Attention allocation and social worries predict interpretations of peer-related social cues in adolescents

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Abstract
Adolescence is a sensitive period for increases in normative but also debilitating social fears and worries. As the interpretation of interpersonal cues is pertinent to social anxiety, investigating mechanisms that may underlie biases in social cue appraisal is important.

Fifty-one adolescents from the community aged 14 to 19 were presented with self- and other-relevant naturalistic social scenes for 5 seconds and then required to rate either a negative or a positive interpretation of the scene. Eye-tracking data were collected during the free viewing period to index attentional deployment. Individual differences in social worries were measured via self-report.

Social anxiety is associated with a bias in interpreting social cues; a cognitive bias that is also influenced by attentional deployment. This study contributes to our understanding of the possible attention mechanisms that shape cognitions relevant to social anxiety in this at-risk age group.

The current study
In this study, we examined scanning of social scenes, alongside interpretative processes, in adolescents from the community with varying levels of social worries. We used a modified version of the picture-based, free-viewing interpretation task (Haller et al., 2015) to measure interpretations and scanning patterns of naturalistic social scenes. We assessed the hypothesis that biases in the interpretation of ambiguous material are linked to social anxiety levels and
manifest in attentional allocation while scanning visual scenes. We predicted that adolescents with increased social anxiety levels would exhibit increased bias interpretations of social scenes.

Methods
Sample
A total of 51 female adolescents (age range: 14.0 to 19.75 years, M = 16.73, SD = 1.26) from the community participated in the study. Only females were included in this study to reduce the variability given the wide age range. The study received ethical approval by the Central University Research Ethics Committee of the University of Oxford (CUREC).

Materials and Measures
Eye-tracking apparatus
Eye movements and pupil dilation were recorded using a Tobii TX300 eye-tracker, collecting binocular data at 300Hz.

Stimuli
The stimuli were presented on a 24-inch monitor situated 57 cm away from participants. Stimuli were 72 colour photographs of complex social scenes. Each scene was associated with two interpretation statements and a visual analogue scale (VAS). There were two types of interpretation statements (i) a statement with a positive valence (e.g., They want me to join them for break; They want to tell me about the annoying new teacher) or (ii) a statement with a negative valence (e.g., They do not want me to join them; They don’t want me to study with them).

The interpretation task
After participants looked continuously at the screen for at least 200 ms, the trial started with a fixation cross with a duration jittered between 1 to 2 seconds. The fixation was followed by the presentation of the scene on its own for 5 seconds, followed by the presentation of the scene accompanied by an interpretation statement (either positive or negative) for a further 3s, which was in turn followed by the presentation of the interpretation statement on its own.
accompanied by a visual analogue scale (VAS) underneath. Participants used the mouse to choose a point on the scale. See Figure 1 for a visual representation of the trial sequence.

Figure 1. Stimulus presentation, trial structure and Areas of Interest (AOIs)

Measures

Social anxiety measure

Social anxiety was assessed using the Social Anxiety Scale for Adolescents (SAS-A; La Greca and Lopez, 1998). The SAS-A is a 22-item self-report measure including 18 statements pertaining to social anxiety (e.g., I feel shy around people I don’t know) and four filler items (e.g., I like to read). Previous studies have reported good internal consistency and reasonable test-retest reliability (e.g., Storch et al., 2004). Recommended cut-off scores for clinically significant levels of social anxiety have been suggested between 50 and 54 (e.g., Tulbure et al, 2012; La Greca & Lopez, 1998). The mean social anxiety score across the whole sample was M = 46.90, SD = 10.60, range = 28-74, which is comparable with levels reported in previous studies and normative data for females (La Greca and Lopez, 1998).

Results

Participants higher in social anxiety were more likely to interpret scenes more negatively and less positively.

Additionally, fixation times predicted interpretations across scenes: adolescents who spent overall more time on the AOI of peers perceived more threat, i.e., rated negative interpretations
as more likely and positive interpretations as less likely. Further, age also played a role in interpretation ratings such that younger (i.e., mid-adolescent) youths rated interpretations less benign across scenes: mid-adolescent youths rated negative interpretations as more likely and positive interpretations as less likely.

References


