Perceived vulnerability to disease predicts variation in preferences for apparent health in faces[1]

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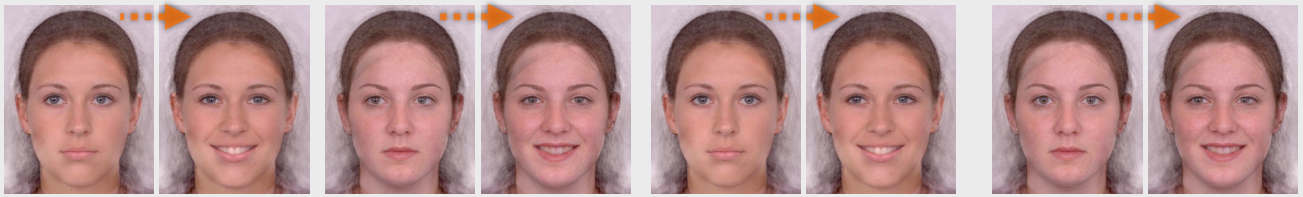
Background: People who are particularly vulnerable to disease may reduce their likelihood of contracting illnesses during social interactions by having particularly strong aversions to individuals who appear ill. Because cues to illness are visible in faces (e.g. pallor[2]), we tested for relationships between perceived vulnerability to disease (PVD) and the strength of aversions to unhealthy faces.

Methods

Stimuli. Using computer-graphic methods we created video sequences in which healthy and unhealthy versions of composite female faces either smiled at the viewer (engaging) or smiled elsewhere (disengaging).



Healthy Engaging | Unhealthy Engaging | Healthy Disengaging | Unhealthy Disengaging

Procedure: Participants (N=290, mean age=22.20, SD=4.84 years, 134 male) rated each video sequence for attractiveness using a 1 (low) to 7 (high) scale and completed Perceived Vulnerability to Disease[3] and Disgust Sensitivity[4] scales.

Analysis: ANCOVA [dependent variable: mean attractiveness rating; within subject factors: direction of smile (perceiver-directed, other-directed), health of face (unhealthy, healthy); between subject factor: sex of participant (male, female); covariates: PVD score, disgust sensitivity score].

Hypothesis 1: Scores on a PVD scale[3] will predict the strength of aversions to unhealthy faces.

Hypothesis 2: This relationship will be domain-specific, such that PVD predicts health preferences, but not preferences for other attractive facial cues unrelated to health (i.e. perceiver-directed smiles).

Hypothesis 3: PVD, but not general disgust sensitivity[4], will predict strength of aversions to unhealthy faces.

Results: All hypotheses were supported.

H1: A main effect of health of face ($F_{1, 286}$=73.1, p<.001) was qualified by an interaction with PVD score whereby preferences for healthy faces were positively related to PVD scores ($F_{1,286}$=4.33, p=.038).

H2: Perceiver-directed smiles were rated more attractive than other-directed smiles ($F_{1,286}$=10.7, p=.010), but this did not interact with PVD ($F_{1,286}$=0.001, p=.98). Further analyses showed that PVD was a significantly better predictor of the strength of health preferences than of the strength of preferences for perceiver-directed smiles ($F_{1,287}$=4.00, p=.048).

H3: Health of face did not interact with disgust sensitivity scores ($F_{1,286}$=0.51, p=.48).

Conclusions: Perceived vulnerability to disease (PVD) scores were positively related to the strength of health preferences. This relationship was independent of general disgust sensitivity and did not extend to preferences for perceiver-directed smiles, suggesting a relatively domain-specific effect of PVD on attitudes to cues associated with illness. These findings are consistent with the proposal that people who perceive themselves to be particularly vulnerable to disease reduce their likelihood of contracting illnesses during social interactions by having particularly strong aversions to individuals who appear ill and complement previous findings for PVD and attitudes to out-group individuals[3,5].

References: [1] Welling et al. (in press) *J Cult Evol Psychol.* [2] Jones et al. (2005) *Proc Roy Soc Lond B*, 272, 347-54. [3] Park et al. (2003) *J Nonverb Behav* 27, 65-87. [4] Haidt et al. (1994) *Pers Indiv Dif*, 16, 701–13. [5] Navarrete & Fessler (2006) *Evol Hum Behav*, 28, 60-5.

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