

MEDIATED MODERATION IN THE RELATION BETWEEN CONTACT AND PREJUDICE REDUCTION: THE ROLE OF INTERGROUP ANXIETY AND PROTOTYPICALITY

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In this study we examine the process that links intergroup contact to prejudice reduction, considering the relation between Italians and immigrants. In particular, we test whether the effect of contact is moderated by group salience and mediated by intergroup anxiety, and whether this process corresponds to a mediated moderation or to a moderated mediation. Moreover, as moderators we will consider different types of group salience: comparative fit, self-prototypicality and prototypicality of the known immigrants. The results are consistent with a mediated moderation process: a frequent and positive contact is effective in reducing prejudice when the known immigrants are perceived as prototypical of their group, and this relation is mediated by intergroup anxiety. In particular, in the mediated moderation analysis, it turns out that the moderation concerns the link between contact and anxiety.

Key words: Intergroup contact; Intergroup anxiety; Prejudice; Mediation; Moderation.

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INTRODUCTION

More than 50 years after its appearance, the contact hypothesis (Allport, 1954; Williams, 1947) is now acknowledged as one of the most useful proposals in the field of prejudice reduction. As Pettigrew and Tropp (2006) showed in their meta-analysis, based on 515 studies, when people belonging to different groups have the possibility to establish social relationships, their level of prejudice toward the outgroup is sensibly reduced. Given this clear evidence, a question then arises: how and when is contact able to reduce prejudice? In his original hypothesis, Allport (1954) proposed an answer for each of these questions. Concerning “how” contact works, he suggested that contact has the fundamental characteristic of increasing reciprocal knowledge, not only regarding the encountered individuals, but also regarding outgroup’s culture, habits and values. Concerning “when” contact works, he proposed the well known four optimal conditions that should allow contact to be effective: cooperation, equal status, common goals and institutional support. However, reviewing many of the studies carried out in the last half-century, it is possible to conclude that both of Allport’s proposals are not substantiated by empirical evidence. First of all, the role of knowledge seems rather weak (Pettigrew & Tropp, 2008). Then, contact seems able to be effective in reducing prejudice even when the four optimal conditions are not met (Pettigrew, 1998; Pettigrew & Tropp, 2006). Given these results, social psychologists tried to provide alternative answers to the questions concerning “how” and “when” contact works.

How Contact Works: Mediation Effects

Various studies demonstrated that contact reduces prejudice because it is able to influence affective variables (Pettigrew & Tropp, 2008). In particular, the emotion most often considered in literature is intergroup anxiety (Stephan & Stephan, 1985), an aversive emotional state that stems from the anticipation of negative consequences for the self in future cross-group interactions. These consequences may include embarrassment or frustration due to incompetent or offensive behavior; fear of rejection, discrimination, ridicule, or simply misunderstanding; concerns over presenting a positive, nonprejudiced self-image (Paolini, Hewstone, Voci, Harwood, & Cairns, 2006). As showed by Islam and Hewstone (1993), quality and quantity of contact reduce intergroup anxiety, and this decrease is associated with more positive outgroup attitudes (see also Greenland & Brown, 1999).

From a methodological point of view, the process involving contact, anxiety and prejudice corresponds to a *mediation* (Baron & Kenny, 1986). The general finding obtained in literature is that (a) contact reduces prejudice and anxiety; (b) prejudice is positively affected by anxiety; (c) when contact and anxiety are considered as simultaneous predictors of prejudice, the effect of contact is reduced, sometimes to non significance, while the effect of anxiety is still reliable. These findings can be summarized stating that the influence of contact on prejudice is mediated by anxiety.

When Contact Works: Moderation Effects

In 1984, Brewer and Miller proposed their decategorization model of contact. According to this model, contact would be able to reduce prejudice only if the causes of intergroup bias and conflict are eliminated from the contact situation. Given that, according to social identity theory (Tajfel, 1981), social categorization is a fundamental antecedent of discrimination and differentiation, Brewer and Miller stated that contact, to be effective, has to be personalized: people belonging to different groups have to interact as single individuals, not taking into account their different memberships. This model received only partial empirical support, mainly in laboratory experiments in which ad-hoc groups were considered (e.g., Bettencourt, Brewer, Croak, & Miller, 1992; see Hewstone, 1996). For naturally occurring groups, however, the efficacy of the model seems quite limited (e.g., Scarberry, Ratcliff, Lord, Lanicek, & Desforges, 1997). The main problem of this model is that interactions between single individuals are likely to promote positive evaluations of the encountered individuals, but this positive effect is unlikely to generalize outside the contact situation. According to Hewstone (1996), for this generalization to occur, it is necessary that known individuals are linked to their membership groups. The presence of this link is inhibited by personalization, while it is favored by group salience. This reasoning pushed Hewstone and Brown (1986) to develop their mutual differentiation model, in which they proposed that the positive effects of cross-group interactions are generalized to a broader process of prejudice reduction if, during contact, group memberships are salient. This model is now widely accepted, as many studies clearly demonstrated the beneficial role of group membership salience in the process of generalization (see, for reviews, Brown & Hewstone, 2005; Hewstone, 2009). Overall, these results supply an answer to the question concerning “when” contact works: a posi-

tive and frequent contact is able to reduce prejudice when it is characterized by high levels of group salience. From a methodological point of view, this type of answer corresponds to a *moderation* process (Baron & Kenny, 1986). In fact, we can say that the generalization process from contact between individuals to judgements concerning groups is favored by high levels of group salience. In other words, the relation between contact and prejudice is moderated by group salience.

Although corroborated by a clear evidence, the mutual differentiation model still presents some shadows. A first problematic issue is related to the risk, originally outlined by Brewer and Miller, that when group salience is too high, then the potential causes of prejudice may pollute the contact situation. Brown and Hewstone (2005) recently acknowledged that the best solution could be the combination of cross-group friendships and group salience. This is possible, for instance, when friends belonging to two groups talk about their different cultures and values or consider themselves as typical group members. In this case, the positive aspects of personalization are combined with the benefits of group salience (see also Miller, 2002; Pettigrew, 1998). A second problem, still unsolved, concerns the very definition of group salience. Across the various studies reported in literature, this variable has been operationalized in different ways, being from time to time related to awareness of group membership, salience of social categorization, or perception of the encountered individuals as typical of their group. In this study, we will try to clarify this point, starting from the self-categorization theory proposed by J. C. Turner (1987).

Group Membership and Self-Categorization Theory

According to self-categorization theory, the psychological relevance of social categories is based on accessibility and comparative fit. Accessibility refers to the readiness with which a category is likely to come to the perceiver's mind. Comparative fit, on the other hand, refers to the degree to which a category is adequate in explaining the social environment. In particular, according to J. C. Turner (1987, 1999), an ingroup-outgroup categorization has a good fit when it is consistent with the perception of intragroup similarities and intergroup differences. To better explain this concept, Turner proposed a meta-contrast ratio, that is the ratio of average intercategory differences to average intracategory differences (cf. Campbell, 1958): the higher the ratio, the better the comparative fit of a category. Such a ratio can be applied to single individuals too: in particular, it is possible to establish whether the self is considered as prototypical of the ingroup. In this case, the index of self-prototypicality is computed dividing the average perceived differences between self and outgroup members by the average perceived differences between self and other ingroup members.

In a first attempt to operationalize these constructs, Voci (2006) asked participants, football supporters in Study 1 and employees in organizations in Study 2, to describe ingroup and outgroup members using a frequency distribution task, originally proposed by Linville, Fischer, and Salovey (1989) with the aim of assessing intragroup variability. Comparing these ratings to a self-description, and computing the ratios proposed by Turner, it was possible to obtain numerical indexes of comparative fit and self-prototypicality. These indexes were then used to provide an empirical confirmation of the self-categorization theory.

In the present paper, we will use these measures with the aim of clarifying which aspect of group salience is able to moderate the effect of contact on prejudice reduction. In particular, we will consider specific indexes of comparative fit, self-prototypicality, and a new index of prototypicality of others, that is the degree to which encountered individuals are regarded as prototypical of the outgroup.

Combinations of Mediation and Moderation

So far, we discussed how and when contact reduces prejudice, considering two separate processes: the mediation of emotions and the moderation of group salience. However, these two processes may be combined in a single pattern of results. In particular, in previous studies we showed that contact was able to reduce anxiety mainly when group salience was high; then, the reduction of anxiety was related to a decrease of prejudice (Voci & Hewstone, 2002, 2003). These results are consistent both with a *mediated moderation* and with a *moderated mediation*. According to Muller, Judd, and Yzerbyt (2005), a mediated moderation occurs when: (a) there is an overall moderation in the relation between predictor and outcome; (b) the relation between predictor and outcome is mediated, and one or both of the indirect paths, between predictor and mediator, and/or between mediator and outcome, are moderated; (c) the moderation of the residual effect of predictor on outcome, after the inclusion in the model of the paths described in point (b), is smaller than the initial moderation outlined in point (a). Applying this process to intergroup contact, a mediated moderation is present if the overall effect of contact on prejudice is moderated by group salience, the relation between contact and prejudice is mediated by intergroup anxiety, the paths between contact and anxiety and/or between anxiety and prejudice are moderated by group salience and, when these indirect moderated paths are included in the model, the moderation of group salience on the residual path between contact and prejudice is smaller than the initial overall moderation. On the other hand, a moderated mediation is present when: (a) there is an overall effect of predictor on outcome, but this effect is not moderated; (b) the relation between predictor and outcome is mediated, and one or both of the indirect paths, between predictor and mediator, and/or between mediator and outcome, are moderated. In the case of intergroup contact, this would mean that the overall effect of contact on prejudice is significant, but it is not moderated by group salience, the relation between contact and prejudice is mediated by intergroup anxiety, and the paths between contact and anxiety and/or between anxiety and prejudice are moderated by group salience.

OVERVIEW OF THE STUDY

The aim of the present study is to combine the various issues described so far. Considering the intergroup relation between Italians and immigrants, we will: (a) analyze whether the effect of contact with known immigrants on attitude toward the general category of immigrants in Italy is moderated by group salience and mediated by intergroup anxiety; (b) test whether this process corresponds to a mediated moderation or to a moderated mediation; (c) examine which

type of group salience is responsible for moderational effects, considering indexes of comparative fit, self-prototypicality and prototypicality of known immigrants.

METHOD

Participants

Three hundred and sixty-five Italian nationals, 138 male and 227 female, were asked to complete a questionnaire concerning the relation between Italians and immigrants. Their age varied between 18 and 82 years ($M = 35.22$; $SD = 13.35$).

Measures

Contact. Quantity of contact with immigrants was measured by three items: “How many immigrant men and women do you know personally?”; “How many people coming from countries outside the European Union do you know well?”; and “How many people coming from countries outside the European Union are friends of yours?” (0 = *None*, 1 = *A few*, 2 = *Some*, 3 = *Many*, 4 = *A lot*). Cronbach’s alpha for this scale was .83.

Then, participants were asked to rate the quality of the reported contact. A stem statement, “When you meet these persons, in general do you find the contact...,” was followed by three bipolar scales: positive-negative, unpleasant-pleasant, likeable-unlikeable (*very, quite, neither-nor, quite, very*, coded as -2, -1, 0, +1,+2). The first and third item were recoded, so that higher scores indicated high quality of contact. The scale was highly reliable (alpha = .88).

Following Voci and Hewstone (2002, 2003), we then multiplied the scores relative to quantity and quality of contact, so to obtain a single index of frequent *and* positive contact.

Intergroup anxiety. On the basis of the scale developed by Stephan and Stephan (1985), we asked participants: “In a hypothetical situation in Italy, how would you feel if you were the only Italian among a group of immigrant strangers?” Participants had to indicate how they would feel in terms of six specific affective states: confident about what to say or to do; quiet; cautious concerning the way to behave or the things to say; uncertain about how to behave or what to say; agitated; prudent concerning the things to say or the way of acting (0 = *Not at all*, 1 = *A little*, 2 = *Some*, 3 = *Quite*, 4 = *Very*). We then recoded two items, so that higher scores indicated higher anxiety, and we averaged the six items to form a reliable scale (alpha = .82). It has to be noted that this scale is more specific than the one originally proposed by Stephan and Stephan, as it involves affective states that are more specifically related to the very definition of the construct.

Attitude. Attitude toward immigrants were measured using four 5-point semantic differential scales (alpha = .86). The stem question “How do you feel about immigrants in general?” was followed by four bipolar scales: hostile-friendly, cold-warm, negative-positive, favourable-unfavourable (*very, quite, neither-nor, quite, very*). A higher mean score (range from 0 to 4) indicated more positive attitudes toward immigrants.

Group membership salience. With the aim of creating indexes of comparative fit, prototypicality of self and prototypicality of known immigrants, first of all we asked participants to

complete a frequency distribution task (Linville et al., 1989; see Voci, 2006), in relation to the whole category of immigrants living in Italy, and then in relation to Italians in general. For both groups, distributions concerned four bipolar dimensions: reliable-unreliable, lazy-dynamic, generous-selfish, reserved-sociable. Each frequency distribution task was made up of five empty cells. The cells indicated different levels of intensity of the dimensions (e.g., *very reliable*, *quite reliable*, *neither reliable nor unreliable*, *quite unreliable*, *very unreliable*). For each dimension, participants were asked to distribute 100 members of the target-group among the five cells. Thus, participants compiled eight frequency distributions: four concerning the ingroup, four concerning the outgroup. Second, we asked participants to rate themselves on each of the four dimensions (e.g., lazy-dynamic) using a 5-point response scale (from, e.g., *very lazy* to *very dynamic*). Finally, respondents were asked to rate also the immigrants they personally knew on each of these four dimensions.

Computation of Meta-Contrast Ratios

Comparative fit. The meta-contrast ratio concerning the Italians-immigrants categorization was computed via the following steps (see Voci, 2006): (a) starting from frequency distributions, for each participant and for each dimension, we computed average intercategory differences, comparing ingroup and outgroup distributions, and average intracategory differences, considering ingroup distribution only; (b) given that, in the computation of the ratio, intracategory differences are in the denominator, and that these differences could be equal to 0 (i.e., when all 100 ingroup members are in the same cell), the constant 1 was added to both intra and intercategory differences; (c) the meta-contrast ratio was computed, dividing intercategory differences by intracategory differences; (d) for each target-group, the four scores relative to the four dimensions were averaged, so to create a single index of comparative fit. If the obtained index is higher than 1, then the ingroup-outgroup categorization has a good comparative fit, as intergroup differences exceed intragroup differences.

As an example, we will consider the case of a participant who generated the following distributions for the dimension *reliable-unreliable*. For the ingroup the distribution is 0-80-20-0-0, that is: 0 very reliable, 80 quite reliable; 20 neither reliable nor unreliable; 0 quite unreliable; 0 very unreliable. For the outgroup, 0-0-60-40-0, that is: 0 very reliable, 0 quite reliable; 60 neither reliable nor unreliable; 40 quite unreliable; 0 very unreliable.

The 80 quite reliable ingroup members are different by one position from the 60 neither reliable nor unreliable outgroup members, and by two positions from the 40 quite unreliable outgroup members. Thus, we have 80 times 60 with a difference of 1, and 80 times 40 with a difference of 2. The remaining 20 ingroup members are not different from 60 outgroup members, as they are all in the midpoint of the scale, while they are different by one position from the remaining 40 outgroup members. So, we have 20 times 60 with a difference of 0, and 20 times 40 with a difference of 1. Intercategorical differences are thus $[1 \times (80 \times 60)] + [2 \times (80 \times 40)] + [0 \times (20 \times 60)] + [1 \times (20 \times 40)] = 12000$. The total number of comparisons made is: $(80 \times 60) + (80 \times 40) + (20 \times 60) + (20 \times 40) = 10000$ (that is 100 ingroup members compared to 100 outgroup members). Average intercategory differences are $12000 / 10000 = 1.20$.

In the computation of intracategorical differences, only the distribution concerning the ingroup is involved. In this case, we have 80 members who are different for 1 position from 20 members. Thus, the differences within the ingroup are: $[1 \times (80 \times 20)] = 1600$. Intragroup comparisons are: $[100 \times (100 - 1)] / 2 = 4950$ [the number of combinations of n elements taken 2 at a time is: $n \times (n - 1) / 2$]. Thus, average intragroup differences are $1600 / 4950 = 0.32$. After the constant 1 is added to both terms, the meta-contrast ratio corresponds to: $2.20 / 1.32 = 1.66$.

Prototypicality. With the aim of assessing prototypicality of self with respect to the Italians-immigrants categorization, the same procedure as for comparative fit was adopted, except that intercategory differences regarded the comparison between ratings of the self and frequency distributions for the whole category of immigrants, while intracategory differences concerned the comparison between ratings of the self and frequency distributions for Italian nationals (Voci, 2006). Conversely, for prototypicality of known immigrants, intercategory and intracategory differences regarded, respectively, the comparison between known immigrants and Italians, and the comparison between known immigrants and the whole category of immigrants in Italy. For both prototypicality indexes, if scores are higher than 1, then the rated individuals are considered as prototypical of their ingroup compared to the outgroup.

Concerning the computation of self-prototypicality index, if the participant considered above rated him/herself as quite reliable, then the distance from self and 60 outgroup members is 1, while the distance from self and 40 outgroup members is 2; as the comparisons are 100, average self-outgroup differences are $[(1 \times 60) + (2 \times 40)] / 100 = 1.40$. On the other hand, the distance from self and 80 ingroup members is 0, the distance from self and 20 members is 1; as the comparisons are 100, average self-ingroup differences are $[(0 \times 80) + (1 \times 20)] / 100 = 0.20$. After the constant is added, the self prototypicality score is: $2.40 / 1.20 = 2.00$. Finally, if this participant rated known immigrants as neither reliable nor unreliable, then average others-ingroup differences are $[(1 \times 80) + (0 \times 20)] / 100 = 0.80$, while average others-outgroup members are $[(0 \times 60) + (1 \times 40)] / 100 = 0.40$. Thus, the others-prototypicality score is: $1.80 / 1.40 = 1.29$.

RESULTS

Preliminary Analyses

As noted in Table 1, contact with immigrants was infrequent, while its quality was rather positive. Intergroup anxiety was moderate, and the general attitude toward immigrants was neutral. Concerning group salience, the comparative fit of the Italians-immigrants categorization was higher than 1, the self was not perceived as particularly prototypical of Italians, while the immigrants personally known were considered as quite prototypical of their group. Looking at correlations, we can observe that the pattern is consistent with a mediated process, as contact and attitude were positively correlated, while anxiety negatively correlated with both contact and attitude. Furthermore, the fact that the three measures of fit and prototypicality were not highly correlated with contact and anxiety is a prerequisite for their moderational role.

TABLE 1
Correlations and descriptive statistics

	1.	2.	3.	4.	5.	6.	7.	8.
1. Quantity of contact	1							
2. Quality of contact	.40***	1						
3. Contact index	.64***	.81***	1					
4. Intergroup anxiety	-.27***	-.16**	-.27***	1				
5. Attitude	.30***	.53***	.42***	-.26***	1			
6. Comparative fit	.04	-.19***	-.06	.02	-.27***	1		
7. Self-prototypicality	-.11*	-.32***	-.21***	.03	-.38***	.59***	1	
8. Others-prototypicality	.02	-.14**	-.02	.06	-.14**	.39***	.08	1
<i>M</i>	0.91	0.47	0.65	2.37	2.08	1.19	1.05	1.14
<i>SD</i>	0.67	0.84	1.14	0.84	0.80	0.30	0.20	0.24

Note. Response scales: for quantity of contact, intergroup anxiety and attitude, 0-4; for quality of contact, from -2 to +2. For contact index, scores from -8 to +8; for comparative fit, self-prototypicality and others-prototypicality, values higher than 1 indicate that intergroup differences exceed intragroup differences.

* $p < .05$; ** $p < .01$; *** $p < .001$

Moderation Analyses

First of all, we tested whether the overall relation between contact and attitude was moderated by any of the three indexes of group membership salience, through the following equation:

$$\text{Attitude} = \beta_{10} + \beta_{11} \text{Contact} + \beta_{12} \text{Group salience} + \beta_{13} (\text{Contact} \times \text{Group salience}) \quad (1)$$

Following Aiken and West (1991), before computing the products, the means of the two terms were centered at zero. In Equation 1, a moderation is present if β_{13} is significant. In this case, it is possible to decompose the moderation and compute the effect of contact on attitude for high and low ($\pm 1 SD$) levels of the moderator (Aiken & West, 1991; Jaccard, Turrissi, & Wan, 1990).

The results (Table 2) indicated that the only significant moderator was others-prototypicality, that is the perception of known immigrants as prototypical of immigrants in general compared to Italians. Simple slopes analysis (left side of Figure 1) showed that contact was related to positive attitudes more when prototypicality was high ($b = .36, p < .001$) than when prototypicality was low ($b = .20, p < .001$).

This first result is consistent with the possibility of a mediated moderation, as the overall effect of contact on attitude is moderated by others-prototypicality (Muller et al., 2005).

Mediation Analyses

We tested mediation of intergroup anxiety following the three-steps procedure proposed by Baron and Kenny (1986). The equations to be considered are the following:

$$\text{Attitude} = \beta_{20} + \beta_{21} \text{Contact} \quad (2)$$

$$\text{Anxiety} = \beta_{30} + \beta_{31} \text{Contact} \quad (3)$$

$$\text{Attitude} = \beta_{40} + \beta_{41} \text{Contact} + \beta_{42} \text{Anxiety} \quad (4)$$

TABLE 2
 Moderation analyses

<i>Predictors</i>	<i>Moderator</i>		
	Comparative fit	Self-prototypicality	Others-prototypicality
Contact (β_{11})	.40 ^{***}	.35 ^{***}	.40 ^{***}
Moderator (β_{12})	-.24 ^{***}	-.31 ^{***}	-.11 [*]
Contact \times Moderator (β_{13})	-.05	.02	.10 [*]

Note. Criterion variable: Attitude; Standardized coefficients.
^{*} $p < .05$; ^{**} $p < .01$; ^{***} $p < .001$

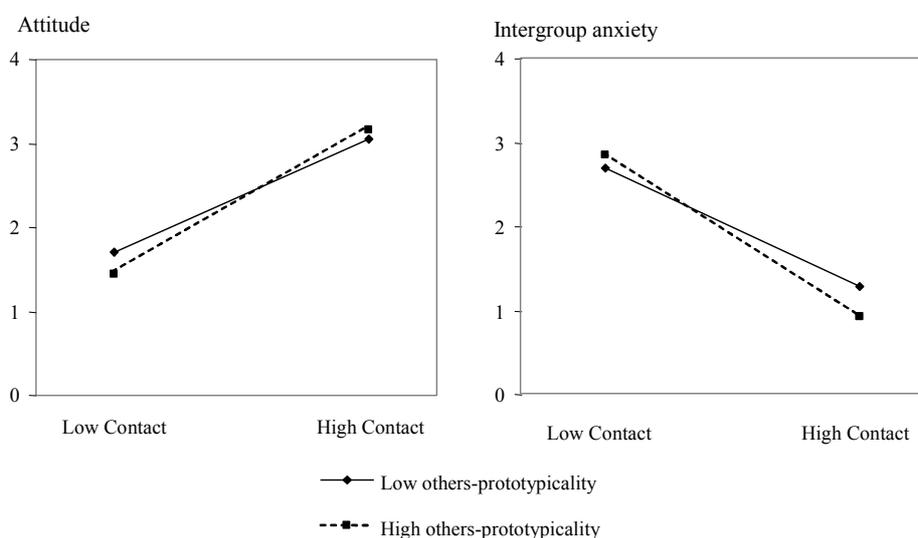


FIGURE 1
 Moderation of others-prototypicality in the relation between contact and attitude
 and between contact and intergroup anxiety: simple slopes.

A mediation is present if, in Equations 2 and 3, contact is significantly related to attitude and intergroup anxiety, that is both β_{21} and β_{31} are significant, and, in Equation 4, the relation between anxiety and attitude (β_{42}) is significant, while the effect of contact when controlling for anxiety (β_{41}) is non significant, or at least lower than the overall effect of contact on attitude in Equation 2 (β_{21}).

As we already noted, concerning Equations 2 and 3, contact was correlated with both attitude and anxiety (Table 1); furthermore, in Equation 4, anxiety was negatively related to attitude ($\beta_{42} = -.16, p = .001$), although the relation between contact and attitude after controlling for anxiety was still reliable ($\beta_{41} = .37, p < .001$), and only slightly lower than the overall effect of

contact on attitude in Equation 2 ($\beta_{21} = .42, p < .001$). Thus, we can conclude that intergroup anxiety only partially mediated the relation between contact and attitude.

Mediated Moderation Analyses

Finally, we tested the possibility of simultaneous moderation of group membership salience and mediation of intergroup anxiety, following the approach outlined by Muller et al. (2005). The starting point is Equation 1, which ensures a general moderational effect. The other equations are:

$$\text{Anxiety} = \beta_{50} + \beta_{51} \text{Contact} + \beta_{52} \text{Group salience} + \beta_{53} (\text{Contact} \times \text{Group salience}) \quad (5)$$

$$\text{Attitude} = \beta_{60} + \beta_{61} \text{Contact} + \beta_{62} \text{Group salience} + \beta_{63} (\text{Contact} \times \text{Group salience}) + \beta_{64} \text{Anxiety} + \beta_{65} (\text{Anxiety} \times \text{Group salience}) \quad (6)$$

A mediated moderation is present if: (a) the moderation of the residual direct effect of contact on attitude (β_{63} in Equation 6) is lower than the moderation of the overall effect of contact on attitude (β_{13} in Equation 1); (b) a moderation is present in the effect of contact on anxiety (β_{53} in Equation 5) and/or in the effect of anxiety on attitude (β_{65} in Equation 6).

As we already noted, the only significant moderation in Equation 1 concerned others-prototypicality (β_{13} in Equation 1; see Table 2). Thus, a mediated moderation process is possible for this index of group salience only. When others-prototypicality was considered as the moderator in Equations 5 and 6, the results (Table 3) showed that the moderation in the residual effect of contact on attitude (β_{63} in Equation 6) was non significant, while the relation between contact and anxiety was moderated by others-prototypicality (β_{53} in Equation 5). As shown in the right side of Figure 1, contact reduced anxiety only when known immigrants were perceived as prototypical of immigrants (for high prototypicality, $b = -.30, p < .001$; for low prototypicality, $b = -.07, p = .23$). Overall, this pattern of results is consistent with the presence of a mediated moderation process.

Given that for comparative fit and self-prototypicality we did not find a moderation effect in Equation 1, these indexes may be involved in a moderated mediation process only. However, none of the products that include these two indexes had reliable effects on the criterion variables, neither in Equation 5 nor in Equation 6 (Table 3).

DISCUSSION

In this study we showed that the relation between contact and attitudes is characterized by a process of mediated moderation: contact is able to positively influence attitudes when known immigrants are perceived as prototypical of their group, and this moderation is mediated by intergroup anxiety, as the relation between contact and anxiety is moderated by prototypicality.

These results are consistent with findings reported in literature, but yield some important qualifications. First of all, this is the first study on intergroup contact in which a complete mediated moderation analysis is performed, following the procedure indicated by Muller et al. (2005). Other studies reported moderation effects of group salience (e.g., Brown, Vivian, & Hewstone,

TABLE 3
 Mediated moderation analyses

	<i>Moderator</i>		
	Comparative fit	Self-prototypicality	Others-prototypicality
<i>Criterion variable: Anxiety</i>			
Contact (β_{51})	-.27 ^{***}	-.28 ^{***}	-.25 ^{***}
Moderator (β_{52})	-.01	-.03	.03
Contact \times Moderator (β_{53})	-.07	-.07	-.14 ^{**}
<i>Criterion variable: Attitude</i>			
Contact (β_{61})	.36 ^{***}	.31 ^{***}	.36 ^{***}
Moderator (β_{62})	-.24 ^{***}	-.31 ^{***}	-.11 [*]
Contact \times Moderator (β_{63})	-.06	.02	.08
Anxiety (β_{64})	-.16 ^{***}	-.17 ^{***}	-.14 ^{**}
Anxiety \times Moderator (β_{65})	.00	.01	-.01

Note. Standardized coefficients.
^{*} $p < .05$; ^{**} $p < .01$; ^{***} $p < .001$

1999), mediational processes due to intergroup anxiety (e.g., Islam & Hewstone, 1993), or described a combination of mediation of anxiety and moderation of group salience (Voci & Hewstone, 2002, 2003), but none tested the whole model. It is also noteworthy that our findings are consistent with the existing literature although we used a more specific scale of intergroup anxiety, designed to precisely tap the affective states originally described by Stephan and Stephan (1985).

Another important point is that we proposed new indexes of group membership salience, inspired by self-categorization theory (J. C. Turner, 1987): comparative fit, self-prototypicality and others-prototypicality. Adopting these indexes, we were able to show that the generalization process from contact with known immigrants to changes in outgroup attitude, through the mediation of intergroup anxiety, is favored by the perception of encountered outgroup members as prototypical of immigrants. This result is interesting, as it is consistent with the role of perceived typicality proposed by Wilder (1984) and underlined by Brown and Hewstone (2005), although the considered index of others-prototypicality is not based on a self-reported measure of perceived typicality, but is computed starting from distinct ratings of ingroup, outgroup and single outgroup members.

In future research, it would be interesting to verify the presence of mediated moderation processes taking into account mediators others than intergroup anxiety, such as empathy, intergroup trust and perceived threat. So far, these variables have been considered in mediation analyses only (see, e.g., Voci & Hewstone, 2007; R. N. Turner, Hewstone, & Voci, 2007), but not together with moderating processes.

We would like to conclude underlying that this study further demonstrates the effectiveness of intergroup contact in the process of prejudice reduction, specifying how and when contact between people belonging to different groups is able to promote social harmony. Thus, we be-

lieve that the present research could represent an example of how an integration of theoretical proposals and specific methodologies can be useful to society.

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