IPA
International Journal of Psychology
Vol. 10, No. 1, Winter & Spring 2016
PP. 34-51

Iranian **P**sychological
Association

The Impact of Social-Cognitive Categorization of Others on Implicit and Explicit Empathy

Javad Hatami, PhD
Department of Psychology & Educational Sciences
University of Tehran

Pegah Nejat*
Department of Psychology & Educational Sciences
Shahid Beheshti University

Azadeh Karamali
Department of Psychology & Educational Sciences
University of Tehran

The current study was conducted with the aim of examining the impact of social-cognitive categorization of a victim of aggression on the degree of empathy individuals feel toward him. The innocent victim categorized as an in-group member was hypothesized to evoke the highest empathy, whereas the guilty victim belonging to an out-group was expected to be empathized with the least of all. Participants were 104 Iranian female adults who were sampled form the population of female students at the psychology department of the University of Tehran during 2012-2013. They were randomly assigned to four experimental groups and asked to read scenarios in which one character was the victim of aggression by another. Victims varied with regard to in-group-out-group membership (Iranian vs. Saudi Arabian) and perceived morality (guilty vs. innocent). Participants' explicit and implicit empathies with the victim were assessed using explicit questions and Implicit Association Test, respectively. Analysis of variance (ANOVA) was used to analyze the data. Social-cognitive categorization of the victim had a significant effect on implicit, affective and motor empathies. The innocent Iranian was the victim empathized with the most, while the innocent Arab and the guilty Arab received the same degree of empathy. Participants empathized more with the guilty Iranian than the innocent Arab. Cognitive empathy was not influenced by social-cognitive categorization of the victim. The present findings suggest that compared to perceived morality, the

[Downloaded from mail.ijpb.ir on 2026-11-21]

in-group-out-group dimension had a more noticeable impact on empathy, particularly those kinds of empathy more dependent on the evolutionarily ancient systems of the brain.

Keywords: empathy, group membership, implicit assessment, morality

The study of individuals' reactions when observing pain in others is of great value to empathy researchers. Although pain is commonly considered as a personal and internal experience inaccessible to others, empirical findings suggest that during observation or imagination of pain in others, the experience of pain can be simulated in the observer's brain as a result of the activation of a neural network called the "Pain Matrix" (Apkarin, Bushnell, Treede, & Zubieta, 2005). In addition, observation of pain in others is considered as one of the main motivators of empathic and prosaically behaviors. Conversely, lack of empathy for others' pain may lead to violence, aggression, abuse, and interpersonal or intergroup problems (Batson & Ahmad, 2009). Therefore, identifying factors with possible influence on empathy is a noteworthy issue for social psychologists. Several behavioral, cognitive and neurological studies have been conducted to identify the underlying mechanisms and moderators of empathy (e.g., Avenanti, Minio-Paluello, Bufalari, & Aglioti, 2009; Cheng, Lin, Liu, Hsu, Lim, Hung, & Decety, 2007; de Vignemont & Singer, 2006; Preston & de Waal, 2002). The social-cognitive categorization of the person in pain, including the kind of relationship between the observer and the person being observed (Cikara, Bruneau, & Saxe, 2011; Harris & Fiske, 2009; Singer, Seymour, O'Doherty, Stephan, Dolan, & Frith, 2006), is amongst these factors and forms the concern of the present study.

Various dimensions of social-cognitive categorization have been examined in different studies. One such dimension

[Downloaded from mail.ijpb.ir on 2026-11-21]

involves dividing people into good, neutral and bad categories based on the degree to which their behavior is perceived as moral versus immoral (Singer et al., 2006). Those who violate ethical principles evoke "disgust" in others (Haidt, Rozin, McCauley, &Imada, 1997) and are even viewed as inferior to human being (Opotow, 1990). Likewise, laboratory findings suggest that attributing a moral or immoral act to an anonymous individual is sufficient to form an accordingly positive or negative relationship with him/her (Singer, Seymour, O'Doherty, Kaube, Dolan, & Frith, 2004).

Dividing people into "us" vs. "them", or in-group vs. out-group is another possible dimension of social-cognitive categorization, which has a close connection with empathy (Cikara et al., 2011). Regarding other individuals as members of an out-group impairs simulation of their mental states and results in the decrease of empathic responses toward them (Brown, Bradley, & Lang, 2006; Harris & Fiske, 2009). Taken to extremes, this can lead to the elimination of empathic responses altogether (Harris & Fiske, 2009). Classifying others as out-group members may lead to dehumanization. There is evidence indicating that in these conditions, the medial prefrontal cortex (MPFC) which is the main brain area involved in the process of ingroup-outgroup categorization is activated (Harris & Fiske, 2009). The difference observed between the degree of empathy with an in-group and an out-group member might be due to individuals' higher identification with in-group members (Brown et al., 2006). According to Batson, Sager, Garst, Kang, Rubchinsky, and Dawson (1997), the greater perceived resemblance between oneself and in-group members may account for the elevated empathy with in-group members compared to less similar out-group members. This can also explain why intergroup conflicts are usually more violent and

[Downloaded from mail.ijpb.ir on 2026-11-21]

aggressive than interpersonal ones (Meier & Hinsz, 2004). Shortage or absence of empathy toward out-group members is more notably pronounced in situations where intergroup competition exists. In these situations, despite the presumed role of interpersonal morality in preventing people from hurting each other, violence becomes acceptable due to the support it provides to the in-group (Cohen, Montoya, & Insko, 2006). This has been observed even in experimentally formed groups. For instance, children who were randomly assigned to either the red or the blue team developed more empathy with members of their own group (Masten, Gillen-O'Neel, & Brown, 2010). Moreover, individuals' implicit attitudes toward out-group members has been shown to moderate their empathic responses. Avenanti, Sirigu, and Aglioti (2010) found that participants' implicit racial bias correlates negatively with their responses to the experience of pain by an out-group member.

As suggested by above findings, the two dimensions of group membership and perceived morality used in categorizing people seem to be reasonable moderators of empathy. Given that categorizing people based on these two dimensions can lead to the inhibition of empathic reactions toward individuals perceived as morally guilty and/or belonging to an out-group, it can be held responsible for phenomena such as terrorism, tribal or racial fights, and international conflicts. Therefore, gaining insight into the neuronal, behavioral, and social-cognitive mechanisms underlying empathy can play a significant role in promoting peaceful relations and preventing human tragedies (Cikara et al., 2011). Given the importance of this topic, the current study aims to investigate the impact of social-cognitive categorization on empathy in an Iranian sample. To achieve this end, specific scenarios are designed in which one story character is hurt in some way and participants are led to categorize this

[Downloaded from mail.ijpb.ir on 2026-11-21]

person simultaneously on the two dimensions of group membership (out-group vs. in-group) and perceived morality (guilty vs. innocent) according to the information presented in the story. Group membership is defined on the basis of nationality. As a result, the Iranian story character is considered an in-group member by Iranian participants, whereas the Saudi Arabian character counts as an out-group member. Similar scenarios have been used in previous studies to elicit empathic responses (e.g., Bruneau, Pluta, & Saxe, 2012).

Inspired by neurological findings (Blair, 2005), empathy is taken to be composed of motor, affective and cognitive components. Motor empathy involves the bodily simulation of pain in the observer's mind, mainly caused by facial expressions, vocalizations and postures of the person in pain (Hatfield, Cacioppo, & Rapson, 1994). Closely related to the concept of theory of mind, cognitive empathy refers to the human being's ability to form a representation of others' mental states, and cognitively identify suffering of the other (Blair, 2005). Affective empathy entails the ability to feel the same emotions as another individual. The parts of neural system activated during this kind of empathy overlap with the ones active when the individual him/herself experiences something unpleasant (Singer et al., 2004). By separating components of empathy, the influence of social-cognitive categorization on them can be studied and contrasted.

To assess participants' implicit empathy with the victim, this study makes use of an indirect method, namely Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998). The rationale behind including this type of measurement is that in most cases social values prevent the expression of unacceptable responses, while indirect assessment methods are less susceptible to evaluation apprehension influences (Greenwald &

[Downloaded from mail.ijpb.ir on 2026-11-21]

Banaji, 1995), and can thus provide new insight if their results are compared against those obtained using more direct methods. By 'explicit' empathy in this study we mean the kind of empathy assessed using explicit questions, generally considered as a direct method of assessment.

In summary, the present study aims to examine the effect of social-cognitive categorization of a victim, including his group membership and perceived morality, on implicit, motor, affective and cognitive empathies felt toward him. Based on previous findings on these two dimensions, we hypothesize that empathy should be highest with those in-group members also perceived as morally innocent, whereas out-group members judged as morally guilty are to receive the least empathy. The degree of empathy with the remaining two victims, i.e. the guilty in-group and the innocent out-group member, is expected to be in between the two extreme cases just specified.

Method

Participants

One hundred and four female students at the psychology department of the University of Tehran participated in this study. All participants were born and grew up in Iran. Each participant was assigned randomly to one of the four experimental groups, each consisting of 26 individuals. The mean age of participants was 23.14 years with a standard deviation of 2.86. None of them had a history of mental disorder.

Materials

*Scenarios.*In order to induce social-cognitive categorization based on the two dimensions of morality and group membership, four scenarios were designed and written in the

[Downloaded from mail.ijpb.ir on 2026-11-21]

form of stories. At the end of the all four scenarios, one character was beaten by the other. In two of the scenarios, an Iranian man called "Farzad" was hit by a man of Saudi Arabian nationality named "Bashir", whereas in the remaining two scenarios, "Bashir" was the victim of the aggressive act by "Farzad". Further, in half of the scenarios, the story was presented in a way that attributed the behavior of the aggressor to a wrongdoing the victim had committed earlier in the story which made him "deserve" the harsh consequence, whereas in the other half, the victim was framed as being innocent (not having formerly done any immoral act). The resulting four scenarios were: guilty Iranian, innocent Iranian, guilty Arab, and innocent Arab. Stories depicting each scenario were written in consultation with two Persian literature professionals. To assess the efficacy of each story in causing the desired categorizations, preliminary stories were pilot-tested on a group of students and subsequently revised based on the feedback received.

*Explicit Empathy***.**Three explicit questions were used to assess cognitive, affective, and motor empathies.The degree of cognitive empathy with the victim in each scenario was obtained by asking "How severe do you think the pain that the victim experienced due to the damage was?" Affective and motor empathies were assessed with the following questions, respectively: "How much did the experience of pain by the victim upset you?", and "To what degree did you feel pain or other states experienced when beaten by someone, after you became aware of the damage suffered by the victim?" The answer to all of the three questions ranged from "1 = very low" to "7 = very high". Similar single questions have been used by other researchers to assess state empathy (e.g., Avenanti, Bueti, Galati, & Aglioti, 2005).

[Downloaded from mail.ijpb.ir on 2026-11-21]

*Implicit Empathy***.**Implicit Association Test (IAT; Greenwald et al., 1998) was adopted to provide an indirect measurement of empathy. The Persian version of this test (Nejat & Hatami, 2012) has shown satisfactory construct validity of the known-groups type in Nejat (2011) as well as Hatami (2011). It also had a test-retest reliability of .52 and an internal consistency of .63 (Hashemipour, Heidari, Fathabadi, & Nejat, 2012) which are close to the coefficients reported for it in foreign sources (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005; Nosek, Greenwald, & Banaji, 2007). The internal consistency of IAT in the current study was .73.

Implicit Association Test is composed of five practice and two test stages. The IAT used in this study assessed the degree to which respondents associated each of the two story characters with the tendency to help. More specifically, in one of the two test stages, categories "Farzad" and "help" were shown on one side of the computer screen and "Bashir" and "not help" on the other side while a set of stimuli were presented randomly in the center one by one. Each stimulus belonged to one of the four categories and stayed on the screen for 250 milliseconds. The respondent's task was to identify the side on which the category of the stimulus was located, and answer by pressing either 'e' (for left) or 'i' (for right) on the keyboard. If the respondent selected the wrong answer, a red cross was shown below the stimulus and the test would not proceed to the next stimulus until the participant corrected her response. Reaction time is defined as the latency between stimulus offset and the respondent's correct answer. In the second test stage, two of the categories changed places, resulting in pairing of "Farzad" with "not help" and "Bashir" with "help". To the extent that a participant responds to the Farzad-help (Bashir-not help) stage

[Downloaded from mail.ijpb.ir on 2026-11-21]

faster than Bashir-help (Farzad-not help) stage, her empathy with Farzad is inferred to be higher than with Bashir. The order of the two main stages was counterbalanced among participants of each of the four experimental groups. The final measure of implicit empathy was calculated according to the algorithm recommended by Greenwald, Nosek, and Banaji (2003), yielding a D score for each participant. The direction of resultant scores was changed so that it would reflect the degree of empathy with the victim in each scenario.

Procedure

Each participant was randomly assigned to one of the four experimental conditions in this study (innocent Iranian, guilty Iranian, innocent Arab, and guilty Arab). She received the corresponding story and was instructed to read it carefully. Next, the participant was seated before the computer in order to complete the empathy IAT. Once finished, she responded to three questions on paper assessing cognitive, affective and motor empathies with the victim. Each participant took the tests individually.

Results

Table 1 presents means and standard deviations of the four kinds of empathy assessed in this study within each of the experimental groups. Implicit empathy was positively correlated with motor, r (104) = .35, p< .001, and affective, r (104) = .50, p < .001, empathies. However, the correlation between implicit empathy and cognitive empathy did not reach significance, r (104) = -.02, p = .811.

[Downloaded from mail.ijpb.ir on 2026-11-21]

Table 1

Means (and Standard Deviations) of Empathy Scores According to Scenario

Kind of Empathy	Scenario			
	Guilty Iranian	Innocent Iranian	Guilty Arab	Innocent Arab
Explicit Affective	3.58 (1.14)	4.81 (1.60)	1.96 (1.11)	2.27 (1.34)
Explicit Motor	4.23 (1.66)	5.27 (1.37)	2.37 (1.46)	3.00 (1.60)
Explicit Cognitive	5.46 (1.45)	5.04 (1.48)	5.08 (1.49)	5.00 (1.57)
Implicit (IAT)	-.06 (.44)	.30 (.31)	-.56 (.32)	-.40 (.41)

To examine the effect of social-cognitive categorization of the victim on each kind of empathy, a one-way between subjects analysis of variance (ANOVA) was conducted with scenario as the factor and empathy as the dependent variable. The assumption of homogeneity of variances was confirmed for the analyses on implicit, $F(3,100)=1.39$, $p=.251$, affective, $F(3,100)= 1.08$, $p= .361$, motor, $F(3,100)= 1.02$, $p= .387$, and cognitive, $F(3,100) = .03$, $p = .992$, empathies.

As shown in Table 2, the four experimental groups were significantly different in the degree of implicit, affective, and motor empathies they felt for the victim of aggression. In contrast, cognitive empathy was no different among the four groups, suggesting that social-cognitive categorization of the victim did not have a significant effect on the degree of

[Downloaded from mail.ijpb.ir on 2026-11-21]

cognitive empathy reported by participants.

Table 2
Results of Analyses of Variance Comparing Empathy Scores between Four Scenarios

Kind of Empathy	Source	Sum of Squares	df	F	Sig
Explicit Affective	Scenario	133.08	3	25.72	< .001
	Error	172.46	100		
Explicit Motor	Scenario	107.31	3	15.36	< .001
	Error	232.85	100		
Explicit Cognitive	Scenario	3.57	3	.53	.664
	Error	225.27	100		
Implicit (IAT)	Scenario	11.28	3	26.90	< .001
	Error	13.97	100		

Post-hoc analyses using Tukey HSD test showed that innocent Iranian received the highest amount of implicit empathy among the four types of victims, *PS*<.01. Interestingly, participants empathized significantly more with the guilty Iranian than the innocent Arab on the implicit level, $p< .01$. This finding was replicated with affective, $p< .01$, and motor, $p< .05$, empathies. In addition, the guilty Iranian received less implicit, $p< .01$, and affective, $p< .01$, empathy than his innocent counterpart. However, the guilty Arab and the innocent Arab scored comparably in implicit empathy, $p= .424$. Similarly, affective, $p= .833$, and motor, $p= .920$, empathies were not different between the guilty Arab and the innocent Arab conditions.

Running two-way ANOVAs with group membership and perceived morality as factors and empathy as the dependent variable, the size of the main effect of group membership on implicit empathy, F (1,100) = 65.95, $p< .001$, $\eta_p^2 = .40$, was

[Downloaded from mail.ijpb.ir on 2026-11-21]

found to be 3.51 times larger than the effect size of perceived morality on it, F (1,100) = 12.77, p< .01, η_p^2 = .11. This ratio of effect sizes amounted to 4.80 and 6.17 in the case of affective, F (1,100) = 65.03, p<.001, η_p^2 = .39; F (1,100) = 8.92, p< .01, η_p^2 = .08, and motor, F (1,100) = 39.66, p< .001, η_p^2 = .28; F (1,100) = 4.77, p< .05, η_p^2 = .05, empathies, respectively.

Discussion

Results suggest that social-cognitive categorization of story characters based on their group membership and perceived morality had a significant effect on the degree of implicit, affective and motor empathies they received as victims of aggression in hypothetical scenarios. Further, as predicted, participants expressed the highest degree of empathy toward the victim who was both an in-group member and perceived as being innocently hit. The observed pattern is consistent with previous findings (e.g., Avenanti et al., 2010; Preston & de Waal, 2002). In contrast, the part of results pertaining to the effect of cognitive empathy indicate that social-cognitive categorization of the victim as member of an in-group vs. an out-group and being guilty vs. innocent had no effect on the degree of respondent's reported awareness about mental states of the victim. The existence of a positive correlation between affective empathy and implicit empathy points further to the larger salience of affective empathy as compared to cognitive empathy, in empathic responses. One surprising finding concerning affective, motor and implicit empathies is that participants, all Iranian, empathized more with the guilty Iranian than the innocent Arab. Moreover, the innocent Arab and the guilty Arab were empathized with equally, suggesting that perceived morality was not a significant factor when the victim belonged to an out-group. Thus, at least in the case of less

[Downloaded from mail.ijpb.ir on 2026-11-21]

cognitive levels of empathy, group membership has a more notable effect than perceived morality. This finding was further strengthened by comparing effect sizes of the two social-cognitive factors under study.

The latter observation can be explained by referring to evolutionary approaches to the study of empathy. According to the evolutionary perspective, supporting the people one has a kinship with or bears a resemblance to has great priority for the human being (as well as for many other species). Therefore, this motive plays an influential role in the control of behavior (de Waal, 2008). Animal studies provide ample evidence of intergroup aggression (Marler, 1976), whereas evidence for the ability of making moral judgment is scarce, even among animals ranking relatively high in the evolutionary hierarchy (Kagan, 2000). Stated differently, the capacity to categorize others as related or unrelated to the self is evolutionarily older and more established than the moral discrimination ability. This can also explain why the effect of in-group-out-group categorization was more readily observed in the case of affective, motor and implicit empathies. These three kinds of responses are presumed to originate from sub-cortical brain systems (Todorov & Engell, 2008) which are evolutionarily more ancient than the cortical areas responsible for higher cognitive functions. However, this is not to suggest that categorization on the basis of group membership has no weight in people's conscious judgments. Rather, there is evidence indicating that in situations where explicit competition exists between groups, the tendency to benefit one's in-group inhibits the effect of interpersonal morality, therefore, justifying violence against the out-group (Cohen et al., 2006). The human history of international, ethnical and religious conflicts provides support for this suggestion. Further, studies are invited to shed light on other

[Downloaded from mail.ijpb.ir on 2026-11-21]

angles of this important issue.

One general limitation of the present study, also common among many other studies conducted in the field of social psychology, is that subjects participated on a voluntary basis (rather than being selected randomly), which theoretically can confront results to validity issues. A more specific limitation is that participants were of a different gender from the two main characters depicted in scenarios. Given that the victim can also be classified as an in-group or out-group member based on gender in addition to his nationality, caution must be taken in generalizing results of this study to cases were participants and story characters are the same gender. Moreover, all participants of this research were female. Accordingly, adding participants' gender as another factor to the study and probably alternating it with respect to the victim's gender would be a fruitful future direction. A similar limitation can be conceived regarding group membership of the aggressor and the victim. In the current study, the two story characters belonged to opposite nationalities (i.e., Iranian vs. Saudi Arabian) in all four scenarios. Future studies are invited to examine empathy in situations where the aggressor and the victim are members of the same group, i.e. they are both perceived as members of an in-group or an out-group by participants.

References

Apkarian, A. V., Bushnell, M. C., Treede, R. D., & Zubieta, J. K. (2005).Human brain mechanisms of pain perception and regulation in health and disease.*European Journal of Pain*, *9*, 463-484.

Avenanti, A., Bueti, D., Galati, G., & Aglioti, S. M. (2005). Transcranial magnetic stimulation highlights the sensorimotor side of empathy for pain. *Nature*

[Downloaded from mail.ijpb.ir on 2026-11-21]

Neuroscience, *8*, 955-960.

Avenanti, A., Minio-Paluello, I., Bufalari, I., & Aglioti, S. M. (2009). The pain of a model in the personality of an onlooker: influence of state-reactivity and personality traits on embodied empathy for pain. *Neuroimage*, *44*, 275-283.

Avenanti, A., Sirigu, A., & Aglioti, S. M. (2010). Racial bias reduces empathic sensorimotor resonance with other–race pain. *Current Biology*, *20*, 1018-1020.

Batson, C. D., & Ahmad, N. Y. (2009). Using empathy to improve intergroup attitudes and relations.*Social Issues and Policy Review*, *3*, 141-177.

Batson, C. D., Sager, K., Garst, E., Kang, M., Rubchinsky, K., & Dawson, K. (1997). Is empathy-induced helping due to self–other merging? *Journal of Personality & Social Psychology*, *73*, 495-509.

Blair, R. J. (2005). Responding to the emotions of others: dissociating forms of empathy through the study of typical and psychiatric populations.*Consciousness and Cognition*, *14*, 698-718.

Brown, L. M., Bradley, M. M., & Lang, P. J. (2006).Affective reactions to pictures of in-group and out-group members.*Biological Psychology*, *71*, 303-311.

Bruneau, E. G., Pluta, A., & Saxe, R. (2012). The Role of the 'Shared Pain' and 'Theory of Mind' networks in Processing Others' Emotional Suffering. *Neuropsychologia*, *50*, 219-231

Cheng, Y., Lin, C. P., Liu, H. L., Hsu, Y. Y., Lim, K. E., Hung, D., & Decety, J. (2007). Expertise modulates the perception of pain in others. *Current Biology*, *17*, 1708-1713.

Cikara, M., Bruneau, E. G., & Saxe, R. (2011). Us and them: Intergroup failures of empathy. Current Directions in *Psychological Science*, *20*, 149-153.

[Downloaded from mail.ijpb.ir on 2026-11-21]

Cohen, T. R., Montoya, R. M., & Insko, C. A. (2006). Group morality and intergroup relations: Cross–cultural and experimental evidence. *Personality and Social Psychology Bulletin, 32*, 1559-1572.

De Vignemont, F., & Singer, T. (2006). The empathic brain: how, when and why. *Trends in Cognitive Sciences, 10*, 435-441.

De Waal, F. B. M. (2008). Putting the altruism back into altruism: The evolution of empathy.*Annual Review of Psychology, 59*, 279-300.

Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review, 102*, 4-27.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. K. L. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology, 74*, 1464-1480.

Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and using the Implicit Association Test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology, 85*, 197-216.

Haidt, J., Rozin, P., McCauley, C., & Imada, S. (1997). Body, psyche, and culture: The relationship between disgust and morality. *Psychology and Developing Societies, 9*, 107-131

Harris, L. T., & Fiske, S. T. (2009). Social neuroscience evidence for dehumanized perception.*European Review of Social Psychology, 20*, 192-231.

Hashemipour, H., Heidari, M., Fathabadi, J., & Nejat, P. (2012).Examining psychometric properties of self-esteem Implicit Association Test, *Quarterly Journal of Measurement & Educational Evaluation, 1*, 33-48. [Text in Persian]

[Downloaded from mail.ijpb.ir on 2026-11-21]

Hatami, A. J. (2011). The organization of personality from the perspective of national, religious, and modern identities.Master Thesis, *Department of Psychology and Educational Sciences, Shahid Beheshti University*.

Hatfield, E., Cacioppo, J. T., & Rapson, R. (1994).*Emotional Contagion*. New York: Cambridge University Press.

Hofmann, W., Gawronski, B., Gschwendner, T., Le, H., & Schmitt, M. (2005).A meta-analysis on the correlation between the Implicit Association Test and explicit self-report measure.*Personality and Social Psychology Bulletin, 31*, 1369–1385.

Kagan, J. (2000). Human morality is distinctive. *Journal of Consciousness Studies, 7*, 46-48.

Marler, P. (1976). On animal aggression: The roles of strangeness and familiarity. *American Psychology, 31*, 239-246.

Masten, C. L., Gillen-O'Neel, C., & Brown, C. S. (2010). Children's intergroup empathic processing: The roles of novel in- group identification, situational distress, and social anxiety. *Journal of Experimental Child Psychology, 106*, 115-128.

Meier, B. P., & Hinsz, V. B. (2004). A comparison of human aggression committed by groups and individuals: An interindividual-intergroup discontinuity. *Journal of Experimental Social Psychology, 40*, 551-559.

Nejat, P. (2011). Investigating the relations between implicit/explicit stereotype, identity constructs and behavioral indicators in Iranian students of math and humanities.Master Thesis, *Department of Psychology and Educational Sciences, University of Tehran*.

Nejat, P., & Hatami, J. (2012). Implicit Association Test (IAT): Between-constructs comparison and subjects' responding

[Downloaded from mail.ijpb.ir on 2026-11-21]

strategies, *Advances in Cognitive Science, 53,* 75-87. [Text in Persian]

Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2007). The Implicit Association Test at age 7: A methodological and conceptual review. In J. A. Bargh (Ed.), *Social psychologyand the unconscious: The automaticity of highermental processes* (pp. 265-292). New York, NY: Psychology Press.

Opotow, S. (1990*).* Moral exclusion and injustice: An introduction. *Journal of Social Issues, 46*, 1-20.

Preston, S.D., & de Waal, F. B. (2002). Empathy: Its ultimate and proximate bases. *Behavioral and Brain Sciences, 25,* 1-20.

Singer, T., Seymour, B., O'Doherty, J., Kaube, H., Dolan, R., & Frith, C. (2004). Empathy for pain involves the affective but not sensory components of pain. *Science, 303*, 1157- 1162.

Singer, T., Seymour, B., O'Doherty, J., Stephan, K., Dolan, R., & Frith, C. (2006). Empathic neural responses are modulated by the perceived fairness of others. *Nature, 439*, 466-469.

Todorov, A., & Engell, A. D. (2008). The role of the amygdala in implicit evaluation of emotionally neutral faces. *Social, Cognitive, and Affective Neuroscience, 3,* 303-312.

Received: 14/ 9/ 2014
Revised : 10/ 10/ 2015
Accepted: 24/ 12/ 2015

[Downloaded from mail.ijpb.ir on 2026-11-21]