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Shame displays: Beneficial or not?

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Shame displays: Beneficial or not?

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Abstract

La survie de nos ancêtres dépendait grandement de leurs relations sociales. Selon une approche évolutionniste, la fonction de la honte est de réduire les risques de perdre en valeur sociale. Cependant, d'autres théories maintiennent que la honte n'est pas fonctionnelle : elle est liée à un mauvais ajustement psychologique (ex., dépression et agressivité). Il est supposé que les deux théories puissent être réconciliées sous un acompte fonctionnel : être honteux peut être avantageux dans certains contextes (quand une transgression est commise), et peut être couteux dans d'autres (en absence de transgression). Les participants (n = 294, $M_{âge}$ = 42, $ÉT$ = 13.423) sont assignés au hasard à une vignette décrivant soit un acteur commettant une transgression (ex., voler de l'argent ou insulter un collègue) ou aucune transgression, puis ils voient une photo de l'acteur montrant soit de la honte ou aucune émotion. Ensuite ils évaluent l'acteur sur 17 items incluant des traits désirables (amical) et des traits indésirables (égoïste). Suite à une analyse factorielle exploratoire, les items sont regroupés sous deux dimensions (évaluation bénigne et absence de traits indésirables) afin de simplifier les analyses statistiques. L'hypothèse n'est pas soutenue : les acteurs honteux reçoivent des scores plus bas sur l'évaluation bénigne et l'absence de traits indésirables indépendamment de la présence ou absence d'une transgression. Cependant, des analyses supplémentaires suggèrent que les conséquences de montrer de la honte sont plus complexes. Davantage de recherches sont nécessaire afin d'examiner si exprimer de la honte est encore fonctionnel aujourd'hui.

Mots clés : honte, expression non verbale, transgression, conséquence sociale

Abstract

Our ancestors' survival greatly depended on their social relationships. According to an evolutionary perspective, shame's function is to reduce the likelihood of losing social value in the eyes of fellow group members; however, certain accounts hold that shame may not be functional: it is related to psychological maladjustment (ex., depression and aggression). It is hypothesized that the two views are not conflicting; they can be reunited under a functional account. In other words, being shameful is beneficial under certain conditions (when a transgression is known to others) and costly under other conditions (when no transgression has been committed). Participants (n = 294, M_{age} = 42, SD = 13.423) were randomly assigned to read a vignette describing a transgression (stealing money or insulting a colleague) or no transgression, then exposed to a photo of an actor displaying either shame or no emotion, and then they rated the actor on 17 items including desirable traits (ex., friendly) and undesirable traits (ex., selfish). Through an exploratory factorial analysis, items were grouped into two factors (benign evaluations and absence of undesirable traits) in order to simplify statistical analyses. The hypothesis was not supported: shameful actors received lower scores on benign evaluations and absence of undesirable traits regardless of the presence or absence of a transgression. However, further analyses indicate that the consequences of displaying shame are more complex. These results suggest more research is necessary to examine whether the shame display remains functional today.

Keywords: shame, nonverbal display, transgression, social consequences

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Abbreviations

ANOVA: Analysis of variance

AUT: Absence of undesirable traits

BA: Benign evaluations

EFA: Exploratory factorial analysis

MTurk: Mechanical Turk

UCDSEE: University of California, Davis, set of emotion expression

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Problematic

A student sleeps during a class lecture. A man is swearing at the daycare in front of his children. A woman is laughing out loud at a funeral. What do these scenarios have in common? They are very likely to elicit shame in the actor. According to an evolutionary perspective, shame is a functional emotion which has evolved to minimize the threat of losing social value when a negative information about the self becomes known to fellow group members (de Hooge, Zeelenberg & Breugelmans, 2011; Gilbert & McGuire, 1998; Sznycer, Tooby, Cosmides, Porat, Shalvi & Halperin, 2016; Sznycer et al., 2018). The emotion of shame is often accompanied by a distinct display (gaze aversion, head tilted down, slumped shoulders) which is recognized above chance levels (Tracy, Robins & Schriber, 2009). If shame is a functional emotion, the shame display might be as well. For example, displaying shame might lead to reduced negative evaluations when a person commits a wrongdoing (Martens, Tracy & Shariff, 2012). Some evidence was obtained supporting this claim (Keltner, Young & Buswell, 1997). However, some argue that the shame display is maladaptive. For example, studies have shown links between shame and psychological maladjustment (Lewis, 1995; Gilbert, 2000). The current project aims at evaluating the possibility that the two views (shame as functional vs shame as maladaptive) are not contradictory. More specifically, the goal is to explore whether the shame display is beneficial under certain conditions and costly under other conditions. I firstly hypothesize that displaying shame when a wrongdoing has been committed will lead to fewer negative evaluations, compared to a neutral display. Secondly, I expect that when no wrongdoing has been committed the shame display will lead to increased negative evaluations. A review of the literature will provide definitions of the core concepts within the paper and conflicting theoretical perspectives in a goal of reconciling the two views under a functional account.

Theoretical Context

According to evolutionary psychology, functional components of the human nature evolved to solve adaptive problems our ancestors faced (Cosmides & Tooby, 2000). One such functional mechanism is emotions. Emotions can be defined as adaptations that coordinate

specific aspects of the cognitive architecture in order to solve complex adaptive problems (Keltner & Gross, 1999). For example, social emotions function to solve adaptive problems associated with relationships. They motivate people to engage in actions enhancing long-term bonds and signaling to others long-term commitment (Keltner, Haidt & Shiota, 2006). For instance, gratitude signals that a person acknowledges another's altruistic act and the value of the benefits received. The problem solved is that of cooperation; gratitude may cement cooperative relationships by motivating reciprocal altruism between group members (Keltner et al., 2006). A social emotion which has received considerable attention in the past decades is shame. Shame is defined as an unpleasant emotion triggered by real or imagined negative judgement of the self by others and it can be accompanied by feelings of worthlessness and inferiority (Ausubel, 1955; Tangney & Dearing, 2002). Physical expressions of shame feature the head tilted down, downward gaze (gaze aversion) and sometimes a slumped posture (Tracy et al., 2009). The slumped posture may be important as it reflects the accompanied sensation of "feeling small". Observers associate facial displays of shame more frequently with transgressions of serious rules such as failing an exam or hurting someone's feelings (Keltner et al., 1997). It is therefore more frequently associated with the violation of moral rules and core aspects of the self (Keltner & Harker, 1998). Although there seems to be agreement over these features of shame, there is contention about the shame display: whether it is maladaptive or functional.

Shame has long been believed to be an ugly emotion because it is highly aversive and is associated with aggression and psychological maladjustment. (Lewis, 1995; Tangney & Dearing, 2002). Firstly, shame is described as physically and emotionally painful. The discomfort engendered by the pain would be sufficient to elicit anger, which may lead to aggression if certain conditions are met (Elison, Garofalo & Velotti, 2014). Correlational studies have found support for this model: shame is associated with anger arousal and indirect expressions of hostility (Tangney, Wagner, Fletcher & Gramzow, 1992), and indirectly associated (through increased externalization of blame) with verbal and physical aggression (Stuewig, Tangney, Heigel, Harty & McCloskey, 2010). Secondly, shame would be related to psychological maladjustment, for example, social anxiety and depression through submissive behaviours (ex., eye gaze avoidance; Gilbert, 2000). Furthermore, shame accounted for a substantial amount of variance in depression (Tangney, Wagner & Gramzow, 1992).

According to these studies, shame is maladaptive with regards to both the interpersonal (anger and hostility) and intrapersonal realm (link with psychopathological conditions).

Nevertheless, there are indications that shame may be functional. Based on an evolutionary perspective, shame is hypothesized to minimize the likelihood and costs of being devalued by others when unfavorable information about the self is known to fellow group members (de Hooge et al., 2011; Gilbert & McGuire, 1998; Sznycer et al., 2016; Sznycer et al., 2018). When an individual becomes less valuable, it is theorized that this person will be less likely to be helped, and more likely to be harmed by group members; therefore, shame is believed to prevent the costs resulting from social devaluation. For this system to be effective, one would expect a close agreement between devaluation from an audience and anticipated shame. Recent evidence from cross-cultural studies support such computational system: across and within varied cultural contexts, the intensity of shame felt by an individual following a transgression (ex., stealing money) is positively correlated with the magnitude of social devaluation expressed by an audience (Sznycer et al., 2016; Sznycer et al., 2018). Moreover, perceiving one's value in the eyes of others decrease is sufficient to trigger shame, even in the absence of a wrongdoing (Robertson, Sznycer, Delton, Tooby & Cosmides, 2018). The previous studies provide strong support for the function of shame as guarding against threats to one's social value.

An efficient way to safeguard against devaluation is through appeasement. Keltner and colleagues (1997) define appeasement as the process of (1) anticipating aggression from others, (2) displaying submissive and affiliative behaviour (shame), thereby (3) preventing others' aggression, promoting approach behaviours and re-establishing the relationship. Keltner and colleagues found that observers reported more sympathy when imagining a target committing a social transgression and that target expressed shame (compared to anger, neutral, embarrassment and amusement). The increased sympathy reported supports the appeasement hypothesis: the shame display signalled one's failure to conform to a social norm and potentially prevented a big drop in one's value in the eyes of the observer.

Another way shame protects one's value as a cooperative partner is by increasing commitment and creating a preference for social situations.

De Hooge, Breugelmans & Zeelenberg (2008) found that shame acts as a commitment device: shame relevant to the current situation (participants were asked to imagine interacting with a student who witnessed a shameful oral presentation the participants gave) motivates prosocial behaviour in a 10-coin give-some social dilemma game. In other words, shameful individuals gave more of their coins to the interaction partner. These results suggest there are positive consequences to feeling shame. An example is that it would motivate shameful individuals to behave prosocially thereby increasing their commitment to long-term strategies aimed at improving social relationships. Furthermore, De Hooge, Breugelmans, Wagemans & Zeelenberg (2018) found that shameful participants selected a task to be completed with another participant significantly more than a task to be completed individually. Both studies suggest a tendency to approach others when feeling shame, a tactic that may be beneficial in preventing one's cooperative value from dropping following a transgression. Under the conditions of the previous studies, shame can be defined as a functional system; not a maladaptive or pathological one.

Many features of shame make sense if one assumes its function is to prevent costs associated with being devalued. For example, appeasement may signal that the person acknowledges the transgression, and preferring social situations and behaving prosocially may advertise the person as a good social partner preventing his/her social value from dramatically decreasing. However, there remains a problem. According to certain accounts, the shame display does good things for the shameful individual (Keltner et al., 1997), but other accounts hold that shame displays are maladaptive (Tangney & Dearing, 2002). Displays of submissiveness may have been adaptive ancestrally because it signaled that aggression would not ensue (Kemeny, Gruenwald & Dickerson, 2004), however it is possible that it may no longer be the case. One's value as a social partner may no longer be determined by signaling submission.

It is assumed that both views of shame can be reconciled within a functional perspective. Sometimes it may be beneficial for the target to communicate information through an emotional display, however, doing so can be injurious under different conditions (Tooby & Cosmides, 2000; Sznycer, Cosmides & Tooby, 2017). It is theorized that signaling shame can have both costs and benefits for the signaler. It is expected that the mind will signal shame under conditions when the net benefits are positive, or when observers hold negative information about oneself because it would appease observers. On the other hand, the mind is expected to not signal shame

under conditions of net costs to the individual, for example, when the audience does not have negative information about the self. Displaying shame when no negative information about the self is known could make the person an unattractive social partner through the submissive behaviour.

More specifically, this paper aims at investigating the social consequences (costs and benefits) of displaying shame when the audience possesses negative information about the self, compared to when the audience does not possess negative information about the self. It is hypothesized that participants will rate shameful photographs of a target more positively (more prosocial, less antisocial), compared to a photograph of a neutral target, after reading a vignette describing a social transgression. Moreover, it is hypothesized that participants will rate shameful targets more negatively (less prosocial, more antisocial), than neutral targets, after reading a vignette describing an employee closing a bar or taking a lunch break at work. Understanding how individuals who display shame are being treated by audiences may shed some light on punitive measures against people who have committed serious transgressions.

Method

Participants

Three hundred and two participants (161 females, $M = 42$ years old, $SD = 13.423$) were recruited online with Amazon Mechanical Turk (MTurk) over one day. MTurk is an online labor market designed to assist requesters in hiring and paying workers for the fulfillment of computerized tasks (Paolacci & Chandler, 2014). The sample size was determined based on an online sample size calculator ("Sample size calculator") using the amount of desired power and the critical alpha level ($ß = .80$, $α = .05$). Qualified workers are United States residents above 18 years of age. However, there is no guarantee that the sample will solely consist of people without handicaps (physical and/or mental). In total, 17 participants were removed from data analysis because of a failure to complete the questionnaire (n = 13) or a failure to answer the attention check correctly (n = 4). The majority of participants are of average socio-economic status (49%) and are of Caucasian ethnicity (74.8%).

Tools

In order to test the hypotheses, an online survey was created using Qualtrics. Qualtrics is an online platform on which surveys can be created. The program is easy to use and allows for randomization of conditions across participants. This method is inexpensive and quick at collecting a large amount of data in real time. Qualtrics permits the creation of surveys which keeps the data safe and secure. Qualtrics does not know what data is being stored and the customer/researcher owns and controls the data ("Qualtrics", 2015). The data is analysed using SPSS 25.

Procedure

Following the consent form, participants are asked to answer questions with regards to their demographics. Then, subjects are presented with either the transgression condition or the no transgression condition. In the transgression condition, participants read one of two vignettes. The first vignette is a scenario in which a bar employee (of the same gender as the participant) is caught stealing money from his fellow coworkers (adapted from Robertson and colleagues, 2018), and the second scenario describes an instance in which a target (of the same gender as the participant) is caught insulting a workmate. In the no transgression condition, participants are presented with one out of two possible vignettes, the first scenario in which a bar employee is closing the bar for the day, and the other one describing an employee during his lunch break at a retail store (see Appendix A for the bar vignettes, p. 30 and Appendix B for the retail vignettes, p. 32). The vignettes are randomized across participants directly in the Qualtrics interface.

Participants are then presented with an emotional display of shame (with slumped posture) or a neutral display (control condition) taken from the UCDSEE (University of California, Davis, Set of Emotion Expressions; Tracy et al., 2009). The target on the photograph matches the participant's gender. The emotion expressions portrayed in the photographs developed by Tracy and colleagues (2009) were recognized at levels significantly greater than chance. Finally, participants are asked to act as observers by rating the target (John/Jane) on a 7-point scale (1 = not at all, 7 = extremely). The participants are asked to rate the target on several items including more positive traits (ex., friendly, trustworthy) and more negative traits

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(ex., selfish, despicable; see Appendix C for list of questions, p. 34). In total, the participants rated the target on 17 items (nine positive traits and eight negative traits).

Results

Preliminary Analyses

Before testing the hypothesis, an exploratory factorial analysis (EFA) was computed using the items in our questionnaire. An EFA was conducted in order to see if the items could be reduced along different dimensions in order to decrease the number of statistical tests to perform. Prior to computing the EFA, negative items were recoded, so that a higher score on a negative item indicates a more positive perception of the target. Assumptions were assessed in order to determine if the results from the EFA are reliable. Most items were normally distributed with no univariate outliers, however 18 multivariate outliers were identified and removed from the sample since they represented 0.05% of the sample (n_{final} = 294). Only one item was found not normal at the multivariate level. It was removed from the analysis automatically by SPSS 25. Moreover, according to the correlation matrix, variables need to be checked for multicollinearity (determinant of the correlation matrix < 0.00001) because a small determinant was obtained. A regression was computed, and the collinearity diagnostics table was visually inspected. All of the condition index being below 30, we can assume that there is no multicollinearity between the variables (Belsely et al., 1980). To further investigate for multicollinearity, correlation coefficients were obtained for each pair of items, a correlation above .70 indicates we should be careful with the item, and a correlation above .90 indicates a real multicollinearity problem. In the current sample, 17 pairs of items were found to be above .70, however zero were above the .90 threshold; therefore, all items remain in the statistical analysis.

In order to identify factors within the sample of items (17) to simplify data analysis, an exploratory factorial analysis (EFA) with a maximum likelihood extraction method with an oblimin rotation (assumes that the factors are correlated) was computed. The EFA extracted three factors. The number of factors was determined by the Kaiser test: every eigenvalue (before rotation) higher than one can be considered a factor. In our sample, three factors have an eigenvalue above 1: factor 1 = 8.598, factor 2 = 1.771 and factor 3 = 1.148.

Although three factors are identified, only factor 1 and factor 2 are well-defined, meaning they have two saturations above .40. This may be due to factor 3 being made of only two items: shy and depressed. Since the factor is not well-defined, it was removed from the primary statistical analysis; therefore, only factor 1 and factor 2 are kept. Both explain 58% of the variance in the questionnaire. Factor one is composed of the items: attractive as a social partner, friendly, likeable, nice, trustworthy, honest, deserves respect and deserves forgiveness. This factor was named "benign evaluation" because it is made of the positively worded items in the questionnaire. Factor 2 is composed of the items: despicable, disgusting, deserves to be punished, selfish, has mental problems, has something to hide. The second factor is named "absence of undesirable traits" because it is made of the negatively worded items in the questionnaire (see Appendix D for saturations p.35). Both benign evaluation ($\alpha = .935$) and absence of undesirable traits ($\alpha = .904$) have shown adequate internal consistency when tested for internal reliability.

Primary Statistical Analyses

The results for the first factor composed of the positively worded items are first presented. The means and standard deviations for each of the items and the component are provided in table 1 (p. 17), and the means for benign evaluation and absence of undesirable traits have been plotted in a bar graph for the transgression and the no transgression conditions (see Figure 1, p. 17).

Does the shame display elicit more benign evaluations from an audience when a transgression has been committed (compared to a neutral display)?

It was expected that the shame display would increase benign evaluations when a transgression has been committed, compared to a neutral display. Data from this current project does not support this hypothesis. A 2 (knowledge: transgression vs no transgression) X 2 (emotional display: shame vs neutral) factorial analysis of variance (ANOVA) was computed to assess the effects of the knowledge of a transgression and emotional display of the benign evaluations of the target presented in the vignette.

Table 1

Mean and standard deviations for each factor per condition (emotional display and knowledge)

Conditions		Positive perceptions		Negative perceptions	
		M	*SD*	*M*	*SD*
No transgression					
Neutral	(N = 78)	4.7747	1.0837	5.7949	1.0444
Shame	(N = 73)	4.2955	0.8121	5.4155	0.9907
Transgression					
Neutral	(N = 74)	2.7722	1.1038	3.6419	1.3114
Shame	(N = 69)	2.6584	1.0705	3.4396	1.0778

Figure 1

Mean ratings of benign evaluations and absence of undesirable traits across all conditions
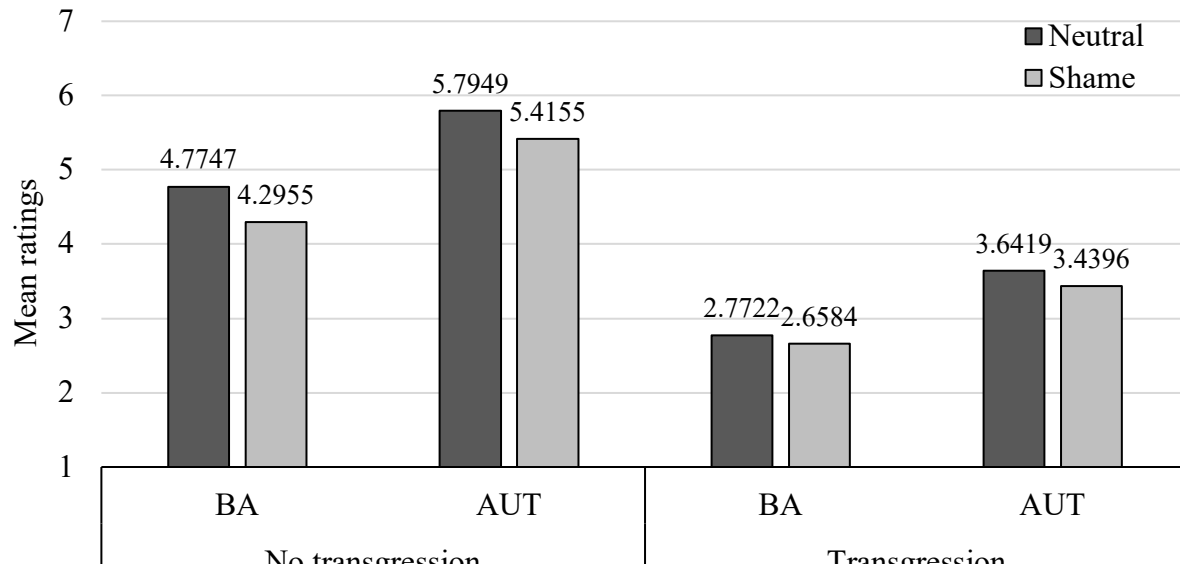
Note. Mean ratings of benign evaluations (BA) and absence of undesirable traits (AUT). Higher numbers indicate more positive ratings of the target for both variables. Mean ratings are provided for both the no transgression and the transgression condition. Light bars represent mean ratings for the shame emotional display and the darker bars represent the ratings for the neutral display.
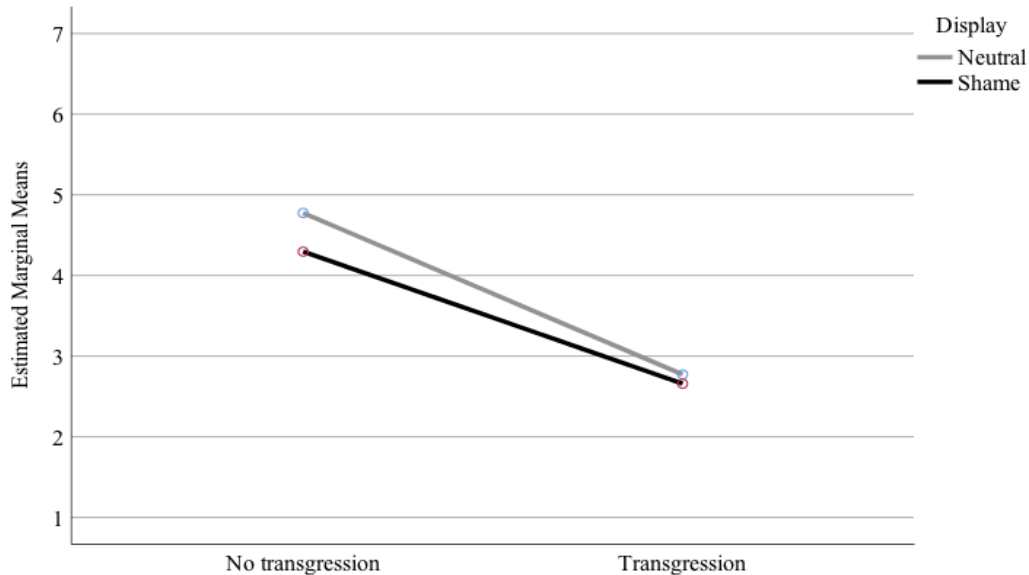
There is a main effect of knowledge on the benign evaluations of the target $F(1, 290) = 231.17$, $p < .000$, $\eta^2_p = .44$; participants reading the transgression vignettes ($M = 2.72$, $SD = 1.0855$) rated the targets less positively than participants reading the no transgression ($M = 4.54$, $SD = 0.9885$) vignettes. In other words, participants attributed more benign evaluations to targets who did not commit a transgression. Knowledge about a transgression accounts for 44% of the variance in the dependent variable benign evaluations, which represents a small/medium effect size. Moreover, there is a main effect of emotional display on positive perceptions of the target $F(1, 290) = 6.137$, $p = .014$, $\eta^2_p = .02$; participants rated neutral ($M = 3.80$, $SD = 1.4820$) targets more positively than targets displaying shame ($M = 3.50$, $SD = 1.2505$). Therefore, participants attributed less benign evaluations to the targets displaying shame. Emotional display accounts for 2% of the variance in positive perceptions of the target, this is a very small effect size. No interaction was found between the two independent variables knowledge and emotional display ($p = .128$). Although the results indicate a decrease of positive perceptions from the no transgression to the transgression condition for both emotional display, neutral targets are perceived more positively regardless of whether the target committed a transgression or not (see Figure 2, p. 19).

Does the shame display elicit lower ratings regarding the absence of undesirable traits when no information about a transgression is given (compared to a neutral display)?

It was hypothesized that the shame display, in the absence of a wrongdoing, would lead to lower ratings regarding the absence of undesirable traits. No support was found for this hypothesis. To evaluate the main effects of the emotional display (shame vs neutral) and knowledge (transgression vs no transgression), a 2 X 2 ANOVA was computed again, but with dependent variable the absence of undesirable traits. Again, there is a main effect of knowledge $F(1, 290) = 252.459$, $p < .000$, $\eta^2_p = .46$: participants gave higher scores on absence of undesirable traits to the targets in the no transgression vignette ($M = 5.61$, $SD = 1.0329$) compared to the targets in the transgression vignette ($M = 3.54$, $SD = 1.2044$). Knowledge about a transgression being committed or not accounts for 46% of the variance of absence of undesirable traits. That represents a small/moderate effect size.

Figure 2

Main effects plot with factors emotional display and knowledge about a transgression on benign evaluations

Note. Results of the factorial ANOVA 2 (knowledge: no transgression vs transgression) X 2 (emotional display: shame vs neutral) on the dependent variables benign evaluations. There is a main effect of knowledge and a main effect of emotional display. Participants in the no transgression condition rated the target more positively than participants in the transgression condition, and the participants in the neutral condition rated the target more positively than participants in the shame condition. No significant interaction is found.

Furthermore, a main effect of emotional display is found on absence of undesirable traits $F(1, 290) = 5.010$, $p = .026$, $\eta^2_p = .017$; participants exposed to the neutral target ($M = 4.75$, $SD = 1.5979$) assigned higher ratings on absence of undesirable traits compared to the shameful target ($M = 4.45$, $SD = 1.4294$); however, the effect size for emotional display is very small, it accounts for approximately 2% of the variance of negative perceptions. No significant interaction is found between the variables emotional display and knowledge about a transgression. In other words, there is no difference in absence of undesirable traits across the two conditions: neutral targets are rated less negatively regardless of knowledge of a transgression, and targets who have

committed a transgression are rated more negatively regardless of their emotional display (see Figure 3, p.20).

Figure 3

Main effects plot with factors emotional display and knowledge about a transgression on absence of undesirable traits
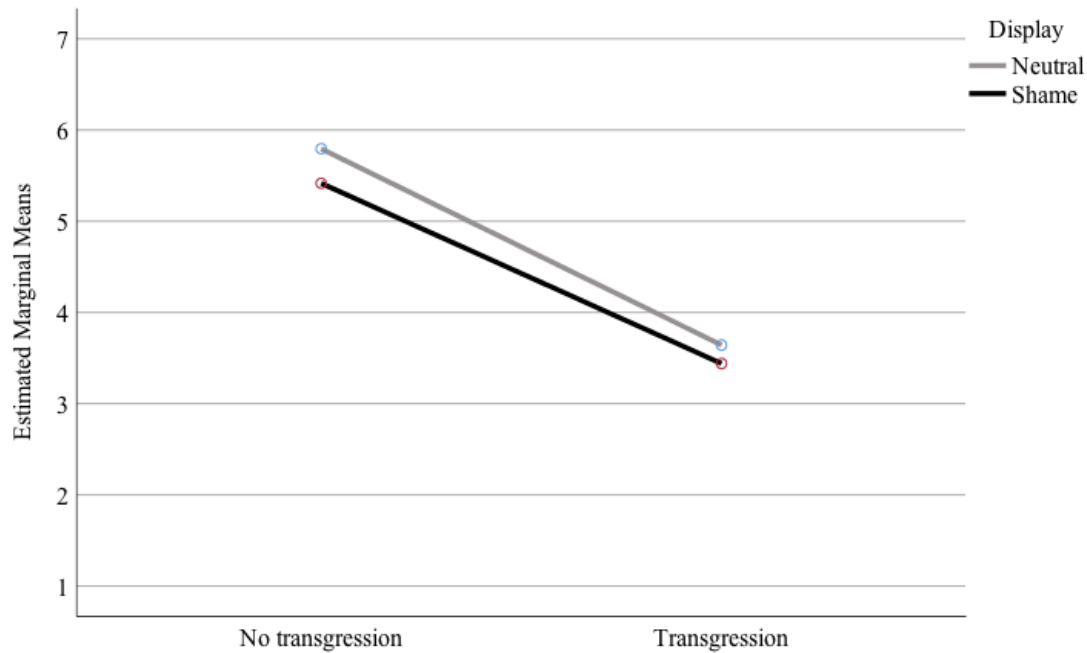

Note. Results of the factorial ANOVA 2 (knowledge: no transgression vs transgression) X 2 (emotional display: shame vs neutral) on the dependent variables negative perceptions of the target. There is a main effect of knowledge and a main effect of emotional display. Participants in the no transgression condition rated the target more positively than participants in the transgression condition, and the participants in the neutral condition rated the target more positively than participants in the shame condition. No significant interaction is found.

Does the shame display elicit similar responses across the two vignettes (bar vs retail)?

To investigate whether the main effects described above are also obtained for each vignette separately, the same statistical analysis were run: a 2 X 2 factorial ANOVA with as independent variables emotional display and knowledge about a transgression. One was computed for the dependent variable benign evaluations and another for absence of undesirable traits.

Bar vignette. The previous main effects are not obtained in the bar vignette. For both benign evaluations ($p < .000$) and absence of undesirable traits ($p < .000$), there is only a main effect of knowledge about a transgression. Participants reading the no transgression vignette gave higher ratings on benign evaluations and absence of undesirable traits compared to participants reading the transgression vignette. However, there is no main effect of emotional display (benign evaluations: $p = .213$, absence of undesirable traits: $p = .791$) and no interaction between knowledge and emotional display (benign evaluations: $p = .260$, absence of undesirable traits: $p = .208$).

Retail vignette. The main effects previously described are found within the retail vignette: there is both a main effect of knowledge for benign evaluations ($p < .000$) and absence of undesirable traits ($p < .000$). In other words, participants rated the target more positively and less negatively when no transgression has been committed compared to when a transgression has been committed. There is also a main effect of emotional display for both benign evaluations ($p = .022$) and absence of undesirable traits ($p = .002$) meaning that participants assigned higher ratings on benign evaluation and absence of undesirable traits when the target had a neutral display compared to when the target displayed shame. Again, there is no significant interactions found with both ANOVAs (benign evaluations: $p = .181$, absence of undesirable traits: $p = 0.943$).

The results are not consistent across the two vignettes which may indicate that the two vignettes differ from one another, and therefore have different effects on the participants (see Table 2 for complete ANOVA results p. 22).

Table 2

Results from the factorial analyses of variance computed separately for the bar and the retail vignette

Dependent variable	Independent variables	df	F	p	η^2_p
		Bar vignette			
Positive perceptions					
	Transgression	(1, 142)	145.304	.000	.51
	Emotional display	(1, 142)	1.565	.213	.11
	Interaction	(1, 142)	1.281	.260	.01
Negative perceptions					
	Transgression	(1, 142)	220.742	.000	.61
	Emotional display	(1, 142)	0.070	.791	.00
	Interaction	(1, 142)	1.597	.208	.01
		Retail vignette			
Positive perceptions					
	Transgression	(1, 144)	106.353	.000	.42
	Emotional display	(1, 144)	5.357	.022	.04
	Interaction	(1, 144)	1.809	.181	.01
Negative perceptions					
	Transgression	(1, 144)	101.965	.000	.41
	Emotional display	(1, 144)	10.121	.002	.07
	Interaction	(1, 144)	0.005	.943	.00

Does the shame display have similar effects for the item "shy" and "depressed"?

These two items were not included in the previous analyses because they were the only components of the third factor that emerged from the factorial analysis. The internal validity of this component wasn't considered satisfactory for it to remain a factor ($\alpha = .583$), therefore the two variables were analysed separately. A factorial 2 X 2 ANOVA was computed with as factors emotional display (shame vs neutral) and knowledge (transgression vs no transgression) in order to evaluate the effects of both factors on the items "shy" and "depressed".

Do ratings of shyness towards a shameful target decrease when there is knowledge of a transgression? Yes. There is a significant interaction between knowledge of a transgression and emotional display on ratings of shyness $F(1, 290) = 15.544$, $p < .000$, $\eta^2_p = .05$. When there is knowledge about a transgression, there is an increase in perceived shyness when the target is neutral, and a decrease in perceived shyness when the target is displaying shame. The interaction explains a small percentage of the variance in ratings of shyness towards the target, about 5% (see Figure 4, p. 24).

Do ratings of depression towards a shameful target decrease when there is knowledge of a transgression? Yes. Again, there is a significant interaction between both factors, emotional display and knowledge about a transgression, on ratings of the target appearing depressed, F(1, 290) = 7.684, p = .006, $\eta^2_p = .03$. When there is knowledge about a transgression, compared to when there is no transgression, shameful targets are rated as less depressed. However, when a transgression is known from the participant, neutral targets are rated as more depressed compared to when there is no knowledge of a transgression. The interaction accounts 3% of the variance on the ratings of depression towards the target, which constitutes a very small effect size (see Figure 5 p. 25).

Figure 4

Interaction plot with factors emotional display and knowledge about a transgression with dependent variable shyness
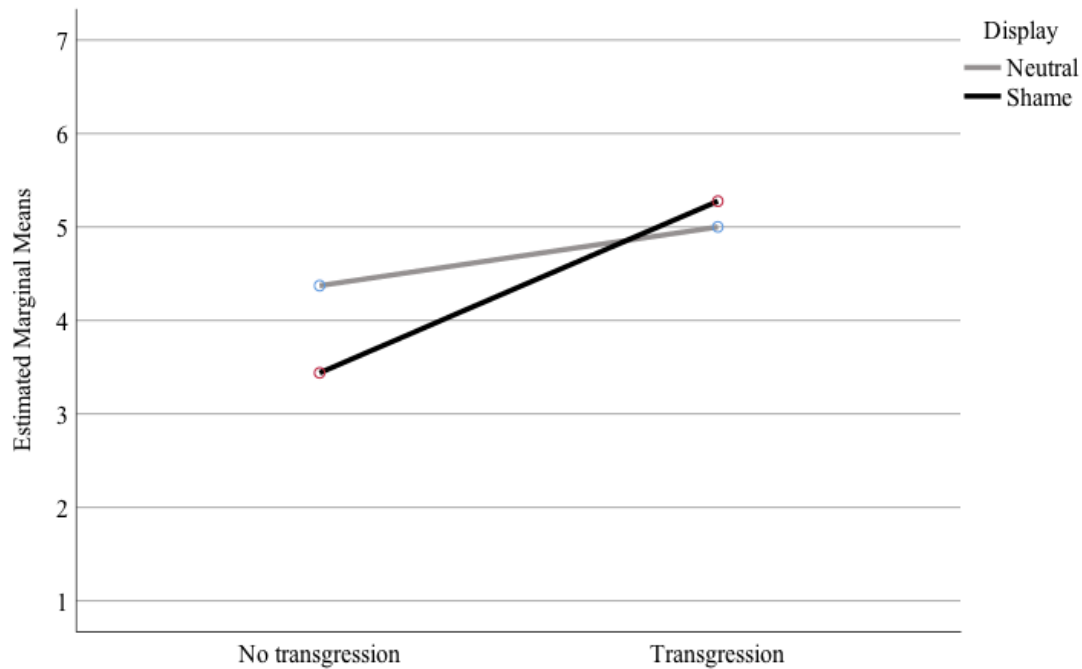
Note. Results of the factorial ANOVA 2 (knowledge: no transgression vs transgression) X 2 (emotional display: shame vs neutral) on the dependent ratings of shyness towards the target. There is a significant interaction between the two factors knowledge and emotional display on how shy the target appears. The scores on the variable shyness have been reverse coded: a high score means the target was rated as appearing less shy.
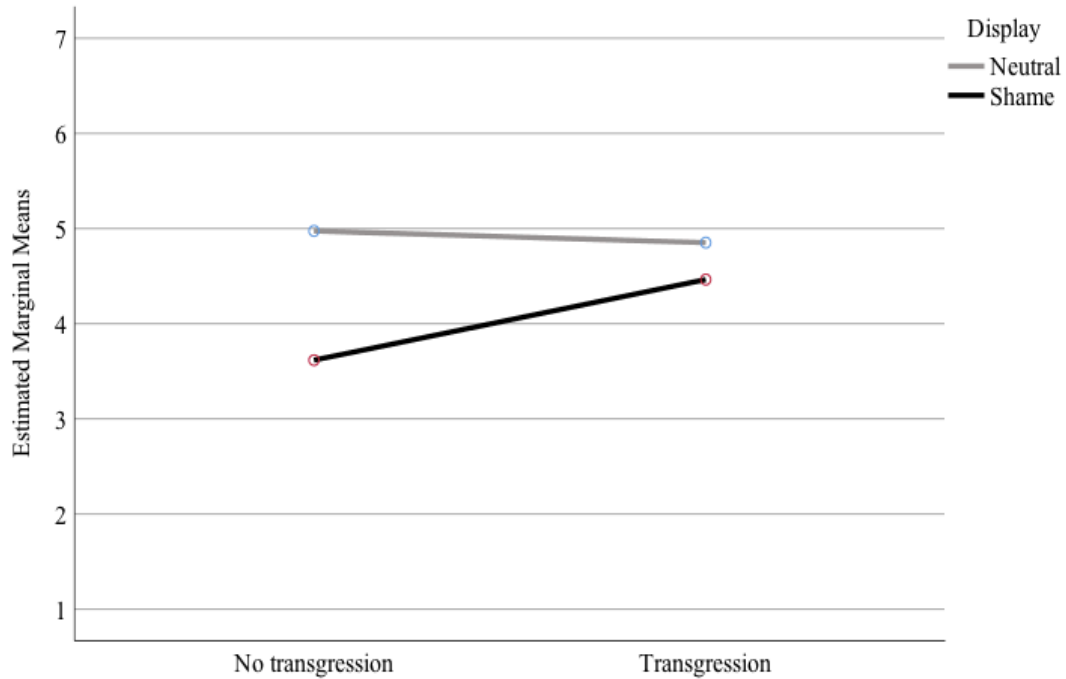
Figure 5

Interaction plot with factors emotional display and knowledge about a transgression with dependant variable appearing depressed

Note. Results of the factorial ANOVA 2 (knowledge: no transgression vs transgression) X 2 (emotional display: shame vs neutral) on the dependent ratings of how depressed the target appears. There is a significant interaction between the two factors knowledge and emotional display on ratings of depression attributed to the target. The data on the variable depressed has been reverse coded: a high score on this variable means the target appeared less depressed.

Discussion

The current project aims at exploring the social benefits and the consequences of displaying shame when a transgression is known from an audience compared to when such information is absent. We hypothesized that the obtained results from this study would be consistent with those obtained by Keltner and colleagues (1997). More specifically, we expected that shameful targets would receive higher ratings on positive traits (higher scores on benign evaluations) when the participant reads a vignette in which the target is committing a social transgression, compared to a neutral display. Furthermore, we expected shameful targets to receive higher scores on negative traits (lower scores on absence of undesirable traits) when no information about a transgression is communicated to the participant, compared to neutral targets. Our results did not support our hypotheses: shameful targets were rated less positively, and more negatively than neutral targets regardless of there being information about a transgression. However, the patterns for participants' ratings of the target's shyness and depressed appearance both displayed interactions: shameful targets were attributed lower ratings of shyness and depressed appearance when the participant read about a transgression compared to a control vignette. The hypotheses are discussed individually below.

Shame is described by many as a functional emotion which has the function to decrease the threat of losing social value in the eyes of an audience (de Hooge et al., 2011; Gilbert & McGuire, 1998; Sznycer et al., 2016; Sznycer et al., 2018). The two hypotheses expected results consistent with the appeasement process as described by Keltner and colleagues (1997). The authors hold that displaying shame would appease an audience aware of a wrongdoing, thereby reducing the threat of aggression towards the shameful transgressor. Moreover, the authors found that participants gave higher sympathy ratings to photographs displaying a person expressing shame after the participants imagined that same person committing a social transgression. We first hypothesized that participants reading a vignette describing a transgression (someone stealing money or making a mean comment about a colleague) would perceive more positively the target if he/she expresses shame, compared to a neutral display. The results do not bring support to our hypothesis and the appeasement function of shame. Shameful targets received lower scores on the benign evaluation component, compared to neutral targets, regardless of the knowledge state (transgression vs no transgression). Moreover, transgressors were perceived less

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positively than non-transgressors. In other words, the shame display was not strong enough to increase the positive perceptions towards transgressors, compared to a neutral display.

On the other hand, shame is perceived by many as an ugly emotion associated with psychological maladjustment (Lewis, 1995; Tangney et al., 1992). It is hypothesized that the psychological maladjustment associated with the shame display may be socially costly. More specifically, people would perceive a person displaying shame as a less attractive social partner. This may be due to shame being directly associated with anger and indirectly associated with verbal and physical aggression (Tangney et al., 1992, Stuewig et al., 2010). Moreover, shame has been associated to social anxiety and depression (Gilbert, 2000). Therefore, shame displayed in the absence of any wrongdoing may lead to increased social costs. We hypothesized that targets displaying shame would be perceived more negatively, than neutral targets, when the participant is not given information about a transgression. However, our results do not support this hypothesis: shameful targets were perceived more negatively regardless of the participant receiving information about a transgression compared to not receiving such information.

It does appear from the rejection of both hypotheses that shame is an ugly emotion: targets who displayed shame received lower positive ratings and higher negative ratings across the knowledge condition. However, the picture appears to be more complex. Two items not included in the benign evaluation and the absence of undesirable traits components give different results. Shameful transgressors received lower scores on how shy and depressed they appeared compared to shameful non-transgressors. Furthermore, neutral transgressors received higher shyness scores compared to shameful transgressors. If shame was strictly a negative emotion, higher depressive and shyness scores would be expected for shameful targets, compared to neutral targets, regardless of knowledge about a transgression. That is not the case in our sample. These results indicate that there are more variables to be taken into account; the relationship between shame and depression, and shame and shyness may be more complex. For example, knowledge about a wrongdoing may affect the relationship between shame and depression, as well as shame and shyness.

In general, the results do not support the functional hypothesis of shame and the shame display as maladaptive hypothesis. To this day, there are no published studies aimed at

replicating the results found for the appeasement hypothesis (Keltner et al., 1997) and even fewer explore shame from the point of view of the audience, and not the shameful individual. Studies that have investigated felt shame found that shameful individuals behaved more prosocially in a social dilemma game (De Hooge et al., 2008) and preferred to play a game with a partner rather than alone (De Hooge et al., 2018). The absence of results supporting our hypotheses may be that the display of shame is not strong enough to persuade the audience that one is aware of their wrongdoing. More specifically, actions aimed at the audience may be more powerful in displaying that one is an attractive social partner even though a transgression was committed. Future studies may want to investigate beyond the shame display and look at behaviours motivated by the feeling of shame, such as being more cooperative in a social game.

This is a potential limiting factor regarding the current project. However, there are other limitations to this experiment. Firstly, the online task being a questionnaire, the results may not generalize to face to face interactions, or at least, to all social interactions. Many factors may impact how we perceive a shameful person, for example, whether this person is an acquaintance, a very good friend, or a family member. People may hold different expectations with regards to "tolerated" transgressions depending on the relationship between that person and the transgressor. In the current project, the target is a stranger and that may be a variable affecting both positive perceptions and negative perceptions. Furthermore, face to face interactions may be more powerful at communicating shame than a static photograph. The pictures used were standardized, meaning they were recognized at levels significantly greater than chance (Tracy et al., 2009), however, emotions are not static. The shame display involves moving the head and the shoulders down, avoiding other people's eyes; therefore, the movement displayed during face to face interactions is not captured in the questionnaire. Future online studies should consider the use of short clips of people gradually moving from a neutral stance to a shame display in order to better communicate the emotion. Furthermore, the use of social games may create a more natural setting than a vignette-based study. Secondly, related to the usage of vignettes, another limitation that is important to point out is related to inconsistencies in results between the two vignettes used in the current project. Whereas the vignette describing a target saying a colleague looked stupid resulted in a main effect of both emotional display and knowledge about a transgression, the vignette describing a bar employee stealing money only found main effects for knowledge

about a transgression. The two transgressions are very different and may therefore lead to different intensity levels with regards to seriousness which may lead to different results. The shame display may not matter, or is not powerful enough, when the transgression is very serious, such as stealing 100$ in a tip jar. In that context, the presence or absence of transgression may be the only thing that matters with regards to positive and negative ratings associated to the transgressor. Scenarios similar in terms of seriousness should be used in the future as it may have an impact on the data, or various intensities of seriousness may be described in various scenarios in order to explore how powerful the shame display is on an audience's perceptions of a specific target. Lastly, it was the first time these items have been used to measure an audience's perception of a target. It would be important to further explore these items in order to identify which are most useful in measuring positive traits as well as negative traits.

This current project is a first step in exploring the social consequences of displaying shame on an audience. The broader idea is to explore the impacts of the shame display across various cultures (ex., India) and using different methods of measurement (ex., social dilemma games). If replicable benefits and consequences are found, we may be able to support one of the current theories in the literature. In the absence of such replicable benefits and consequences, we may wonder if the function the shame display had for our ancestors is still applicable to our contemporary lives. One thing is clear from this current project and previous literature: the function of shame and its consequences are more complex than what they might appear at face value. Is the shame display solving the same adaptive problem as it did for our ancestors? Are verbal displays of shame more powerful now than visual displays of shame? Much more research is required to understand how shame works and its social impacts.

Transgression condition (the vignette is presented as if the participant is male)

This is John. John works at a bar as a waiter to get an extra income. John works with three other waiters. John and his three workmates all put the tips made during the shift in a box, and then split the money equally among the four of them. Because they do not all finish work at the same time, the four of them meet up the next day before the next shift, count the money made in the previous shift, and distribute it equally among the four of them. Tonight's shift has just finished. The costumers all left, and John and hi workmates are cleaning up and restocking some supplies. One by one, John's workmates leave and finally the only person in the bar is John, because he has to finish wiping up his bar area. When John is done cleaning up, he walks toward the tip box. John takes a 50 dollar bill from the common pool of tips and puts it in his pocket. Then he reaches again into the tip box and grabs another 50 dollar bill. He is in the middle of taking the second $50 from the tip box, when he looks up. One of John's workmates had come back unexpectedly, because he had forgotten his cellphone. John realizes that his workmate has seen him stealing cash from the tip box.

John saw his workmate. And his workmate saw John.

This is John at that moment.

No transgression condition (the vignette is presented as if the participant is male)

This is John. John works nights at a bar as a waiter to get extra income. John works with three other waiters. John and his three workmates all put the tips made during the shift in a box, and then they split the money equally among the four of them. Because they do not all finish work at the same time, the four of them meet up the next day before the next shift, count the money made in the previous shift, and distribute it equally among the four of them. Tonight's shift has just finished. The costumers all left, and John and his workmates are cleaning up and restocking some supplies. One by one, John's workmates leave, and finally the only person left in the bar is John, because he has to finish wiping up

his bar area. Now John is done cleaning up. Then, one of his's workmates comes back unexpectedly, because he had forgotten his cellphone.

John saw his workmate. And his workmate saw John.

This is John at that moment.

Appendix B

Transgression condition (the vignette is presented as if the participant is male)

This is John. John is an employee at a small retail store. John works with another employee. Around noon, John and his workmate take their lunch break. They have their lunch one at a time, so that there's always one employee at the store to help customers. John's workmate has just finished his lunch. It's John's lunch break now, so he stops what he's doing and goes to have his lunch. John and his workmate nod hello to each other as John enters the break room and John's workmate exits it. John sits at the table and begins to eat his lunch. Then John's cell phone rings. It's John's brother, calling to ask something. After a while, John's brother asks him how his day is going. John says all is going well. Then John adds: "There's this guy I work with… he's a good person, but his face… you just have to see his face… he looks like an idiot!" John hears a gasp. He turns around. It's his workmate, who just walked into the break room to pick up a food container. John realizes that his workmate heard what he said about him.

John saw his workmate. And his workmate saw John.

This is John at that moment.

No transgression condition (the vignette is presented as if the participant is male)

This is John. John is an employee at a small retail store. John works with another employee. Around noon, John and his workmate take their lunch break. They have their lunch one at a time, so that there's always one employee at the store to help customers. John's workmate has just finished his lunch. It's John's lunch break now, so he stops what he's doing and goes to have his lunch. John and his workmate nod hello to each other as John enters the break room and John's workmate exits it. John sits at the table and begins to eat his lunch. Then John's cell phone rings. It's John's brother, calling to ask something. John talks with his brother for a few minutes and then he hangs up. At that point, his workmate, walks into the break room to pick up a food container.

John saw his workmate. And his workmate saw John

This is John at that moment.

Appendix C

List of items (as they would be presented to a male participant)

1. John is attractive as a social partner.
2. John is friendly.
3. John is a nice person.
4. John is likeable.
5. John is trustworthy.
6. John is honest.
7. John is despicable.
8. John is disgusting.
9. John is selfish.
10. John has something to hide.
11. John has mental problems.
12. John is shy.
13. John is depressed.
14. John deserves to be punished.
15. John deserves respect.
16. John deserves sympathy.
17. John deserves forgiveness.

Appendix D

Saturations of the items in the questionnaire

Item	Factor 1	Factor 2	Factor 3
Friendly	.903		
Likeable	.869		
Nice person	.833		
Attractive as a social partner	.798		
Trustworthy	.622		
Honest	.521		
Deserves respect	.443		
Deserves forgiveness	.337		
Deserves punishment (Recoded)		.867	
Despicable (Recoded)		.860	
Disgusting (Recoded)		.827	
Selfish (Recoded)		.747	
Has mental problems (Recoded)		.565	
Has something to hide (Recoded)		.537	
Depressed (Recoded)			.739
Shy (Recoded)			.607

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