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ORIGINAL PAPER

Perceptions of Creepiness and the "Kubrick Stare"

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Abstract

Creepiness is a commonly experienced but little understood construct. The present study examined the impact of target facial image gender and orientation on perceptions of creepiness, and whether perceptions varied by participant sex. Participants [$n = 137$, 68.6% female; $M_{age} = 23.71$ ($SD = 9.73$) years] rated the creepiness, trustworthiness, and attractiveness of 44 target images (11 male and 11 female) in each of two conditions: upright and downward tilted head (i.e., "Kubrick stare"). After controlling for participant age and discomfort with ambiguity (DAS), results did not vary significantly by participant sex. As predicted, creepiness ratings were significantly higher in the Kubrick stare (vs. upright) condition for both male and female target images with the magnitude of difference between the two conditions being significantly greater for male (vs. female) images; ($\eta_p^2 = .45$. vs. $\eta_p^2 = .33$, respectively). There was no association between creepiness and trustworthiness in either condition. Results extend our understanding of how we perceive creepiness and the importance of face orientation in social processing.

Keywords Creepy · Discomfort with ambiguity · Facial orientation · Risk perception

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Introduction

Creepiness refers to a sensation of uneasiness, discomfort, and/or fear arising from particular people, places, or situations. Creepiness is a common experience yet little understood. While Freud did not use the term "creepiness", his reference to the uncanny rings eerily familiar. According to Freud (1919), the uncanny (*unheimlich)* represents the sense of discomfort induced by ambiguity – dissonance between what is familiar and unfamiliar. Indeed, in the first published study on "the nature of creepiness", McAndrew and Koehnke (2016) concluded that the sensation of creepiness is an emotional response to the ambiguity of threat; an alert to maintain vigilance during times of uncertainty. In reaching this conclusion, McAndrew and Koehnke (2016) examined the responses of 1341 community participants (77% women; $M_{age} = 29$ years) to questions about the physical appearance, behavioural patterns, occupations, and hobbies of a creepy person. Participants reported getting "creeped out" by people who displayed unusual physical characteristics (e.g., dishevelment), non-normative behaviours (e.g., standing too close), and certain hobbies (e.g., collecting or watching things). Men (vs. women) were more commonly perceived as creepy, and women (vs. men) were more apt to associate creepiness with a sexual threat. Participants commonly believed that creepy people were unpredictable, purposely hiding something, and intending to do them harm.

Watt et al. (2017) also sought to elucidate the physical and behavioural characteristics associated with creepiness. In their first study, 185 undergraduates (74% women, $M_{age} = 19.16$ years) were asked to describe characteristics presumed to define creepiness. Results showed that men who were 31 to 50 years of age, with ectomorphic (linear) bodytypes, and disheveled appearance (e.g., poor hygiene, dishevelment, and general unattractiveness) were more apt to be perceived as creepy. Judgements of creepiness were evoked by non-normative conduct, and behaviour deemed socially unacceptable (e.g., staring or avoiding eye contact, invading personal space, making inappropriate comments); odd physical appearance in mannerisms and dress. Judgements tended to be made "instantly" (intuitively) and relied largely on the eyes.

In Watt et al.'s (2017) second study, 48 participants (81% women, $M_{age} = 19.45$ years) were asked to rate the attractiveness, trustworthiness, and creepiness of 45 static facial images using the Assessment of Traits Inventory (ATI; Porter et al., 2008). Images were derived from three groups: *Neutral* (from University of Stirling's Psychological Image Collection; Minear et al., 2004), *AMW* (derived from America's Most Wanted), and "*Creepy*" (derived from the previous pilot study). Participants were instructed to follow their intuitive reaction in rating each face. Of the three groups, the creepy images were found to be the least attractive, least trustworthy, and most creepy.

Following from previous findings, Doyle et al. (2022) sought to further investigate the role of ambiguity and eyes in judgements of creepiness. Study 1 participants ($N = 254$; 79% women; $M_{age} = 31.05$ years) completed self-report measures of three theoretically similar constructs: (1) *discomfort with ambiguity* (i.e., discomfort with a situational lack of definitive meaning, measured by The Multidimensional Attitude Toward Ambiguity Scale—Discomfort with Ambiguity; Lauriola et al., 2016); (2) *intolerance of uncertainty* (i.e., a disposition resulting from negative beliefs about the implications of uncertainty, measured by the Intolerance of Uncertainty Scale-12; Carleton et al., 2007); and (3) *fear of the unknown* (i.e., tendency to be afraid when information about a situation or stimulus is lacking, measured by the Fear of the Unknown Scale; Harrison & Haneghan, 2011). Results showed that high discomfort with ambiguity was the most predictive of high creepiness ratings.

A recent study by McAndrew et al. (2024) confirmed the importance of discomfort with ambiguity in perceiving creepiness in creepy people and extended its relevance to creepy places, creepy things, and confusing images.

In a second study, Doyle et al. (2022) complemented subjective self-reporting to creepy faces with objective measurement. Eye tracking software was used to assess participants' attention to eye and non-eye regions when presented with two "*Creepy*" and two *Neutral* male facial images (matched for hair, eye colour, and facial hair) derived from Study 1. Thirty-two undergraduates (66.7% women; $M_{age} = 19.97$ years) were shown each of the four facial images, presented individually and separated by a visual mask in two sequential viewing blocks. Each face was viewed for two seconds, twice. While participants did not show differential attendance to, or avoidance of, the "*Creepy*" versus *Neutral* images, they did fixate significantly longer on the eye (vs. non-eye) regions across all facial images. Doyle et al. (2022) concluded that, because static images cannot provide the behavioural and contextual cues typical of real-life social interactions, future research should use animated images to enhance ecological validity.

Doyle et al.'s (2022) recommendation to use animated images fits with research showing that facial motion and patterned configurations are important for inferring emotion (Bould et al., 2008; Scherer et al., 2019). Facial motion introduces potential ambiguity. With this in mind, Lévesque and Watt (2022) tested whether adding subtle motion to static facial images would affect perceptions of creepiness. Participants included 326 community members and 102 undergraduates (77.5% women, $M_{age} = 20.21$ years) who were randomly assigned to view 18 faces drawn from the same three facial image groups ("Creepy," AMW, Neutral) used by Watt et al. (2017) and Doyle et al. (2022). Participants were assigned to one of two conditions: static images versus dynamic images (animated via Python3) and rated images on the same three traits (attractiveness, trustworthiness, creepiness) using the ATI measure (Porter et al., 2008). The dynamic facial images consisted of three different motion pattern types: (1) staring straight on; (2) staring with blinking; and (3) slight gaze shift and returned gaze to center. It was expected that any motion type would yield more polarized (extreme) ATI ratings than the static images. No prediction was made as to the direction of polarization. Contrary to predictions, however, results showed no significant difference between static and dynamic facial image conditions.

While facial motion did not seem to change perceptions of creepiness, Lévesque and Watt (2022) questioned whether facial orientation would. For example, a well-known cinematic technique, known as the "Kubrick stare", involves having characters display a downward head tilt, while continuing to look straight ahead, during scenes meant to convey unsettling subject matter. Perhaps, the best example is Jack Nicholson's ominous glare as the character Jack Torrance in *The Shining* (Kubrick, 1980). The "Kubrick stare" is intended to signify that the character is unstable or possibly deranged, and something intense is apt to happen. In other words, it is meant to be unnerving (see Ferrier, 2023).

Possible explanations for the "Kubrick stare" effect come from research on how emotions are perceived based on facial expressions. For example, Mondloch and Maurer (2008) found that, as faces deviate from an upright position, our holistic facial processing abilities (i.e., processing faces as a *Gestalt*) diminish. When the head is tilted downward, the mouth appears to curve slightly upward giving the impression of a smile, which is typically associated with friendliness, but it also narrows the distance between the eyes and the mouth, which has been found to convey the impression of anger (see Lyons et al., 2000). In short, the downward tilted head seems to introduce threat ambiguity (i.e., rendering it difficult to know if the stare is friendly or angry, or if the person is a friend or foe). Subsequent research suggested other influencing variables. For example, Burke and Sulikowski (2010)

found that perceptions of femininity increased, and masculinity decreased, with decreasing face pitch. They suggested that the effect might simply reflect height dimorphism in humans, with men being taller on average so that, generally speaking, we look up to men and look down to women. Similarly, in a series of two studies, Marshall et al. (2020) found that incrementally increasing face pitch upward resulted in a linear increase in ratings of masculinity, physical and social dominance; and a linear decrease in ratings of femininity, physical attractiveness, and behavioural allure with effects varying by perceived structural change or actual movement of face. Finally, a series of five studies with over 1500 participants conducted by Witkower & Tracey (2019) found that when a head was tilted downward and eye gaze directed forward, perceptions of dominance increased**.** They explained that tilting the head downward creates a visual illusion of facial dynamics suggesting propensity to use intimidation or threat to influence others. The sum of these findings may account for why the Kubrick stare is so popular in mystery, thriller, and horror movies.

The present study investigated whether facial orientation—head tilted downward—would influence perceptions of creepiness. Creepiness ratings of neutral faces (i.e., no expression, relaxed musculature) displaying a downward head tilt while staring directly ahead (i.e., "Kubrick Stare") were compared to ratings for the same neutral faces in an upright position. Facial images were drawn (with permission) from a diverse sample of standardized (neutral) faces compiled by Witkower & Tracey (2019). The following predictions were proffered:

H1 Facial images in the Kubrick stare condition would be perceived as creepier than the same faces presented in the upright position.

H2 Male (vs. female) faces would be perceived as creepier, especially in the Kubrick stare (vs. upright) condition.

H3 Female (vs. male) participants would confer higher ratings of creepiness for both image groups (male & female faces) and orientations (Kubrick stare & upright).

Method and Procedure

Participants

Out of a total of 430 respondents, 288 were removed during data cleaning for missing values and screening for bots; and five outliers were removed in assessment of violation of assumptions. The final sample numbered 137 (68.6% female); 94 undergraduate psychology students (85.1% female) and 43 community respondents recruited from Amazon's Mechanical Turk (30.0% female).

Measures and Materials

Demographics Questionnaire

Participants completed an author-constructed questionnaire that inquired about age, sex, gender identity, and ethnic identification. Specifically, participants were asked to indicate their current legal sex and provided the options of female, male, intersex, X (none), other,

and prefer not to say. All participants identified as being either female (68.3%) or male (31.7%), with M_{age} = 23.71 (*SD* = 9.73, *Range* = 18–72) years. Regarding gender, participants were asked to indicate all items that best described them with the options: non-binary (1.4%); two-spirit (0.7%), transgender (2.1%), man (29.6%), woman, (64.8%), other/comments (1.4%). Participants identified as White (81.7%); Black or African American/Canadian (5.6%); Asian (3.5%); Hispanic, Latino, Spanish origin (2.8%); First Nations (2.1%); American Indian (2.1%); Middle Eastern or North African (0.7%); or Other (0.7%).

Multidimensional Attitude Toward Ambiguity Scale—Discomfort with Ambiguity

The Discomfort with Ambiguity subscale (DAS; Lauriola et al., 2016) is comprised of seven items that assess personal responses to ambiguous stimuli in interpersonal, social, and occupational contexts. On a 7-point Likert scale (1 = *I strongly agree*, 7 = *I strongly agree*), participants respond to items such as *"I am just a little uncomfortable with people unless I feel that I can understand their behaviour."* Higher scores on the DAS indicate more pronounced discomfort with situations wherein the meaning or motive is unclear. The DAS has been found to demonstrate good reliability and internal consistency (Doyle et al., 2022; Lauriola et al., 2016). Cronbach's alpha in the present study was 0.82 indicating very good internal consistency.

Facial Image Stimuli

Facial image stimuli were derived with permission from Dr. Zachary Witkower, at the University of British Columbia Emotion and Self Lab. A detailed description of procedures used to capture the facial images, as well as any inclusion and exclusion criteria, can be found in Witkower and Tracy (2019). Facial images—'targets'—were captured conveying a neutral expression in the upper and lower face. Each target displayed two different head angles—a neutral front-facing angle and a tilted angle where targets tilted their heads downward between 10° and 15° while looking into the camera (i.e., the Kubrick stare; Witkower & Tracy, 2019). In the present study, the number of male and female targets was balanced across conditions and by racial/ethnic composition (i.e., White and East Asian). Only target images for whom racial composition could be confirmed were included. Additional images were excluded due to potentially distracting features, such as poor lighting, accessories worn by the target, and minimal angle differences in facial orientation. The final selection of facial image stimuli included 44 images in total: 11 male target pairs (2 White, 9 East Asian) and 11 female target pairs (2 White, 9 East Asian).

Assessment of Traits Inventory

The Assessment of Traits Inventory (ATI; Porter et al., 2008) is a rating sheet used to capture respondents' immediate judgements after viewing a target facial image. As in Doyle et al. (2022) and Watt et al. (2017), participants in the present study were asked to provide ratings of creepiness, trustworthiness, and attractiveness for each of the 44 target images (11 male and 11 female in each of the two conditions: Kubrick stare and upright) on a 10-point Likert scale (1 = *not at all*, 10 = *extremely*). Participants were asked to rate the image reflexively based on their immediate response to the face. Mean scores for all three ATI characteristics were computed for each category of target by orientation: male—upright, male—tilted (Kubrick stare), female – upright, female – tilted (Kubrick stare).

Following the rating instructions, two commitment questions were presented whereby participants were asked to commit to (1) providing thoughtful and honest ratings in response to each face, and (2) providing ratings that reflected their immediate response to the presented face. If participants were unsure or unable to commit to either question, then the survey ended.

Additional Questions

At the end of the survey, participants were asked to respond to three questions about the ease with which they rated creepiness, attractiveness, and trustworthiness, respectively. Ratings were made on a 4-point Likert scale (1 = *very easy*, 4 = *very hard*). Finally, open-ended responses were invited as to whether a particular feature of the facial images facilitated or impeded the ease with which they made their ratings.

Procedure

This study received clearance from the university's Research Ethics Board [#26184]. Participants were required to provide informed consent and were assured that survey responses would be anonymous and confidential. After completing the online survey (delivered via Qualtrics), participants viewed a debriefing page apprising them of the study's objectives.

Data Analytic Approach

To test that creepiness ratings would be higher in the Kubrick stare (vs. upright) condition, a 4-way mixed repeated measures ANOVA was conducted with orientation (upright vs. tilted down) and target (male vs. female facial images) as the within-subjects variables, and participant sex (male vs. female) as between-subjects variables. Covariates included age and DAS scores. While the assumption of normality was met, the assumption of sphericity was not, so Greenhouse-Geiser was used to interpret results. Bivariate correlations were used to assess associations among key variables of interest.

Results

Descriptive statistics are provided in Tables 1 and 2. The undergraduate sample was disproportionately female (85.1%) and significantly younger than the MTurk sample: $t(40.98) = 9.43$, $p < 0.001$; 18.90 ($SD = 2.62$) and 35.28 ($SD = 10.84$) years, respectively but the two samples did not differ significantly in DAS scores $t(1) = 1.08$, $p = 0.28$; 34.86

Table 1 General descriptive statistics for total sample

Participants	Total $N = 137$	Female $N = 94$	Male $N = 43$	t/X^2	p
Mean Age (*SD*) Range	23.71 (9.73) 18–72	20.48 (5.50)	30.95 (12.87)	(1,47.83) = 5.07	< .001
Mean DAS Total (*SD*) Range	34.15 (7.42) 11–49	34.17 (7.67)	34.09 (6.89)	(1,135) = 0.06	.13

Table 2 Means (and standard deviations) for all variables of interest

Orientation	Upright			
Target	Female images		Male images	
Participant Sex	Female	Male	Female	Male
Creepy	2.95 (1.37)	3.98 (1.96)	3.80 (1.47)	4.40 (1.87)
Attractive	4.61 (1.72)	5.61 (1.65)	3.58 (1.53)	5.16 (1.91)
Trustworthy	5.18 (1.60)	5.95 (1.48)	4.60 (1.41)	5.82 (1.64)
Creepy	4.57 (1.63)	5.23 (1.66)	6.06 (1.66)	6.19 (1.65)
Attractive	4.19 (1.53)	4.61 (1.72)	2.96 (1.37)	4.35 (1.79)
Trustworthy	3.94 (1.45)	5.09 (1.61)	3.10 (1.36)	4.36 (1.68)

(*SD* = 7.39) and 33.40 (*SD* = 7.50), respectively. The mean DAS score for all participants was 34.27 (*SD* = 7.41); median = 35.0; *Range* = 11–49, which is significantly higher than the mean score reported by Lauriola et al. (2016).

Hypotheses Testing

H1 As predicted, the mixed repeated measures ANOVA showed a significant main effect for ORIENTATION, $F(1,132) = 7.18$, $p = 0.008$; $\eta_p^2 = 0.05$, with creepiness ratings in the Kubrick stare condition significantly higher than in the upright condition, $EM = 5.53$ ($SE = 0.16$) versus $EM = 3.72$ ($SE = 0.15$), respectively. After controlling for participant age, $F(1, 132) = 6.26$, $p < 0.01$ and DAS level $F(1, 132) = 1.73$, $p = 0.19$, there was no significant interaction between ORIENTATION and participant sex, $F(1, 132) = 0.02$, $p = 0.88$.

H2 As predicted, there was a significant main effect of TARGET SEX $F(1, 132) = 4.80$, $p = 0.03$; $\eta_p^2 = 0.04$, with male targets rated significantly creepier than female targets, $EM = 5.12$ ($SE = 0.15$) versus $EM = 4.12$ ($SE = 0.15$), respectively. After controlling for participant age, $F(1, 132) = 11.51$, $p < 0.001$ and DAS level $F(1, 132) = 3.45$, $p = 0.07$, there was no significant interaction between TARGET SEX and participant sex, $F(1, 132) = 0.39$, $p = 0.53$.

There was a significant interaction between ORIENTATION and TARGET SEX $F(1, 132) = 7.70$, $p < 0.006$. Follow-up pairwise comparisons of the simple effects indicated that male (vs. female) target images were deemed significantly creepier in both the Kubrick stare and upright conditions, [Male Kubrick $EM = 6.19$ ($SE = 0.16$) vs. Female Kubrick $EM = 4.85$ ($SE = 0.16$) and Male Upright $EM = 4.04$ ($SE = 0.15$) vs. Female Upright $EM = 3.36$ ($SE = 0.15$)] implying that the detected interaction was magnitude driven, rather than due to directional differences. Further examination of effect sizes suggested that the magnitude of the difference between male and female faces was greater in the Kubrick stare (vs. upright) condition (Kubrick: $\eta_p^2 = 0.45$, lower limit = 0.35 and upper limit = 0.54; upright: $\eta_p^2 = 0.33$, lower limit = 0.21 and upper limit = 0.41). After controlling for participant age, $F(1, 132) = 2.83$, $p = 0.09$ and DAS level $F(1, 132) = 1.47$, $p = 0.23$, there was no significant interaction between target image orientation and participant sex, $F(1, 132) = 0.08$, $p = 0.79$. See Fig. 1 and 2.

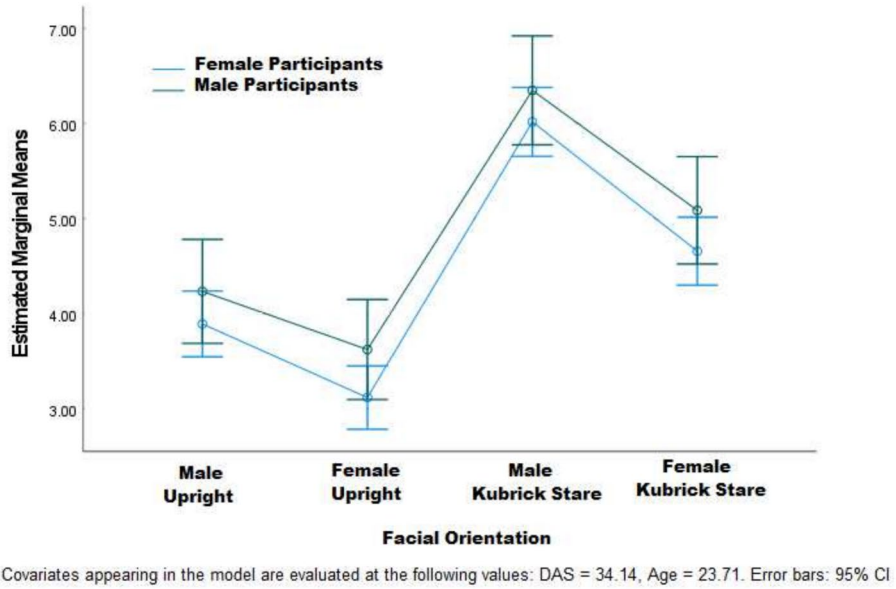

Fig. 1 Estimated marginal means (and standard errors) for creepiness ratings for orientation by target sex

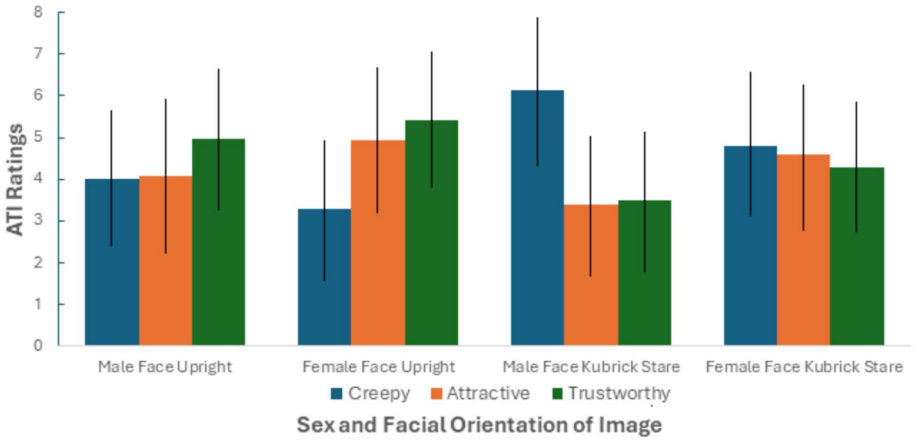

Fig. 2 Assessment of traits inventory ratings (with standard deviations) by target image orientation and sex collapsed over participant sex and discomfort with ambiguity group

Bivariate Correlations

In both orientation conditions, female participants' perceptions of creepiness correlated positively with perceptions of attractiveness and trustworthiness. The pattern was different for male participants whose perceptions of creepiness were not associated with trustworthiness in either condition, and not associated with attractiveness in the Kubrick stare condition. Across both conditions, both male and female participants' perceptions of

Table 3 Bivariate correlations among Assessment of Traits Inventory ratings of facial images across both conditions

Upright condition						
	Creepy		Attractive		Trustworthy	
	r	*p*	*r*	*p*	*r*	*p*
Creepiness	–	–	**.39**	**< .001**	**.30**	**< .001**
Attractiveness	**.29**	**< .001**	–	–	**.75**	**< .001**
Trustworthiness	.12	.17	**.77**	**< .001**	–	–
Kubrick stare condition						
	Creepy		Attractive		Trustworthy	
	r	*p*	*r*	*p*	*r*	*p*
Creepiness	–	–	**.25**	**.003**	**.19**	**.02**
Attractiveness	-.08	.38	–	–	**.76**	**< .001**
Trustworthiness	-.15	.07	**.85**	**< .001**	–	–

Female target images above the diagonal and male target images below the diagonal

attractiveness were highly positively correlated with trustworthiness with shared variance ranging from 75 to 85%. See Table 3.

At the end of the survey, participants were asked to indicate on a 4-point Likert scale how difficult it had been for them to assign ratings and if there was a particular facial image feature that made it easier or difficult for them to do so. See Footnote 1.[1]

[1] Most participants found it easy to assign creepiness and attractiveness ratings, but more difficult to assign trustworthiness ratings. See Table 5 of the 119 participants who responded to what influenced their judgements, 46 (38.7%) cited the tilt or angle of the head as indicative of creepiness. A few cited the eyebrows and particularly the images where the targets were *"Looking up through their eyebrows or scrunched faces"*. Many mentioned facial expressions but did not clearly define or explain what they meant. Twenty-six participants (21.8%) cited the eyes specifically as impacting their decision. *"You can see the "creepiness" in a person's eyes."* A number of participants mentioned how difficult it was to judge trustworthiness from photos and how, the more attractive was the image, the less creepy it was. At least three participants mentioned gender as an influencing factor in that they perceived males to be creepier and less trustworthy than women. One participant offered that: *"The saying 'don't judge a book by its cover' really came to life during this survey. Each photo can tell a story"*.

Participant reporting of difficulty in assigning Assessment of Traits Inventory ratings

	Very easy	Mostly easy	Mostly hard	Very hard
Creepiness	19%	58.4%	20.4%	2.2%
Attractiveness	30.7%	38.7%	27.7%	2.9%
Trustworthiness	11.7%	31.4%	38.0%	19.0%

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Discussion

The present study investigated the impact of target facial image gender and orientation (upright or downward tilted head) on perceptions of creepiness and whether perceptions varied by perceiver sex. As predicted (H1), there was a main effect of orientation, with results showing that a downward tilted head with eye gaze maintained, or "Kubrick stare", yielded significantly higher creepiness ratings than an upright tilted head. Also as predicted (H2), there was a main effect of target gender whereby male target images were perceived to be creepier than female faces. A significant interaction between target gender and orientation showed that the magnitude of difference in perceptions of creepiness of male (vs. female) images was significantly greater in the Kubrick stare (vs. upright) condition. After controlling for age and DAS level, participant sex was not found to influence creepiness ratings.

Finding that facial orientation, specifically a downward tilted head with eye gaze maintained or "Kubrick stare", increases perceptions of creepiness both fits with and extends the empirical and cinematic literature. Researchers, such as Burke and Sulikowski (2010) and Marshall et al. (2020) have confirmed the importance of face pitch in conveying social messages regarding masculinity, femininity, physical and social dominance. For example, both found an upward pitch to signal greater masculinity and a downward pitch to signal greater femininity, but both acknowledged that variables, such as actual movement, perceived structural change, also influenced results. Interestingly, as Marshall et al. (2020) pointed out, to date, no research has examined participants' assumed vantage point vis-à-vis the facial images. In other words, when participants judge faces are they perceiving the image as that of someone who is relatively taller or shorter than themselves; in other words, are they gazing up or down? More research is needed.

Other researchers (e.g., Mondloch & Maurer, 2008) have suggested that a downward tilted head reduces facial processing abilities and constrains our ability to read facial cues. Facial cues are one of our primary sources of social information, allowing us to draw inferences about a person's intentions or trustworthiness (Baccolo & Macchi Cassia, 2019; Willis & Todorov, 2006). For example, Witkower and Tracy (2019) found that a downward tilted head, coupled with eye gaze directed forward, created a visual illusion of facial dynamics suggesting dominance, potential intimidation, or threat to influence others. A facial orientation that confounds our ability to process facial information and changes how information is interpreted could give way to cognitive and affective ambiguity surrounding the target's intentions. Threat ambiguity has been identified as playing a key role in perceptions of creepiness (Doyle et al., 2022; McAndrew & Koehnke, 2016; Watt et al., 2017). This could explain why the cinematic "Kubrick stare" technique is so effective in disquieting audiences. This facial orientation seems to signal to the perceiver that the target's intentions are unclear and potentially sinister.

The significant interaction between orientation and target gender showed that the effect of facial orientation varied between male and female target images. Indeed, while male targets elicited significantly higher creepiness ratings across both upright and tilted conditions as compared to female targets, the effect size was significantly greater in the Kubrick stare (vs. upright) orientation. This finding fits with literature, such as McAndrew and Koehnke (2016) and Watt et al. (2017), both of which found that males were more apt to be perceived as creepy than females. It is possible that the ambiguity created by a facial orientation that inhibits social information processing is enhanced when the facial target is male, leading to more pronounced perceptions of creepiness. Moreover, the downward

tilted head is known to increase perceptions of dominance (Witkower & Tracey, 2019), and cross-culturally males tend to demonstrate more social dominance than females (Pratto et al., 2006). It seems likely that judging male (vs. female) images as creepier reflects a societal understanding that, generally speaking, males pose more physical threat to females than vice versa. Related is the lack of correlation between creepiness and trustworthiness, especially for male images. On the other hand, people's "concept of creepy" seems to be more nuanced. For example, prima facie, commonly reported features of creepiness (e.g., disheveled, unhygienic, socially awkward, ectomorphic; Watt et al., 2017) would not seem to signify physical threat. Certainly, more research is needed to tease apart the objective and subjective components of creepiness.

Given the literature, it had been expected that female (vs. male) participants would confer higher ratings of creepiness across target image groups (male & female faces) and orientation (Kubrick stare & upright).Contrary to predictions, no significant differences were found in creepiness ratings based on participant sex after controlling for participant age and discomfort with ambiguity. This fits with Burke and Sulikowski's (2010) findings, in their investigation of sexual dimorphism in human faces, wherein perceptions of masculinity and femininity did not vary by participant sex. Given that the undergraduate sample in the present study was disproportionately female and significantly younger than the MTurk sample, it is recommended that future research investigate the role of participant age in creepiness judgements and its possible interaction with sex and discomfort with ambiguity.

Discomfort with ambiguity—ambiguity intolerance or ambiguity aversion (Furnham & Marks, 2013) – reflects a dispositional "dis-ease" when one is unable to discern a clear meaning in the present moment due to insufficient information (Ellsberg, 1961). Discomfort with ambiguity impels one toward increased distress and risk aversion (Jach & Smillie, 2019; Petrocchi et al., 2022), and interpreting threat in ambiguous situations or interactions (Chen & Lovibond, 2016). Some research has found that men tend to experience greater discomfort when faced with situations with no obvious solution, or people whose intentions are unclear (Firoozabadi & Bahredar, 2011; Srivastava, 2023), while at least one study has found that males demonstrate higher ambiguity acceptance than females (Cuppello et al., 2023). The present results, however, are consistent with research that has shown no sex differences in ambiguity tolerance (Kamran, 2011; Lamberton et al., 2005).

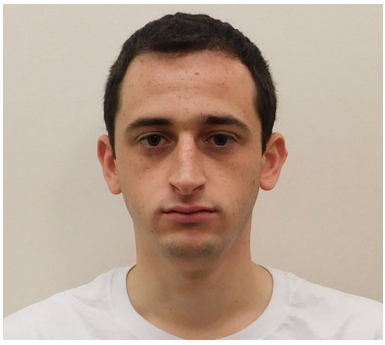
Findings from the current study carry interesting theoretical and real-life implications. Results show that a downward tilted face orientation enhances ambiguity, possibly by limiting facial processing abilities. Obscuring facial processing impedes social information processing, hindering our ability to infer the other's intentions. This ambiguity appears to increase perceptions of creepiness. Not only do facial cues influence perceptions of another person, but they also inform our social decision-making (Jaeger et al., 2019). Neta and colleagues (e.g., Neta et al., 2011, 2017) found evidence to support their hypothesis that negative (vs. positive) responses to ambiguity are more automatic, which seems to align with Watt et al.'s (2017) finding that perceptions of creepiness are made quickly and intuitively. Being perceived as creepy could lead to social consequences, such as ostracization and stigmatization. For example, faces with ambiguous features are perceived as creepier than faces drawn from America's Most Wanted (Doyle et al., 2022; Watt et al., 2017). Ambiguous facial features could influence assessments of risk in criminal justice settings. Recent research by Olivera-La Rosa et al. (2021) suggests that there are meaningful ramifications for justice-involved participants who are perceived as creepy.

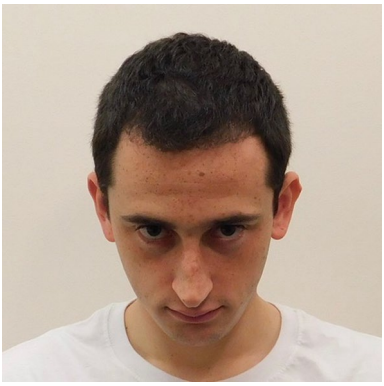
Results of the present study must be considered in light of certain limitations. Firstly, we based our analyses on static facial images, which could decrease ecological validity of the findings by limiting dynamic and multimodal social information inherent to everyday

social interactions. This method is consistent with previous work on creepiness (e.g., Doyle et al., 2022; Watt et al., 2017) and images were procured with the permission of previous researchers who went to commendable lengths to generate and standardize the images (see Witkower & Tracey, 2019). To address this limitation in the future and consistent with the suggestion of others (e.g., Doyle et al., 2022), future research could generate video-based stimuli that capture actors with "creepy" appearances and displaying "creepy" behaviours and expressions. Increasing AI options also should be explored. Secondly, after comprehensive data cleaning, screening and conditioning, a relatively small sample size remained especially of male participants. Although the sample size was clearly sufficient to detect relevant effects, we provide a note of caution with respect to generalizability of findings.

Whereas the role of ambiguity in creepiness perceptions seems well established, further explanations have been proffered. Most recently, Kjeldgaard-Christiansen and Clasen (2023) have proposed a role for mentalization (i.e., ability to apprehend the mind of another person and possibly predict their behaviour) in perceptions of creepiness. Disrupted mentalization has been linked to mental disorders (e.g., autism spectrum), attachment and personality problems (e.g., neuroticism). To date, studies of creepiness have focused on the target of perceptions rather than the perceiver. Future research could benefit by examining the perceivers and whether they differ in how they judge creepy facial images based on mentalizing capacities (Dimitrijevic et al., 2018).

Sample Photos





Author Contribution E.L., M. H., J.D., and M.W. wrote the main manuscript text; M. W. and M. H. analyzed data and prepared tables; M.H. and C.L. prepared figures; YK did referencing and formatting; PH provided expertise and consulted with her research assistant M. H.; all authors except PH reviewed the manuscript.

Data Availability No datasets were generated or analysed during the current study.

Declarations

Conflict of interest The authors declare no conflict of interests.

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