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Do they feel the same as us? The infrahumanization of individuals with Down syndrome

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Abstract

Background: Research on infrahumanization shows there is a strong tendency to deprive outgroups of the ability to experience secondary emotions when compared to ingroups. However, it is not known whether this tendency is also applied to social groups towards which ambivalent attitudes are held, such as individuals with Down syndrome. **Methods:** In the first study, participants were asked to attribute primary and secondary emotions to members of the ingroup (students) and outgroup (individuals with Down syndrome). The second study explored the effect of the physical features of Down syndrome on the differential association of emotions. A lexical decision task preceded by photographs of three face types (adults with Down syndrome, adults with ambiguous faces and adults without Down syndrome) was used for that purpose. **Results:** The results showed a higher attribution of secondary emotions to members of the ingroup than to members of the outgroup. Also revealed that participants associated secondary emotions with the faces of adults without Down syndrome and with ambiguous faces far more quickly than with faces of individuals with Down syndrome. **Conclusions:** These results confirm the existence of infrahumanization bias and the effect of visibility of the stigma in this subtle type of prejudice.

Keywords: Infrahumanization, Down syndrome, secondary emotions.

Resumen

¿Sienten como nosotros? La infrahumanización de las personas con síndrome de Down. **Antecedentes:** las investigaciones sobre infrahumanización muestran que hay una fuerte inclinación a privar a los exogrupos de la capacidad de experimentar emociones secundarias, en comparación con los endogrupos. Sin embargo, desconocemos si esta tendencia se aplica a grupos sociales hacia los que se mantienen actitudes ambivalentes, como las personas con síndrome de Down. **Método:** en el primer estudio se pidió a los participantes que atribuyeran emociones primarias y secundarias a los miembros del endogrupo (estudiantes) y del exogrupo (personas con síndrome de Down). El segundo estudio exploró el efecto que tenían los rasgos físicos de síndrome de Down en la asociación diferencial de emociones. Se empleó una tarea de decisión léxica precedida por fotografías de tres tipos de rostros (adultos con síndrome de Down, adultos con caras ambiguas y adultos sin síndrome de Down). **Resultados:** se produjo una mayor atribución de emociones secundarias a los miembros del endogrupo que del exogrupo. Los participantes asociaron con mayor rapidez emociones secundarias a caras de adultos sin síndrome de Down y a caras ambiguas, en comparación con las caras de personas con síndrome de Down. **Conclusiones:** estos resultados confirman la existencia del sesgo de infrahumanización y el papel de la visibilidad del estigma.

Palabras clave: infrahumanización, síndrome de Down, emociones secundarias.

Individuals with Down syndrome (DS) have to face two types of problems: firstly, those which derive directly from their genetic alteration, which affect their health and survival; and secondly, problems arising from the stigma that links this syndrome with anomalies in cognitive development, which has encouraged a perception of DS individuals as having intellectual disability.

When the term *mongolism* was applied to this disorder in the late nineteenth century, it was based on the existence of facial similarities with the nomadic groups of Mongolia. However, it was also because of the nineteenth-century belief that this mental anomaly, which only affected white people, was a leap in the interspecies barrier and a step backwards for humanity's intellectual progress (Loeches, Iglesias, & Carvajal, 1991). In fact, because of those old-fashioned ideas, even today, many adults and children with DS are given an inferior status to other human beings.

That said, the lower status due to the attribution of cognitive deficits may be compensated by the stereotyped perception of DS persons as sociable, contented and unthreatening individuals. Conversely, it could be strengthened by the infantile, dependent and irresponsible profile that is also included in this stereotype (Molina, Nunes, & Vallejo, 2012).

To date, there are no studies that show whether the tendency to lower the human status of DS individuals because of their intellectual deficit also extends to the emotions. The aim of this research is to determine whether persons with trisomy 21 are perceived as less able to experience exclusively human emotions than persons without DS.

Several recent studies have examined a subtle way of denying humanity to others in the absence of an open manifestation of

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prejudice or intergroup hostility: a predisposition to attribute more exclusively human characteristics to the ingroup, to the detriment of outgroups to which one does not belong (Leyens et al., 2003). This bias has been empirically studied from different theoretical models, particularly the infrahumanization theory.

In their early research, Leyens et al. (2000) distinguished between primary emotions, which are emotions we share with animals (for example, surprise, anger, happiness and fear) and secondary emotions, which are only expressed by humans (for example, hope, repentance, enthusiasm and remorse). Based on this distinction, numerous studies, using different models and outgroups, have found that people attribute more secondary emotions to their own group than to outgroups, and that this differential attribution does not occur with primary emotions (for complete reviews see Demoulin, Rodríguez-Torres et al., 2004; Leyens et al., 2003). According to Leyens et al. (2000), this bias not only reflects people's tendency to reserve humanity for their own group, it is also a subtle way of expelling other persons and groups from the human universe and therefore of encouraging discrimination.

Surprisingly, despite the considerable development of the infrahumanization theory, no research has verified this tendency to perceive DS persons as being less human. The main objective of this paper is then to establish whether DS persons are also denied the ability to experience exclusively human emotions as a way of infrahumanizing them, as occurs with other groups. Specifically, we hypothesize that there is a higher attribution of secondary emotions to members of the ingroup (university students) than to members of the outgroup (DS persons). This knowledge is highly significant because verifying whether DS persons are infrahumanized would result in a better understanding of the characteristics of stigmatization and therefore, of the inferential processes that lead perceivers to establish a personality profile that has serious consequences for these individuals' social integration.

Study 1

Method

Participants

A total of 214 social work undergraduates at the University of La Laguna (172 women and 42 men) participated voluntarily in this study. The students were awarded research credits for participating. Participants' age range was from 18 to 50 years *(M = 19.98, SD = 3.43)*. Students participated in a factorial design of 2 (Target: ingroup [university students] versus outgroup [Down syndrome] × 2 (Type of emotion: secondary versus primary emotion) × 2 (Valence: positive versus negative). The first and last two factors were intergroup and intragroup variables, respectively. The dependent variable was the number of secondary and primary emotions attributed to each group.

Instruments

Infrahumanization of the outgroup and ingroup

Participants completed a 20-item questionnaire on the attribution of emotional features. The 20 emotional terms were taken from a normative study that presents the humanity values of more than one hundred emotional terms in several important dimensions (Rodríguez-Pérez, Betancor-Rodríguez, Ariño-Mateo, Demoulin, & Leyens, 2014). The emotional features were selected according to how they scored in their degree of humanity. Ten emotions scoring high in humanity: secondary emotions (M = 5.31, SD = 0.82) and 10 emotions scoring low in humanity: primary emotions (M = 2.59, SD = 0.54), $t(18) = 8.63$, $p<.001$, were selected. Moreover, as half the emotions chosen were positive and the other half negative, it was confirmed that their valence did not differ significantly. Thus, the difference between the average score of the five positive secondary emotions (*serenity, empathy, hope, euphoria, optimism; M* = 4.93, SD = 1.04) and the average score of the five positive primary emotions (*affection, happiness, surprise, desire, tenderness; M* = 2.85, SD = 0.52) was not significant, $t(9) = -1.60$, p =.14. The average score of the five negative secondary emotions (*deception, sorrow, pessimism, remorse, shame; M* = 5.68, SD = 0.29) and the five negative primary emotions (*fear, anger, pain, agitation, concern; M* = 2.34, SD = 0.49) was also nonsignificant, $t(9) = -1.30$, p =.22. Finally, there was no difference in the degree of familiarity and frequency of use between the secondary (M = 5.57, SD = 0.51) and primary emotions (M = 5.86, SD = 0.72), $t(18) = 1.04$, p =.31.

The following specific statement was given: *"Bearing in mind the perspective of Spanish society, which emotions do persons with DS (university students) experience more often?"* To limit the number of replies, participants were asked to choose between 8 and 12 characteristics from those listed.

Control questions: contact with the outgroup

At the end of the questionnaire, in addition to age and sex, two control questions were added: *Do you know anyone with Down syndrome?* and, in the event of an affirmative answer, *What relationship do you have with this person?* (1 = Distant; 2 = Close: friend or relative). Of the total number of participants, 27 (18.75%) were excluded because of a close relationship with the outgroup.

Procedure

Participants completed the questionnaire online using the Survey Monkey tool. The task took around 15 minutes. Half the participants (whose surname initial fell between A and M), were asked about persons with DS and the other half (whose surname initial fell between N and Z), about university students. Participants were told that the objective of the questionnaire was to discover how Spanish society perceived different social groups. Confidentiality was assured at all times.

Data analysis

The results were analyzed according to the objectives of the study. Numerous people with Down syndrome and university students were compared using an ANOVA. Version 20.0 of the Statistical Package for Social Sciences (SPSS) was used for statistical analysis; the alpha level was fixed at 0.05.

Results and discussion

In order to analyze the differential attribution of secondary and primary emotions to each target study group, we conducted

an ANOVA of 2 (Target: ingroup [university students] versus outgroup [Down syndrome]) × 2 (Type of emotion: secondary versus primary emotions) × 2 (Valence: positive versus negative). The results of the analysis showed three significant main effects. First of all, there was a statistically significant main effect of Type of emotion, $F(1, 212) = 19.031$, $p<.001$, $\eta_p^2 = .08$. In general, participants attributed more primary ($M = 2.36$, $SD = 1.23$) than secondary emotions ($M = 1.94$, $SD = 1.40$).

Secondly, a significant main effect of Valence, $F(1, 212) = 7.55$, $p<.01$, $\eta_p^2 = .03$, was obtained. Participants attributed more positive ($M = 2.35$, $SD = 1.29$) than negative ($M = 1.95$, $SD = 1.34$) emotional terms.

Thirdly, the Target variable was also statistically significant, $F(1, 212) = 7.99$, $p<.01$, $\eta_p^2 = .03$. Participants attributed more emotional terms to university students ($M = 2.29$, $SD = 1.14$) than to persons with DS ($M = 2.16$, $SD = 1.42$).

However, the most important result for our hypothesis was the statistically significant interaction between Type of emotion and Target, $F(1, 212) = 51.62$, $p<.001$, $\eta_p^2 = .19$).

Figure 1 shows that participants attributed significantly more secondary emotions to university students ($M = 2.38$, $SD = 1.32$) than to persons with DS ($M = 1.72$, $SD = 1.39$, $F(1,212) = 59.219$, $p<.001$, $\eta_p^2 = .22$. That is, persons with DS are infrahumanized and denied the same capacity of experiencing secondary emotions as university students. This infrahumanization pattern is highly significant because it is the opposite to that obtained with primary emotions; participants attributed more primary emotions, non-exclusively human, to persons with DS ($M = 2.60$, $SD = 1.30$) than to university students ($M = 2.17$, $SD = 1.11$, $F(1, 212) = 23.707$, $p<.001$, $\eta_p^2 = .10$).

Moreover, in the outgroup condition, participants attributed more primary ($M = 2.60$, $SD = 1.30$) than secondary emotions ($M = 1.72$, $SD = 1.39$, $F(1, 212) = 70.33$, $p<.001$, $\eta_p^2 = .24$). And, conversely, more secondary ($M = 2.38$, $SD = 1.32$) than primary emotions ($M = 2.17$, $SD = 1.11$, $F(1, 212) = 3.71$, $p = 005$, $\eta_p^2 = .01$) were attributed to university students (ingroup). Finally, a triple interaction was obtained between Type of emotion, Target and Valence, $F(1, 212) = 11.52$, $p<.001$, $\eta_p^2 = .05$.

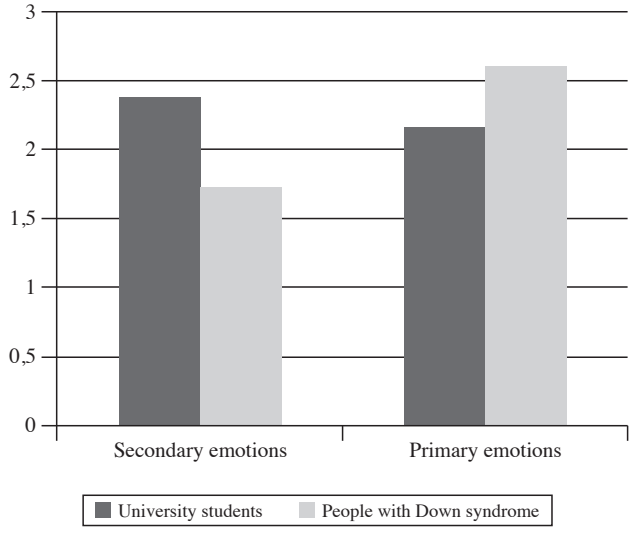

Figure 1. *Means of primary and secondary emotions according to target group*

Figure 2 shows that participants attributed more positive primary emotions to persons with DS ($M = 2.92$, $SD = 1.29$) than to university students ($M = 2.05$, $SD = 0.95$, $F(1, 212) = 30.67$, $p<.001$, $\eta_p^2 = .12$. This did not occur with negative emotions ($M = 2.28$, $SD = 1.22$, for the group of persons with DS and $M = 2.29$, $SD = 0.99$, for the group of university students), $F(1, 212) = 0.013$, $p = .91$. Furthermore, participants attributed more positive and negative secondary emotions to university students ($M = 2.63$, $SD = 1.13$ and $M = 2.14$, $SD = 1.37$, respectively) than to persons with DS ($M = 1.98$, $SD = 1.25$ and $M = 1.47$, $SD = 1.5$, respectively). These differences were statistically different, $F(1, 212) = 16.00$, $p<.001$, $\eta_p^2 = .07$, for the positive, and $F(1, 212) = 11.34$, $p<.001$, $\eta_p^2 = .05$, for the negative emotions.

These results confirm the existence of an infrahumanization bias towards persons with DS. Specifically, fewer secondary emotions were attributed to persons with DS than to a control ingroup, in this case, the university students. Infrahumanization towards persons with DS is therefore shown empirically for the first time. Moreover, participants unexpectedly attributed more primary emotions to persons with DS than to the ingroup. This result could arise from the role of prevailing stereotypes of persons with DS. Namely, that their profile is marked by frequent positive primary emotions (Gilmore, Campbell, & Cuskelly, 2003; Sirlopú et al., 2012).

Once it was confirmed that persons with DS are infrahumanized and denied the same capacity as ingroups of experiencing secondary emotions, our objective was to check whether the level of infrahumanization varies depending on the severity of facial features in DS. We specifically hypothesized that the greater the severity of distinctive facial features in persons with DS, the greater the infrahumanization.

Study 2

Many stigmas are not visible and as long as individuals are not identified as members of a stigmatized category, at first sight they are perceived as "normal". This is the case of psychotics, delinquents or prostitutes, who have no distinctive phenotypical characteristics.

However, at other times, the stigma is visible, in which case not only is the category associated with discrimination and

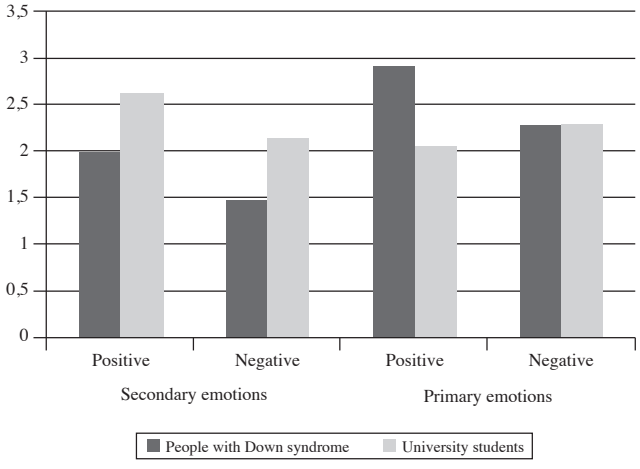

Figure 2. *Means of primary and secondary emotions according to the valence of the features and the target group*

contempt but also the personal distinctiveness of each member of the category. In these cases, as with persons with DS (flat facial features, slanting eyes, small ears and lingual protrusion), it is likely that a greater number of physical features representative of the category will intensify their infrahumanization.

As far as we know, the only study to explore the relationship between the intensity of the phenotypical facial features of DS and attitudes was carried out by Enea-Drapeau, Carlier and Huguet (2012). In their study, the authors used photographs of children's faces showing normal development, and slight and distinct facial features of DS. Analysis of the results revealed a greater association of DS faces with negative attitudes when facial features were more distinctively DS.

Along these lines, the aim of the second study is to determine whether the infrahumanization found in relation to the categorical term "Down syndrome" also occurs with faces of persons with DS and whether this infrahumanization increases when these faces show more severe facial features of DS.

Method

Participants

A total of 32 psychology undergraduates (24 women ad 8 men) participated voluntarily in this study. The students were awarded research credits for participating. Participants' age range was between 19 and 25 years (M = 20.43, SD = 1.75). Two participants were excluded from the analysis because they obtained high error ratios (above 8%). Students participated in a design of 2 (Target: secondary versus primary emotions) × 2 (Valence: positive versus negative) × 3 (Prime: face of a non-Down syndrome person [without DS] versus ambiguous versus Down syndrome [DS]). All the variables were intragroup. The dependent variable was the association between the different types of faces and the emotional terms.

Instruments

Images of faces

The stimuli presented in this experiment were the faces of non-DS persons, faces of persons with DS and ambiguous faces with a slight degree of DS obtained using a morphing program. All the faces were produced from the images of two non-DS males, using the NimStim Set of Facial Expressions (http:// www.macbrain.org/resources.htm), as well as two DS male faces extracted from the internet. The four photos were black and white, fully frontal, with a neutral facial expression and white background. The program FantaMorph5 (version 5.4.1) was used to produce two pairs with a non-DS and a DS face. Morphed faces were then obtained beginning with the non-DS face and gradually increasing the morphing by 5.263% onto the DS face (Capozza, Boccato, Andrighetto, & Falvo, 2009). The result was 20 faces of each pair, both extremes of which were the two original images plus 18 photos with different degrees of morphing. From this continuum, and following the research by Capozza et al. (2009), seven images of each combination pair were chosen: the two most polarized at the extreme of the face with no sign of DS (0% and 5.26% of morphing with the DS face); the two most polarized at the extreme of the face with DS (94.73% and 100%) and finally, three faces with an average level of morphing (52.63%, 57.89 % and 63.16%). Altogether the stimuli consisted of 14 images of human faces, seven of each pair chosen, with a resolution of 800×600 pixels.

Measurement of infrahumanization

In order to measure the associative strength between the emotional terms and the images of non-DS human faces and faces with two levels of severity of signs of DS, we designed a lexical decision-making task that included a total of 30 words: 20 emotional terms (10 secondary and 10 primary emotions) and 10 pseudowords as fillers.

The 20 emotional terms were the same as those used in Study 1. The 10 pseudowords were extracted from the study by Algarabel (1996), bearing in mind that the number of syllables coincided with words frequently used in Spanish and that the combination of letters, despite having no meaning, sounded familiar (e.g., *fror, genuro, yonor*).

Contact with the outgroup

In addition to age and sex, two control questions were included at the end of the experiment: *Do you know anyone with Down syndrome?* and, in the event of an affirmative answer, *What relationship do you have with this person?* (1 = Distant; 2 = Close: friend or relative). No participant had a close relationship with the outgroup.

Procedure

For this experiment, we used the program E-prime 2.0 Professional.

Participants were randomly distributed in cubicles equipped with a computer and received all the instructions for the experiment onscreen. The instructions explained that the objective of the experiment was to research procedures connected with face

Figure 3. *Selected exemplars of a continuum of morphed typical human/Down syndrome faces*

memory. Participants were then told that photos of faces of both university students (ingroup) and of persons with DS (outgroup) would appear onscreen. Participants were to pay close attention to each image because there would be a recognition test at the end of the experiment. They were also told that, in order to increase the difficulty, a series of letters would be shown after each image and that they should decide as quickly as possible, using the keyboard, whether these letters formed a word or a pseudoword. Before beginning the task, participants responded to five training trials to check that they had understood the task. The experimental task then began.

The experiment was composed of 210 trials (each of the 30 words was preceded by each of the seven types of images). Each trial consisted of a fixation cross that appeared in the centre of the screen for 500 milliseconds. Immediately, the image of the priming face appeared for 500 milliseconds, followed by a flash (17 ms) and the series of letters that acted as the target (SOA = 517 ms). This set of letters remained onscreen until the participant responded ("word" or "pseudoword"). The following trial began after an interval of 1000 milliseconds, during which the screen was completely blank. The trials were randomized to control the order of appearance of images and words.

Data analysis

Before analyzing the lexical decision-making task, participants' extremely fast or slow responses (fewer than 300 and more than 3000 ms) were eliminated. The erroneous responses, 2.9% in total, were also removed (responses in which participants pressed the "word" key for a pseudoword and the "pseudoword" key for a word).

Reaction times were transformed into logarithmic scores for analysis. However, to facilitate interpretation, measurements are presented in milliseconds.

Numerous people with Down syndrome, ambiguous faces and people without Down syndrome were compared using an ANOVA. Version 20.0 of the Statistical Package for Social Sciences (SPSS) was used for statistical analysis; the alpha level was fixed at 0.05.

Results and discussion

An ANOVA of 2 (Target: secondary versus primary emotions) × 2 (Valence: positive versus negative) × 3 (Prime: no DS versus ambiguous faces versus severe DS) was performed in order to check whether the infrahumanization bias varied according to facial features. All the variables were intragroup.

First of all, a significant main effect was found for the variable Target, $F(1, 31) = 35.21$, $p<.001$, $\eta_p^2 = .53$. In general, participants identified primary emotions more quickly ($M = 648.42$, $SD = 89.34$) than secondary emotions ($M = 678.89$, $SD = 104.35$).

Secondly, the variable Valence produced a significant main effect, $F(1, 31) = 59.18$, $p<.001$, $\eta_p^2 = .66$. Participants took longer to respond to negative ($M = 690.19$, $SD = 106.04$) than to positive ($M = 639.19$, $SD = 83.01$) emotional terms.

Finally, and most relevant for our hypothesis, a double Target × Prime interaction was found, $F(2, 30) = 5.98$, $p<.007$, $\eta_p^2 = .29$. Analysis of the simple effects of the interaction showed that this significance arises from responses to words relating to secondary emotions, $F(2, 30) = 6.127$, $p = .006$, $\eta_p^2 = .29$.

Specifically, as we observed in Figure 4, participants recognized words relating to secondary emotions more quickly when they were preceded by faces with no DS ($M = 671.83$, $SD = 103.01$) than when preceded by faces of persons with trisomy 21 ($M = 695.06$, $SD = 118.25$, $p = .02$).

Significant differences were also found in the response latency of the terms relating to secondary emotions when they were preceded by ambiguous faces ($M = 669.79$, $SD = 89.55$) than when preceded by faces with DS ($M = 695.06$, $SD = 118.25$, $p = .03$). However, there were no statistically significant differences in the secondary emotions when they were preceded by non-DS and ambiguous faces.

No significant differences were found in responses to words relating to primary emotions, according to the different primes presented ($F <3$, $p = n.s.$)

In short, the results obtained in this second study reveal that the presence of severe visible features of trisomy 21 constitutes diagnostic information for the occurrence of infrahumanization. Through a procedure of implicit association, participants have been shown to take longer to identify feelings when they are preceded by images of persons with features of DS. However, ambiguous images did not elicit different responses from those produced by images of non-DS persons.

These results lead us to conclude that infrahumanization is sensitive to the visibility of the stigma of the outgroup, thus providing evidence of the important effect that distinctive facial features of mental disability generate in our implicit attitudes.

Discussion

Although persons with DS have suffered discriminatory treatment and have been traditionally associated with a sub-human typology, there had been no empirical research into whether they are infrahumanized. Both studies presented here were undertaken with this purpose in mind.

Our results show that the stigma attached to persons with DS generates a representation of them as an outgroup for which certain exclusively human qualities are restricted.

Specifically, the results confirmed a significantly higher tendency to infrahumanize the category "Persons with DS" than the category "University students". In other words, fewer secondary

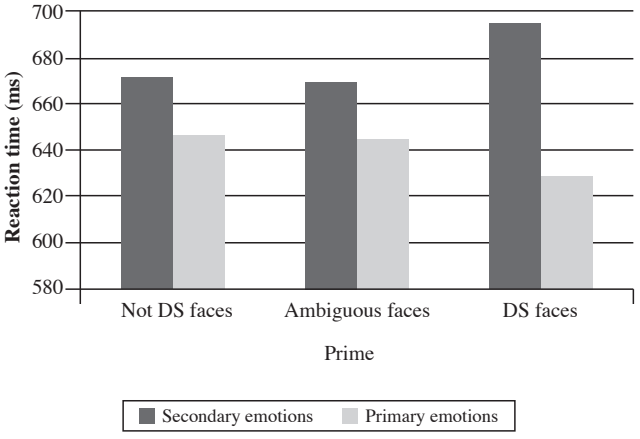

Figure 4. *Means of primary and secondary emotions according to the type of prime*

emotions were attributed to persons with DS than to the ingroup (university students). These results are similar to those found by Leyens et al. (2000, 2003), who always uncover the same pattern in different research about different outgroups. Moreover, the results converge with those found recently by Falvo, Capozza, Hichy and DiSipio (2014), who discovered an infrahumanization bias towards the broadest category of persons with mental disability.

The results of our second study also follow that direction by showing a differential association between secondary emotions and photographs of the three categories of faces (severe features, ambiguous features and non-DS features). In particular, participants took longer to associate secondary emotions with photos of persons with DS than with photos of ambiguous or non-DS faces. In other words, the visibility of the stigma influenced the infrahumanization bias. This infrahumanization, obtained according to the phenotypical characteristics of the trisomy 21, is consistent with the lower attribution of positive features to faces that showed strong DS features compared with weak DS features given by participants in Enea-Drapeau et al.'s study (2012). It also concurs with research by Enea-Drapeau, Huguet and Carlier (2014), who found that children with strong DS features were regarded as less intelligent than the rest of children, a quality that all studies on infrahumanization consider as being typically human (for a review, see Haslam & Loughnan, 2014).

Moreover, our data show that the visibility and salience of phenotypical characteristics of trisomy 21 play a fundamental role in the social perception of this group, making group members more vulnerable to specific threats, for example, by being judged and treated according to stereotype (i.e., they are like children, mentally disabled, irresponsible). This stereotype threat can hinder performance and, in general, the executive functions needed for greater educational integration and adequate capacity to work (Steele, Spencer, & Aronson, 2002).

Surprisingly, the infrahumanization of persons with DS goes unnoticed socially because it is concealed by paternalistic and benevolent attitudes. However, there are at least three reasons underlying the perpetuation of the infrahumanization bias in this group.

Firstly, persons with DS are perceived as defenseless and incapable of taking care of themselves, and their irrational behavior requires attention and supervision (Sirlopú et al., 2012).

Secondly, persons with DS are perceived as members of a category determined by a genetic essentialism that defines and decides their identity, personality and behavior beyond what derives from Down syndrome (Haslam, 2011). This essentialist view means that all persons with DS are perceived with the same immutable features and a specific ontological status (Ahn, Flanagan, Marsh, & Sanislow, 2006; Haslam & Ernst, 2002).

Thirdly, the noticeable phenotypical features of DS have resulted in individuals being identified with their disorder. Thus, equating these persons with the name of the disorder ("Juan is Down syndrome" instead of "Juan has Down syndrome") implies that the disorder is everything and that having the syndrome is more important than being a person (Slovenko, 2001). As Carnaghi and Maass (2007) point out, certain labels provide more information about the individuals who apply them than about the persons themselves, particularly when these labels are associated with negative characteristics or features of little social value.

From a practical perspective, these results show that people infrahumanize people with Down syndrome, especially in an implicit way. And this implicit attitude influences how DS persons perceive others. These forms of micro-aggression exert considerable influence on their self-evaluation and self-esteem, and on their capacity to face many everyday challenges (Steele, Spencer, & Aronson, 2002). But, above all, this information can aid educational policymakers and social integration services to devise intervention programmes that focus on the artifactual and tendentious nature of the infrahumanization bias. Also, it can contribute to propose strategies that will counteract its subtle and automatic effects, thereby creating opportunities for the unlimited incorporation of DS persons into social spaces.

One limitation of this study is that it focuses on the title of the DS category or on phenotypical facial features and may explain the results as a standard response to an outgroup. Moreover, it focuses on a neutral expression which, generally speaking, is incongruent with the representation usually associated with the faces of DS persons. In future, not only would it be interesting to include whole body images, but more importantly to attempt to reflect both posture and emotional facial expressions, which are seldom neutral. Experimental procedures that would activate the benevolent perspective of participants should also be used. Whether this activation would annul the tendency to infrahumanize DS persons might then be seen more clearly.

Future research should also focus on discovering the role played by the perception of infrahumanization in discriminatory conduct and in the paternalistic attitudes towards persons with DS. For a long time these attitudes were believed to foster tolerance and measures for the social integration of this group. However, our results reveal that, although rejection of members of this social group is not publicly manifest, an infrahuman view of persons with DS does persist.

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