



FACIAL REACTIONS TO APPROPRIATE AND INAPPROPRIATE CRYING

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Abstract

Crying is assumed to elicit support from others, but is this always the case? If crying elicits support, this would be reflected in facial mimicry. However, crying in inappropriate situations should elicit reduced mimicry, because facial mimicry regulates social distance (Hess & Fischer, 2013). The present study aims to assess whether tears evoke mimicry, and whether this depends on the context: whether crying was elicited by a serious (appropriate) or a trivial (inappropriate) event. Eighty-six participants saw still photographs of individuals who were filmed just prior to (no tears) and during a crying episode (tears) and were provided with information about the supposed cause of the target's emotional reaction (appropriate vs inappropriate). Facial EMG was measured at the Corrugator Supercilii (frown) and the Zygomaticus Major as well as Orbicularis Oculi (smile) sites. The results showed that participants mimic cry faces without tears only in reaction to appropriate events. They show a smile in response to cry faces in reaction to inappropriate events and no facial expression in response to actual crying. The findings suggest that tearful crying by a stranger is perceived as socially threatening and responded to with a neutral face, presumably as a means of downregulation. Only cry faces without actual tears in response to appropriate events elicited empathy. When the emotional reaction is perceived as inappropriate amusement or Schadenfreude can result.

Method

Participants: 86 participants (18 men; Mage: 26; SD = 6).

Stimuli: Faces with and without tears by two men and two women were presented for 6 seconds together with appropriate and inappropriate reasons for their emotion. Tears were manipulated between subjects.

Appropriate reason	Inappropriate reason
.. brother is going to emigrate to another country	.. his brother is going to emigrate to the other side of the country
.. he is fired from his job	.. he won't get salary for a month
.. her partner had been cheating on her for a while now	.. her partner is having dinner with an attractive other person
She just had a car accident, with two people who got injured and her car got total-loss	She just got a dent in her car
.. a good friend has passed away	.. a good friend and travelling-companion cancelled a vacation
.. his partner wants to end the relationship	.. just had a big fight with a friend
.. she has a severe disease	.. she has a bacterial infection that can last for a while
.. her child has an inherited, severe disease	.. her child has a high temperature



Dependent measures - Ratings

Manipulation check: Perceived authenticity and appropriateness

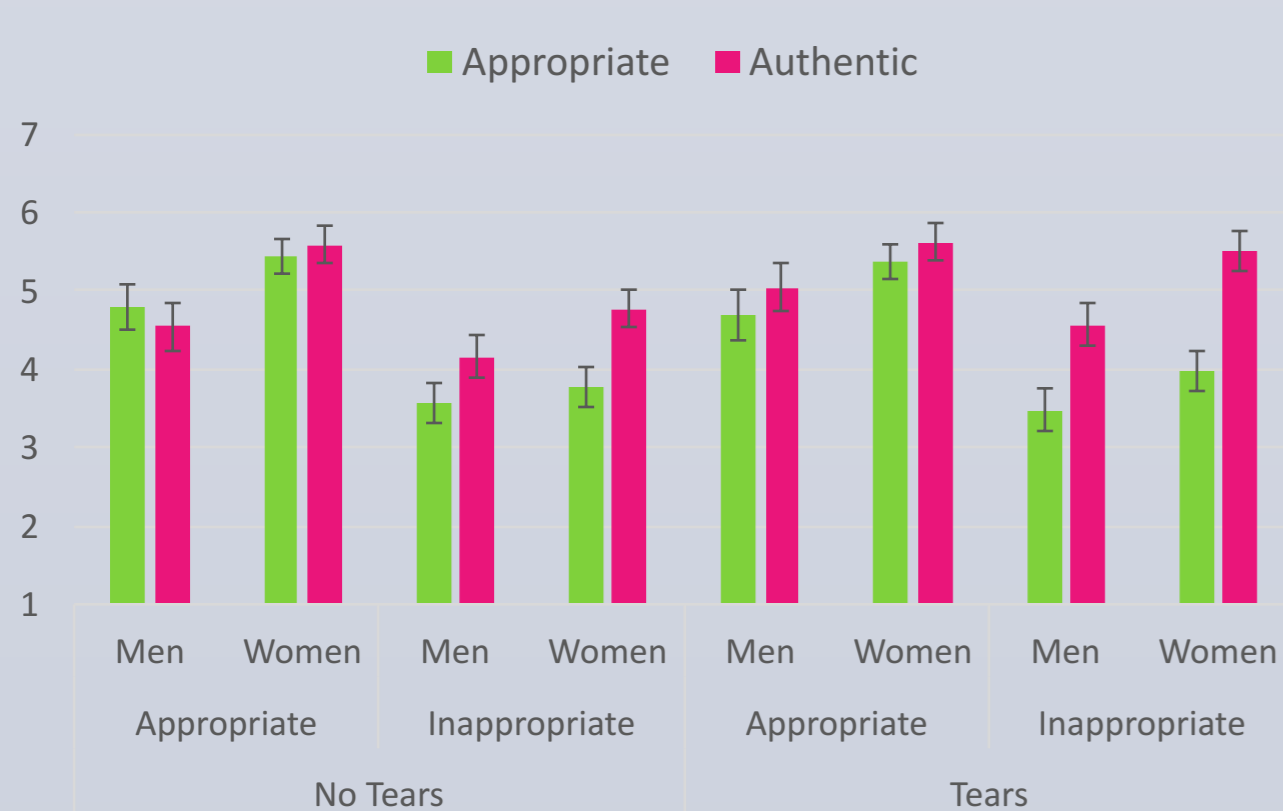
Self-reported affect: Empathy, pity, stressed, embarrassed, irritated

Person perception: Likable, emotional, lost control

Facial EMG

Corrugator supercilii (frown), Orbicularis oculi (wrinkles around the eyes), and the Zygomaticus major (lifting the corners of the mouth in a smile) activity was measured during the 5000 ms following stimulus onset on the left side of the face with bipolar placements of Easycap GmbH Ag/AgCl miniature surface electrodes. Raw EMG data was sampled with a Mindware bioamplifier with a 50 Hz notch filter at 1000Hz. The signals were band pass filtered between 30 and 300 Hz. The EMG data were offline rectified, smoothed and inspected for artifact. Within subject z-transformed difference scores (trial – baseline) were calculated for each trial. To assess mimicry, contrasts were computed. *Mimicry of sadness* was indexed by an increase in activation of the Corrugator supercilii (frown) and a decrease of activation of the Zygomaticus major and Orbicularis Oculi, *happiness mimicry* was indexed by the reversed pattern. *Cry face mimicry* was indexed by an increase of Corrugator supercilii and Orbicularis Oculi activity and a decrease of Zygomaticus major activation.

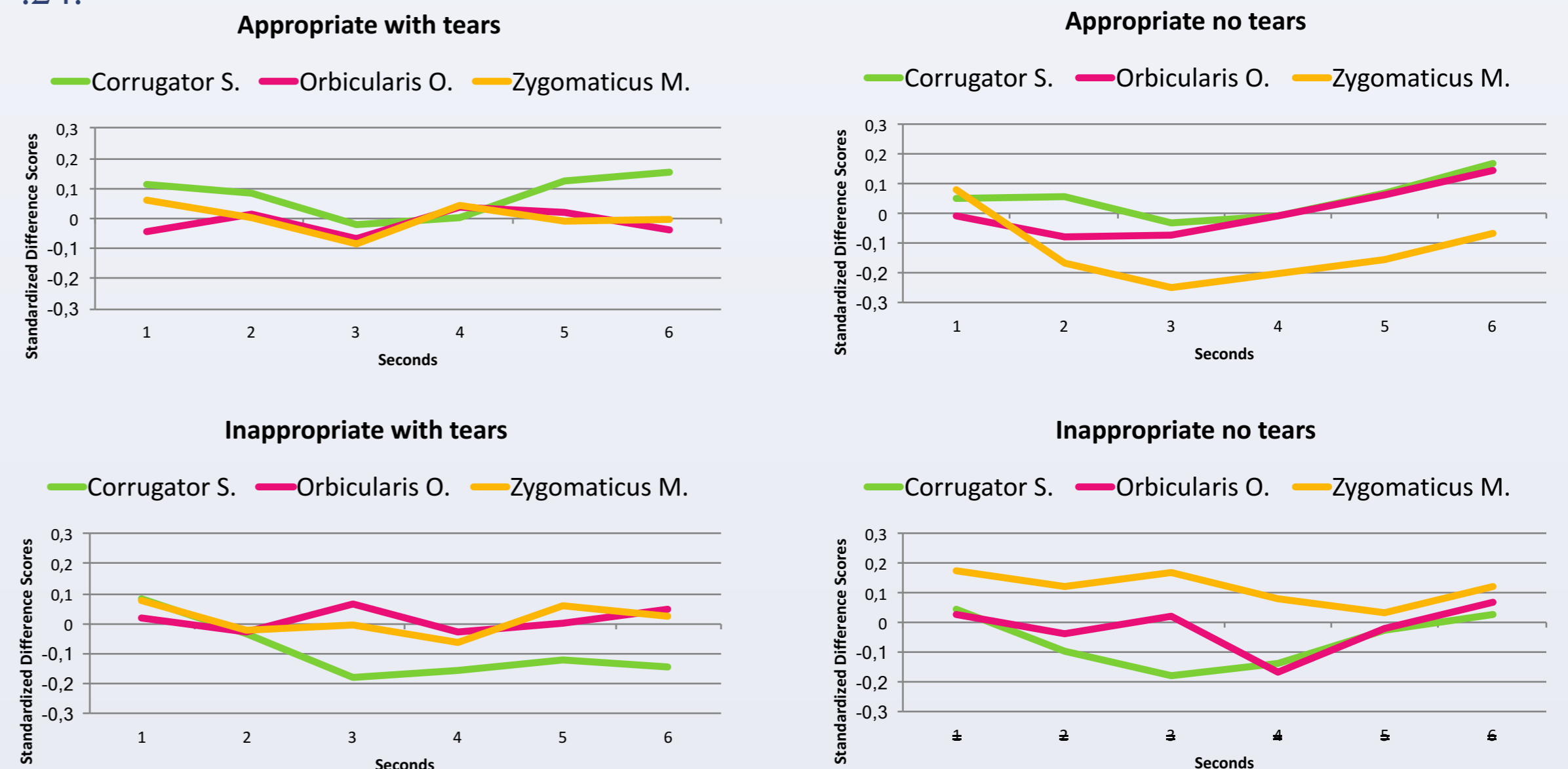
Manipulation check



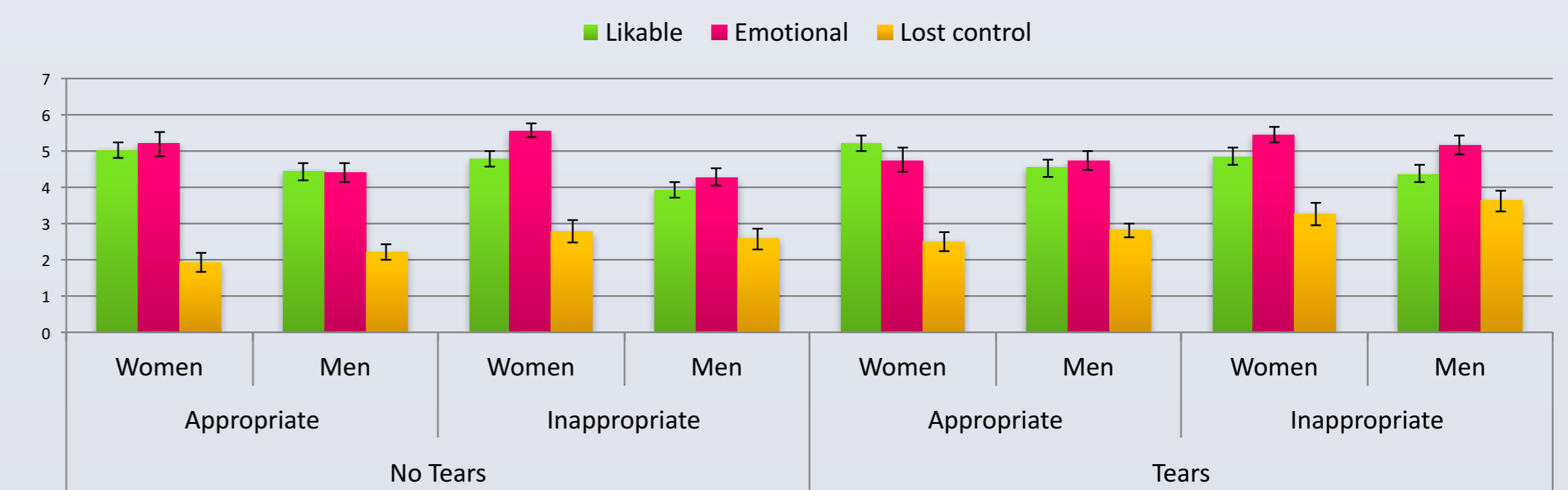
A 2 (reasons for the emotion) x 2 (gender) MANOVA revealed main effects of reasons, $F(2,83) = 44.01, p < .001, \eta_p^2 = .52$, and gender, $F(2,83) = 12.51, p < .001, \eta_p^2 = .23$. The expressions of individuals for whom appropriate reasons for the emotions were given and of women were rated as both more appropriate and more authentic independent of the presence of tears.

Results

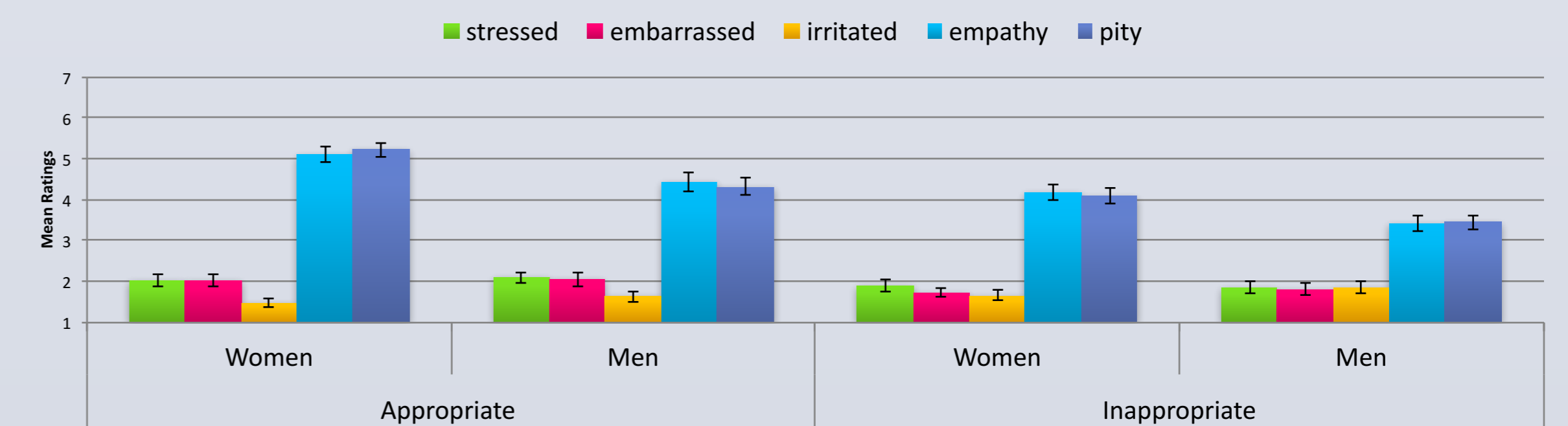
Facial EMG. No main effects of tears, gender or reasons for the emotion emerged. Contrast analyses revealed no significant contrasts for expressions with tears. For appropriate cry faces without tears, a significant contrast indicated cry face mimicry, $F(1,43) = 13.53, p = .001, \eta_p^2 = .24$. For inappropriate cry faces without tears, a significant contrast between Zygomaticus M. and Corrugator S. indicated social smiling (Schadenfreude), $F(1,43) = 13.37, p = .001, \eta_p^2 = .24$.



Person perception. A Tears by Sex of model interaction emerged, $F(1,84) = 20.14, p < .001, \eta_p^2 = .12$, such that women were perceived as more emotional, but only in the no tears condition. Models with tears, $F(1,84) = 5.99, p = .017, \eta_p^2 = .07$, and models in inappropriate contexts, $F(1,84) = 22.70, p < .001, \eta_p^2 = .21$, were rated as having lost control to a larger degree than in appropriate contexts. Models in appropriate contexts, $F(1,84) = 6.82, p = .011, \eta_p^2 = .08$, and female models, $F(1,84) = 26.95, p < .001, \eta_p^2 = .24$, were rated as more likeable, independent of the presence of tears.



Self-reported emotions. No effect of the presence of tears emerged for participants self-reported emotions. Participants reported feeling more empathy and pity, but also more stressed and embarrassed, yet less irritated when appropriate reasons were given, $F(5,80) = 8.70, p < .001, \eta_p^2 = .35$. Participants reported feeling more empathy, $F(1,84) = 21.53, p < .001, \eta_p^2 = .20$, and pity, $F(1,84) = 24.78, p < .001, \eta_p^2 = .23$, towards women, independent of context and tears.



Summary and Conclusion

Facial reactions to appropriate and inappropriate tears and participants' self-reports do not match. Tears had a strong effect on facial reactions. Participants showed cry face mimicry only in the absence of tears and for appropriate reasons. When inappropriate reasons were given in the absence of tears, participants showed an expression more congruent with Schadenfreude. When tears were shown, facial expressiveness was reduced, suggesting a desire to distance themselves from the target or to downregulate their own emotion.

Yet, participants' self-reported reactions and perceptions were mostly not influenced by tears. Only perceptions of loss of control and emotionality were affected by the presence of tears. By contrast, the appropriateness and the gender of the target influenced self-reported emotions, perceptions of the likability of the target and the appropriateness and authenticity of the expression.

These findings suggest a strong demand effect especially on reports of liking and empathy/pity towards individuals who are close to crying or who cry. By contrast, the facial reactions suggest a desire to avoid crying individuals and a tendency to be amused by those who seem close to tears over trivial reasons.

