



You want to give a good impression? Be honest! Moral traits dominate group impression formation

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Research has shown that warmth and competence are core dimensions on which perceivers judge others and that warmth has a primary role at various phases of impression formation. Three studies explored whether the two components of warmth (i.e., sociability and morality) have distinct roles in predicting the global impression of social groups. In Study 1 ($N = 105$) and Study 2 ($N = 112$), participants read an immigration scenario depicting an unfamiliar social group in terms of high (vs. low) morality, sociability, and competence. In both studies, participants were asked to report their global impression of the group. Results showed that global evaluations were better predicted by morality than by sociability or competence-trait ascriptions. Study 3 ($N = 86$) further showed that the effect of moral traits on group global evaluations was mediated by the perception of threat. The importance of these findings for the impression-formation process is discussed.

When people form an overall impression about others, whether individuals or groups, they are often confronted with a patchwork of information comprising traits and behaviours (Neuberg & Fiske, 1987; Peeters, 1983; Reeder & Brewer, 1979; Skowronski & Carlston, 1987; Tausch, Kenworthy, & Hewstone, 2007). Interestingly, several studies have converged on the important realization that two core content dimensions underlie person and group impressions (see Abele, Cuddy, Judd, & Yzerbyt, 2008; Judd, James-Hawkins, Yzerbyt, & Kashima, 2005). Different names denote these two dimensions, such as agency *versus* communion (Abele, 2003; Bakan, 1966), warmth *versus* competence (Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, Glick, & Xu, 2002), socially *versus* intellectually good-bad (Rosenberg, Nelson, & Vivekananthan, 1968). Even though these different labels permeate the current literature, there is wide agreement on the core underlying each of those dimensions (Abele & Wojciszke, 2007; see also Abele *et al.*, 2008). Following Fiske *et al.* (2002), we speak here of warmth and competence. Thus,

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whereas warmth pertains to functioning in social relations and involves qualities such as friendliness, kindness, and trustworthiness, competence refers to task functioning and involves qualities such as efficiency and capability (Abele *et al.*, 2008; Cuddy *et al.*, 2008). Indeed, these two dimensions differently indicate whether someone's intentions towards us are beneficial or harmful, that is, whether they present an opportunity or a threat (i.e., warmth), and whether they have the ability to fulfil their intentions (i.e., competence) (Fiske, Cuddy, & Glick, 2007).

Research on person perception has consistently suggested that warmth judgements carry more weight than competence judgements in the various phases of the impression-formation process (De Bruin & Van Lange, 1999, 2000; Martijn, Spears, Van der Pligt, & Jakobs, 1992; Vonk, 1996; Wojciszke, Bazinska, & Jaworski, 1998; for a review see Wojciszke, 2005). Specifically, warmth information is more frequently sought when data on others are gathered. Moreover, when it is already gathered, information on warmth influences global conclusions on others to a higher degree than information on competence. For instance, Wojciszke *et al.* (1998) showed that warmth was a significantly stronger predictor than competence of global impressions of familiar others. Moreover, the warmth content of fictitious others' behaviours was the strongest predictor of the global evaluation of the target, whereas competence content only weakly modified the intensity of the evaluation. In a similar vein, evaluations based on warmth information were strong and stable whereas evaluations based on competence information were weak and dependent on accompanying warmth information. Finally, regardless of the valence of the competence information about a target, negative warmth information always elicited negative global evaluations, and positive warmth information always elicited positive global evaluations (see also Wojciszke, 2005).

The primacy of warmth in the impression-formation process has been explained mostly referring to a functionalist perspective. As a matter of fact, when forming an impression people are primarily interested in defining whether someone's intentions are beneficial or harmful, that is, whether they represent a material or psychological opportunity or a threat and, with respect to this, warmth is more informative than competence (Cuddy *et al.*, 2008; Ybarra, Chan, & Park, 2001). Interestingly enough, the available research on the primary role of warmth-related information on the impression-formation process would seem to be restricted to person perception (De Bruin & Van Lange, 1999, 2000; Martijn *et al.*, 1992; Vonk, 1996; Wojciszke, 2005; Wojciszke *et al.*, 1998). Apparently, and in spite of the wealth of efforts devoted to studying the formation, maintenance, and change of group stereotypes, no research has explicitly addressed whether global evaluations of social groups depend to a higher degree on warmth than on competence information. Indeed, prior research at the group level has almost exclusively focused on the attribution of warmth and competence traits to social groups (for a review see Cuddy *et al.*, 2008; see also Alexander, Brewer, & Herrmann, 1999; Fiske *et al.*, 2002; Phalet & Poppe, 1997; Poppe & Linssen, 1999; Yzerbyt, Provost, & Corneille, 2005) overlooking the extent to which warmth and competence traits predict the global impression of groups. This is all the more surprising given that the dimensions underlying group perception would seem to be the same as those at the heart of person perception. Moreover, such an issue seems particularly relevant considering that previous studies demonstrated that global evaluations of groups predict intergroup behaviours and the desire to engage in intergroup contact (for reviews see Stephan, Ybarra, & Morrison, 2009; Yzerbyt & Demoulin, 2010). The present research aimed to fill this gap by investigating whether the primary role of warmth in impression formation observed at the interpersonal level could be extended at the group level.

Importantly, research on both person and group perception has suggested that the warmth dimension encompasses two distinct aspects: sociability and morality (Leach, Ellemers, & Barreto, 2007). Whereas sociability is predominantly associated with cooperation and with forming connections with others (e.g., friendliness, likeability), morality is predominantly associated with characteristics pertaining to the correctness of social targets (e.g., honesty, sincerity, and trustworthiness). At the interpersonal level it has been shown that people treat personality traits related to sociability as distinct from traits related to morality (Ashton & Lee, 2001; De Raad & Peabody, 2005). Moreover, at the group level, morality traits turn out to be more important than sociability and competence traits in positive in-group evaluation (Leach *et al.*, 2007). Therefore, although morality and sociability traits are all prosocial traits (Fiske *et al.*, 2002) and can be seen as falling along the same general dimension of evaluation (i.e., warmth), they are conceptually distinct characteristics and play different roles at the group and at the individual level (Leach *et al.*, 2007).

Despite this evidence, research on impression formation has tended to conflate morality and sociability into the broader dimension of warmth (e.g., Fiske *et al.*, 2002; Vonk, 1996; Wojciszke, 2005; Wojciszke *et al.*, 1998; Ybarra *et al.*, 2001). It should be noted however that researchers have tended to use the label 'morality' instead of 'warmth' (e.g., Vonk, 1996; Wojciszke, 2005; Wojciszke *et al.*, 1998; Ybarra *et al.*, 2001) even though the actual measures comprised traits referring to sociability (e.g., kind and cheerful) as well as to morality (e.g., honest and sincere). In other words, there is a substantial overlap between the morality dimension used in previous studies on impression formation and the construct of warmth. In the present paper, morality is intended as an aspect of warmth that is distinct from sociability and that comprises characteristics relevant to the perceived correctness of social targets (see Leach *et al.*, 2007). Even if the moral domain might be conceived as even broader than this definition, such an operationalization of the moral domain is widespread in Western cultures (Graham & Haidt, 2010; Haidt, Koller, & Dias, 1993; Shweder, Much, Mahapatra, & Park, 1997). Therefore, in the present work, we confined the conceptualization of morality to this definition (see also Leach *et al.*, 2007).

Based on the distinction between sociability and morality, recent experimental work by Brambilla, Rusconi, Sacchi, and Cherubini (2011) using an intergroup perspective showed that sociability and morality play distinct roles in an important phase of the impression-formation process, that is, information gathering. Indeed, participants selected significantly more morality than sociability and competence traits when asked to choose traits that would help them to decide whether an in-group or an out-group member deserved their generally positive opinion. Moreover, participants adopted different information-search strategies when inquiring about morality rather than about sociability and competence, showing a tendency to search for highly diagnostic information on others' immoral characteristics. Therefore, when forming global impressions of others, people were more interested in gathering information on morality than on sociability or competence. In addition, this preference was not affected by the group membership (in-group *vs.* out-group) of the target about whom participants were gathering information. In order to account for these findings, Brambilla *et al.* (2011) embraced a functionalist perspective. As a matter of fact, previous studies argued that moral traits are more relevant than sociability and competence traits in defining whether someone represents an opportunity or a threat (Willis & Todorov, 2006). Moreover, it seems that traits related to the perceived correctness of social targets (e.g., honesty and trustworthiness) have a crucial role in establishing the intentions of others (see Amaral, 2002; Engell, Haxby, &

Todorov, 2007; Winston, Strange, O'Doherty, & Dolan, 2002). Sociability instead relates to forming connections with others and therefore seems to be less important than morality when establishing the intentions of others. Considering that the primary role of the information-gathering process is to identify potential threats (Wojciszke *et al.*, 1998), it is not surprising that moral traits would dominate the information-gathering process. In other words, Brambilla *et al.* (2011) argued that the evolutionary argument used to explain the primacy of warmth over competence in the information-gathering process (see Fiske *et al.*, 2007) might be better conceived as a theoretical interpretation mostly referring to the moral component of warmth.

A key question addressed by the present research is thus whether or not the leading role of morality persists beyond the information-gathering process and affects the formulation of global evaluations. As a matter of fact, research has shown that the information gathering and the global evaluation of social targets, whether individuals or groups, may be considered two distinct phases of the impression-formation process (see De Bruin & Van Lange, 2000; Einhorn & Hogarth, 1981; Wojciszke, 2005). Furthermore, it has been argued that the same information might be treated differently in the information-gathering stage and when making global evaluative judgements. For instance, it has been shown that negative information is more attention grabbing and attention holding than positive information, thus being paramount in the information-search phase (Carnaghi & Yzerbyt, 2006; Fiske, 1980; Yzerbyt & Leyens, 1991). Still, when making global impression appraisals, negative information might be fenced off thus decreasing its evidential strength and fostering the preservation of pre-existing expectancies (Coull, Yzerbyt, Castano, Paladino, & Leemans, 2001; Kunda & Oleson, 1995, 1997; Rothbart & John, 1985; Yzerbyt, Coull, & Rocher, 1999).

Building on work by Brambilla *et al.* (2011), this paper aimed to explore the distinct roles played by sociability, morality, and competence in predicting the global impressions of social groups. We hypothesized that information about morality should be weighted more heavily when forming a global evaluative judgement of social groups than information about sociability and competence. The rationale underlying this hypothesis is based on the assumption that the identification of potential threats is a crucial aspect, not only of the information-gathering process, but also of the other phases of impression formation (Wojciszke, 2005; Wojciszke *et al.*, 1998; see also Cuddy *et al.*, 2008; De Bruin & Van Lange, 2000; Fiske *et al.*, 2007). Indeed, when forming a global impression on either individuals or groups, perceivers are primarily interested in defining whether they represent an opportunity or a threat (Fiske *et al.*, 2007). Accordingly, based on the arguments posed by Brambilla *et al.* (2011) (see also Amaral, 2002; Engell *et al.*, 2007; Willis & Todorov, 2006; Winston *et al.*, 2002), one would expect that morality has a leading role over sociability and competence in establishing the intentions of other individuals or groups. We conducted three different studies to test our hypothesis.

STUDY 1

Study 1 was designed as a first test of our hypothesis that group global evaluations would be influenced more heavily by specific judgements on morality traits than by evaluations on sociability and competence traits. To do so, we conducted an experiment using hypothetical scenarios. Specifically, we experimentally manipulated the levels of competence, sociability, and morality ascribed to a fictitious social group. The use of hypothetical scenarios allowed avoiding possible confounds due to group relations

constrained by actual historical circumstances (for a similar argument, see Caprariello, Cuddy, & Fiske, 2009).

Method

Participants

One hundred and five students from a large Italian university voluntarily took part in the study (18 males, 86 females, and 1 who did not specify her/his gender; $M = 22.70$, $SD = 2.27$). All participants were Italian citizens.

Materials and procedure

Participants were asked to fill out a questionnaire about group impression formation. Specifically, participants were asked to imagine that an unfamiliar ethnic group (i.e., the Ortandesi) would be immigrating to Italy in the next year. We devised a 3 (dimension: morality, sociability, competence) \times 2 (trait level: high *vs.* low) between-participants design. Participants were randomly assigned to one of the six experimental conditions. Thus, each participant was provided with information regarding only one of the three dimensions. To manipulate morality, sociability, and competence trait related information, we used nine items (see Brambilla *et al.*, 2011). Specifically, depending on the experimental condition, the group of Ortandesi was described as either high or low in morality (i.e., honest, sincere, trustworthy), sociability (i.e., friendly, warm, likeable), or competence (i.e., intelligent, competent, skilful). Items were balanced in their favourability.¹ Specifically, participants read: 'Imagine that due to political and economic reasons, there will be a wave of immigration to Italy in the next few years from members of a group called Ortandesi. Below, we indicate the degree to which the members of this social group have some characteristics. The members of the group of Ortandesi are . . .'. Participants then read a table showing three traits of the selected dimension and, for each trait, its corresponding level ('high' or 'low') was marked. Next, participants were asked to report their global impression of the group (i.e., 'What is your global impression of this group?'), using a seven-point scale ranging from 1 (*extremely negative*) to 7 (*extremely positive*) (see De Bruin & Van Lange, 1999, 2000; Wojciszke *et al.*, 1998).

Results and discussion

In order to explore whether group global evaluations were influenced more by information on morality traits than on sociability and competence traits, we submitted the global evaluation scores to a 3 (dimension: morality, sociability, competence) \times 2 (trait level: high *vs.* low) analysis of variance (ANOVA) with all the factors varying between participants.

¹ Forty-one students from a large university in Italy (20 men, 21 women; $M = 22.85$, $SD = 2.89$) evaluated the global favourability of morality, sociability, and competence-related traits. Participants randomly evaluated either the morality, or sociability, or competence traits on a scale ranging from -5 (very unfavourable) to 0 (neutral) to 5 (very favourable). We submitted the global favourability ratings to a one-way ANOVA using the three dimensions as the between-participants factor. The analysis showed that moral traits were rated as favourably ($M = 4.02$, $SD = .66$) as sociability ($M = 3.88$, $SD = 1.03$) and competence ($M = 3.50$, $SD = .97$) traits, $F(2,38) = 1.22$, $p = .31$, $\eta_p^2 = .06$. Specifically, moral traits were rated as favourably as sociability traits ($p = .68$) and competence traits ($p = .14$). Moreover, competence traits were rated as favourably as sociability traits ($p = .27$). For similar findings on the same traits, see Leach *et al.* (2007).

Table 1. Global evaluation ratings in the high vs. low morality, sociability, and competence conditions (Study 1)

Dimension	Trait level	
	High	Low
Morality	5.58 (.90) _a	1.94 (.75) _a
Sociability	4.88 (.72) _b	3.56 (1.50) _b
Competence	4.73 (.79) _b	3.30 (1.17) _b

Note. Means with different subscripts in a given column are significantly different from each other at $p < .04$. Standard deviations are in parentheses.

The analysis revealed a main effect of trait level $F(1,99) = 111.34, p = .001, \eta_p^2 = .52$, indicating that participants in the high morality, sociability, and competence conditions rated the group more favourably ($M = 5.06, SD = .88$) than participants in the low morality, sociability, and competence conditions ($M = 2.93, SD = 1.30$). We did not find a main effect of dimension $F(2,99) = 1.72, p = .18, \eta_p^2 = .03$. However, the analysis yielded a significant dimension by trait level interaction, $F(2,99) = 14.21, p = .001, \eta_p^2 = .22$. Follow-up analyses allowed us to uncover the nature of the interaction. As shown in Table 1, participants evaluated the group more favourably in the high-morality condition ($M = 5.58, SD = .90$) than in the high sociability ($M = 4.88, SD = .72$) and high-competence condition ($M = 4.73, SD = .79$), $F(2,99) = 3.39, p = .03, \eta_p^2 = .06$. Participants in the high-sociability condition evaluated the group as favourably as in the high-competence condition ($p = .70$).

Similarly, participants evaluated the group less favourably in the low-morality condition ($M = 1.94, SD = .75$) than in the low-sociability ($M = 3.56, SD = 1.50$) and low-competence condition ($M = 3.30, SD = 1.17$), $F(2,99) = 12.43, p = .001, \eta_p^2 = .20$. Participants in the low-sociability condition evaluated the group as favourably as in the low-competence conditions ($p = .45$).

These findings provide encouraging initial support for our hypothesis. Our data show that morality, sociability, and competence played distinct roles in predicting the global impressions of social groups. Specifically, information about morality was weighted more heavily in forming a global evaluative judgement of social groups than information about competence and sociability.

STUDY 2

The main goal of Study 2 was to replicate the findings of Study 1 using a different experimental design. It should be noted that in most impression-formation studies, the information that participants receive about a target generally pertains to only one dimension. However, in everyday interactions, people often have information about more than one dimension. Accordingly, in the present study, we provided each participant with information about sociability, competence, and morality (for a similar argument see De Bruin & Van Lange, 1999). We relied on a 2 (morality: high vs. low) \times 2 (sociability: high vs. low) \times 2 (competence: high vs. low) between-participants design. Besides being more realistic, the design of the second study also allowed us to explore the conjoint effects of the information on the different dimensions in predicting the general favourability of the target group (see also Wojciszke *et al.*, 1998). As in Study 1,

we predicted that global impression should depend to a higher degree on morality than on sociability and competence information.

Method

Participants

One hundred and twelve students from a large Italian university voluntarily took part in the study (48 men, 63 women, and 1 who did not specify her/his gender; $M = 22.02$, $SD = 2.32$). All participants were Italian citizens.

Materials and procedure

Participants completed a questionnaire in which an ethnic group (i.e., the Ortandesi) was described. As in Study 1, participants were asked to imagine that this group would be immigrating to Italy in the near future. Based on the 2 (morality: high *vs.* low) \times 2 (sociability: high *vs.* low) \times 2 (competence: high *vs.* low) between-participants design, participants were randomly assigned to one of the eight experimental conditions. In order to manipulate morality, sociability, and competence trait related information, we used the same nine items as in Study 1. After reading the description, participants reported their global impression of the target (i.e., 'What is your global impression of the Ortandesi?') using a seven-point scale ranging from 1 (*extremely negative*) to 7 (*extremely positive*). Moreover, we included some items to check the success of the experimental manipulations. Indeed, participants rated the target on perceived morality (i.e., 'How likely is it that Ortandesi are moral?'), sociability (i.e., 'How likely is it that Ortandesi are sociable?'), and competence (i.e., 'How likely is it that Ortandesi are competent?') on seven-point scales ranging from 1 (*not at all*) to 7 (*extremely*).

Results and discussion

Manipulation check

To check the manipulation, the morality, sociability, and competence scores were submitted to a 2 (morality: high *vs.* low) \times 2 (sociability: high *vs.* low) \times 2 (competence: high *vs.* low) between-participants multivariate analysis of variance (MANOVA). The analysis revealed a significant multivariate main effect of morality $F(3,104) = 71.32$, $p = .001$, $\eta_p^2 = .68$. At the univariate level, the main effect of morality was significant only for the morality scores $F(1,104) = 199.7$, $p = .001$, $\eta_p^2 = .66$ (other $F < 1$; $p > .64$). Thus, participants rated the group as more moral in the high-morality conditions ($M = 5.04$, $SD = 1.24$) than in the low-morality conditions ($M = 2.04$, $SD = .99$). In contrast, participants perceived the group as sociable in the high-morality conditions ($M = 3.84$, $SD = 2.29$) as in the low-morality conditions ($M = 3.95$, $SD = 2.16$). In a similar vein, the group was rated as competent in the high-morality conditions ($M = 4.02$, $SD = 2.06$) as in the low-morality conditions ($M = 4.03$, $SD = 2.39$).

The analysis also yielded a multivariate main effect of competence $F(3,104) = 107.58$, $p = .001$, $\eta_p^2 = .76$. At the univariate level, the main effect of competence was significant only for the competence scores $F(1,104) = 317.04$, $p = .001$, $\eta_p^2 = .75$ (other $F < 1$; $p > .09$). Hence, participants rated the group as more competent in the high-competence conditions ($M = 5.91$, $SD = 1.23$) than in the low-competence conditions ($M = 2.14$, $SD = 1.11$). Participants perceived the group as moral in the high-competence conditions

($M = 3.72$, $SD = 1.94$) as in the low-competence conditions ($M = 3.36$, $SD = 1.78$). Furthermore, the group was rated as sociable in the high-competence conditions ($M = 3.88$, $SD = 2.31$) as in the low-competence conditions ($M = 3.91$, $SD = 2.16$).

Finally, the analysis revealed a multivariate main effect of sociability $F(3,104) = 109.79$, $p = .001$, $\eta_p^2 = .76$. At the univariate level, the main effect of sociability was significant only for the sociability scores $F(1,104) = 311.86$, $p = .001$, $\eta_p^2 = .75$ (other $F < 1$; $p > .08$). Specifically, participants rated the group as more sociable in the high-sociability conditions ($M = 5.80$, $SD = 1.39$) than in the low-sociability conditions ($M = 1.98$, $SD = .89$). In contrast, participants perceived the group as moral in the high-sociability conditions ($M = 3.47$, $SD = 1.88$) as in the low-sociability conditions ($M = 3.62$, $SD = 1.88$). Furthermore, the group was rated as competent in the high-sociability conditions ($M = 3.84$, $SD = 2.33$) as in the low-sociability conditions ($M = 4.21$, $SD = 2.14$). In sum, our manipulation of morality, sociability, and competence appeared to be successful.

Global impressions

As a second step, we submitted the global impression scores to a 2 (morality: high *vs.* low) \times 2 (sociability: high *vs.* low) \times 2 (competence: high *vs.* low) ANOVA with all three factors varying between participants.

The analysis yielded a main effect of morality $F(1,104) = 94.19$, $p = .001$, $\eta_p^2 = .48$. Participants rated the group more favourably in the high-morality condition ($M = 4.53$, $SD = 1.53$) than in the low-morality condition ($M = 2.40$, $SD = 1.06$). We also found a main effect of sociability $F(1,104) = 12.89$, $p = .001$, $\eta_p^2 = .11$ indicating that participants rated the group more positively in the high-sociability condition ($M = 3.86$, $SD = 1.68$) than in the low-sociability condition ($M = 3.07$, $SD = 1.64$). Finally, the analysis yielded a main effect of competence $F(1,104) = 18.83$, $p = .001$, $\eta_p^2 = .15$. Participants rated the group more favourably in the high-competence condition ($M = 3.94$, $SD = 1.75$) than in the low-competence condition ($M = 2.99$, $SD = 1.43$). There were no interaction effects (all $p > .08$).

Although the three main effects pertaining to the low *versus* high levels of a given dimension on participants' global impression are unsurprising, it is important to note that the effect was much stronger for morality than for sociability or competence. As a matter of fact, the effect size was three to four times higher for morality ($\eta_p^2 = .48$) than for sociability ($\eta_p^2 = .11$) and competence ($\eta_p^2 = .15$).

Study 2 thus nicely confirms the findings obtained in Study 1. Clearly, global evaluative impressions about social groups were more strongly influenced by information on their morality, than by information on their sociability or competence.

STUDY 3

Study 3 sought to replicate and extend the findings of Studies 1 and 2 by uncovering the mediating mechanism that may drive the predicted direction of influence from perceived traits to global evaluations. A considerable amount of research has indicated that in forming an overall impression of others, whether individuals or groups, people are primarily interested in defining whether someone's intentions are beneficial or harmful, that is, whether they represent a material/psychological opportunity or a threat (Cuddy *et al.*, 2008; De Bruin & Van Lange, 2000; Fiske *et al.*, 2007; Wojciszke, 2005; Wojciszke

et al., 1998). Accordingly, perceived threat has been shown to be a valid predictor of group global impressions (for reviews see Cottrell & Neuberg, 2005; Riek, Mania, & Gaertner, 2006; Stephan *et al.*, 2009). Specifically, high-threat groups are perceived less favourably than low-threat groups. Moreover, the perception of threat leads to direct hostile behaviours against the group that is seen as the source of threat (see Stephan & Stephan, 2000; Stephan *et al.*, 2009).

Interestingly, it has been argued that morality should be a stronger predictor of global impressions of groups than competence and sociability due to its crucial role in clarifying the intentions of others. In other words, it has been suggested that morality-related information would be more relevant than competence- and sociability-related information in defining whether someone represents an opportunity or a threat (Amaral, 2002; Brambilla *et al.*, 2011; Engell *et al.*, 2007; Willis & Todorov, 2006; Winston *et al.*, 2002). In line with this reasoning, we hypothesized that the impact of morality trait related information on group global evaluation found in Studies 1 and 2 should be mediated by the perception of threat. Thus, groups perceived to be not moral should trigger high levels of perceived threat that, in turn, should elicit a negative overall impression. By contrast, groups perceived to be moral should trigger low levels of perceived threat that, in turn, should elicit a more favourable overall impression. Building upon the idea that sociability and competence trait related information should be less relevant in establishing the intentions of others (Brambilla *et al.*, 2011), we expected that the hypothesized mediation should be weaker, or even absent, when either sociability or competence information are taken into account.

It should be noted that such hypothesized mediation was also implicitly suggested by prior work on the broader dimensions of warmth and competence showing that warmth is a significantly stronger predictor than competence of global impressions (Cuddy *et al.*, 2008; Wojciszke, 2005; Wojciszke *et al.*, 1998; Ybarra *et al.*, 2001). However, to our knowledge, no prior study has tested such a mediational model either on the broader dimension of warmth, or on the two subcomponents of sociability and morality. Thus, Study 3 aimed to test the hypothesized mediating mechanism that may drive the predicted direction of influence from perceived traits to group global evaluations.

In our first two studies, we measured our criterion variable by means of a single item. To address the limitation that this may constitute a somewhat unreliable measure, we decided to rely on a measure of the global evaluation of the group that involved several evaluative items.

Method

Participants

Eighty-six students from a large Italian university voluntarily took part in the study (17 men, 69 women; $M = 22.07$, $SD = 4.58$). All participants were Italian citizens.

Materials and procedure

As in Studies 1 and 2, participants completed a questionnaire depicting an unknown ethnic group (i.e., the Ortandesì). The scenario that participants read was identical to that used in Study 2. Indeed, following the procedure of the Study 2, we devised a 2 (morality: high *vs.* low) \times 2 (sociability: high *vs.* low) \times 2 (competence: high *vs.* low) between-participants design. Accordingly, participants were randomly assigned to one of the eight experimental conditions. Morality, sociability, and competence

trait related information was manipulated as in Studies 1 and 2. After reading the description, participants reported the extent to which the group was dangerous and posed a psychological or a material threat to Italian citizens. Specifically, we measured perceived threat by means of four items (i.e., ‘The Ortadesi pose a threat to Italian citizens’; ‘The Ortadesi pose a threat to Italian values and beliefs’; ‘The Ortadesi are dangerous for the stability of Italian economic system’; ‘the Ortadesi threaten the Italian culture’ - see Riek *et al.*, 2006) ($\alpha = .77$). Finally, participants reported their global impression of the target. Specifically, participants were asked to indicate the degree to which they felt: affection, hostility, hatred, and suspect ($\alpha = .90$) (i.e., ‘When I think about my impressions of the Ortadesi, in general, I feel _____ toward them’). Negative items were reverse scored to create an index reflecting the positivity of participants’ impressions (for a similar procedure see Stephan, Renfro, Esses, Stephan, & Martin, 2005). Participants provided their responses for each emotion on seven-point scales, ranging from 1 (*not at all*) to 7 (*extremely*).

Finally, to check the efficacy of the experimental manipulations, as in Study 2, participants rated the target on perceived morality, sociability, and competence. Participants provided their responses on seven-point scales, ranging from 1 (*not at all*) to 7 (*extremely*).

Results and discussion

Manipulation check

Following the procedure used in Study 2, the morality, sociability, and competence scores were submitted in a 2 (morality: high *vs.* low) \times 2 (sociability: high *vs.* low) \times 2 (competence: high *vs.* low) between-participants MANOVA. The analysis yielded a significant multivariate main effect of morality, $F(3,78) = 240.94, p = .001, \eta_p^2 = .91$. At the univariate level, the main effect of morality was significant only for the morality scores $F(1,78) = 682.28, p = .001, \eta_p^2 = .90$. Thus, participants rated the group as more moral in the high-morality conditions ($M = 6.45, SD = .75$) than in the low-morality conditions ($M = 1.84, SD = .76$). In contrast, participants perceived the group as sociable in the high-morality conditions ($M = 4.29, SD = 2.20$) as in the low-morality conditions ($M = 4.19, SD = 2.10$). Similarly, the group was rated as competent in the high-morality conditions ($M = 4.27, SD = 2.18$) as in the low-morality conditions ($M = 4.07, SD = 2.29$).

The analysis also revealed a multivariate main effect of competence, $F(3,78) = 156.78, p = .001, \eta_p^2 = .86$. At the univariate level, the main effect of competence was significant only for the competence scores, $F(1,78) = 468.41, p = .001, \eta_p^2 = .86$. Indeed, participants rated the group as more competent in the high-competence conditions ($M = 6.26, SD = 1.02$) than in the low-competence conditions ($M = 2.09, SD = .62$). In contrast, participants perceived the group as moral in the high-competence conditions ($M = 4.29, SD = 2.30$) as in the low-competence conditions ($M = 4.04, SD = 2.29$). Moreover, the group was rated as sociable in the high-competence conditions ($M = 4.20, SD = 2.02$) as in the low-competence conditions ($M = 4.28, SD = 2.20$).

Finally, the analysis revealed a multivariate main effect of sociability, $F(3,78) = 151.14, p = .001, \eta_p^2 = .86$. At the univariate level, the main effect of sociability was significant only for the sociability scores, $F(1,78) = 418.27, p = .001, \eta_p^2 = .84$. Hence, participants rated the group as more sociable in the high-sociability conditions ($M = 6.21, SD = .70$) than in the low-sociability conditions ($M = 2.27, SD = .96$). In contrast, participants

perceived the group as moral in the high-sociability conditions ($M = 4.19$, $SD = 2.28$) as in the low-sociability conditions ($M = 4.14$, $SD = 2.33$). In addition, the group was rated as competent in the high-sociability conditions ($M = 3.98$, $SD = 2.24$) as in the low-sociability conditions ($M = 4.36$, $SD = 2.28$). To sum up, our manipulation of morality, sociability, and competence was highly successful.

Threat scores

To explore whether moral traits were stronger predictors of perceived threat than sociability and competence traits, we submitted the perceived threat scores to a 2 (morality: high *vs.* low) \times 2 (sociability: high *vs.* low) \times 2 (competence: high *vs.* low) ANOVA with all three factors varying between participants.

The analysis yielded only a main effect of morality $F(1,77) = 13.15$, $p = .001$, $\eta_p^2 = .89$ (for all the other effects, $p > .23$). That is, participants perceived the group as more threatening in the low-morality conditions ($M = 3.70$, $SD = .1.01$) than in the high-morality conditions ($M = 2.76$, $SD = 1.18$).

Global impressions

As a third step, we submitted the global impression scores to a 2 (morality: high *vs.* low) \times 2 (sociability: high *vs.* low) \times 2 (competence: high *vs.* low) ANOVA with all the factors varying between participants.

The analysis revealed a main effect of morality $F(1,78) = 14.69$, $p = .001$, $\eta_p^2 = .16$. Participants rated the group more favourably in the high-morality conditions ($M = 6.24$, $SD = 1.06$) than in the low-morality conditions ($M = 5.15$, $SD = 1.55$). Contrary to Study 2, we did not find a main effect of competence $F(1,78) < 1$, $p = .48$, $\eta_p^2 = .006$, or a main effect of sociability $F(1,78) = 1.96$, $p = .16$, $\eta_p^2 = .03$. Moreover, we did not find interaction effects (all ps ns).

Mediation analysis

Finally, we conducted a mediational analysis in order to assess whether the effect of moral traits on group global evaluations was mediated by the perception of threat. Following the procedure of Baron and Kenny (1986), we found that the manipulation of morality (coded as: low = -1 , high = 1) predicted global impressions ($\beta = .37$, $p = .001$). Furthermore, the manipulation of group morality negatively predicted the mediator, namely threat ($\beta = -.40$, $p = .001$). Finally, when threat perception was included in the regression equation, it negatively predicted group global impressions ($\beta = -.44$, $p = .001$), whereas the direct effect of the manipulation of group morality on group global impression was no longer significant ($\beta = .18$, p ns). The reduction in the direct effect of moral traits on global impression after accounting for threat perception was significant (Sobel test, $Z = -2.84$, $p = .004$), indicating that the effect of morality on global impression was mediated by the perception of threat (see Figure 1).² We also tested for the reverse model, in which global evaluation was used as the potential mediator and the perception of threat as the dependent variable. Results indicated that the independent

² Given the small sample size, we also tested the mediational model using a bootstrap analysis (Preacher & Hayes, 2004). As expected, the confidence interval pertaining to the indirect effect did not contain zero, thus providing evidence for a significant mediation effect (point estimate unstandardized $b = .48$; 95% confidence interval around $b = .15-.80$; 5,000 bootstrap resamples).

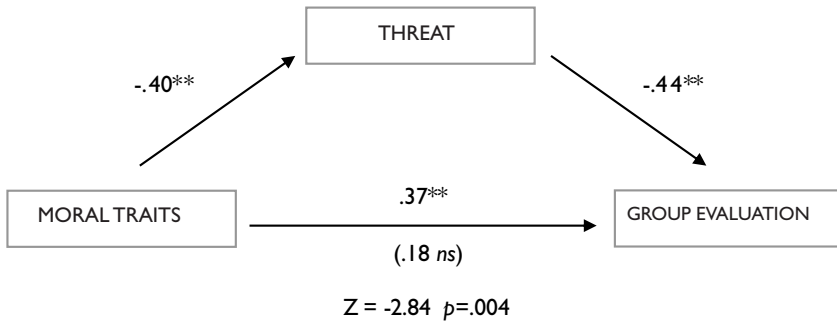


Figure 1. Mediation model of the role of perceived threat in explaining the effect of moral traits on group global evaluations (Study 3). $^{**}p = .001$.

variable (i.e., the manipulation of group morality) continued to significantly affect the perception of threat ($\beta = -.25, p = .01$) after controlling for the global evaluation.

We did not test such a mediational model for sociability and competence judgements given that they failed to predict both the perception of threat and the overall evaluations.

GENERAL DISCUSSION

Impression formation is a multi-componential process, starting with either a search or with a selection of the information useful to make a judgement of a social target, and ending with a global appraisal of the social target (see Wojciszke, 2005; Wojciszke et al., 1998). A wealth of studies have found that two core dimensions, namely warmth and competence, guide the perception and judgement of individuals and social groups, showing in particular that warmth plays a primary role in the impression-formation process (De Bruin & Van Lange, 1999, 2000; Martijn et al., 1992; Vonk, 1996; Wojciszke, 2005; Wojciszke et al., 1998). Yet, these studies have mostly focused on the relative contribution of warmth and competence in person perception, while research at the group level has focused on the ascription of warmth and competence traits (Alexander et al., 1999; Cuddy et al., 2008; Fiske et al., 2002; Phalet & Poppe, 1997; Poppe & Linssen, 1999; Yzerbyt et al., 2005), overlooking the issue of the relative impact of warmth and competence on the global evaluations of social groups. Furthermore, to our knowledge no prior study has investigated the influence of the two subcomponents of warmth, that is, morality and sociability on overall impressions.

The present research thus examined the roles played by morality and sociability, as well as competence, in predicting the global evaluation of social groups. The results from three studies lend strong support for our hypothesis that information about morality is weighted more heavily when forming a global evaluative judgement of social groups than information about sociability and competence. In Study 1, morality was a significantly stronger predictor than sociability and competence of the overall favourability of a fictitious group. Study 2 replicated these findings using a different experimental design. Specifically, whereas participants in Study 1 were given information pertaining to only one of the three dimensions, participants in Study 2 received information about morality, sociability, and competence. Independently of the manipulation of traits, we found that morality influenced global impressions of the target group to a greater extent than

both sociability and competence. In addition, Study 3 showed that the effect of morality-related information on group global evaluation was mediated by the perception of threat. In other words, groups depicted as lower in morality elicited higher levels of threat than groups depicted as higher in morality. Accordingly, the more a group was perceived as threatening the psychological and material well-being of the perceivers, the more the group elicited a negative overall impression.

It is of note that no interaction between sociability, morality, and competence was found in predicting the global favourability of groups. Such a finding may seem to depart from previous studies that found an interactive contribution of warmth and competence in predicting global impressions (Wojciszke, 2005; Wojciszke *et al.*, 1998). As a matter of fact, a person who was presented as being both cold and competent instigated a more negative impression than a cold but incompetent person. However, it should be noted that previous studies found an interactive contribution of the warmth and competence information to the global impression mostly when warmth and competence constituted different aspects of the same behavioural act (Wojciszke, 2005). Such an interaction was not found when the information on warmth and competence was embedded in different behavioural acts (Wojciszke *et al.*, 1998; Study 4). Therefore, in our study the absence of an interaction between sociability, morality, and competence on the overall favourability could be due to the fact that the information we provided on the three dimensions did not constitute different aspects of the same behaviour. Clearly, more research is needed to explore the potentially interactive contribution of morality, sociability, and competence-related information on the global evaluative impression of social targets.

In addition, one might argue that the present findings suffer from the external validity shortcomings inherent to most scenario studies. However, using fictitious groups allowed us to investigate the direction of influence from perceived traits to global evaluations, without any confounding variables due to pre-existing expectancies or social desirability (Caprariello *et al.*, 2009). By using an unfamiliar group, we were able to impose specific characteristics on the group, independently of participants' preconceptions of existing groups (see also Kunda & Spencer, 2003). Moreover, participants are less likely to avoid appearing prejudiced towards an unfamiliar group than towards groups they know well (Kunda & Spencer, 2003). For similar reasons, most studies on group perception have used experimental groups (e.g., Castano & Giner-Sorolla, 2006; Yzerbyt, Kervyn, & Judd, 2008; Kervyn, Judd, & Yzerbyt, 2009). At the same time, it should be noted that our scenario made an explicit reference to immigration. It could thus be argued that participants were not entirely candid about the kind of groups that may be of concern. Clearly, it would be interesting to check whether the same pattern of findings, especially with respect to the mediating role of threat, emerges when no reference whatsoever is made to the fact that the target group intends to migrate towards the participants' country.

Taken together, our findings make a solid contribution to the literature on the role of warmth and competence in the impression-formation process. First of all, extending previous research evidence on the primary role of warmth in predicting the global evaluation of other individuals, the present findings show that such a primacy could also be extended at the group level.

Second, our findings also complement previous research on the relative role of the two sub-components of warmth in the impression-formation process. In particular, extending prior findings showing that people mostly search for information about morality rather than sociability and competence in information gathering (Brambilla *et al.*, 2011), the present paper showed that the judgements of moral traits have a greater

impact than sociability and competence on the final impressions of others. Interestingly, the leading role of moral traits in predicting group global evaluation was not driven by their higher favourability. Indeed, the average favourability ratings of the three moral traits did not differ from the favourability ratings of sociability and competence traits.

Thirdly, we show that the key influence of morality in predicting the group global evaluation is mediated by the perception of threat for the perceivers' psychological and material well-being. Interestingly enough, previous studies on the general dimensions of warmth and competence have implicitly suggested a key role of perceived threat in defining the leading role of warmth trait related information in the impression-formation process (Cuddy *et al.*, 2008; Wojciszke, 2005; Wojciszke *et al.*, 1998; Ybarra *et al.*, 2001). However, none of these studies explicitly tested the hypothesized mediation. Thus, extending prior research we show that the perception of threat plays a key role in explaining the leading role of warmth in general, and the morality sub-component in particular, in the impression-formation process. Based on these findings, one direction that would be interesting to take in further research is to go beyond a general threat perception and look at how profiles of specific threats (e.g., threat to group safety, symbolic and value-driven threat, threat to physical health; see Riek *et al.*, 2006) affect the relationship between perceived traits and global evaluations considering a wide range of social groups.

Our findings are consistent with previous studies showing that sociability and morality are conceptually distinct characteristics and play distinct roles in various aspects of social perception (for a review, Brambilla *et al.*, 2011). Indeed, it has been shown that moral traits are more important than sociability and competence traits in positive in-group evaluation (Leach *et al.*, 2007). Extending these findings, we show that information about morality is weighted more heavily, not only in the positive evaluation of in-groups, but more generally in forming a global evaluative judgement of social groups. Moreover, we suggest that the perception of threat plays a key role in explaining the leading role of morality in the impression-formation process.

The present set of studies did not focus on the in-group/out-group comparison, but examined group perception in a more general way. Arguably, considering the fact that the target group in our studies was an unfamiliar ethnic group, participants may be expected to have been confronted with an out-group. Still, future work should be done to look at the distinct roles of morality, sociability, and competence in the evaluation of relevant out-groups in comparison to the in-group. Previous studies would seem to suggest that moral traits are less relevant in the positive evaluation of out-groups than in the positive evaluation of the in-groups (Leach *et al.*, 2007; Study 3). However, these studies have focused mainly on trait attribution to in-group and out-group members and did not explicitly investigate the role of such traits in predicting the evaluative impressions. As a case in point, Leach *et al.* (2007; Study 3) considered only the evaluation of university in-groups and out-groups that performed differently in an academic task. Accordingly, the intergroup relation was mainly based on the status of the different groups, which might explain the greater importance assigned by participants in that study to competence and sociability (see also, Conway, Pizzamiglio, & Mount, 1996). In any event, more research is needed to explore the roles of morality, sociability, and competence in predicting people's global impressions of in-groups and out-groups in a wide range of intergroup contexts.

We believe that our findings offer important implications also for studies on prejudice and discrimination. Traditionally, research has addressed the specific emotional reactions as well as the behavioural actions followed by the ascription of warmth and competence stereotypes. In 'The BIAS map: Behaviours from intergroup affect and stereotypes',

Cuddy, Fiske, and Glick (2007) proposed that the four combinations of high *versus* low warmth and competence judgements elicit four unique emotional responses and action tendencies. Clearly, beyond the question of the global evaluative impression about a group, one issue that deserves closer scrutiny concerns the specific emotional and behavioural set of reactions that follows from the perception of morality, sociability, and competence of social group.

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