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The interpersonal effects of emotional tears on person perception and intention to provide support.

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Master in Social and Organizational Psychology,

Supervisor:

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CIS-IUL - Centro de Investigação e de Intervenção Social (ECSH)

December 2020



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E HUMANAS

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Resumo

O choro emocional tem sido proposto como tendo uma função comunicativa e a investigação tem mostrado que os observadores reagem com uma maior inclinação para ajudar rostos lacrimejantes. Este estudo surge da importância de analisar o impacto social da lágrima, acrescentando potenciais variáveis moderadoras, que sobre atributos do alvo (sexo) quer de contexto (e.g., valência), de modo a investigar em que medida a presença de lágrimas no rosto de uma pessoa afeta o julgamento da pessoa visada (perceção de traços) e a intenção de ajudar essa pessoa. Para tal foi recolhida uma amostra de 156 participantes (96 do sexo feminino, 56 do sexo masculino, sendo que quatro não responderam a esta questão), e os participantes foram expostos a quatro imagens de rostos de pessoas (que variavam no género), acompanhadas de uma breve descrição. Em metade desses casos, os rostos apresentavam imagens de lágrimas acrescentadas digitalmente. Após exposição a cada uma das quatro fotos e descrição do respetivo contexto, os participantes reportaram a sua perceção dos atributos do alvo (amabilidade e competência) e a intenção de ajudar. Os resultados evidenciaram o efeito da presença de lágrima em todas as variáveis supracitas. Verificou-se assim que os participantes manifestaram maior intenção de ajudar um alvo que apresenta lágrimas do que alvos sem a presença de lágrimas. Verificou-se ainda um efeito da valência contextual da ação que acompanhava a vinheta na intenção de suporte, sugerindo maior intenção de suporte em situações positivas e negativas do que em situações neutras. Na avaliação dos traços do alvo, constatou-se que os alvos que apresentavam lágrimas eram percebidos como tendo traços mais calorosos ou amáveis e menos competentes, no entanto essa avaliação mostrou-se dependente da valência do contexto. O presente estudo vai ao encontro de investigação prévia ao evidenciar a importância social da lágrima, quer na avaliação de dimensões consideradas universais de julgamento social como a competência e amabilidade, quer na intenção de suporte social. No entanto, destaca ainda o importante papel do contexto social em que a presença da lágrima é exibida, principalmente em termos da perceção de traços.

Palavras-chave: Lágrima; Amabilidade; Competência; Intenção de Suporte; Psicologia Social; Perceção Social.

Abstract

Emotional crying seems to have a communicative function, and observers tend to respond with help to tearful faces. This study arises from the importance of analyzing the social impact of the tear. It investigates to what extent the presence of tears affects the judgment of the target person (perception of traits such as warmth and competence) and the intention to help, adding potential moderating variables, such as the gender of the perceiver, the attributes of the target (sex), and the context (e.g., valence and social). A sample of 156 participants (96 females, 56 males, four of whom did not answer this question), were exposed to four images of people's faces (which varied in gender), accompanied by a brief description of the situation. In half of these cases, the faces showed tears, added digitally. Participants were asked to report their perception of the target's attributes (warmth and competence) and their intention to help. The results showed the effect of the presence of tears in all the dependent variables. Participants expressed a higher intention of helping a target with tears than targets no showing tears. There was also an effect of the valence of the situation in the intention of support, suggesting a greater intention of support a target in positive and negative situations than in neutral situations. It was found that targets that had tears were perceived as warmer and less competent, although this effect was depended on the valence of the context. This study is in line with previous research that highlight the social importance of tears.

Keywords: Tears, Warmth, Competence, Intention to Support, Social Psychology, Social Perception and Cognition

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Introduction

Crying is an intriguing form of communication, occurring predominantly in situations characterized by separation, loss, and helplessness, as well as being overwhelmed by strong emotions (Vingerhoets, 2013 as cited in Gračanin, Bylsma & Vingerhoets, 2014) and some studies propose that this phenomenon acts within a communicative behavior, as a signal of distress or a bonding facilitator (Gračanin, Krahmer, Rinck, & Vingerhoets, 2018; Van Hemert, van de Vijver, & Vingerhoets, 2011).

Crying is one of the first nonverbal communications made by humans. Babies need to cry, as they are vulnerable to almost everything for a considerable amount of time, and they depend on their precursors the most, of all species. By that means, it's essential to have a tool that elicits the need for care, but also love and protection from others (Gračanin et al., 2018). But as babies become more autonomous and can move on their own instead of needing for the caretaker to move towards the child, the need for a vocal signaling becomes less necessary, and so, the vocal crying gradually subsides, being replaced in adulthood by a more visual, and less vocal cry (Gračanin et al., 2018).

The power of tears has been clearly demonstrated in several studies that show that when the study participants were exposed to crying individuals with the tears being digitally removed, the identification of states like sadness was harder, as the presence of tears facilitates the recognition of sadness and a strong need for support (Balsters, Krahmer, Swerts & Vingerhoets., 2013 cited in Gračanin et al., 2018).

The emotional crying is described as a complex secretomotor phenomenon in which tears are shed from the lacrimal apparatus, regardless of the absence of any irritation in the ocular structures, and often accompanied by an alteration in the muscles responsible for facial expressions, as well as vocalizations, and, in some cases sobbing (Patel, 1993, as cited in Gračanin et al., 2014). Note that the behavior of crying differs from the ones observed in species other than humans, where it is replaced by the distress (or separation) call, almost exclusive to infant mammals and birds (Gračanin et al., 2018). Babies need to cry to communicate, as they are vulnerable to almost everything for a considerable amount of time, and they depend on their precursors the most, of all species. By that means, it's essential to have a tool that elicits the need for care, but also love and protection from others. (Gračanin et al., 2018). But as babies

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become more autonomous and can move on their own instead of needing for the caretaker to move towards the child, the need for a vocal signaling becomes less necessary, and so, the vocal aspect of crying gradually subsides, being replaced by a visual one (Gračanin et al., 2018). But why would the behavior of crying subside and evolve into adulthood?

It is argued one of the purposes of crying is intra-personal relief, by becoming a means to facilitate recovery and recall to a homeostatic state in psychology and physiology, succeeding distress or suffering, being of benefit by catharsis and emotional recovery (Balsters et al. 2013).

That intra-personal relief can be linked to stress reduction and the experience of mood enhancement and relief that follows the act of crying. Those findings, however, have been linked to empirical discrepancies depending on the applied research methodology. In retrospective studies, participants are typically asked to remember and report how they felt after the most recent crying episode, which had an overwhelming number of reports saying people felt better after crying (Rottenberg, Bylsma, & Vingerhoets, 2008). In contrast, the percentage of crying episodes that reported an association with feeling better were amongst the one third percentile (Bylsma et al., 2011 as cited in Gračanin et al., 2014).

Another hypothesis as per why emotional crying has evolved into adulthood is that emotional tears elicit succor from others, as they also function as social bonding promoters, and the relief in crying may come from the response it elicits in others, in duality of being solely an intra-personal effect driven event. And for that mean a moderation was found to better understand in what circumstances does crying help, bringing four identified moderators: a)the crier characteristics; b)the characteristics of the antecedents; c)how does the crying manifests and d)reactions of others (Gračanin et al., 2014).

The mental and physical and well-being of the crier may be improved primarily through the elicited comfort and succor (Vingerhoets et al., 2000, 2009; Hendriks et al., 2008a; Nelson, 2008 as cited in Gračanin et al., 2014), as well as a reduction of perceived aggression in others, and facilitating inter-personal conflict resolution.

Having one person present when the crying occurs (an intimate person, such as a friend, parent or a romantic partner) would make more likely to the crier to have an

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improvement of mood, whereas the presence of more than one person was associated with negative mood effects, as a larger number of other individuals might increase the likelihood that crying induces shame and embarrassment, while the presence of just one intimate makes it more likely for a response via comforting and consolatory behaviors. On the other hand, crying may be prevented if the crier deems the crying as inappropriate in a given social context or in general, via the experience of negative social emotions like shame and embarrassment (Gračanin et al. 2014).

Despite tearful individuals being evaluated as more positive, when it comes to the observers needing help, they will avoid individuals who are crying, either to avoid burdening a distressed individual with their troubles, or by having a perceived attributed weakness and lack of competence (Van de Ven, Meijs, & Vingerhoets, 2017). Illustrating therefore that tears emphasize helplessness and need for support, whilst promoting a response of empathy and social connectedness in others (Van de Ven et al., 2017). It is also known to be a complex biological response that expresses vulnerability (Hendriks & Vingerhoets, 2006; Jellesma & Vingerhoets, 2012 cited in Arriaga et al., 2019).

The receiving end of a message is also important when it comes to human interactions. And so, empathy becomes an important trait to have when it comes to perceive emotions in others, as more empathic people become more likely and more able to *place themselves in other people's shoes* (Barriga & Sullivan, 2009). It is also shown that when compared with people with low levels of empathy, people with higher levels would be more involved in altruistic behaviors, were less aggressive, and more connected to others (Jolliffe & Farrington 2007), which would reinforce the positive aspects of crying.

When it comes to social cognition, a two-dimension model draws perceived warmth and competence as two universal dimensions of human social cognition, being reliable across cultures and time (Fiske et al., 2007). As these dimensions appeared first as answers to survivability questions, regarding intent to harm, and capability of such. As for more recent studies, warmth and competence are established in social cognition as differentiators, as we differentiate people by liking (associated with warmth), and by respecting (associated with competence). In the warmth dimension, traits that relate to perceived intention include relationship development, such as friendliness, how helpful and sincere a person is, and aspects of one's morale. In contrast, the competence

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dimension mirrors traits related to perceived abilities, like intelligence, one's skill, creativity, resource deployment and efficacy. As we value intentions in others, warmth, being a predictor of the valence of interpersonal judgement (a positive or negative impression) is judged first compared to competence (which deepens how extreme that impression may be, like how positive or how negative). And those warmth judgements carry more weight in affective and behavioral reactions, as well as being a higher determiner of approach-avoidance tendencies (Fiske, 2007).

Study Goals and Hypothesis.

The goal of the current study was to explore the social impact that the presence of a tears can have in one's decision to help that person. We were interested in examining if tearful crying may act as a social bonding signal, and the interpretation of their traits. Based on previous findings, we postulated the following hypothesis:

H1: Participants will show a higher willingness to help individuals displaying tears than non-tearful ones.

H2: The response to help tearful individuals will intensify in context that are negative, compared to positive or neutral ones.

H3: Participants will perceive tearful individuals as high in warmth than non-tearful ones.

H4: Participants will perceive tearful individuals as low in competence than non-tearful ones.

Method

Participants.

Our sample included adults, with 18 years or older ($M = 38.40$, $SE = 13.70$), that knew how to read and write in Portuguese (inclusion criteria). Additional Sociodemographic characteristics can be seen in table 1. All participants were recruited through social media platforms and email and responded to the survey via the Qualtrics online platform. Data was meant to be collected online and at the Laboratório de Psicologia Social e das Organizações (LAPSO), but with the events following the first surges of the COVID pandemic in Portugal, data collection was moved entirely online.

Data was collected from 24/02/2020 to 12/03/2020. From a total of 332 participants, 181 were excluded for meeting the following exclusion criteria: i) failing to complete at least 50% of the questionnaire; ii) age below 18 years old; iii) failing the attention check (in which participants were asked to select the correct situation they were visualizing beforehand).

Table 1 Sociodemographic characteristics

Characteristic	n (%)
Gender	
Female	96 (63.16)
Male	56 (36.8)
Age group	
18 - 39 years	80 (52.98)
40 - 64 years	66 (43.71)
>65 years	5 (3.31)
Current employment status	
Student	36 (23.68)
Employed	64 (42.11)
Self-employed	27 (17.76)
Unemployed	10 (6.58)
Retired	8 (5.26)
Other	7 (4.61)
Number of children	
None	89 (58.55)
1	30 (19.74)
2	27 (17.76)
More Than 2	6 (3.95)

Note: $n=156$.

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Stimuli and Measures.

Manipulation of tears and the gender of the targets.

For the manipulation of the facial attributes of the target, we used the 2D facial databases (Ma et al., 2015) from which we have selected static neutral expressions, and tears were digitally added, resulting in the same individual with a neutral and tearful expression in the final stimuli set. The stimuli were drawn from a set of 100 pictures (20 Caucasian, 20 East Asian, 20 Latin, 20 Middle East, 20 African, composed of 50 males, 50 females) resulting in a set of 200 pictures with 100 tearful and 100 non-tearful images. Pre-tests of the study design and stimuli were made to confirm the effectiveness of the vignettes (see Zickfeld, 2018 <https://psyarxiv.com/p7s5v/>).

Situational valence.

To manipulate the valence of the situation, the faces were accompanied by positive, negative, and neutral descriptions of events.

Positive event descriptions included, for example, “being finally reunited with a loved one whom he had not seen for many years; just accepted the proposal by his romantic partner; just received an award for his outstanding performance; receiving a phone call that informed him he was finally cancer free; or receiving an unexpected gift from a close friend in a public café”.

The negative events would be described as “met his romantic partner at a café who told him that she would like to end their relationship; said his last words at the grave of his mother during the funeral service; unexpectedly saw his romantic partner at a café kissing another person; was humiliated in front of a large audience; said his goodbyes to his parents at the airport who left for a long and adventurous trip around the world”.

The neutral events were described as “bought some groceries online; took a sip of water while sitting at the kitchen table; had a green salad for lunch at home; completed a short consumer survey online; printed some documents on the printer at home; or washed some clothes at home”.

Event setting (private vs. public).

The events described above would also be differentiated by a location, which gave the event a public or private connotation. To give the event a public location, a mention of a public place would be given, such as a mall or shop, in front of a large

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crowd, in a café or restaurant, or an airport. For the action to take a private setting, some examples were “sitting at the kitchen table, or at home”.

Intention-to-support.

Participants were asked about their intention to support the target with three items: “I would be there if this person needed me”, “I would express how much i accept this person”, and “I would offer support to this person”, in which participants would choose an option within a numeric scale ranging from zero to six, from “not at all (0)” to “very much so (6)”. In our study, the internal reliability of these three items was high (Cronbach $\alpha = .85$). Therefore, these three items were averaged, with higher scores corresponding to more willingness to provide support to the target.

Competence and Warmth.

Perceived competence and warmth traits of the target were evaluated as dependent variables. Perceived competence was measured with the items “competent” and “capable”, and for perceived warmth, the items “warmth” and “friendly” were used. Based on previous studies (e.g., Zickfeld et al., 2020), the selected items were considered the best to assess warmth and competence, and the internal reliability in our study was also high (for competence $r = .80$ and Cronbach $\alpha = .89$; for warmth $r = .74$ and Cronbach $\alpha = .85$).

Additional measures.

Additional measures were included in the original study but will not be analyzed in the current study, these include, for example, scales do address cross-cultural issues, or items related to perceived honesty, dominance and attractiveness in the target, but these characteristics will not be examined in this study since it is not central for our research questions. The pilot study by Zickfeld, 2020 is available online <https://osf.io/fj9bd/> including the survey, stimuli, and complete data.

Procedure.

The study was submitted and approved by ISCTE’s Ethical Committee (Appendix A) and was conducted according to the principles of the Declaration of Helsinki (WMA, 2013). Participants were invited to participate through social media, social networks, and organizational websites, with information about the

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overall goals (note indicating explicitly the experimental manipulation), involved tasks, volunteer nature of participation, the confidentiality of responses, data protection details, and contacts of the responsible for the project. The participants were not anticipating any incentives for their collaboration. Only participants who indicated to have read the informed consent completed the questionnaire. No identifiable information was collected.

Participants were exposed to a total of four different faces of individuals, each with a specific description of the situation. These individuals could vary in terms of having the presence of tears (tearful or non-tearful targets) and gender (male or female). In addition, the context could also vary regarding its valence (positive, neutral, or negative) and social context (public or private). The order of the possible combinations of these variables (target and context) was random, with the restriction that all participants always classify two tearful and two non-tearful images, presented in a counterbalance order. Alongside the picture of the tearful or non-tearful person, a description would follow, presenting itself with the same format: “As the picture was taken” + Initials (e.g., A. J.) + Situation (e.g., went grocery shopping at the store). As an example of this formula we could have the following description: “As the picture was taken A. J. went grocery shopping at the store”. This would allow us to insert three types of variables. The person in the photograph, the social context, and the place where the action occurred, being shown as public or private. Following the presentation of each target face and description, participants were asked to describe what they thought about the target and their intention to support.

Design.

We conducted multilevel analyses (also named hierarchical linear models, mixed models, or multilevel modeling) using IBM® SPSS® Statistics (v. 26) with the Linear Mixed Model command. A Residual Maximum Likelihood (REML) estimation was employed by running a random intercept model with variance compound (VC) as the covariate structure, to account for individual variations (i.e. to control for the effects of individuals). As fixed effects we included the following variables: 2 (target tears: tearful, non-tearful) X 2 (target gender: male, female) X 3 (Situational valence: positive, neutral, negative), X 2 (Social context: public, private) X 2 (participant’s gender: male, female). Except for participants’ gender, all the remaining variables related to the target (tears and gender) and the context (valence and social context) were within-participants.

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In addition, we included Three multilevel analyses were conducted, one for each of the following dependent variables: intention to support the target, and evaluation of both warmth and competence.

Results

A detailed overview of the type III test of fixed effects for warmth, competence and intention to support can be found in table 2.

Table 2. Type III Tests of Fixed Effects for warmth, competence and intention to support

Independent Variables	Dependent Variables								
	Warmth			Competence			Intention to Support		
	df	<i>F</i>	<i>p</i>	df	<i>F</i>	<i>p</i>	df	<i>F</i>	<i>p</i>
Intercept	146.96	2228.11	<.001	146.45	2606.60	<.001	149.22	2715.38	<.001
Target Gender	500.96	0.81	.368	485.36	3.93	.048	499.56	1.37	.243
Social Context	501.85	0.04	.842	485.41	0.12	.730	500.49	1.51	.219
Tears	435.35	38.57	<.001	432.08	9.67	.002	442.25	45.67	<.001
Situational Valence	498.06	1.28	.280	482.74	2.02	.133	497.59	15.72	<.001
Participant Gender	146.32	0.71	.401	145.89	0.12	.732	148.47	0.33	.568
Tears X Gender Target	483.55	6.69	.010	470.07	0.09	.763	486.37	0.00	.989
Tears X Social Context	488.31	2.40	.122	474.91	0.18	.668	488.86	1.88	.171
Tears X Situational Valence	482.96	8.87	<.001	470.18	4.46	.012	484.71	0.09	.918

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Tears X Participant	434.60	2.65	.104	431.54	0.003	.956	441.58	2.12	.146
Gender									

Note. Occurrence of tears (-.5: no tears, .5: tears); Situational Valence (-.50: negative, 0: neutral, .50: positive); Social Context (-.50: public, .50: private); Participant Gender (1: female, 2: male); Target Gender (-.50 male, .50 female).

Support intention.

The ANOVA with a 2 (Participant's gender: male, female) X 2 (Target gender: male, female) X 3 (Situational valence: positive, neutral, negative) X 2 (Tears: tearful, non-tearful) X 2 (Social context: public, private) design for the support intention has yield two statistically significant main effects: the effect of Tears, $F(1, 442.25) = 45.67$, $p < .001$, and of the Situational Valence, $F(2, 497.59) = 15.72$, $p < .001$. (See Figure 1.) As expected, when the participants were exposed to facial expressions with tears, they reported more intention to support the target ($M = 4.80$, $SE = 0.09$) than targets with no tears ($M = 4.27$, $SE = 0.09$). Regarding the effect of the situational valence, we only found a statistically significant effect when the situation was negative, $F(2, 497.75) = 15.72$, $p < .001$, with a mean difference of the negative scenarios ($M = 4.87$, $SE = .10$),

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with neutrals scenarios ($M = 4.36$, $SE = 0.10$) and positive scenarios ($M = 4.37$, $SE = 0.10$). No other statistically significant effects were found.

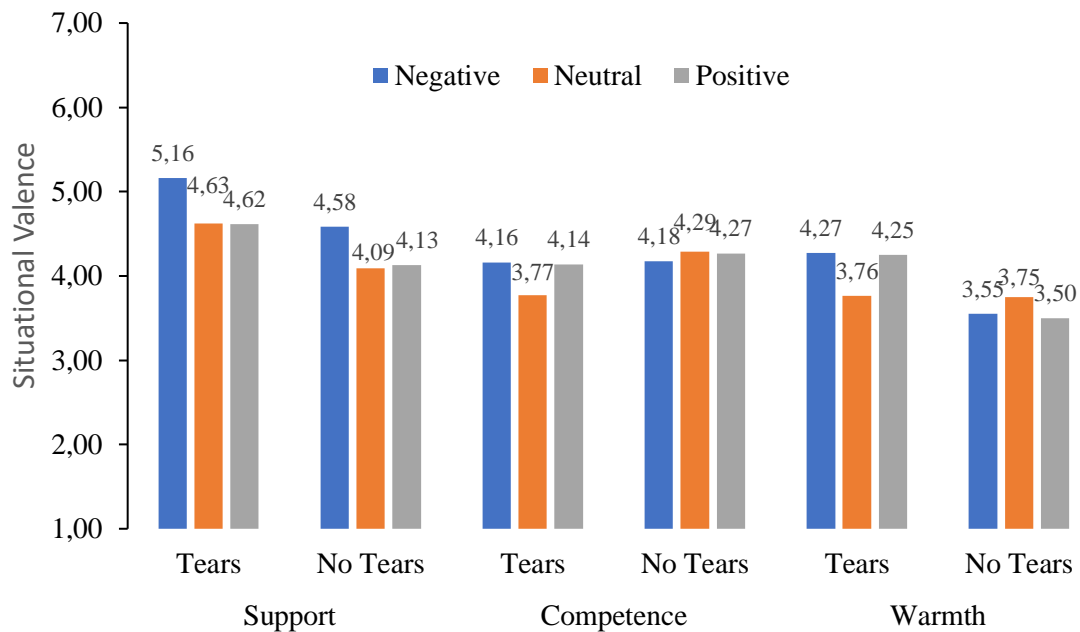


Figure 1. Intention to support, competence and warmth means as a function of Tears condition and situational valence.

Warmth.

The ANOVA with the same 5-way factorial design for warmth has shown a main effect of Tears, $F(1, 435.35) = 38.56$, $p < .001$, and significant interactions between Tears and Target Gender, $F(1, 438.54) = 6.68$, $p = .010$, and between Tears and Situational valence, $F(2, 482.97) = 8.87$, $p < .001$. The main effect of Tears indicated as expected, that participants perceived tearful targets as higher in warmth ($M = 4.10$, $SE = 0.09$) than non-tearful ($M = 3.60$, $SE = 0.09$).

Analyses of the simple effects of the target gender within each level of the tears manipulation has shown differences in the evaluation of warmth between targets that were male or female when their faces had no tears, $F(1, 459.58) = 5.92$, $p = .015$. In this non-tearful condition, target males were perceived to be high in warmth ($M = 3.75$, $SE = 0.11$) than females ($M = 3.45$, $SE = 0.11$). However, when the target had tears in their face, the judgment of warmth was similar for both target gender, $F(1, 489.48) = 1.36$, $p = .245$.

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The interaction of Situational valence and Tears also indicated that the effect of tears was dependent on the situational valence. Analysis of the simple effects of tears within each level situational valence, has shown, that the difference in the evaluation of warmth between being exposed to a target showing tears versus no tears was found in the positive, $F(1, 476.17) = 25.34, p < .001$, and negative conditions, $F(1, 468.32) = 25.13, p < .001$. Targets displaying tears in negative contexts ($M = 4.27, SE = 0.12$) were perceived as high in warmth than non-tearful targets ($M = 3.55, SE = 0.12$). A similar result was found in positive situations, in which tearful individuals ($M = 4.25, SE = 0.13$) were judged as being high in warmth than non-tearful individuals ($M = 3.50, SE = 0.13$).

Competence.

The ANOVA for competence has shown two main effects: an effect of Tears, $F(1, 432.08) = 9.67, p = .002$, and an effect of the Target Gender, $F(1, 485.35) = 3.93, p = .048$. Participants judged females ($M = 4.21, SE = 0.9$) as being more competent than males ($M = 4.06, SE = 0.89$). The main effect of Tears has shown that tearful targets were perceived as low in competence ($M = 4.02, SE = 0.88$) than non-tearful targets ($M = 4.24, SE = 0.88$). In addition, there was also an interaction between Tears and Situational valence, $F(2, 470.18) = 4.46, p = .013$. Simple effects of Tears within each level of Situational valence has shown that the difference in the evaluation of competence between being exposed to individuals with tears versus no tears was only found in the neutral situations, $F(1, 452.12) = 18.49, p < .001$. Only in these conditions tearful targets were perceived as being low in competence ($M = 3.77, SE = 0.11$) than non-tearful ones ($M = 4.29, SE = 0.11$); in positive and negative context no statistical differences were found.

Discussion

In the present study we investigated the effect of tears on the intention to help, and on social judgments of competence and warmth. The results of our study confirmed our first hypothesis, stating that tearful individuals are more prone to be helped by others, when compared to non-tearful individuals (Balsters et al. 2013; Gračanin, et al. Van de Ven et al. 2017; Vingerhoets et al. 2016; Zickfeld et al. 2018), since the presence of tears may convey a message that a person is in need for aid. We

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also verified participants reported more intention to support tearful individuals in negative situations, in contrast to positive or neutral situations (see figure 1), confirming our second hypothesis. Thus, negative situation tended to catalyze a higher intention to help in both tearful and non-tearful situations.

In addition, we also found that the effect of the presence of tears in the perception of warmth was significant, aligned with our third hypothesis. There was no significant difference between male and female targets in the tearful conditions. However, a curious finding was the interaction between the tears and the situational valence. So, the perception of warmth was dependent on the situation that occurred. People were perceived as warmer in a scenario displaying a loss or a moment of joy to the target, but in a neutral situation, like eating a salad, or answering an online survey per example, even with the presence of tears the targets were not perceived as warmer by displaying a presence of tears. This suggest that the perception of warmth is conditioned to the situation the person is in by the time they are crying.

Regarding competence, tearful individuals were rated as being less competent than non-tearful individuals (H4) (see figure 1), especially on neutral situations, or if they were male. This effect of gender showed a glimpse of why men feel more shame when they cry (Becht et al., 2002), as a clear difference could be found on their competence assessment when compared with female individuals showing tearful faces.

Limitations.

One of the limitations of this study was in the applied within-subject design, in which each participant answered questions about four different situations, fact that possibly increased the effect-size obtained, as the same participant ended up generating four responses.

The fact that the study used photographs as a stimulus became an asset in the application of questionnaires, but instead using stimuli with a video format may be more impactful in the response generated and is one of the suggestions for studies future. Ideally, a study that used behavioral measures instead of digital measures would be better, as it was no longer a study that is based on self-report measures, but it is thought to be very difficult to achieve. In this study we explored the effect that visualizing tearful faces would have in the intention to help others, however, this

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intention does not always translate into helping behaviors, and a study carried out with behavioral measures could be an asset to consolidate the findings of the existing literature on this topic.

Conclusion

In this study we analyzed how digitally added tears changed some perceptions and judgments made by others, in terms of intention to support, warmth and competence. These findings were congruent with previous findings from Zickfeld et al., (2018); Van de Ven et al., (2017); Vingerhoets et al., (2016) in identifying tearful people as warmer, less competent, and more prone to be helped by others.

The presence of tears had a main effect in all analyzed variables, as well as the situational valence, but were accompanied by effects related to the target gender when assessing warmth, females were viewed as warmer than males in tearful situations, with the males being viewed as warmer than females, when crying did not occurred. As for competence, males were viewed as less competent when crying when compared to females, where this tendency reversed. These confirmations solidify the message of crying as a meaningful one and helps us to reach a better understanding about a phenomenon that is currently being studied worldwide.

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APPENDIX A.



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COMISSÃO DE ÉTICA

PARECER 36/2019

Project "Cross-Cultural Tears -A systematic investigation of the interpersonal effects of emotional crying across different cultural backgrounds"

The project "Cross-Cultural Tears - A systematic investigation of the interpersonal effects of emotional crying across different cultural backgrounds", submitted by the researcher Patricia Arriaga, was appreciated by the members of the Ethics Committee.

The information provided, in accordance with the Ethical Approval Submission Form in use at ISCTE-IUL, satisfies the ethical requirements applicable to this type of research projects, including:

- a) The research problem and its scientific relevant are related to the fact that tearful crying seems to play a significant role in the evolution of humankind regarding social development and solidarity (Walter, 2006). Recent years have seen an increased interest in exploring the effects of human tears (see Gračanin, Bylsma, & Vingerhoets, 2018, for a review), with findings that tears foster approach or helping behavior (Gračanin, Kraemer, et al., 2018), with crying individuals being evaluated as more communal (e.g., Zickfeld, van de Ven, Schubert, & Vingerhoets, 2018). These findings fit the hypothesis that emotional tears constitute a social act, promote social bonding and fulfil an attachment function (Bowlby, 1982; Gračanin, Bylsma, et al., 2018; Vingerhoets, 2013). While such findings have been consistent in Western samples, it remains an open question how universal such effects are across cultures. In addition, the question remains to what degree the eliciting event, the social context, and the identity of the tearful individuals play a role, and how homogenous such effects may be. Crying frequencies also seem to differ considerably across gender and countries (Becht & Vingerhoets, 2002; van Hemert, van de Vijver, & Vingerhoets, 2011). Thus, this study will add important findings by adopting a cross-culture approach, with data being collected simultaneously by several partners in different countries;
- b) The goal of the project will be to address the universality of effects by exploring the social signals of emotional tears systematically in a cross-cultural sample. The project builds upon previous studies testing the interpersonal effects of crying and adds several conditions to the design including type of social context, type of tears and ethnicity of the tearful target. The main goal of the present project is to explore how universally and fundamentally emotional tears function as a social bonding signal;
- c) The study will involve a 2 (target gender: male vs. female) x 5 (ethnicity: Caucasian vs. East Asian vs. African American vs. Hispanic vs. Middle East) x 2 (occurrence of tears:

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tears vs. no tears) x 3 (type of tears: positive vs. negative vs. none) x 2 (social context: public vs. private) mixed design allowing for 120 different combinations. All conditions will be manipulated within participants, except for the occurrence of tears, which is treated as a between factor (i.e., each participant will only rate tearful or non-tearful stimuli). A paradigm from previous studies will be adapted showing pictures of targets with and without tears. Stimuli will be taken from different static 2D facial databases with neutral expressions. Tears will be added digitally, resulting in the same individual with a neutral and a tearful expression in the final stimuli set. The stimuli are drawn from a set of 100 pictures (20 Caucasian, 20 East Asian, 20 Latin, 20 Middle East, 20 African; 50 males, 50 females) resulting in 200 final pictures (100 tearful, 100 non-tearful). Most stimuli are taken from the Chicago Face Database (Ma, Correll, & Wittenbrink, 2015) and Middle Eastern stimuli are taken from the Bogazici database (Saribay et al., 2018). Participants either rate tearful or non-tearful targets only, and each participant will be exposed to 4 different pictures (always 2 male and 2 female), with stimuli being randomly drawn from each subset. Three type of situations will be displayed (Negative: relationship loss, funeral, anger, humiliation, tragedy, and saying goodbye); positive: reunion, wedding, award ceremony, arts, overcoming obstacle, and kindness; Neutral: grocery shopping, drinking water, green salad, consumer survey, print documents, and wash clothes). Participants will complete the following measures for each stimuli: Perceived warmth (2 items: warmth, friendly), competence (2 items: competent, capable) (Van de Ven et al., 2017); honesty (2 items: honest, reliable; Pico et al., under review), dominance (1 item; Oosterhof & Todorov, 2008), intention to help (1 item; Van de Ven et al., 2017), one pictorial measure assessing the overlap and connectedness to the target (Aron, Aron, & Smollan, 1992), sadness (1 item) and being moved (1 item) (Zickfeld & Schubert, 2018), and appropriateness of the emotional expression (1 item). Additional measures will include: i) Social Value Orientation (6 items; Murphy, Ackermann, & Handgraaf, 2011) to test general type of motivation (altruistic, individualistic, egocentric), which will be used for one presented picture (randomly chosen) only; ii) Contagious Yawning test (Franzen, Mader, & Winter, 2018) consisting of a short video clip, in which participants indicate whether they yawned via button press, to test general empathy; iii) Participant's in- or outgroup, by showing a pair of prototypical faces (one female/one male) of each group (African, East Asian, Middle East, Latin, Caucasian) and ask how much they identify with each of them. To adapt all the materials to Portuguese researchers will follow recommended guidelines (Brislin, 1970) (e.g., questions will be translated and then back-translated to adapt the language to our country before the final version can be presented to participants). The last version will be tested on two non-academics fluent in the target language. The English version of the questionnaire is already available online at https://oslopsych.az1.qualtrics.com/jfe/form/SV_81ure13WRhfAdUh. The estimated time for the completion of the study will be 10 to 15 minutes.

- d) All participants (over 18 years old) will be recruited through online questionnaires via Qualtrics. No identifiable information such as IP address, names, or ID numbers, will be



collected. Answers will be merged into a large database, rendering individuals not identifiable.

- e) The original proposal of the study, made by researchers Zickfeld, Schubert & Vingerhoets has already been approved by the Department of Psychology's Research Ethics Committee of the University of Oslo (Ref number: 4156855, see enclosed).
- d) The texts of the informed consent contain a brief explanation of the objectives and procedures of the investigation, the voluntary nature of the study, the possibility of non-response to any question and free withdrawal at any time, the guarantee of anonymity of the participants and the confidentiality of the data collected, as well as the identification and contact of the principal investigator;
- e) The measures related to the debriefing and feedback, as well as the declaration of responsibility and ethical conduct of the researcher, obey the provisions contained in the Code of Ethical Conduct in Research - ISCTE-IUL.
- f) The texts of the informed consent contain a brief explanation of the objectives and procedures of the investigation, the voluntary nature of the study, the possibility of non-response to any question and free withdrawal at any time, the guarantee of anonymity of the participants and the confidentiality of the data collected, as well as the identification and contact of the principal investigator;
- g) The measures related to the debriefing and feedback, as well as the declaration of responsibility and ethical conduct of the researcher, obey the provisions contained in the Code of Ethical Conduct in Research - ISCTE-IUL

In short, ensuring the volunteering of participation, the privacy and anonymity of the participants, and the confidentiality of the information collected, the project received the favorable opinion and approval of the Commission.

Lisbon, 22 may 2019

O Presidente da Comissão, *Prof. Doutor Jorge Costa Santos*

A handwritten signature in blue ink, appearing to read 'Jorge Costa Santos', written over a horizontal line.

A Vogal, *Prof.ª Doutora Sónia Bernardes*

A handwritten signature in blue ink, appearing to read 'Sónia Bernardes', written over a horizontal line.

O Vogal, *Prof. Doutor Vítor Basto Fernandes*

A handwritten signature in blue ink, appearing to read 'Vítor Basto Fernandes', written over a horizontal line.