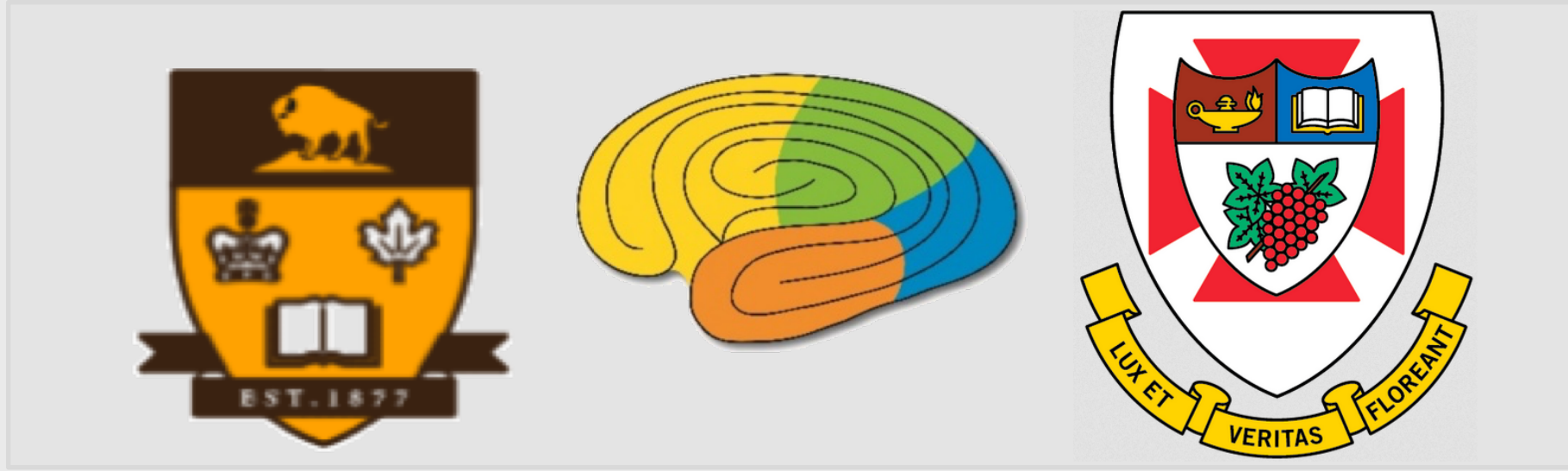


Factors Impacting the Social Evaluation of Facial Expressions

Lydia Chu¹, Lorna S. Jakobson¹ & Pauline M. Pearson²

¹ Developmental Neuropsychology Lab
Department of Psychology, University of Manitoba
² Department of Psychology, University of Winnipeg

Correspondence: chul@myumanitoba.ca



Introduction

Emotional expressions convey important information about others’ internal state and often trigger immediate approach-avoidance behaviours. The goal of the present research was to explore factors that may underlie individual variability in approach-avoidance tendencies, including personality factors, current mood, and stimulus/viewer characteristics.

Research has demonstrated that personality traits can contribute to the ability to appropriately evaluate emotional faces.¹ The trait of interest for the current study was alexithymia. **Alexithymia** is characterized by difficulties in identifying and describing one’s feelings (DIF and DDF), an externally-oriented thinking (EOT) style, and a diminished imagination or fantasy life.² Individuals with alexithymia have difficulties in processing their own emotions and the emotional cues of others.³ Although the existing literature on alexithymia is continuously growing, there seems to be a gap in the literature on the processing of emotional expressions beyond the six basic emotions; in particular, little is known about how those with alexithymia process positive facial expressions. It is also not known how alexithymia and/or depressed mood might impact approach-avoidance tendencies. **The first aim of the current study was to determine whether alexithymic traits and/or depressed mood predicts judgements of approachability.**

Characteristics of the stimuli can also influence our decision to approach or avoid. Generally, positively valenced stimuli elicit approach behaviours whereas negatively valenced stimuli elicit avoidance behaviours,⁴ however most past work has again focused on basic expressions. More recent literature also reveals that expressions of anger can elicit both approach and avoidance behaviours^{5,6} and there is evidence suggesting that female faces are rated as more approachable than male faces.⁷ **The second aim of this study was to examine the relationship between viewers’ ratings of pleasantness and approachability for a range of expressions, and to determine how the sex of the rater or the stimulus face impact approachability ratings for facial expressions that generally signal avoidance, approach, or something in between.**

Methods

PARTICIPANTS:

58 University of Manitoba students completed the in-person study in two parts in a single testing session. The data from 4 participants were excluded for various reasons.

(1) SELF-REPORT MEASURES (completed via Qualtrics survey):

CONSTRUCT	INSTRUMENT	DEPENDENT MEASURE
Alexithymia	Toronto Alexithymia Scale (TAS-20) ⁸	Total score and subscale scores
Depression	Patient Health Questionnaire (PHQ-9) ⁹	Total score

(2) PERCEPTUAL TASKS (completed via E-Prime):

The facial stimuli included 36 photographs created by Cordaro et al. (2019)¹⁰ of actors depicting a wide range of positive and negative emotional states. Participants rated each facial stimulus on approachability, intensity, and pleasantness. Based on the mean approachability ratings, expressions were categorized into three different categories (*approach, avoid, and don’t know*).

Results

DO ALEXITHYMIA AND MOOD PREDICT APPROACHABILITY RATINGS?

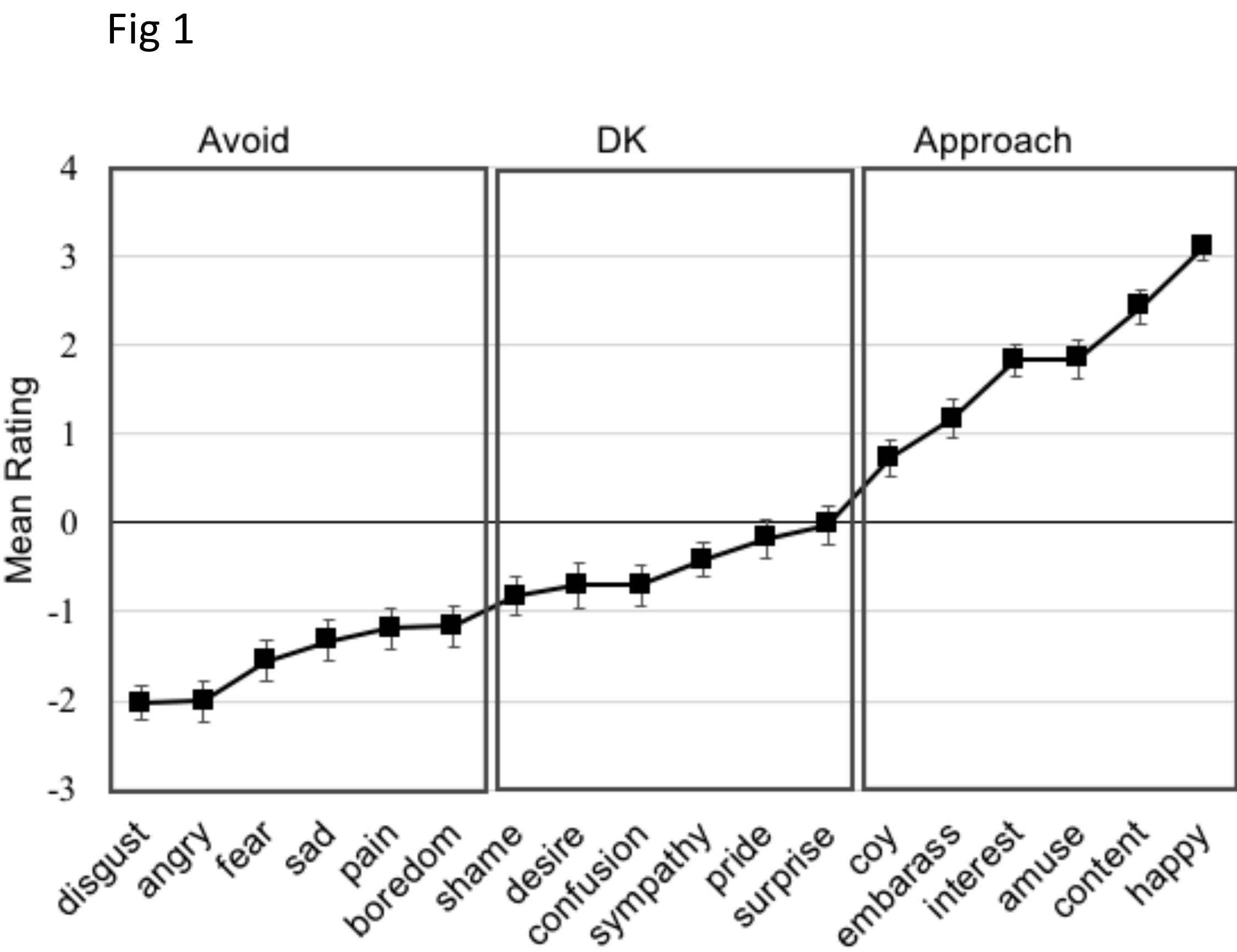


Fig 1:

- This figure shows the mean approachability rating for all 18 expressions. A mean score was computed for avoid, don’t know, and approach expressions.

Table 1:

- Two sets of multiple regressions were run predicting approachability ratings for *approach, avoid, and don’t know* expressions
- Forced entry method was used for all regressions
- None of the models were significant

REGRESSION	PREDICTORS	SIGNIFICANCE
SET A	PHQ-9 and TAS-20 Total Scores	$p > .41$
SET B	PHQ-9 and TAS-20 Subscale Scores (DDF, DIF, EOT)	$p > .65$

The multiple regression analyses did not provide any evidence to support the hypothesis that alexithymic traits and/or depressed mood would predict judgments of approachability. The fact that there were very few individuals scoring in the alexithymic or the severely depressed range may have limited our ability to detect relationships between the predictor and outcome variables.

HOW DO VALENCE AND RATER/STIMULUS FACE SEX INFLUENCE APPROACHABILITY RATINGS?

EXPRESSION	CORRELATION (r)
surprise	0.15
disgust	0.29
sad	0.31
confusion	0.33
interest	0.38
embarrassed	0.39
sympathy	0.40
pride	0.41
content	0.42
amusement	0.42
boredom	0.48
happy	0.49
pain	0.50
shame	0.52
desire	0.52
fear	0.55
angry	0.57
coy	0.61

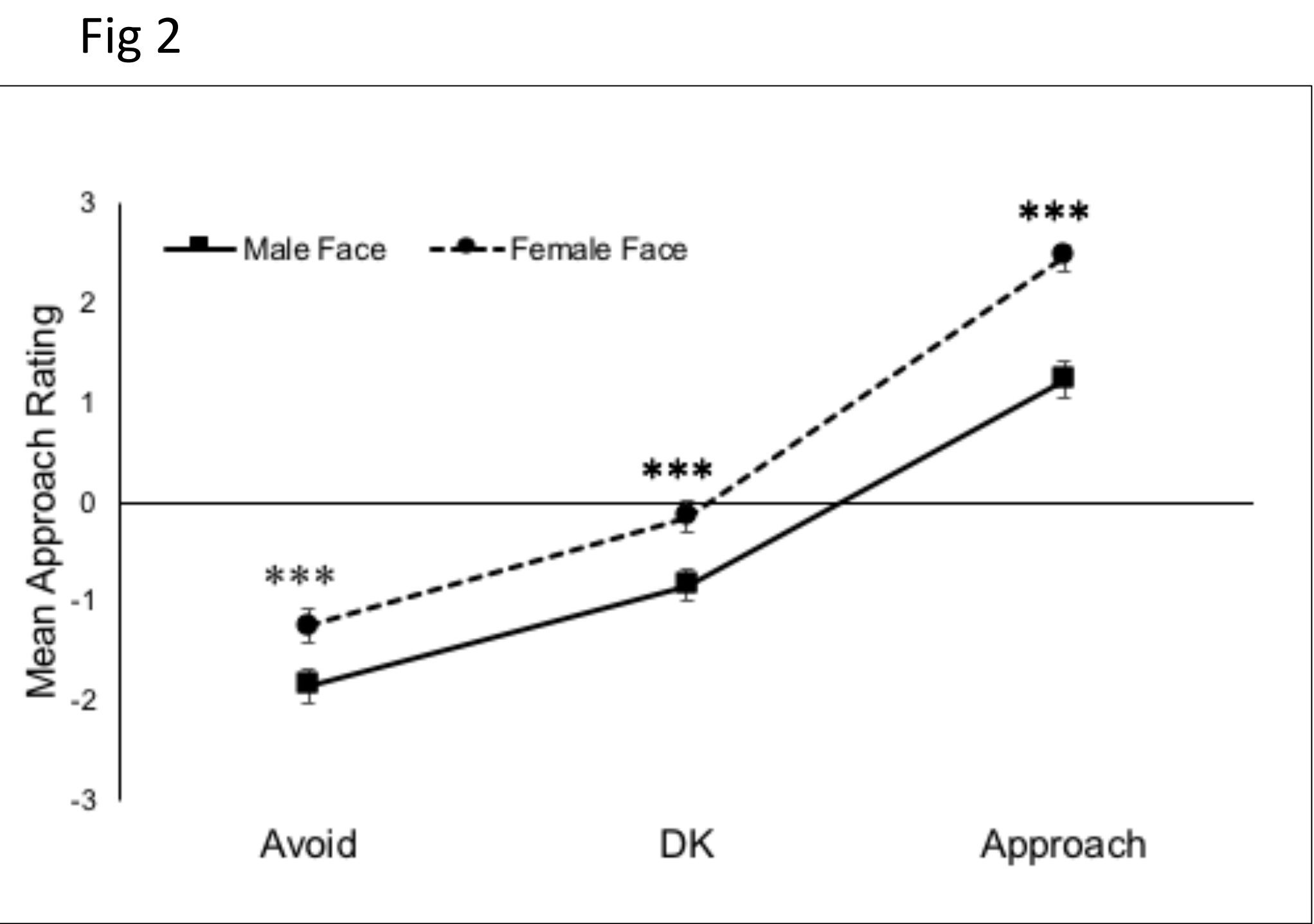


Table 2: The average correlation between the mean approachability rating and mean pleasantness rating for a given expression was moderately strong at $r(54) = 0.43$. However, correlations ranged from $r(54) = .15$, $p = .27$ for surprise to $r(54) = .61$, $p < .001$ for coy.

Fig 2: There was a significant main effect of Face Sex, $F(1,52) = 69.66$, $p < .001$, $\eta_p^2 = .573$, and a significant Face Sex X Rating interaction, $F(2,104) = 7.10$, $p = .001$, $\eta_p^2 = .120$. Participants viewed female faces as more approachable than male faces in all three categories (all contrasts were $p < .001$).

Fig 3: There were significant main effects of Rater Sex, $F(1,52) = 4.34$, $p = .04$, $\eta_p^2 = .077$, and Rating, $F(2,104) = 287.0$, $p < .001$, $\eta_p^2 = .847$, and a significant Rater Sex X Rating interaction, $F(2,104) = 3.54$, $p = .03$, $\eta_p^2 = .064$. Male raters were more likely to rate faces with hard-to-classify expressions as approachable than female raters ($p = .002$).

In this task, approachability ratings are largely driven by the valence of expressions, although there was some variability across specific expressions. Extending past research⁷, we found that both male and female raters rated female faces as more approachable. The results also revealed that male raters were more likely to endorse approaching people whose expressions did not trigger strong approach or avoidance ratings.

Conclusion

This study offers a more nuanced look at how we make inferences about others based on a wide range of negative and positive expressions they display. The results indicate that valence is a key variable influencing approachability ratings, but that rater and face sex also impact ratings. Although neither alexithymic traits or mood impacted subjective approachability ratings, future studies employing larger samples and/or objective, behavioural measures of approach/avoidance tendencies may reveal links between these variables. As alexithymia is an underlying symptom in many psychopathologies¹¹, future research with clinical populations may also provide valuable information regarding how, or if, this trait relates to approach-avoidance tendencies.

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