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What emotional tears convey: Tearful individuals are seen as warmer, but also as less competent

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Earlier research found that the mere sight of tears promotes the willingness to provide support to the person shedding the tears. Other research, however, found that deliberate responses towards tearful persons could be more negative as well. We think this is because tears have ambivalent effects on person perception: We predicted that tearful people are seen as warmer, but also as less competent. In three studies, we asked participants (total $N = 1,042$) to form their impression of someone based on a picture. The depicted person either displayed visible tears, or the tears had been digitally removed. Tearful individuals were perceived as being warmer, but also as less competent. In Study 2, we also added a measure of perceived sadness. Seeing a tearful face increased perceived sadness, and this (partially) explained the reduction in perceived competence of the target person. There was no such indirect effect of the tear on perceived warmth via perceived sadness. Study 3 found that people would be more likely to approach a tearful person to offer help than a tearless individual. At the same time, tearful individuals would be more likely to be avoided in situations in which the observer needs assistance for an important task.

Darwin (1872) concluded that the production of emotional tears, in contrast to vocal crying and basal tears, did not serve any purpose. More recently, scholars challenged this view and proposed some important functions for emotional tears (e.g., Hasson, 2009; Provine, 2012; Trimble, 2012; Vingerhoets, 2013). These hypothesized functions of tears are in the intrapersonal and interpersonal domain. The research on the intrapersonal functions mainly focuses on the postulated cathartic effects of shedding emotional tears (Gracanin, Bylsma, & Vingerhoets, 2014; Rottenberg, Bylsma, & Vingerhoets, 2008). The current studies focus on the hypothesized interpersonal functions. More precisely, we study the possible effects of tears on the perception of and behavioural tendencies towards tearful individuals.

The display of tears generally promotes prosocial response tendencies in observers (Vingerhoets & Bylsma, 2015). For example, Hendriks and Vingerhoets (2006) found that tearful faces evoked more emotional support than other emotional expressions did.

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Vingerhoets, Van de Ven, and Van der Velden (2016) expanded on this and found that tearful individuals are perceived as more in need of help, as more friendly, and observers feel more connected to them. These perceptions were also found to explain partially why observers want to help tearful individuals.

Although tears thus generally elicit helping behaviour, there are indications that other factors also may play a crucial role in the reactions of observers. For sad faces in general (of which tears are the clearest display), observers appear to have automatic approach tendencies, but also more conscious withdrawal tendencies (Seidel, Habel, Kirschner, Gur, & Derntl, 2010). This indicates some ambivalence in how observers respond to individuals who display tears. In our current studies, we integrate research on the perception of tearful people with that of person perception in general. The main goal is to obtain a better understanding of how people perceive tearful individuals, to examine why these differences might occur, and, eventually, to get more insight into how people respond to seeing someone display tears. If the evolutionary benefit of emotional tears is to elicit help from others (Vingerhoets, 2013), it seems important to study whether and under what circumstances tears help in reaching that goal.

Theoretical framework

We will test how a tearful face is perceived based on the Stereotype Content Model (the SCM; Fiske, Cuddy, & Glick, 2007). The basic idea of SCM is that people perceive others mainly on two dimensions: warmth and competence. We predicted that a tearful person is seen as warm, but also as less competent. If someone who cries is perceived as a warm person, this likely elicits helping responses. At the same time, if someone who cries is perceived as a less competent person, this might also promote avoidance in certain situations. For example, when one needs to achieve an important task, staying away from a tearful person (because (s)he is perceived as less competent) is an understandable strategy to avoid any negative influences on one's performance.

Our prediction that someone with tears would be seen as warmer but less competent fits the recent work of Vingerhoets *et al.* (2016). They found that tears are perceived as a signal that someone is in need of help, but tears also convey that someone is agreeable (and non-aggressive). When someone encounters a person for the first time and sees him/her behave in a certain way the perception of that (temporary) state is often generalized to a more stable personality trait (the fundamental attribution bias, see Ross, 1977). In other words, when someone cries due to a specific situation in which they feel helpless, this will likely be generalized by observers to a broader inference that the tearful person is less competent in general. Vingerhoets *et al.*'s findings that a tear makes someone appear as agreeable and non-aggressive makes it likely that they are evaluated as being warmer persons according to the SCM (Fiske *et al.*, 2007).

Our prediction that a target person displaying tears will be seen as more warm, but less competent is also consistent with the observations by Seidel *et al.* (2010). These authors found that sad faces elicit automatic approach tendencies, but at the same time also more conscious withdrawal or active avoidance. The SCM not only considers warmth and competence as the two key dimensions of perception, but also postulates that warmth is the primary one and that 'warmth is judged before competence' (Cuddy, Fiske, & Glick, 2008, p. 89). The primacy of warmth (as a positive trait) may explain why a tearful face would initially elicit automatic approach tendencies. The secondary, perhaps more conscious, evaluation of competence (as a negative trait) may create more ambivalent responses. As the evaluation of competence is slower than that of warmth, this might help

explain why the more deliberate (slower) responses towards crying were more ambivalent in Seidel *et al.*

Other work already hints at the possibility that someone who displays tears is seen as less competent. However, and crucially, this work lacks a good control condition to isolate the effect of a tear from other possible effects. For example, Fischer, Eagly, and Oosterwijk (2013) evaluated whether people responded differently to a tearful male or female (and whether the effect of gender interacted with the situation in which someone cried). This study revealed (1) that people responded more negatively when someone cried in a work setting than in another setting and (2) that males who cried in a work setting were seen as more emotional and less competent. Without a non-teared control condition, we cannot yet conclude what the effect of tears is on perceived competence.

Zawadzki, Warner, and Shields (2013) seemingly found that displaying tears did not affect perceived competence. In their study, participants read a textual description of a person displaying tears after having received sad news ('The sides of his lips turned downward and his eyes watered') or a person who kept a neutral face after the sad news ('his faced made little movement and he stared blankly'). Subsequently, participants were asked to imagine that the target person gave a good speech about children and poverty and to rate the perceived competence of the target person. We have two reasons why we think our studies are important to add to this prior work. First, it is unclear how participants imagined someone looking neutral and blank after hearing sad news (e.g., perhaps they are seen as being disinterested or unresponsive). This might colour the response in comparison with someone who cries. We feel that using identical pictures (with visible tears and with the tears digitally removed) allows for the best – and a more strict – comparison for the effect the tears itself have. Second, in Zawadzki *et al.*'s study, the performance evaluation was performed after participants read about a good performance by the target person. As the performance was the same across conditions, it is perhaps not surprising that there were no differences in perceived competence of the person. As we are interested in general person perception, we think that measuring perceived competence at the moment someone displays a tear would be the best way to get the most unbiased response of how the display of tears may actually affect person perception.

The current studies

To summarize, our aim was to investigate how people perceive tearful individuals. Combining work on the SCM and work on the effects of tears, we predicted that tearful criers are perceived as more warm, but also as less competent. Furthermore, we hypothesized that this would translate into helping behaviour: People will generally have a tendency to help those who display tears, but in situations in which the observers' performance is at stake we expected people to avoid them. We expected this because tearful individuals are thought to be less competent and thus less likely to have a positive effect on performance.

To evaluate these ideas, Study 1 examined whether the same individuals, when tearful, are perceived as warmer but less competent (in comparison to a tearless control condition). To adequately evaluate the effect of the shedding of tears on person perception, we let participants rate the same picture of an individual with visible tears and with the tears digitally removed as a control condition. Study 2 adds to this (1) using a between-subjects design to prevent possible biases from the within design used in the first study and (2) including a measure of perceived sadness. This latter addition allows us to test whether the effect of the tear on perceived warmth and competence is

due to the tears making individuals appear more sad, or whether the effect of person perception is independent of perceived sadness. Finally, Study 3 examined whether the perceived warmth and competence of a tearful individual influence whether the observer will also approach the crier. More specifically, we anticipated that in a work setting, the perceived warmth of a crier would increase behaviour tendencies to approach the person whereas the perceived incompetence will reduce behavioural intentions to approach those who display tears. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in all studies.[1]

Note that we did not expect that the effects on perceived warmth and competence due to the display of tears would be different for male or female targets. Although Fischer *et al.* (2013), for example, found that male targets who cried in a work setting were evaluated more negatively than female targets were, Vingerhoets *et al.* (2016) found effects of someone displaying tears on perceived helplessness and friendliness for both male and female targets. In the first two studies, we always include tearful male and female targets, to further examine the role target gender plays in the effect tears have on person perception.

STUDY 1

Study 1 employed a within-subject design in which participants provided their first impressions of depicted individuals with respect to the warmth and competence dimensions. Participants did this for ten pictures of tearful individuals and for the same 10 pictures with the tears digitally removed. This study approach provides a clear and conservative baseline for the evaluation of the effect of tears.

Method

Participants were 172 Dutch psychology students who received course credits for participating in a series of studies, of which this one was part (35m, 136f, one unknown, $M_{age} = 19.68$, $SD = 2.15$). The sample size was determined based on a power analysis for another study, but this number is adequate for a within-subjects test as it can detect effects sizes of $d \geq 0.20$ with more than 80% power.

Participants saw 20 pictures in a random order, one at a time. Their task was to evaluate each person depicted on the picture on personality traits. The pictures were from the set also used by Vingerhoets *et al.* (2016), which were taken by Marco Anelli in his excellent series 'portrait in the presence of Marina Abrahamović' (http://www.marcoanelli.com/portraits-in-the-presence-of-marina-abramovic/). These portraits were taken of visitors of Marina Abrahamović's performance at the Museum of Modern Art in New York in 2010. Vingerhoets *et al.* (2016) selected 20 of those pictures on which the depicted person had moist eyes or a tear rolling over a cheek. Although we have no data on how the people actually felt during this performance, it seems likely that they felt moved (or *kama muta* as this experienced has recently been called, Seibt, Schubert, Zickfeld, & Fiske, 2015). For our purposes, since we are interested in the effect of a tear on the first impression of personality traits, the reason for crying was not important (although Study 2 verifies that these faces are mainly seen as sad faces).

The 20 pictures represented five men and five women, each with the original photograph (displaying tears) and a version with the tears digitally removed. The

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[1] *Study materials and data can be found at http://hdl.handle.net/10411/20818.*

differences between the two pictures were quite subtle. We realize that a within-subjects design has its strengths but also some weaknesses, and in studies 2 and 3, we will use a between-subjects design to complement this study.

The warmth and competence dimensions were measured with items from Fiske, Cuddy, Glick, and Xu (2002) on a 7-point scale labelled with opposite terms. For perceived warmth, the four items were cold/warm, hypocritical/sincere, unfriendly/friendly, and unpleasant/nice. The four competence items were incompetent/competent, insecure/self-assured, incapable/capable, and clumsy/skilled. Reliability was good: For each possible person/trait combination (20 pictures with two traits each), Cronbach α's varied between .70 and .93, with a mean reliability of .86.

Results and discussion

We conducted 2×2 within-subjects ANOVAs, with the manipulation (with/without tears) and target gender (male/female) as factors for both warmth and competence separately. Due to some missing values, these full 2×2 models included 165 participants (out of 172) for the warmth ratings and 160 participants for the competence ratings. Depending on the analysis, the sample sizes vary slightly because of this. Descriptive statistics are summarized in Table 1.

Effect of tears on perceived warmth

There was a main effect of target gender, in that the average female target was seen as warmer than the average male target, $F(1, 164) = 40.66, p < .001, \eta_p^2 = .20$ (see Table 1 for details). Most importantly, we found the expected effect that when someone displayed a tear, they were perceived as warmer than when the tears had been digitally removed, $F(1, 164) = 148.89, p < .001, \eta_p^2 = .48$. There was no interaction between the presence and the absence of a tear with target gender, $F(1, 164) = 0.02, p = .883, \eta_p^2 = .00$.

Effect of tears on perceived competence

A main effect of target gender existed, in that the average male target was seen as more competent than the average female target, $F(1, 159) = 63.70, p < .001, \eta_p^2 = .29$ (see Table 1 for details). Most importantly, we found the expected effect that tearful

Table 1. Results of Study 1

	Without tear M (SD)	With tear M (SD)	t	p	d
Perceived warmth					
Men	3.14 (0.68)	3.72 (0.62)	11.34	<.001	0.87
Women	3.42 (0.67)	4.00 (0.71)	10.74	<.001	0.83
Total	3.28 (0.59)	3.87 (0.59)	12.20	<.001	0.95
Perceived competence					
Men	3.89 (0.59)	3.55 (0.65)	6.57	<.001	0.51
Women	3.49 (0.58)	3.26 (0.70)	4.49	<.001	0.35
Total	3.68 (0.51)	3.39 (0.61)	5.98	<.001	0.47

Note. Scales scored from 0 to 6.

individuals were perceived as less competent than when the tear had been digitally removed, $F(1, 159) = 35.76$, $p < .001$, $\eta_p^2 = .18$. There was also an interaction between the presence and the absence of a tear with target gender, $F(1, 159) = 6.64$, $p = .011$, $\eta_p^2 = .04$. Table 1 shows that for both male and female targets, tears reduced perceived competence, but the interaction indicates that the effect was somewhat stronger for male than for female targets.

In conclusion, using a within-subjects design we found that visible tears strongly affected how an individual is perceived by others regarding warmth and competence. More precisely, tears make someone look warmer, but also less competent. These effects existed for both male and female targets, but the size of the reduction in perceived competence was stronger for male than for female targets.

STUDY 2

Study 2 expands on the findings of Study 1 by testing the effect of a tear on perceived warmth and competence using a between-subjects design. Participants saw either a male or a female target, with or without tears. This depicted person was rated again on both dimensions of the SCM. New was the addition of a measure of perceived sadness, to test whether the display of a tear affects person perception because the tear made someone appear more sad, or whether the effect of a tear remained when controlling for perceived sadness. Prior work showed that sad persons are seen as less competent (e.g., Fischer, 1993; Tiedens, 2001; Tiedens, Elsworth, & Mesquita, 2000). It is therefore an important question whether the effect of the tears on competence results directly from an increase in perceived sadness due to the tear (see, e.g., Vingerhoets *et al.*, 2016), or whether tears have an effect that is independent of perceived sadness.

Method

Participants

Participants were mTurk workers who were recruited for a short academic survey (1.5 min) on person perception for $0.18. The study includes 653 participants[2] (339m, 312f, two self-identified gender as 'other'); $M_{\text{age}} = 34.33$ years, $SD = 10.38$, range 18–72. As some participants left one or more questions unanswered, sample sizes vary between 643 and 653 participants for analyses.

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[2] *We initially aimed for 320 participants, as that would give us close to 90% power to detect the effect on perceived competence we found in Study 1 for the female targets (which was the smallest effect we found in that study). Unfortunately, our mTurk completion code was apparently shared among some mTurk workers and we had only 253 participants who completed the survey, while 320 claimed the reward. As we did not meet our initial goal, we decided to recruit more participants. To be on the safe side, we decided to add another group of 450 participants. We chose to add a large group for two reasons: (1) we were unsure how many of the new participants had already also been in our first sample (we could identify them via their IP address) and (2) we were unsure whether we would again have an issue with the sharing of completion codes.*

In the end, we got 451 participants instead of the 450 we aimed for with this second set. In the first sample, we had already paid the first 50 mTurk participants almost immediately after they completed the study. This might have increased the chance of code sharing. In the second sample, we waited with paying them until the full study was completed. We also asked participants for their mTurk worker ID in the survey. In this second sample, the number of completed surveys and codes entered in mTurk were about the same, indicating that these two changes helped to prevent code sharing.

Of the total 704 responses, there were 51 participants for whom the IP address was the same as that from an earlier participant. In those cases, we only used the first response to create a proper between-subjects design. Note that if we look at the samples separately, we found significant effects of the presence of a tear on perceived warmth and competence in both samples.

Procedure and design

Participants were asked to form an impression of a person based on a picture. We used one male target and one female target from Study 1. Participants were either shown one of those original pictures with visible tears (tear condition, male target $N = 155$, female target $N = 181$) or the version with the tears digitally removed (no tear condition, male target $N = 150$, female target $N = 167$).

All questions were measured on a scale from 0 (not at all) to 6 (very much so). The dimensions of the SCM were measured with items of Fiske *et al.* (2002) for perceived warmth (warm, nice, friendly, sincere, $\alpha = .93$) and perceived competence (competent, self-assured, skilled, capable, $\alpha = .91$).

The perceived sadness of the person was measured with the item 'How sad does this person appear to you?'. As a further check whether people perceived the person on the picture as being sad, we asked people to indicate which, if any, emotion they thought the depicted person experienced. We presented them with the seven basic emotions sadness, anger, joy, disgust, fear, and surprise (see Ekman, 1992), as well as an option to indicate they saw no emotion and an option to give another response in an open text box. Answer options were provided in a random order. Participants could select multiple emotions if they felt more than one applied to the picture.

Results and discussion

For consistency of comparing the results across the studies, the results of Study 2 are presented in a similar way as we did for the other studies (with paired *t*-tests) in Table 2.

Effect of tears on perceived sadness

First, we checked the effect the display of a tear had on perceived sadness in a 2 (tear: no tear vs. tear) × 2 (target gender: male vs. female) ANOVA. We expected that faces with the tears

Table 2. Results of Study 2

	Without tear M (SD)	With tear M (SD)	t	p	d
Perceived warmth					
Male picture	3.34 (1.05)	4.06 (1.23)	5.49	<.001	0.63
Female picture	3.06 (1.30)	3.91 (1.23)	6.25	<.001	0.68
Total	3.19 (1.19)	3.98 (1.23)	8.26	<.001	0.65
Perceived competence					
Male picture	4.26 (0.90)	3.78 (1.13)	4.09	<.001	0.47
Female picture	3.28 (1.16)	3.02 (1.15)	2.09	.038	0.22
Total	3.74 (1.15)	3.37 (1.20)	4.03	<.001	0.32
Perceived sadness					
Male picture	2.24 (1.51)	3.84 (1.66)	8.80	<.001	1.01
Female picture	3.93 (1.49)	4.92 (1.43)	6.30	<.001	0.68
Total	3.13 (1.72)	4.42 (1.63)	9.84	<.001	0.77

Note. Scales from 0 to 6. There are main effects of target gender on all three dependent variables. Only for perceived sadness there is an interaction of the presence of the tear with target gender. For details, see the results section of Study 2.

digitally removed would be perceived as quite sad, but that they would be seen as more sad when tears were visible. On a scale from 0 (not sad at all) to 6 (very sad), pictures without a tear were evaluated as moderately sad ($M = 3.13$, $SD = 1.72$). When the tear was present, the person was seen as more sad, $M = 4.42$, $SD = 1.63$; $F(1, 647) = 117.32$, $p < .001$, $\eta_p^2 = .15$. There was also a target gender effect, in that the female target was seen as more sad ($M = 4.44$, $SD = 1.54$) than the male target was, $M = 3.05$, $SD = 1.77$; $F(1, 647) = 134.01$, $p < .001$, $\eta_p^2 = .17$. There was also a small interaction effect, $F(1, 647) = 6.51$, $p = .011$, $\eta_p^2 = .01$, showing that the increase in perceived sadness due to the tear was stronger for the male than the female target. Note that with only one male and one female target in this between-subjects design, we do not want to focus too much on this gender difference, as it might be other characteristics of the person than gender itself that drove this effect. Table 2 shows that the effect of tears on perceived sadness was highly significant for both the male and the female targets; when tears were visible, both the male and female targets were seen as sadder than when no tear was present.

For the question where respondents could indicate which emotion the person on the picture was experiencing, we also see that both the faces with and without the tear were seen as predominantly sad. When no tear was present, 65.9% of participants indicated that they thought the person was sad; when a tear was present, this increased to 89.9%, $\chi^2(1, N = 653) = 54.98$, $p < .001$. Although there is a difference, even in the no tear condition sadness was chosen as the most likely emotion that was experienced (with 'no emotion' as the second most likely category selected by 31.9% of participants). This indicates that our control condition was seen as a quite sad face, but that visible tears serve as a powerful additional signal of sadness.

Effect of tears on perceived warmth

Just like for perceived sadness, we conducted a 2 (tear: no tear vs. tear) × 2 (target gender: male vs. female) ANOVA with perceived warmth of the person as the dependent variable. There was a significant effect of target gender, $F(1, 645) = 4.88$, $p = .028$, $\eta_p^2 = .01$, in that the male target in this sample was seen as slightly more warm ($M = 3.70$, $SD = 1.20$) than the female target ($M = 3.51$, $SD = 1.33$). There was no interaction of target gender with the presence or absence of a tear, $F(1, 645) = 0.48$, $p = .489$, $\eta_p^2 = .00$. With only one target person, we warn against over-interpreting this as a general gender effect. Most importantly, we again find the main effect of the presence of a tear, $F(1, 645) = 68.25$, $p < .001$, $\eta_p^2 = .10$. When the person was tearful, (s)he was seen as more warm ($M = 3.98$, $SD = 1.23$) than when (s)he did not display a tear ($M = 3.19$, $SD = 1.19$).

We thus replicated the within-subjects finding of Study 1 that tearful individuals are perceived as being warmer than tearless individuals. An additional research question for this study was whether this increase in perceived warmth is (partly) due to the tear being a signal of sadness. To test this, we conducted a mediation analysis, testing whether the effect of the manipulation (0 = no tear, 1 = tear) on perceived warmth was mediated by perceived sadness (when controlling for target gender). Figure 1 displays the results of the mediation analysis, conducted via the bootstrapping method (Preacher & Hayes, 2008), with 10,000 samples and bias-corrected intervals. The effect of the tears on perceived warmth remains highly significant when perceived sadness is added as a possible mediator. The indirect effect is not significant (95% CI −0.01 to 0.16). In other words, visible tears increase the perceived warmth of a person, but *not* because of the increase in perceived sadness.
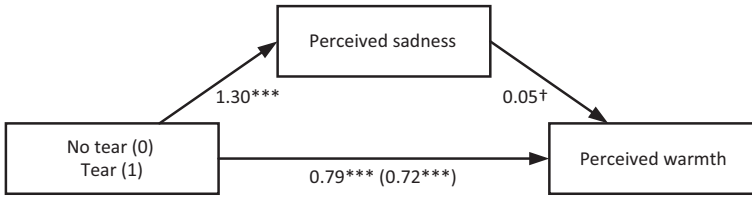
Figure 1. Mediation analysis of the presence or absence of a tear on perceived warmth via perceived sadness in Study 2. *Note.* Numbers reflect unstandardized regression weights. Effect of the tear manipulation on perceived warmth without parentheses is the direct effect, and within parentheses is the effect when controlling for perceived sadness. $^{\dagger}p < .10$, $***p < .001$. $N = 647$.

Effect of tears on perceived competence

We conducted a 2 (tear: no tear vs. tear) × 2 (target gender: male vs. female) ANOVA with perceived competence of the person as the dependent variable. We found a significant effect of target gender, $F(1, 646) = 100.34, p < .001, \eta_p^2 = .13$, in that the male target was seen as more competent ($M = 4.01$, $SD = 1.05$) than the female target ($M = 3.15$, $SD = 1.16$). There was no interaction of target gender with the presence or absence of a tear, $F(1, 646) = 1.63, p = .202, \eta_p^2 = .00$. Most importantly, we again demonstrated the main effect of tears, $F(1, 646) = 18.39, p < .001, \eta_p^2 = .03$. When the depicted person was tearful, (s)he was seen as less competent ($M = 3.37$, $SD = 1.20$) than when (s)he did not display tears ($M = 3.74$, $SD = 1.15$).

We replicated the within-subjects finding of Study 1 that tears have a negative impact on someone's perceived competence. An additional research question for this study was whether this decrease in perceived competence is (partly) due to the tear being a signal of sadness. A mediation analysis tested whether the effect of the manipulation (0 = no tear, 1 = tear) on perceived competence was mediated by perceived sadness (again when controlling for target gender). Figure 2 shows that the effect of the tears on perceived competence is partially mediated via perceived sadness, as confirmed by a significant indirect effect (95% CI -0.19 to -0.04). Still, even when controlling for perceived sadness, a significant effect of the tear on perceived competence remains. In other words, when people display tears, people regard that person as less competent, partially because the tear makes him/her appear sadder (and being sad is linked with being seen as less competent), but also partially for other reasons. This work is consistent with previous work that shows that perceived sadness of a target person negatively affect perceived competence, but also adds that tears have an effect that goes above and beyond the effect that tears have on perceived sadness.
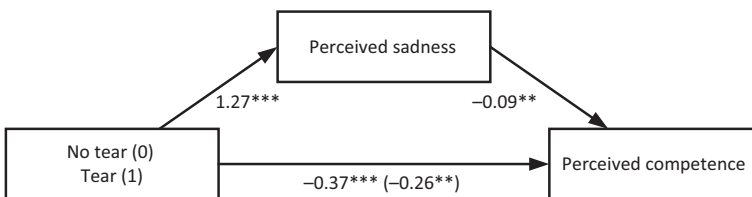

Figure 2. Mediation analysis of the presence or absence of a tear on perceived competence via perceived sadness in Study 2. *Note.* Numbers reflect unstandardized regression weights. Effect of the tear manipulation on perceived competence without parentheses is the direct effect, and within parentheses is the effect when controlling for perceived sadness. $**p < .01$, $***p < .001$. $N = 648$.

STUDY 3

Study 3 expands on the findings of studies 1 and 2 by adding a measure of behavioural intentions to see whether the perception of a tearful individual influences how people would likely interact with them. Seidel *et al.* (2010) reasoned that the automatic approach tendency towards someone who cries, but the more ambivalent deliberate reaction towards them, might have to do with an evaluation of whether helping the tearful person causes distress in oneself. We, therefore, examined whether perceived warmth and competence predicted the behavioural tendencies of offering help and avoiding tearful individuals if assistance of another person is needed to accomplish an important task. We expected that seeing someone display tears would increase the perceived warmth of that person, which in turn would facilitate the willingness to approach the person to provide support (and that the attributed lower competence would not affect the willingness to provide support). We further anticipated that seeing someone display tears would decrease the perceived competence of that individual, which would make it more likely that people would avoid them for joint work (whereas we expected no effect of perceived warmth on this measure).

Method

Participants

Participants were students who took part in an hour-long session in our laboratory. It contained multiple studies and participants received 8 euros as compensation. We aimed to include 200 participants, which would give us 80% power to detect a correlation of >.20 between the person perception and behavioural intentions (it also gives us about 80% power to detect the average effect of a tear on perceived competence for studies 1 and 2). We eventually had 217 participants (47m, 170f; M_{age} = 20.00 year, SD = 2.07). Because some participants left one or more questions unanswered, sample sizes vary between 194 and 217 for analyses.

Procedure and design

Participants were asked to imagine that they arrived at work and came across the depicted individual. This was a picture of the female used in both studies 1 and 2, either with visible tears (tear condition, N = 103) or the version with the tears digitally removed (no tear condition, N = 114). By choosing a woman as a target person who cries, we created a conservative test as the findings of Fischer *et al.* (2013) suggested that any effects would likely be stronger for male than for female criers (which we also found in Study 1, but not in Study 2).

All questions were measured on a scale from 0 (not at all) to 6 (very much so). The dimensions of the SCM were again measured with the items of Fiske *et al.* (2002) for perceived warmth (warm, nice, friendly, sincere, α = .86) and perceived competence (competent, self-assured, skilled, capable, α = .86). The willingness to approach the person to help was measured with 'If you would arrive at work and meet this person, would you talk to the person to find out whether there was something you could do for them?', and the question on willingness to work with the depicted person was 'If you would arrive at work, and your manager asks you to finish an important project that afternoon, would you like to do that with this person?'.

Table 3. Results of Study 3

	Without tear M (SD)	With tear M (SD)	t	p	d
Perceived warmth	2.97 (1.01)	3.72 (0.86)	5.78	<.001	0.80
Perceived competence	2.96 (1.10)	2.36 (0.88)	4.41	<.001	0.60
Want to approach	2.84 (1.44)	3.72 (1.51)	4.31	<.001	0.60
Want to work with	2.64 (1.16)	2.15 (1.25)	2.88	.004	0.41

Note. Scales from 0 to 6.

Results and discussion

Table 3 shows that we replicated the findings of studies 1 and 2 that participants rated the tearful woman as warmer but less competent, compared with participants who saw the same picture with the tears digitally removed. In addition, participants reportedly wanted to approach the tearful woman more to find out whether they could help but were less willing to work with her on an important project.

To evaluate whether the increased perceived warmth due to the tears promoted the willingness to help, while the decreased perceived competence negatively affected the willingness to work together on an important project with the tearful person, we conducted mediation analyses. First, we tested whether the effect of the manipulation (0 = no tear, 1 = tear) on the willingness to help was mediated by perceived warmth and competence. Figure 3 displays the results of the mediation analysis (following the same method as in Study 2). The effect of the tears on the willingness to provide help is reduced, when warmth and competence were added as possible mediators. Note that only perceived warmth mediated this effect (with an indirect effect with a 95% CI of 0.18–0.62), while there was no significant indirect effect via perceived competence (95% CI −0.06 to 0.21). We thus confirm the earlier findings of Vingerhoets *et al.* (2016) that people are more willing to help tearful individuals, at least partially, because they are perceived as more warm and friendly (although perceived helplessness and the feeling of being connected with the crier were more important, see Vingerhoets *et al.*).

Subsequently, we conducted a similar analysis, but now with the willingness to work with the target person as the dependent variable (see Figure 4). This analysis revealed that
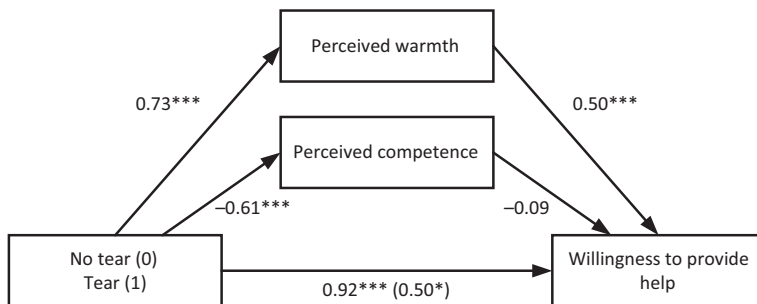

Figure 3. Mediation analysis of the presence or absence of a tear on the willingness to provide help in Study 3. *Note.* Numbers reflect unstandardized regression weights. Effect of the tear manipulation on the willingness to approach for help without parentheses is the direct effect, and within parentheses is the effect when controlling for perceived warmth and competence. *$p < .05$, ***$p < .001$. $N = 205$.
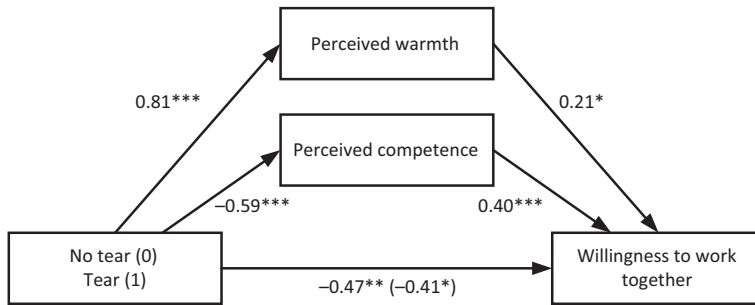
Figure 4. Mediation analysis of the presence or absence of a tear on the willingness to work together in Study 3. *Note.* Numbers reflect unstandardized regression weights. Effect of the tear manipulation on the willingness to work together without parentheses is the direct effect, and within parentheses is the effect when controlling for perceived warmth and competence. *$p < .05$, **$p < .01$, ***$p < .001$. $N = 200$ (the sample size is slightly lower than in the analysis presented in Figure 3 due to missing values).

visible tears decreased the willingness to work with this person and that this was mediated by both perceived warmth (indirect effect: 95% CI 0.03–0.36) and perceived competence (indirect effect: 95% CI −0.40 to −0.12). Note that the directions of these effects are opposite: The tears increased perceived warmth, which *in*creased the willingness to work with the person. At the same time, a tear strongly *de*creased perceived competence and thereby the willingness to collaborate with the person. The range of these confidence intervals of the indirect effects does not overlap, indicating a stronger indirect effect via perceived competence. However, a sizeable effect remained, even when controlling for perceived warmth and competence.

GENERAL DISCUSSION

In three studies, we examined how tearful individuals are perceived. We found that visible tears make one appear warmer, but also less competent (studies 1–3). Tears are a powerful signal of sadness, and the effect of a tear on perceived competence is partly due to the perception that someone who cries is sad (Study 2). Study 2 also finds that perceived sadness did not affect perceived warmth, so the effect that a tear makes someone appear as warmer is independent of the perceived sadness of the person.

In Study 3, we further examined how seeing a female display tears might influence the interactions with her. The earlier idea was that tears signal helplessness and that people, therefore, approach tearful individual to offer help and comfort (Hendriks & Vingerhoets, 2006). The current findings confirm this, as the increase in perceived warmth due to the tears increased the behavioural intention to offer help. At the same time, those who shed tears are perceived as less competent. In situations in which observers themselves needed to perform well, their behavioural intentions indicated that they seem reluctant to approach those tearful co-workers. The reduction in perceived competence is partially responsible for the decreased intention to approach a tearful individual to collaborate on a joint project. A plausible additional explanation (besides the reduced perceived competence) of why people do not want to work with a tearful person is that people might want to spare the individual and provide room for emotional recovery. Still, if this leads to active neglecting or ignoring of the tearful person, it does not satisfy the need for support that the tearful individual has.

The current studies add an important piece to the puzzle on how people perceive those who display tears and how they subsequently respond to them. Whereas previous work on the perception of tearful persons mainly focused on moderators such as gender differences (Fischer *et al.*, 2013), full-blown crying versus more restrained crying (Zawadzki *et al.*, 2013), comparing anger to sadness (Tiedens, 2001; Warner & Shields, 2007), or crying or sobbing after winning or losing (Wong, Steinfeldt, LaFollette, & Tsao, 2011), these studies missed a good control condition to really identify the effect tears have. Only Zawadzki *et al.* employed a control condition, but they used (1) a textual description of someone remaining neutral after hearing sad news, which might have effects in itself as someone could be seen as a cold person in such cases and (2) participants only evaluated the performance of a person after a description of a performance that was the same across conditions (which might eliminate any impressions that were initially formed by the tears).

Given Darwin's (1872) claim that emotional tears serve no function, the current finding that they influence person perception (and subsequent behavioural intentions) is an important finding. We think our current control condition, the same picture but with the tears digitally removed is ideally suited to isolate the effect of a visible tear. Furthermore, it gives us insight into *why* tears have such an effect: For perceived competence, this is partially the case because the tears increased perceived sadness, which in turn led to a reduction in perceived competence (see also Tiedens, 2001). Our work corroborates these earlier findings on the effect of perceived sadness on perceived competence. At the same time, a sizeable part of the effect of a tear on perceived competence still remained unexplained when controlling for perceived sadness. For perceived warmth, the effect was independent of the perceived sadness. Future research could help to identify how tears affect person perception over and above the effect of perceived sadness.

Earlier research showed mixed findings on whether male and female targets are evaluated differently when displaying tears. For example, Fischer *et al.* (2013) found that male targets who cried were seen as less competent compared with female targets. Vingerhoets *et al.* (2016), however, found no different effects for male and female targets of the presence or absence of a tear, for perceived friendliness or sadness. The present studies continue these mixed findings. In Study 1, there was no gender difference in the effect of a tear on perceived warmth, but there was one for perceived competence (i.e., tears reduced competence more for male than for female targets). However, in Study 2 we did not find this effect (nor for warmth). We did find an effect of perceived sadness due to a tear in Study 2; compared with the tearless control condition, male tears led to a greater increase in perceived sadness than female tears did. Note that in Study 1, we had used five male and five female targets as stimuli, but Study 2 used only one male target and one female target. The gender effects of Study 1 thus seem more likely to generalize because of the greater diversity in the stimulus set, but in general, we think that the inconsistent gender effects only point to the importance of further investigating when and why possible differences arise. Although there is thus some support for the idea that responses towards tearful men and women (sometimes) differ, our results show that there is also a basic effect that for both males and females someone who is tearful is seen as warmer and as less competent.

The here presented studies are not without limitations. We used self-report and behavioural intentions as our main measures, and whether the intentions translate into actual behaviour is a question for further research. We also did not take into account the reason for the tears, relying on pictures of someone who cries. Perhaps, if the participants

knew that the person crying in the work setting produced her tears because she just received bad news, for example, that her child was injured in an accident or any other strong emotional situation that justifies tears, the results would maybe be very different. Consequently, it makes sense to vary systematically the reasons why people shed tears in the work setting (e.g., because of a serious personal event, in reaction to negative feedback on their performance, because of workload, etc.; see Fischer *et al.*, 2013 for an example). However, this lack of reasons for the tears is at the same time an advantage of our studies, as we wanted to examine the general tendency of people to respond to tearful individuals.

To summarize, we feel that the current studies contribute another piece to the big puzzle of the variety in reactions of observers to tearful individuals; especially, the link with Fiske *et al.*'s (2007) model of stereotypes provides a solid theoretical base for further exploration: Tears might help an individual to elicit support and succour by being seen as a more warm person, but the reduction in perceived competence at the same time may trigger an avoidance response in other situations (e.g., when the observer needs assistance). The present findings are helpful to design new studies to fathom the under-researched and unique human behaviour of producing emotional tears.

Acknowledgements

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