calculated quartiles of SAA scores for the minority gender identity group were higher than for other groups. This group's sample size was small, nonetheless, the importance of minority stress-related variables in relation to SAA have been highlighted (Hart, Rotondi, Souleymanov, & Brennan, 2015) and the impact of gender dysphoria and stigma upon transgender and gender nonconforming people potentially make SAA a highly relevant concept for this group. Targeted research with larger samples seems warranted.

Finally, individuals with high levels of depression and/or anxiety were excluded from participating due to potential vulnerability. Nonetheless, it is thought that SAA associates positively with depression (Claes et al., 2012; Hart et al., 2008) and anxiety (Levinson & Rodebaugh, 2011). It is therefore possible that a significant proportion of those excluded might also experience high levels of SAA and that potential biases might have been introduced into the high SAA group data. Future research should seek to investigate SAA in a way that allows as many of those experiencing high SAA as possible to be represented.

## Conclusion

People with high social appearance anxiety levels perceived they were being looked at more than those who had low levels. This may be due to the higher habitual levels of self-focussed attention found in this group. Increasing levels of self-focussed evaluative attention caused

further increases in this group's perceptions of 'being looked at'. This mechanism was shown to be specific to social stimuli: increasing self-focussed evaluative attention had no effect on perceptions of non-social stimuli. Consequently, psychoeducation and attention training are suggested as potentially beneficial clinical interventions for those with high social appearance anxiety. This includes people with BDD. A need for more research of other cognitive mechanisms underpinning these experiences and with people from minority gender identity populations is identified.

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## Section C: Appendices of Supporting Material

**Appendix A:**

## Socio-Demographic Questionnaire

1. Please select your gender identity:

1. Female
2. Female to male transgender
3. Male
4. Male to female transgender
5. Other, please describe:

2. Please state your age:

3. What is your ethnic group?

Choose one option that best describes your ethnic group or background:

**White**

1. English/Welsh/Scottish/Northern Irish/British
2. Irish
3. Gypsy or Irish Traveller
4. Any other White background, please describe:

**Mixed/Multiple ethnic groups**

5. White and Black Caribbean
6. White and Black African
7. White and Asian
8. Any other Mixed/Multiple ethnic background, please describe:

**Asian/Asian British**

9. Indian
10. Pakistani
11. Bangladeshi
12. Chinese
13. Any other Asian background, please describe:

**Black/ African/Caribbean/Black British**

14. African
15. Caribbean
16. Any other Black/African/Caribbean background, please describe:

**Other ethnic group**

17. Arab
18. Any other ethnic group, please describe:

**Appendix B:**  
Social Appearance Anxiety Scale

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**Appendix C:**

## Depression Anxiety Stress Scale 21-Item Short Form

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**Appendix D:**

Multidimensional Body-Self Relation Questionnaire – Appearance Subscales

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**Appendix E:**  
Self-Focused Attention Scale)

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**Appendix F:**  
Self-Consciousness Scale - Revised

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**Appendix G:**

## Social Phobia Inventory

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**Appendix H:**

## High Self-Focussed Evaluative Attention Manipulation Prompts

- ‘Please think carefully and try to imagine how your appearance might come across when you meet these people’
- ‘What will they notice about how you look?’
- ‘What might they think is your best physical feature?’
- ‘Might they think you have any weaker aspects to your appearance? Please describe what these would be’
- ‘What three words might they use to describe your physical appearance?’
- ‘Please now take note of your thoughts and feelings about how your appearance will come across to these people. Continue to be aware of these thoughts and feelings throughout the next task’

**Appendix I:**

## Low Self-Focussed Evaluative Attention Manipulation Prompts

- ‘Please think carefully and try to imagine what you might think of the town if you were visiting it for the first time’
- ‘What do you notice about how the town looks?’
- ‘In your opinion, what might be the town’s best feature?’
- ‘What might be the worst thing about this town?’
- ‘From the picture, what three words might you use to describe this town?’
- ‘Please now take note of your thoughts and feelings about how this town looks. Continue to be aware of these thoughts and feelings throughout the next task’

**Appendix J:****Single Item Measure Prompts Used to Assess the Self-Focussed Evaluative Attention Manipulations****Task Focus**

‘Please now tell us how much you were focussed on the task itself as you did it. Do this by clicking on the line below. The line ranges from 0 (not at all focussed on the task) to 100 (totally focussed on the task)’

**Self-Focus**

‘Please tell us how much you were focussed on yourself or your body during the task. Do this by clicking on the line below. The line ranges from 0 (not at all focussed on myself or my body) to 100 (totally focussed on myself or my body)’

**Anxiety**

‘Please tell us how anxious you felt as you did the task. Do this by clicking on the line below. The line ranges from 0 (not at all anxious) to 100 (extremely anxious)’

**Self-Evaluation**

‘Please tell us how much you were judging yourself or your performance on the task as you did it. Do this by clicking on the line below. The line ranges from 0 (not judging myself or my performance at all) to 100 (totally judging myself or my performance)’

**Appendix K:**

## Participant Information Sheet

**Body image related social anxiety and the perception of being looked at: An Internet-mediated study.**

**PARTICIPANT INFORMATION SHEET**

Hello. My name is Hanne Conn and I am a trainee clinical psychologist at Canterbury Christ Church University. I would like to invite you to take part in a research study as part of my doctorate in clinical psychology thesis. Before you decide, it is important that you understand why the research is being carried out and what it would involve for you. Please talk to others about the study if you wish.

**What is the purpose of the study?** The study aims to find out whether the amount of concern people have about how they look affects how they experience certain aspects of social situations.

**Do I have to take part?** It is up to you to decide whether to join the study. If you agree to take part, I will ask you to read and sign a consent form online. You will be free to withdraw at any time from the project should you wish to, without giving a reason.

**Do I meet the requirements to take part?** To take part we require you to be aged 18 years or over and be able to use and have access to a desktop or laptop computer with a good Internet connection. Unfortunately, due to the nature of the study, participation via smaller, mobile devices is not possible. You must also have access to the Mozilla Firefox web browser, or if this is not possible, Internet Explorer. It is also important that you have a sufficient level of English reading ability to understand this information sheet unaided.

**What will happen to me if I take part?** If you agree to take part you will be asked to complete some questionnaires online. These will cover some quite personal areas, including your thoughts and feelings about your body, and your mood in general. This usually takes around 10 minutes. Following this, you may then be asked to participate further in this project. If this happens you will be asked to complete some more questionnaires and to carry out some computer tasks online. These tasks will involve looking at some images and answering questions about what you have seen. This usually takes around another 60 minutes although it can take some people longer.

**Will I be paid?** If you decide to take part, once you have completed your participation in the research you will be invited to enter a prize draw to win one of two £50 Amazon vouchers. The winners will be selected at random from all participants and notified in December 2016.

**I am a student of [REDACTED] University taking part through the University research participation scheme. Will I receive credits if I take part?** Yes, you will receive between 1 and 5 credits for taking part depending upon the number of tasks you are selected to do in the study. Upon completion of the study, you will be asked to enter your University email address so that you can be identified and awarded credits. Your email address will be stored separately from the rest of your data and your answers will remain anonymous.

**What are the possible disadvantages and risks of taking part?** Although the likelihood is low, some people might find answering questionnaires about some of their personal feelings and thoughts distressing.

**What are the possible benefits of taking part?** All consenting participants will be entered into a prize draw to win one of two £50 Amazon vouchers. Furthermore, some people find the experience of taking part in research interesting and/or enjoyable. While there is unlikely to be much further personal benefit to you as an individual, the information gathered by this study is hoped to be of benefit to researchers, clinicians and possibly those with body image worries in the future.

**Will my taking part in the study be kept confidential?** All data and personal information will be stored securely within Canterbury Christ Church University premises in accordance with the Data Protection Act 1998 and the University's own data protection requirements. Data can only be accessed by me and my supervisors, Dr. Martin Anson and Dr. Blake Stobie. After completion of the study all data will be made anonymous (i.e. all personal information associated with the data will be removed).

**What if I have a problem or a complaint?** If you have a concern about any aspect of this study, you should leave a message for me on the 24-Hour Research Voicemail (0333 011 7070) and I will do my best to answer your questions. If you remain unhappy and wish to complain formally, you can do this by contacting Prof. Paul Camic, Research Director at: Salomons Centre for Applied Psychology, Canterbury Christ Church University, Runcie Court, Broomhill Road, Tunbridge Wells, Kent, TN3 0TF or by email at paul.camic@canterbury.ac.uk.

**Who has reviewed the study?** This study has been reviewed and approved by the Canterbury Christ Church University Department of Applied Psychology (Salomons Campus) ethics board.

**Who is organising and funding the research?** This research project is organised and funded by Canterbury Christ Church University.

**Dissemination of results and feedback:** It is hoped that the findings of this project will be published in an academic, peer reviewed journal. Copies of our findings will be provided to all participants on request upon completion of the project.

**Deciding whether to participate:** If you have any questions or concerns about the nature, procedures or requirements for participation, please do not hesitate to contact me.

**Contact:** Please contact me, Hanne Conn, or my supervisor, Dr. Martin Anson, by leaving a message (stating who the message is for) on the 24-hour Research Voicemail 0333 011 7070. Alternatively, please write to us at: Salomons Centre for Applied Psychology, Canterbury Christ Church University, Runcie Court, Broomhill Road, Tunbridge Wells, Kent, TN3 0TF.

**Thank you for your time.**

**Appendix L:**

## Online Consent Form

**Informed Consent Form for Doctorate in Clinical Psychology Thesis Research**

Name of Researcher: Hanne Conn

Lead Supervisor: Dr. Martin Anson

Thank you for your interest in taking part in this research. If you have any questions arising from the participant information sheet please ask the researcher, Hanne Conn, before agreeing to take part.

Please read the following statements and, if you are in agreement, select "I agree":

I confirm that I have read and understand the notes written above and the participant information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had any questions asked answered satisfactorily.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

I understand that the data collected during the study may be looked at by the researcher, Hanne Conn, lead supervisor, Dr. Martin Anson, and co-supervisor, Dr. Blake Stobie. I give permission for these individuals to have access to my data for the purpose of this study.

I understand that the information collected about me will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998 and the data protection requirements of Canterbury Christ Church University.

I understand that findings from this research may be published in academic journals and I will be sent a copy of the findings upon request. Confidentiality and anonymity will be maintained and it will not be possible to identify me from any publications.

I agree to take part in the above study.

**Appendix M:**

## Experiment Preparation Instructions: 1 of 2

Thank you for taking the time to find out more about my research project, "Body image related social anxiety and the perception of being looked at: An Internet-mediated study".

Before you proceed, please be aware that you can only participate in this project via a desktop computer, laptop or notebook. Smaller, mobile devices are not able to display the following images correctly. If you are accessing this page via a mobile device, please do swap to a bigger desktop or laptop computer and revisit this page.

Furthermore, the best browser to use when taking part in this project is **Mozilla Firefox**. This browser can be downloaded for free from the Mozilla website. Click [here](#) to visit Mozilla and download the Firefox browser now if you do not already have it (you may find it easiest to right click on the link and open it as a new tab or new window to avoid navigating away from this page). This should only take a couple of minutes. Once you have downloaded it, please revisit this page in the Firefox browser.

If it is impossible for you to download Firefox, you can also use Internet Explorer to participate in this project. However, **for optimum viewing of the graphics in this project it is very important that, if possible, you please use Mozilla Firefox. Please do not use any other web browsers (such as Safari or Chrome)** as this will invalidate the results of the study.

Please be aware that your participation could take anywhere between 10 and 90 minutes depending upon how many tasks you are selected to carry out. You will need to be uninterrupted and able to concentrate for this whole time.

You will also need continuous access to the internet as well as a good speed of internet.

If now isn't the best time, please do come back to this page and take part at a more suitable time. This project will be open until midnight on 14th December 2016 at which point it will close and you will no longer be able to participate.

If you're happy to go ahead now, please press continue.

**Appendix N:**

## Experiment Preparation Instructions: 2 of 2

Thank you for agreeing to take part in my research. This is the final introductory page before the questionnaires begin.

It is very important that your desktop computer, laptop or notebook is set up in the correct position. The correct setup is displayed in the image below.



Please follow the steps below now to get set up correctly:

1. Sit on a chair with your computer or laptop on a desk or table in front of you.
2. Place the screen either at a right angle or away from any windows and bright lights.
3. Place the monitor directly in front of you, at approximately (but no more than) an arm's length distance.
4. Place the monitor so that the top of the screen is at eye level - you may need to raise or lower your chair or computer to do this.
5. You should be able to see the whole of the screen comfortably without having to bend your head, neck or trunk. You should be able to read these instructions comfortably.
6. Please turn off your mobile phone and close your email now so that you are not disturbed during your participation. Please also close any other apps/notifications which might disturb you.
7. If you have not already expanded your browser to view it in full screen mode, please do so now.

When you're ready, please answer the questions below. If you cannot answer 'Yes' to any of the questions at this time, please do not proceed until you are able to do so. Once you have answered the questions, please press 'Continue' to begin the study. Please be aware that you will not be able to save your progress or go back to earlier pages after this point. **If you**

**press the back button after this point you will automatically exit the project - please do not press the back button on your browser at any point!**

Have you set your computer up as described above?

Are you viewing this in full screen?

Some people may only need 10 minutes to participate in this study. Others may be asked to complete additional tasks and could need up to 90 minutes. Are you confident you will be able to concentrate on this study, without interruptions, for the next 90 minutes if needed?

Have you turned off your mobile, closed your email, and taken any other necessary steps to ensure that you won't be disturbed during your participation?

Are you aware that you should not press the back button on your browser at any point as this will immediately remove you from the project?

Are you viewing this webpage in either the Mozilla Firefox or the Internet Explorer web browsers?

**Appendix O:****End of Study Participant Protection**

You have reached the end of the project. Thank you very much for taking part.

**If you feel affected by the issues raised:**

If you feel affected by any of the issues raised in this project, please speak to your GP.

For further information on mental health or body image conditions, please visit the NHSChoices website by clicking [here](#).

For urgent mental health care you can go to your nearest Accident and Emergency department or call 999.

**If you have a problem or complaint:**

If you have a problem or complaint regarding this project please contact me, Hanne Conn, or my supervisor, Dr. Martin Anson, by leaving a message (stating who the message is for) on the 24-hour Research Voicemail 0333 011 7070. Alternatively, please write to us at: Salomons Centre for Applied Psychology, Canterbury Christ Church University, Runcie Court, Broomhill Road, Tunbridge Wells, Kent, TN3 0TF. If after this you remain unhappy and wish to complain formally, you can do this by contacting Prof. Paul Camic, Research Director at: Salomons Centre for Applied Psychology, Canterbury Christ Church University, Runcie Court, Broomhill Road, Tunbridge Wells, Kent, TN3 0TF or by email at paul.camic@canterbury.ac.uk.

**Appendix P:**  
University Ethics Panel Approval

This has been removed from the electronic copy

## Appendix Q:

### Guidelines for Authors for the Journal of Experimental Psychopathology



## Journal of Experimental Psychopathology

### Guidelines for Authors

#### Scope of the Journal

The *Journal of Experimental Psychopathology* is an e-journal created to publish cutting-edge original contributions to scientific knowledge in the general area of psychopathology. Although there will be an emphasis on publishing research which has adopted an experimental approach to describing and understanding psychopathology, the journal will also welcome submissions that make significant contributions to knowledge using other empirical methods such as correlational designs, meta-analyses, epidemiological and prospective approaches, and single-case experiments. Theoretical and review articles addressing significant issues in the description, aetiology, and treatment of psychopathologies are also welcome.

The Editors and Associate Editors will make an initial determination of whether or not submissions fall within the scope of the journal and are of sufficient merit and importance to warrant full review.

#### Submitting Manuscripts

Authors should submit their manuscript electronically via the journal's editorial system (<http://jep.textrum.com/>). Your manuscript will then be allocated to an Associate Editor who will manage the peer review process. You should submit your manuscript in an editable version of WORD or a similar format (not as a pdf). You should also retain a copy of your manuscript because this may be needed for further processing should your manuscript be accepted for publication. DO NOT submit manuscripts or revised manuscripts with tracked changes or tracked comments on them, and do not submit manuscripts with other forms of mark ups on them (e.g. Endnote). This is because your final uncorrected manuscript may be made publically available in press prior to typesetting in the event of it being accepted for publication.

There is no word-limit to articles that may be accepted for publication, but the Editors would expect presentation to be efficient, concise and informative. Most articles accepted for publication would usually be no more than 50 manuscript pages. Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, without the written consent of the Editors.

#### Presentation of the Manuscript

The manuscript should follow American Psychological Association (APA) publication manual guidelines. All pages should be typed double-spaced and numbered (including pages containing the title, authors names and affiliation footnotes, abstract, acknowledgments, references, tables, and figure caption list).

**Title Page:** A title page should be provided and should include the full title of the article, the authors' names and affiliations, and a suggested running head. The affiliation should include the department, institution, city or town, and country. It should be made clear in which institution(s) the research was carried out. The suggested running head should be no more than 80 characters. The title page should also clearly indicate the name, address, email address, fax number and telephone number of the corresponding author.

**Abstract:** An abstract following American Psychological Association guidelines should be provided and preferably be no longer than 150 words. The abstract page should also provide a list of 5-10 key words that accurately reflect the content of the article and can be used for indexing and search purposes.

**Format of the article:** Divide your article into clearly defined sections with the use of headings (non-numbered). The following headings are mandatory: Abstract, Introduction, Method, Participants, Procedure, Results, Discussion and References, but authors may include other headings where appropriate. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

## (Appendix Q continued)

**Figures & Illustrations:** Photographs, drawings, diagrams, graphs and charts should be numbered in one consecutive series of Arabic numerals. Each individual figure or illustration should be accompanied by a clearly-worded caption or figure legend. All figures, tables, photographs, drawings, charts and diagrams should be submitted within the manuscript, preferably on separate pages at the end of the manuscript. If your manuscript is accepted for publication you may then be asked to submit your artwork in an electronic format and supply high-quality printouts in case conversion of the electronic artwork is problematic.

**Tables:** Tables should be numbered in one consecutive series of Arabic numerals. Each table should be typed on a separate page with the title centred above the table and all explanatory footnotes, etc. printed below.

**Acknowledgements:** Do not include acknowledgements on the title page. Place them on a separate page after the main body of the article and before the reference list.

**References:** Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications should not be in the reference list, but may be mentioned in the text. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Citations in the text should follow the referencing style used by the American Psychological Association. You are referred to the Publication Manual of the American Psychological Association, the lastest can be found at <http://www.apastyle.org>.

References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters "a", "b", "c", etc., placed after the year of publication.

Examples reference formats include:

JOURNAL ARTICLES

Davey, G.C.L., Startup H.M., MacDonald C.B., Jenkins D. & Paterson K. (2005) The use of 'as many as can' stop rules during worrying. *Cognitive Therapy & Research*, 29, 155-169.

BOOKS

Davey G.C.L. & Wells A. (Eds) (2006) *Worry and its psychological disorders: Theory, assessment and treatment*. Chichester: John Wiley.

BOOK CHAPTERS

Davey G.C.L. (2006) A mood-as input account of perseverative worrying. In G.C.L. Davey & A. Wells (Eds) *Worry and its psychological disorders: Theory, assessment and treatment*. Chichester: John Wiley. Pp217-237.

AUTHORED WEB-PAGE

Lecce S. (2005) Should egalitarians be perfectionists? Retrieved January 30, 2008, from <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1467-9256.2005.00237.x?cookieSet=1&journalCode=ponl>

UN-AUTHORED WEB-PAGE

New child vaccine gets funding boost. (2001). Retrieved March 21, 2001, from [http://news.ninemsn.com.au/health/story\\_13178.asp](http://news.ninemsn.com.au/health/story_13178.asp)

**Supplementary Files:**

The Editors of the *Journal of Experimental Psychopathology* are keen to ensure that all published articles come with downloadable supplementary material that will enable readers and researchers to fully appreciate how the research was conducted and analyzed. We believe this will facilitate replication and further research.

Depending on the nature of the published article authors will be encouraged to provide supplementary material in a form that can be downloaded and used by students and researchers. These materials might include copies of questionnaires used in the research or developed by the research, instruction sheets, experimental protocols, stimuli and images, audio and visual media clips, computer programs (executables or source code), data analysis macros or scripts if an unusual analysis has been done, scripts for specialist software (e.g., data processing scripts for ERP or EEG data, eprime scripts etc.), photographs of custom-built apparatus, colour images that illustrate data (e.g., fMRI scans, ERP curves) etc. In order to ensure that supplementary material is directly usable, please ensure that data are provided in a file format suitable for downloading.

After an article has been accepted for publication, authors will be approached and encouraged to provide what supporting materials they can make available.

There will be no transfer of copyright for any of the materials deposited in the Tools & Materials Repository, and this will

## (Appendix Q continued)

allow authors to retain copyright of any materials they may have developed themselves or over which they have current copyright ownership.

There will be no obligation for authors to provide materials for the repository, and a willingness to provide tools and materials will not be a factor taken into account when deciding whether a manuscript is accepted for publication.

**Copyright:** Upon acceptance of an article, an e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a link to a Journal Publishing Agreement form. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article.

**Proofs:** When your manuscript is received by the Publisher it is considered to be in its final form. Proofs are not to be regarded as 'drafts'. One set of page proofs will be sent electronically to the corresponding author, to be checked for typesetting/editing. No changes in, or additions to, the accepted (and subsequently edited) manuscript will be allowed at this stage. Proofreading is solely your responsibility. The Editors reserve the right to proceed with publication if corrections are not communicated.

**Blind Review:** Authors requesting blind review should explicitly request this when loading their manuscript up to the journal editorial system. The manuscript should also be submitted in a form appropriate to this process (see the APA Publication Manual).

#### **Open Access Option**

Many institutions and funding bodies have made funds available to allow authors to publish their research in an open access form. Journal of Experimental Psychopathology offers authors an open access option whereby their article will be freely available to both journal subscribers and nonsubscribers via the journal website. To prevent any conflict of interests, authors can choose to have their article made open access only after the article has formally been accepted for publication.

The fee for making an article open access is £1000/US\$1595/€1161 excluding tax, and all authors wishing to take advantage of the open access option should complete and return the open access option form they will receive along with their copyright transfer and publishing forms prior to publication. Authors who wish to take advantage of the open access option will still retain their rights outlined in Textrum's Copyright Transfer & Publishing Agreement. Further information about Textrum's Open Access Options can be obtained by emailing [openaccess@textrum.com](mailto:openaccess@textrum.com).

**Appendix R:**

## Research Summary for Participants and Ethics Panel

Dear study participant,

Thank you for taking part in the research project ‘Body image related social anxiety and the perception of being looked at: An Internet-mediated study’. Your help was much appreciated. In total 371 people took part in the study, which was a fantastic outcome.

The study was about an experience called social appearance anxiety, which is a person’s fear that their appearance is being judged negatively by others. Of the 371 people who took part in the first stage of the study, 52 and 48 with low and high social appearance anxiety respectively went on to complete a second, experimental stage.

The project sought to understand whether people with high levels of social appearance anxiety perceive that they are being ‘looked at’ more by others in comparison to the perceptions of those with low levels. Using an online experiment, it was found that people with high social appearance anxiety did perceive that they were being looked at more. There was no difference between the groups in their perceptions of non-social images (clocks).

The study also wanted to test whether temporarily causing people to focus on themselves in an evaluative way would lead to increases in their perceptions of ‘being looked at’ by others. It is thought that people’s own attention can sometimes be mistaken for the attention of others. The results showed that when people’s self-focussed evaluative attention was increased, so too did their estimates of the numbers of people looking at them.

Finally, the study also wanted to know whether people with high levels of social appearance anxiety tend to focus on themselves more on a day-to-day basis. It was shown that this was indeed the case. This could, at least in part, explain why these individuals tend to experience increased perceptions of being observed by others.

The findings of this study have some potentially important implications. People with high levels of social appearance anxiety tend to experience elevated levels of psychological distress and difficulties in social situations. It may be helpful for people with these experiences to know that, when faced with the same number of people looking at them, they tend to perceive that more people are looking at them than those with less social appearance anxiety. It could also be helpful for them to know that the more they focus attention on themselves, the more they feel that others are looking at them. Additionally, people may find it valuable to learn to focus their attention outwardly in social situations to reduce the feeling that they are being looked at and the accompanying anxiety.

Finally, the small number of participants who identified as belonging to a gender identity minority group (e.g. transgender individuals) reported high social appearance anxiety levels. More research is recommended as social appearance anxiety may be an important concept for this vulnerable group.

Many thanks again for taking part in this research. Please do not hesitate to contact me should you have any further questions ([h.conn273@canterbury.ac.uk](mailto:h.conn273@canterbury.ac.uk)).

Yours sincerely,

Hanne Conn

**Appendix S:**

## Feedback Letter for Ethics Panel

Hanne Conn  
[REDACTED]

h.conn273@canterbury.ac.uk

**Salomons Ethics Panel**Salomons Centre for Applied Psychology  
Canterbury Christ Church University4<sup>th</sup> April 2017

Dear Salomons Ethics Panel,

I am writing to inform you that I have now completed my Major Research Project, entitled 'Body image related social anxiety and the perception of being looked at: An Internet mediated study'.

Please find below a copy of the report for participants.

Should you require anything further please don't hesitate to contact me.

Yours sincerely,

Hanne Conn