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We Are Sorry, They Don't Care: Misinterpretation of Facial Embarrassment Displays in Arab–White Intergroup Contexts

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Embarrassment displays show others that one is aware of one's own misbehavior and willing to make up for it. The facial actions of embarrassment, however, are partly similar to those of disinterest, which has an opposite function, signaling that one is not concerned about one's self in relation to others. In the context of negative intergroup relations, embarrassment displays of outgroup members may therefore be misinterpreted as disinterest. In the present research, the authors predicted that Whites would perceive Arab expressions of embarrassment more as disinterest, but embarrassment displays of Whites more as embarrassment. Aggregated Study 1 (N = 1,154) confirms this hypothesis showing that White participants perceived more intense embarrassment in Whites than in Arabs and more intense disinterest in Arabs than in Whites. Studies 2 (n = 193) and 3 (n = 260) include methodological improvements and either largely or fully replicated our findings. Based on this evidence in an Arab–White context, the authors conclude that the affiliative function of embarrassment perception is dependent on the nature of the group context. Finally, they discuss the generalizability of this intergroup emotion bias in which emotional expressions may be perceived as the opposite of what they are intended to display.

Keywords: intergroup emotion perception, facial expressions, embarrassment, disinterest, social functions

Most emotions have an affiliative function of helping us to establish and maintain social bonds (Fischer & Manstead, in press; Keltner & Haidt, 1999; Van Kleef & Fischer, 2016). One such emotion that helps us to repair our transgressions or violations of social expectations is embarrassment. Embarrassment displays show others that one is aware of one's own misbehavior and willing to make up for it (Semin & Manstead, 1982), and thus signal self-blame.

The social function of embarrassment may be severely disrupted, however, if the intended display is misinterpreted and not perceived as intended by the expresser. Misinterpretation of this emotion display may have two sources. First, embarrassment may be confused with an emotion with similar features. We argue that embarrassment may be misinterpreted as disinterest because of the averted gaze that characterizes both emotions. Second, the occurrence of embarrassment may vary as a function of group membership (e.g., Bijlstra, Holland, & Wigboldus, 2010; Dotsch, Wigboldus, Langner, & van Knippenberg, 2008; Kamans, Gordijn, Oldenhuis, & Otten, 2009), because concerns about social transgressions are more frequent and important for ingroup members than for outgroup members (Ellemers, Spears, & Doosje, 2002; Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). In the present research we tested the hypothesis that in some negative intergroup contexts, ingroup members interpret embarrassment displays of fellow ingroup members more as embarrassment, and embarrassment displays of outgroup members more as disinterest. We examined this hypothesis in a specific intergroup context, namely Whites (e.g., White Europeans, European Americans, White British individuals) versus Arabs (e.g., North Africans, such as Moroccans, and West-Asians, such as Turks; Bijlstra et al., 2010; Dotsch et al., 2008; Kamans et al., 2009; Verkuyten, & Zaremba, 2005).

Functions and Displays of Embarrassment and Disinterest

Embarrassment has been described as a negative emotional response to events that raise concerns about how the self is presented to others, such as one's own misbehavior, underperformance, or privacy violations. It has the function of displaying individuals' concerns about not adhering to social norms, and future commitment to these norms to restore the presented self-image (Edelmann, 1981; Goffman, 1956). By signaling embarrassment, individuals show that they are aware of transgressing social norms or not meeting expectations. More importantly, embarrassment expressions signal apologetic behavior toward other people. Thus, showing embarrassment serves the restoration of social relationships and saving one's social standing in front of others (Dijk, de Jong, & Peters, 2009; de Jong, 1999; Leary, Landel, & Patton, 1996; Semin & Manstead, 1982). Indeed, after a social

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transgression embarrassed individuals are perceived as more likable (Semin & Manstead, 1982), less negative (de Jong, 1999), and more prosocial than non- or less embarrassed individuals (Feinberg, Willer, & Keltner, 2012). As a result of perceived prosociality, perceivers are also more willing to affiliate with embarrassed targets, and to trust (Feinberg et al., 2012) and forgive them (Keltner, 1995).

There are different ways in which embarrassment can be expressed. One typical display is blushing (de Jong, 1999; Dijk et al., 2009; Goffman, 1956). Blushing has a remedial function because it can lead to more positive evaluations of observers after mishaps, especially if blushing is displayed on top of other facial expressions of embarrassment (Dijk, de Jong, & Peters, 2009). Other facial displays of embarrassment involve pulling lip corners down, controlled smiles, and downward or sideways head and eye movements (gaze aversion), potentially accompanied by nervous touching of the face and laughter (Feinberg et al., 2012; van der Schalk, Hawk, Fischer, & Doosje, 2011). In previous studies these facial actions have been recognized as embarrassment and shown to be distinct from other emotions such as amusement or shame (Keltner, 1995; Keltner & Buswell, 1997).

Although to date there is no systematic research on the facial display of disinterest, one of the features of embarrassment, gaze aversion (Feinberg et al., 2012), may also signal disinterest. Whereas a direct gaze indicates interest and/or an attentional state (Bayliss, Paul, Cannon, & Tipper, 2006; Emery, 2000), gaze aversion reduces the income of environmental cues (see also Doherty-Sneddon & Phelps, 2005; Glenberg, Schroeder, & Robertson, 1998) and thus signals disengagement and lack of attention for social cues. Disinterest has the opposite function of embarrassment, namely to be socially disengaging and to increase distance with others (see Coplan, Prakash, O'Neil, & Armer, 2004; Leary, Herbst, & McCrary, 2003). Signaling disinterest would thus imply that one is not interested in what the other person says or does at a specific moment. It may even go beyond such a specific evaluation of the other's behavior at that moment and suggest that one neither cares about the other, nor cares about how the other evaluates oneself. Accordingly, the shared feature of gaze aversion in embarrassment and disinterest displays may result in misinterpretations. Considering the opposite social functions of both emotions, this may have severe consequences. Such differential interpretations of embarrassment and disinterest displays may be particularly pronounced in negative intergroup contexts.

Embarrassment and Disinterest in Intergroup Contexts

Emotions also have social functions that define or strengthen boundaries between groups (Fischer & Manstead, in press; Keltner & Haidt, 1999; van Kleef & Fischer, 2016), because their display can reaffirm the belongingness to one group or the distance from another group. As a consequence, the affiliative function of embarrassment may be less prevalent in some intergroup contexts, especially when there is less motivation to restore social bonds with outgroup members. This would imply that the experience of embarrassment would be less intense or frequent between people from different groups whose norms are less relevant to one another (Harré, 1990). Indeed, recent research on intergroup embarrassment indicates that individuals report less embarrassment if the audience consists of outgroup members versus ingroup members (Eller, Koschate, & Gilson, 2011). These findings suggest that embarrassment displays are more likely to occur when the other is socially relevant, or an ingroup member, and less likely when the other is socially irrelevant, or a stigmatized outgroup member. This could mean that embarrassment is more likely to be perceived when the transgressor is from the ingroup rather than from an outgroup.

Research on recognition of facial expressions of emotions across different ethnic groups has shown that people are generally more accurate in recognizing ingroup versus outgroup facial displays (Elfenbein & Ambady, 2002; Elfenbein, Beaupré, Lévesque, & Hess, 2007; Elfenbein, 2013). Neurological and behavioral evidence supports this finding, suggesting an intracultural advantage at inferring others' thoughts, intentions, and feelings (Adams et al., 2010). More specifically, research on embarrassment displays has shown that embarrassment can be recognized accurately above chance level within groups (Tracy & Robins, 2008); however, there is no research to date on misinterpretations of embarrassment as disinterest. One other line of research has shown a differential interpretation of gaze aversion by members of different ethnic groups in simulated police interviews, showing that White police officers interpreted gaze aversion displayed by Black subjects as more negative in comparison with White subjects (Winkel & Vrij, 1990). By comparing the interpretation of embarrassment displays of Whites with those of Arabs, we aim to tap into biased interpretation, which may hamper the social function of embarrassment in specific social contexts. Because one feels more distant and disengaged from outgroup members and more close and engaged with ingroup members (Tajfel & Turner, 1979; Turner et al., 1987), embarrassment may have a less obvious social function in an intergroup context. Whereas gaze aversion is perceived as apologetic with the ultimate goal to restore the relationship in an intragroup context, embarrassment may be perceived as a sign of disinterest with the ultimate goal to destroy the relationship in intergroup contexts. The misinterpretation of embarrassment as disinterest may be particularly enhanced by specific negative stereotypes about (ethnic) outgroup members. To illustrate, research on stereotypes of White Dutch people about (male) Arabs shows that they are perceived as criminal, aggressive, Muslim extremists, loitering, and that they do not care about others (Kamans et al., 2009; Verkuyten & Zaremba, 2005). Such stereotypes influence the way in which individuals perceive emotional expressions of outgroup members. For example, research on intergroup emotion perception in the Dutch context shows that White Dutch participants are more inclined to see anger than sadness in Arab males because of negative stereotypes about this group (Bijlstra et al., 2010). Moreover a predominant stereotype of White teachers in Dutch school contexts is that Arab students do not care after being disciplined.

We therefore argue that the averted gaze may lead to different interpretations of emotions. We predicted that White participants perceive embarrassment displays characterized by gaze aversion more as embarrassment than as disinterest in Whites, whereas they misinterpret the same displays of Arabs more as disinterest than as embarrassment. In Studies 2 and 3, we aim to replicate the findings of Aggregated Study 1 with methodological improvements.

Aggregated Study 1

Method

Nine out of the 10 studies reported below were part of a series of studies that investigated intergroup differences in perceived intensity of facial expressions (Kommattam, Jonas, & Fischer, 2016). The tenth study was an independent project that made use of the same paradigm. In all 10 studies, group membership was manipulated as a between-subject (BS) factor by using White (White European and European American) models as ingroup members and Arab (Turkish and Moroccan) models as outgroup members. The ethical committee of the Faculty of Social and Behavioral Sciences of the University of Amsterdam approved all 10 studies as meeting the requirements of standard survey research (2013-SP-2642; 2013-SP-2988; 2013-SP-3081; 2013-SP-3104; 2013-SP-3110; 2013-SP-3148; 2014-SP-3554; 2014-SP-3722; 2014-SP-3723; 2015-SP-4295).

Participants. A total of 1,154 participants participated in this research. A distribution of participants across studies and their sociodemographic information is reported in Table 1. The overall mean age of this sample was 31.05 years (range = 18–85). All studies were either based on Dutch online student samples, or U.S./U.K. online samples via Amazon's Mechanical Turk (www.mturk.com), with the exception of S10 that made use of a real life random sample. For the purpose of this analysis we only selected White participants (White Europeans, European Americans, and White British individuals), which allowed us to compare their perception of embarrassment displays of members of different ethnic groups.

Procedure. First, participants filled in their sociodemographic information. Subsequently, participants completed a ranking task, in which they had to sort a number of ethnic groups that are represented in the Netherlands/the United States/the United Kingdom according to size of their population, in order to create an intergroup context (Waldzus, Mummendey, Wenzel, & Weber, 2003, Exp. 2). The ranking task was presented as a separate study. Then, the actual study would begin, in which participants were asked to evaluate nine everyday situations. In this task, participants saw emotional faces, either displayed by White models or Arab models along with a brief scenario describing a neutral context. Participants received the instructions to look at the person and to judge how this person feels in this situation.

Table 1
Sociodemographic Information for Aggregated Study 1 Including Sample Size (N), Mean Age, Age Range, and Sample Origin

Study	*n*	*M* age	Range	Sample
S01	89	19.83	18–31	Dutch
S02	98	34.76	19–75	U.S.
S03	121	33.28	18–75	U.S.
S04	115	36.30	19–66	U.S.
S05	63	36.54	20–69	U.S.
S06	58	33.79	18–68	U.S.
S07	108	19.89	18–32	Dutch
S08	196	30.96	18–69	U.S.
S09	186	33.05	18–67	U.K.
S10	120	32.08	18–85	Dutch

Stimuli. We used low intensity still shots of emotional expressions that were made of video clips from the Amsterdam Dynamic Facial Expression Set (ADFES, van der Schalk et al., 2011). The ADFES is a stimulus set with dynamic facial expressions of emotions of White (White European/European American) models and Arab (Moroccan and Turkish) models. Each complete video had a duration of approximately 4 s, unfolding from a neutral face to its full and most intense expression. Low intensity still images were made on the basis of the first seconds of each video clip, thus during the onset of an emotion, resulting in a low intensity still shot of emotional expressions. Nine different emotion displays were included, namely anger, disgust, fear, happiness, sadness, surprise, contempt, embarrassment, and pride. Here we only report the results for embarrassment since the other emotions are not germane to the current effect. All models and static stimuli for embarrassment displays can be found in the Appendix.

Materials and Measures. Low intensity facial expressions of embarrassment were presented along with neutral contexts (e.g., "This person is in a restaurant") and four emotion labels (e.g., *embarrassment, disinterest, sadness,* and *anger* for embarrassment displays). The emotion labels were presented in a fixed order. For each of these labels participants had to indicate to what extent this emotion was present in the photo on a scale from 0 (*not at all*) to 100 (*very much*), with the exception of Study 1, which made use of a scale from 0 (*not at all*) to 10 (*very much).*

Results and Discussion: Study 1

To test whether White perceivers would attribute more embarrassment to embarrassment displays of Whites, but more disinterest to embarrassment displays of Arabs, we conducted repeated measures analyses of variance (ANOVAs) with group membership (White/Arab) as BS factor, Emotion (embarrassment and disinterest ratings) as within-subject (WS) factor, and ratings of the emotions not germane to the purpose of this investigation (sadness and anger) as covariates. We predicted significant interactions between Emotion and Group Membership, in which Whites are perceived to feel more embarrassment than Arabs, and Arabs are perceived to feel more disinterest than the Whites. Because the repeated measures factor Emotion only had two levels, assumptions of sphericity were met at all times. Interactions between Emotion and Group Membership are listed in Table 2, means and standard errors in Table 3. Pairwise comparisons for the interactions between Emotion and Group Membership can be found in Table 4 (Arab–White differences for embarrassment ratings), Table 5 (Arab–White differences for disinterest ratings), Table 6 (differences between embarrassment and disinterest ratings for White models), and Table 7 (differences between embarrassment and disinterest ratings for Arab models).

Summary of Emotion × Group membership interactions. The main hypothesis was fully confirmed for seven out of 10 studies (S02, S03, S04, S07, S08, S09, S10): Participants perceived Whites to feel more embarrassment than Arabs, and Arabs to feel more disinterest than Whites. S01 showed the same predicted interaction, with Whites being perceived to feel more embarrassment than Arabs; however, Arabs were not significantly perceived to feel more disinterest than Whites. Pairwise comparisons showed that embarrassment and disinterest ratings significantly differ from each other for Whites and Arabs in S03, S04,

Table 2
F, dfs, p, and η_p^2 Values for Interactions Between Group Membership and Emotion

Study	*F*	*df*s	*p*	η_p^2
S01	8.34	1, 85	.005	.089
S02	9.70	1, 94	.002	.094
S03	39.06	1, 117	.000	.250
S04	16.16	1, 111	.000	.127
S05	5.71	1, 59	.020	.088
S06	9.31	1, 54	.004	.147
S07	29.32	1, 104	.000	.220
S08	41.96	1, 192	.000	.179
S09	59.43	1, 182	.000	.246
S10	4.26	1, 116	.041	.035

Table 4
Pairwise Comparisons for Arab–White Differences on Embarrassment Ratings

Study	*F*	*df*s	*p*	η_p^2
S01	5.73	1, 85	.019	.063
S02	5.26	1, 94	.024	.053
S03	21.45	1, 117	.000	.155
S04	14.84	1, 111	.000	.118
S05	2.21	1, 59	.143	.036
S06	2.27	1, 54	.138	.040
S07	11.17	1, 104	.001	.097
S08	20.71	1, 192	.000	.097
S09	28.15	1, 182	.000	.134
S10	4.26	1, 116	.041	.035

S07, S09, and S10. In S01, S02, and S08 ratings for Whites did not differ from each other significantly, but ratings for Arabs did differ significantly from each other. Against our predictions two out of the 10 studies (S05 and S06) showed inconsistent findings, showing a significant interaction of Group and Emotion where Whites were perceived to feel more disinterest than Arabs. In these two studies we tried to validate a new stimulus set which failed (see also Kommattam et al., 2016) and can explain our results obtained here.

To sum up, the majority of studies reported here show that White participants perceived Whites to feel more embarrassment than Arabs and Arabs to feel more disinterest than Whites. However, we failed to replicate our findings with a second stimulus set that also made use of low intensity still images of emotional expressions. Furthermore, the sequence of the emotion labels was fixed in the studies reported above. Therefore we decided to replicate these findings with low intensity images and dynamic stimuli, different models, and randomized emotion labels to retest our hypothesis with methodological improvements.

Studies 2 and 3

Method

Studies 2 and 3 used a 2 (BS, gGroup: White/Arab) × 2 (BS, stimuli: dynamic/static) × 6 (WS, models: 3 female, 3 male) design. Participants were 193 White Dutch individuals (M_{age} = 47.02, range = 18–81) in Study 2, and 260 White Dutch individuals in Study 3 (M_{age} = 46.30, range = 18–74). Participants were recruited via ThesisTools.com, an online data collection platform for doctoral-level students and MSc students. We used the same paradigm and procedure as described in Aggregated Study 1. The differences were that we (a) used more models (for a full overview of models per study, see the Appendix), (b) included dynamic stimuli in addition to low intensity still images, (c) changed the alternative labels (*sadness* and *anger* were replaced with *happiness* and *schadenfreude*), (d) randomized the order of the emotion label, and (e) only presented displays of embarrassment and no other emotions. The ethical committee of the Faculty of Social and Behavioral Sciences of the University of Amsterdam approved both studies as meeting the requirements of standard survey research (2015-SP-4565 & 2015-SP-4635).

Results and Discussion: Study 2

We used repeated measures ANOVAs with Group Membership (White/Arab) and Stimuli (static/dynamic) as BS factors, Emotion (embarrassment and disinterest ratings) as WS factor, and ratings of the two other emotions (happiness and schadenfreude) as covariates. We found a main effect of Emotion, $F(1, 187) = 15.18$, $p = .0001$, $\eta_p^2 = .075$, which was qualified by the predicted interaction of Group Membership and Emotion, $F(1, 187) =$

Table 3
Means (and SEs) for Embarrassment, Disinterest, Sadness, and Anger Ratings of Embarrassment Displays of White Models (WH) and Arab Models (AR) in Neutral Contexts Only

	Embarrassment		Disinterest		Sadness		Anger	
Study	WH	AR	WH	AR	WH	AR	WH	AR
S01	2.30* (.21)	1.58* (.21)	2.86 (.26)	3.53 (.26)	1.31 (.20)	1.11 (.20)	1.06 (.18)	1.15 (.18)
S02	57.33* (4.20)	42.85* (4.37)	49.51* (4.11)	64.49* (4.28)	40.24 (4.06)	32.43 (4.23)	21.94 (3.40)	27.21 (3.54)
S03	65.90* (3.51)	41.55* (3.55)	40.26* (3.51)	60.10* (3.32)	35.32 (3.20)	32.18 (3.01)	26.44 (3.48)	35.36 (3.28)
S04	58.31* (3.94)	36.04* (4.26)	44.42* (3.91)	57.62* (4.23)	23.82 (3.33)	23.93 (3.60)	20.13 (2.97)	19.00 (3.21)
S05	45.95 (4.10)	55.33 (4.01)	72.80* (4.33)	60.59* (4.26)	51.23 (3.97)	53.19 (3.91)	25.73 (3.86)	32.60 (3.79)
S06	45.36 (4.33)	51.88 (4.18)	71.48* (3.29)	56.27* (3.17)	55.34 (4.31)	48.80 (4.16)	26.82 (4.26)	29.63 (4.11)
S07	59.35* (3.39)	43.67* (3.20)	47.17* (3.35)	67.06* (3.17)	38.10 (3.23)	33.70 (3.06)	33.24 (3.21)	38.19 (3.04)
S08	56.44* (2.99)	39.71* (3.02)	51.39* (2.64)	70.89* (2.67)	39.26 (2.70)	36.11 (2.73)	23.45 (2.35)	26.13 (2.38)
S09	61.98* (2.80)	41.98* (2.77)	44.76* (2.66)	68.62* (2.63)	33.15 (2.42)	33.38 (2.40)	28.14 (2.57)	30.57 (2.54)
S10	57.39* (3.46)	46.88* (3.58)	24.05* (2.87)	33.07* (2.96)	37.49 (3.21)	37.32 (3.32)	24.27 (2.87)	33.07 (2.96)

Note. An asterisk indicates that ratings for White models and Arab models differ significantly from each other on the listed label at $p > .05$.

Table 5
Pairwise Comparisons for Arab-White Differences on Disinterest Ratings

Study	*F*	*df*s	*p*	η_p^2
S01	3.39	1, 85	.069	.038
S02	6.13	1, 94	.015	.061
S03	15.85	1, 117	.000	.119
S04	5.37	1, 111	.022	.046
S05	4.67	1, 59	.035	.073
S06	9.26	1, 54	.004	.146
S07	18.31	1, 104	.000	.150
S08	25.79	1, 192	.000	.118
S09	41.90	1, 182	.000	.187
S10	957.90	1, 116	.000	.892

Table 7
Pairwise Comparisons for Embarrassment-Disinterest Differences for Arab Models

Study	*F*	*df*s	*p*	η_p^2
S01	32.69	1, 85	.000	.278
S02	10.41	1, 94	.002	.100
S03	15.01	1, 117	.000	.114
S04	11.12	1, 111	.001	.091
S05	1.07	1, 59	.306	.018
S06	.71	1, 54	.402	.013
S07	27.27	1, 104	.000	.208
S08	62.44	1, 192	.000	.245
S09	44.28	1, 182	.000	.196
S10	28.27	1, 116	.000	.196

26.71, $p = .0001$, $\eta_p^2 = .125$. Pairwise comparison suggested that Arabs were perceived to feel more disinterest than Whites, $F(1, 187) = 18.86$, $p = .0001$, $\eta_p^2 = .092$, $M_{\text{Arabs}} = 51.07$, $SE = 2.30$ vs. $M_{\text{Whites}} = 40.35$, $SE = 1.74$, but not that Whites were perceived to feel more embarrassment than Arabs, even though the means pointed into the predicted direction, $F(1, 187) = 2.89$, $p = .09$, $\eta_p^2 = .015$, $M_{\text{Whites}} = 57.81$, $SE = 1.63$ vs. $M_{\text{Arabs}} = 53.90$, $SE = 1.61$. Furthermore, pairwise comparisons suggested that embarrassment and disinterest ratings significantly differed from each other for Whites, $F(1, 187) = 76.36$, $p = .0001$, $\eta_p^2 = .290$, $M_{\text{embarrassment}} = 57.81$, $SE = 1.63$ vs. $M_{\text{disinterest}} = 40.35$, $SE = 1.74$, but not for Arab, $F(1, 187) = 2.02$, $p = .157$, $\eta_p^2 = .011$, $M_{\text{embarrassment}} = 53.90$, $SE = 1.61$ vs. $M_{\text{disinterest}} = 51.07$, $SE = 2.30$.

We also found an interaction of Emotion and Stimuli, $F(1, 187) = 3.96$, $p = .048$, $\eta_p^2 = .021$. However, pairwise comparison indicated that neither embarrassment ratings, $F(1, 187) = 1.07$, $p = .303$, $\eta_p^2 = .006$, $M_{\text{static}} = 54.68$, $SE = 1.51$ vs. $M_{\text{dynamic}} = 57.03$, $SE = 1.70$, nor disinterest ratings, $F(1, 187) = 1.74$, $p = .189$, $\eta_p^2 = .009$, $M_{\text{static}} = 47.32$, $SE = 1.62$ vs. $M_{\text{dynamic}} = 44.10$, $SE = 1.83$, differed from each other as a function of Stimuli (static vs. dynamic). Pairwise comparisons also showed that embarrassment and disinterest ratings statistically differed from each other for both static, $F(1, 187) = 15.68$, $p = .0001$, $\eta_p^2 = .077$, $M_{\text{embarrassment}} = 54.68$, $SE = 1.51$ vs. $M_{\text{disinterest}} = 47.32$, $SE = 1.62$, and dynamic stimuli, $F(1, 187) = 38.11$, $p = .0001$, $\eta_p^2 = .169$, $M_{\text{embarrassment}} = 57.03$, $SE = 1.70$ vs. $M_{\text{disinterest}} = 44.10$, $SE = 1.83$. Thus, the stimuli type does not impact on our effect. The interactions between Emotion and the covariate happiness, $F(1, 187) = 2.47$, $p = .118$, $\eta_p^2 = .013$, the covariate schadenfreude, $F(1, 187) = .041$, $p = .840$, $\eta_p^2 = .000$, and the three-way interaction between Emotion, Group Membership, and Stimuli, $F(1, 187) = .107$, $p = .774$, $\eta_p^2 = .001$, were all nonsignificant. Thus, Study 2 largely confirmed our hypothesis. We found the predicted interaction of Group Membership and Emotion in which Arabs are perceived to feel more disinterest than Whites. However, Whites were not perceived to feel significantly more embarrassment than Arabs. Embarrassment and disinterest ratings differed from each other for Whites but not for Arabs. In sum, Study 2 shows that our findings replicated with other models, and that they were not due to a specific stimulus type, or to a fixed order of emotion labels.

Table 6
Pairwise Comparisons for Embarrassment-Disinterest Differences for White Models

Study	*F*	*df*s	*p*	η_p^2
S01	2.77	1, 85	.00	.032
S02	1.43	1, 94	.235	.015
S03	25.46	1, 117	.000	.179
S04	5.36	1, 111	.022	.046
S05	19.30	1, 59	.000	.246
S06	25.89	1, 54	.000	.324
S07	6.61	1, 104	.012	.060
S08	1.56	1, 192	.213	.008
S09	18.24	1, 182	.000	.091
S10	70.29	1, 116	.000	.377

Results and Discussion: Study 3

Although we obtained the hypothesized intergroup difference for disinterest ratings, one unexpected finding of Study 2 was that Whites were not perceived to feel significantly more embarrassment than Arabs. Furthermore, several participants reported difficulties seeing the stimulus material due to browser problems on specific devices (e.g., tablet computers). To make sure that the findings were not influenced by technical problems, we ran an exact replication after making the stimuli accessible for all browsers and devices.

We found a main effect of Emotion, $F(1, 254) = 4.71$, $p = .031$, $\eta_p^2 = .018$, which was again qualified by the predicted interaction of Group Membership and Emotion, $F(1, 254) = 44.75$, $p = .0001$, $\eta_p^2 = .150$. Pairwise comparisons suggested that that Arabs were perceived to feel more disinterest than Whites, $F(1, 254) = 21.72$, $p = .0001$, $\eta_p^2 = .079$, $M_{\text{Arabs}} = 53.43$, $SE = 1.33$ vs. $M_{\text{White}} = 44.40$, $SE = 1.40$, but also that Whites were perceived to feel more embarrassment than Arabs, $F(1, 254) = 14.87$, $p = .0001$, $\eta_p^2 = .055$, $M_{\text{White}} = 58.21$, $SE = 1.33$ vs. $M_{\text{Arabs}} = 51.13$, $SE = 1.26$. Furthermore, pairwise comparisons suggested that embarrassment and disinterest ratings significantly differed from each other for Whites, $F(1, 254) = 62.85$, $p = .0001$, $\eta_p^2 = .198$, but not for Arabs, $F(1, 254) = 1.95$, $p = .164$. The interaction of Group and Stimuli was not significant, $F(1, 254) = 3.55$, $p = .061$, $\eta_p^2 = .014$, again suggesting that stimuli type does not impact on our effect. There was an interaction between Emotion and the

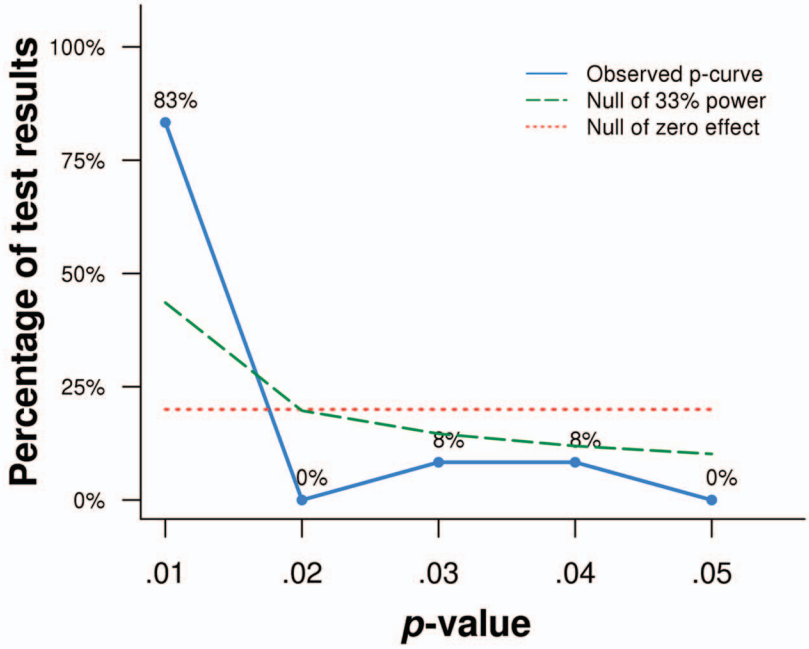
covariate happiness, $F(1, 254) = 4.21$, $p = .041$, $\eta_p^2 = .016$, which we considered to be random and meaningless for the purpose of this research. The interaction between Emotion and the covariate schadenfreude was nonsignificant, $F(1, 254) = 0.76$, $p = .385$, $\eta_p^2 = .003$, just like the three way interaction between Emotion, Group Membership, and Stimuli, $F(1, 254) = 0.13$, $p = 718$, $\eta_p^2 = .001$. Overall, Study 3 fully confirmed our hypothesis. White perceivers attributed more embarrassment to Whites than to Arabs and more disinterest to Arabs than to Whites. Whereas embarrassment and disinterest ratings differed from each other for Whites, they did not differ from each other for Arabs. Because of the addition of extra models and randomization of emotion labels, we can exclude the possibility that the effects were driven by one set of models per group or sequence effects of the emotion labels.

Additional Analysis

To estimate the overall power of our analyses and assess the validity of the effect we included a P-curve analysis (Simonsohn, Nelson, & Simmons, 2014) for all obtained interactions between Group Membership and Emotion (see Figure 1). The distribution of significant *p* values was right-skewed, which is considered to be diagnostic for a valid effect. The estimate of statistical power was at 99%.

General Discussion

The current research presents novel insights in potential misinterpretations of facial expressions of embarrassment in intergroup contexts. The majority of our data suggest that White participants (White Europeans, European Americans, and White British individuals) perceive embarrassment displays of Whites to feel more embarrassed than embarrassment displays of Arabs, whereas Arabs are perceived to feel more disinterested than Whites. In other words, facial displays of embarrassment may be perceived as the exact opposite of what they are intended to communicate in an Arab–White intergroup context. Instead of correctly perceiving that an embarrassed Arab individual is aware of a transgression and feels sorry for it, this person is perceived to not care and to create social distance by White participants. The presumed posi-



Statistical Inference	Results	
	Binomial Test (Share of significant results p<.025)	Continuous Test (Aggregate pp-values via Stouffer Method)
1) Studies contain evidential value. (Right skew)	p =.0032	Z = -10.95, p<.0001
2) Studies' evidential value, if any, is inadequate. (Flatter than 33% power)	p =.9835	Z = 7.89, p>.9999
3) Studies exhibit evidence of intense p-hacking. (Left skew)	p =.9998	Z = 10.95, p>.9999
Estimate of Statistical Power		
Average power of tests included in p-curve (correcting for publication bias)	99%	

The observed *p*-curve includes 12 significant results (p<.05), of which 91.7% are p<.025.
There were no non-significant results entered.

Figure 1. P-curve analysis of all obtained interactions between group membership and emotion. See the online article for the color version of this figure.

tive social function of embarrassment as restoring social relationships can accordingly become void in negative intergroup settings due to such misinterpretations of facial embarrassment displays. Whereas embarrassment displays of Whites are likely to result in greater perceived prosociality of embarrassed individuals and more willingness to affiliate with them and trust them (Feinberg et al., 2012), embarrassment displays of Arabs may not. In fact, embarrassment displays of Arab individuals could even increase frictions in Arab–White intergroup interactions rather than reducing them, because the Arab individual is perceived as not interested in restoring social norm violations.

Speaking to the generalizability and validity of our findings, we could establish this effect across several models, static and dynamic facial displays of embarrassment, and among student and nonstudent samples in Europe, the United States of America, and the United Kingdom with a total sample size of 1,607 participants. As such, the current research provides an important starting point for research on the misinterpretation of emotions in different group settings. In the current line of research, we have provided empirical evidence for White perceivers misinterpreting Arab expressions. It is unclear yet whether this misinterpretation would also occur in the opposite direction (Arabs perceiving White emotions), whether it applies to other emotions, or whether it would also apply to other intergroup relations. We expect that this phenomenon can be generalized to all intergroup context where ingroup members have negative stereotypes about outgroup members, because disinterest signals active social disengagement with the target, which is likely in a negative intergroup context. We should emphasize, however, that we cannot draw this conclusion on the basis of the present data. The extent to which the present results can be generalized to other (negative) intergroup settings thus needs to be empirically examined. It is also important to note commonalities in the samples that we tested in order to gain more understanding about the generalizability of the effect. We established our findings across three distinct cultures (Dutch, U.S., and U.K.) and two different continents, which are all considered to be western (i.e., Eurocentric) based on their shared imperialistic and colonial history (Said, 1978). It would therefore be interesting to reassess our findings in non- or less eurocentric settings with different social groups, considering that interethnic intergroup contact on an everyday level is a relatively recent phenomenon in global history. As previous research on the increased experience of embarrassment in the presence of ingroup audience members suggests, the relationship between group membership and embarrassment can also be moderated by status (Eller et al., 2011). In the present research, ethnicity and status are likely to be confounded from a European perspective. The majority of Arabs (Turkish and Moroccan individuals) in the Netherlands for instance are either so-called "guest workers" themselves or descendants of them, and thus generally have a lower group status. Accordingly, we cannot be certain whether our effect was driven by ethnicity and/or status. Related to this it should be noted that, even though high status individuals generally receive more visual attention, individuals seem to avert their gaze from the face and upper body in response to high status individuals displaying dominant postures (Holland, Wolf, Looser, & Cuddy, 2016). Gaze aversion may therefore not exclusively represent embarrassment or disinterest, but may also be a response to displays of dominance. It would therefore be interesting if future research also takes body posture into account. Furthermore, our results may also be related to the majority (i.e., higher) status of Whites, considering that the ingroup advantage in emotion perception seems to be stronger for majority members reading minority members than vice versa (Elfenbein & Ambady, 2002).

Yet another explanation is related to the fact that we found that embarrassment and disinterest ratings only differed from each other for Whites and not for Arabs. This may point to less differentiated or nuanced processing of outgroup expressions in general and/or influences of outgroup stereotypes specifically. This pattern is in line with other findings that show a deeper processing of ingroup relevant information over the outgroup (Mackie & Worth, 1989; Mackie, Worth, & Asuncion, 1990; Reese, Steffens, & Jonas, 2013). However, future research should investigate this issue further to determine which element of this process most strongly contributes to this effect.

The most important limitation of the current work is that our results were not fully consistent (2 out 12 studies failed to demonstrate the effect, $N_{S05\&S06} = 121$ out of $N_{total} = 1{,}607$), all though this may not be surprising given the relatively large number of studies ($N_{total} = 12$). In these two studies we failed to validate a new stimulus set (Kommattam et al., 2016). We did however successfully replicate our findings with new and different models in Studies 2 and 3, using both static and dynamic stimuli. Therefore, we have excluded the alternative explanation that our effects are due to the specific models representing ingroup and outgroup members. Furthermore, we included a *p*-curve analysis to estimate the validity of the effect, which showed to be satisfactory.

The results complement earlier work on intergroup embarrassment that shows that individuals not only experience less embarrassment if the audience consists of outgroup members (Eller et al., 2011), but also perceive less embarrassment in outgroup members. Further, our findings also supplement earlier research on intergroup emotion recognition (e.g., Elfenbein & Ambady, 2002; Elfenbein et al., 2007; Elfenbein, 2013) showing that there are subtle differences in recognition of emotions across groups and cultures, that may be due to cultural dialects (Elfenbein, 2013), or to different associations between emotions and group membership (e.g., Bijlstra et al., 2010; van der Schalk et al., 2011). The present research demonstrates differences in the interpretation of intergroup emotions in posed and standardized (i.e., comparable) stimuli (ADFES; van der Schalk et al., 2011). Misinterpretations of emotions across groups may thus even occur when differences in expressions are minimized or nonexistent, pointing to biases in intergroup emotion perception (Elfenbein, 2013). In line with this reasoning, research on emotional dialects as indicated by different muscle movements suggests that there are no cultural differences in expressions of embarrassment between White Canadian and Gabonese individuals (Elfenbein et al., 2007). Thus, similar to findings that indicate that White Dutch perceivers are more inclined to see anger than sadness in Arab individuals (Bijlstra et al., 2010), our findings demonstrate that the perception of emotional expressions in outgroup members can simply be incorrect. These findings point to a potential extension of the emotional dialect approach toward an emotional dialect that is not only driven by group membership and exposure to certain emotion displays, but is in fact malleable by stereotypes or status differences prevailing in the social context, too. Emotion interpretation may therefore be a

much more flexible, subjective, and biased process than previously conceptualized.

In this context, we would like to point to two related areas of research. First, a priori expectations of the perceiver are likely to result in biased and incorrect perceptions of emotions across ethnic groups, comparable to gendered attributions of sadness to presumably female crying babies and attributions of anger to presumably male crying babies (Haugh, Hoffman, & Cowan, 1980). Second, there is also a possibility that unconscious motivational processes are activated that justify perceivers' own (mis-)behavior toward another person, or reaffirms negative stereotypes about the outgroup, just for the sake of consistency. Treating outgroup members worse than ingroup members would feel legitimate if perceivers are convinced that their interpretation of the other's expression is accurate, even though it is actually incorrect. Empirical evidence for this idea can be found in research that shows that stereotypic biases influence low-level cognitive processing of out-group individuals, as indicated by a greater readiness to perceive anger in Black males by White individuals with high implicit prejudice (Hugenberg & Bodenhausen, 2003).

On a more applied level, the current findings point to potential causes for problematic interactions between Arabs and Whites, particularly in hierarchical situations such as intercultural schools contexts. Embarrassed Arab students are likely to be perceived (and therefore presumably treated) differently than White embarrassed students, because of White teachers' unjustified attributions of indifference or carelessness to Arab students. Such processes can be exacerbated by "Pygmalion in the classroom" (Rosenthal & Jacobson, 1968) effects, too, leaving little room for Arab students to convey apologetic behavior and to build or restore social relationships. Considering the dramatic increase of prejudice targeting Arabs all over Europe, the United Kingdom, and the United States, misinterpretations of emotional expressions across groups can thus have meaningful and severe consequences on an individual and structural level. The present research demonstrates that some are perceived to feel sorry, whereas others are perceived to not care, even if they signal the opposite.

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Appendix

All Static Stimuli per Study

All facial subjects are based on the Amsterdam Dynamic Facial Expression Set (ADFES).

Approach 1

S01

S02

S03

S04

S05

S06

S07

S08

(*Appendix continues*)

Study 2 and 3

Static stimuli. Same models were used for dynamic stimuli (see ADFES, van der Schalk et al., 2011) for videos. All facial subjects are based on the Amsterdam Dynamic Facial Expression Set (ADFES). Reprinted with permission.

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