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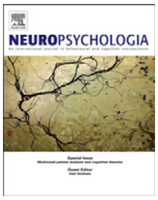

The neural substrates of person perception: Spontaneous use of financial and moral status knowledge

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ABSTRACT

The current study examines the effect of status information on the neural substrates of person perception. In an event-related fMRI experiment, participants were presented with photographs of faces preceded with information denoting either: low or high financial status (e.g., "earns $25,000" or "earns $350,000"), or low or high moral status (e.g., "is a tobacco executive" or "does cancer research"). Participants were asked to form an impression of the targets, but were not instructed to explicitly evaluate their social status. Building on previous brain-imaging investigations, regions of interest analyses were performed for brain regions expected to support either cognitive (i.e., intraparietal sulcus) or emotional (i.e., ventromedial prefrontal cortex) components of social status perception. Activation of the intraparietal sulcus was found to be sensitive to the financial status of individuals while activation of the ventromedial prefrontal cortex was sensitive to the moral status of individuals. The implications of these results towards uncovering the neural substrates of status perception and, more broadly, the extended network of brain regions involved in person perception are discussed.

1. Introduction

Our ability to successfully interact with others depends on a variety of social cognitive skills, which include various person perception processes. Much progress has been made identifying the neural substrates involved in perceiving key social dimensions of others. A network of brain regions, including the fusiform cortex, superior temporal sulcus, amygdala and nucleus accumbens, appear to be involved in processing perceptually identifiable social dimensions of unfamiliar individuals, such as their race, gender, emotional expression, attractiveness, and perceived likability or dominance (Adolphs, 2002; Cloutier, Heatherton, Whalen, & Kelley, 2008; Engell, Haxby, & Todorov, 2007; Freeman, Rule, Adams, & Ambady, 2009; Hoffman & Haxby, 2000; Phelps et al., 2000; Whalen et al., 1998). Additionally, compared to unfamiliar individuals, well-known individuals often elicit greater activation in brain regions believed to support social cognition, particularly the medial prefrontal cortex (MPFC) (Cloutier, Kelley, & Heatherton, 2011; Gobbini & Haxby, 2007; Gobbini, Leibenluft, Santiago, & Haxby, 2004). This increased activation in MPFC may index the evaluation of a social target or availability of person-knowledge about a social target (Cloutier et al., 2011; Gobbini & Haxby, 2007; Krienen, Tu, & Buckner, 2010; Todorov, Gobbini, Evans, & Haxby, 2007).

Despite such advances towards uncovering the neural substrates of person perception, little is known about the social cognitive processes involved in the perception of social status in humans (Fiske, 2010; Magee & Galinsky, 2008). Nonetheless, a growing number of brain-imaging investigations have attempted to identify the impact of a target's social status on the neural substrates of its perception (Chiao et al., 2009; Karafin, Tranel, & Adolphs, 2004; Ly, Haynes, Barter, Weinberger, & Zink, 2011; Marsh, Blair, Jones, Soliman, & Blair, 2009; Zink et al., 2008). In these studies, however, it is often difficult to isolate the social dimensions from which status is inferred or to distinguish between the impact of social status and other potentially related constructs (e.g., facial cues of dominance). In contrast to the dominance hierarchies observed in many non-human primate species (Cheyney & Seyfarth, 2007), the status of humans is often inferred from multiple social dimensions (for example socioeconomic status is composed of distinct social dimensions such as education and financial status). Furthermore, hierarchies within different social groups (e.g., members of a country club versus volunteers in a charitable organization) may be based on a range of distinct characteristics describing its members. Indeed, inasmuch as members of a group sufficiently value a status characteristic, the social dimension in question can be the basis of a hierarchical social structure (Fiske, 2010; Magee & Galinsky, 2008).

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Assessing the social status of others is a vital aspect of person perception and is ubiquitous in guiding social interactions in numerous environments (Magee & Galinsky, 2008). Not only do social status cues provide relevant information about people we encounter, they also serve as indicators of our own position within a given hierarchy and may often be a source of personal motivation (Hogg, 2001; Huberman, Loch, & Onculer, 2004; Magee & Galinsky, 2008). Accordingly, perceivers should be motivated to spontaneously infer the social status of conspecifics when relevant knowledge is available.

Previous brain-imaging studies have identified brain regions responsive to information relevant to the social status of targets (Chiao, 2010; Chiao et al., 2009; Ly et al., 2011; Marsh et al., 2009; Zink et al., 2008). The parietal cortex, particularly the intraparietal sulcus (IPS), has been recruited when people explicitly compare the social status of two individuals (Chiao et al., 2009). This region has been implicated in both the evaluation of social distance and in the performance of non-social numerical comparison (Yamakawa, Kanai, Matsumura, & Naito, 2009). Such findings suggest that the IPS may be involved in the cognitive assessment of hierarchical structures (e.g., mapping the relative positions of individuals within a hierarchy). In contrast, the ventral medial prefrontal cortex (VMPFC) might be involved in the affective evaluation of social targets as a function of their social status. This region has been suggested to be sensitive to the value of social targets during person perception (Karafin et al., 2004), and appears to underlie the affective component of moral evaluations (Adolphs, 2009; Anderson, Bechara, Damasio, Tranel, & Damasio, 1999; Decety, Michalska, & Kinzler, 2012; Greene, 2007; Koenigs et al., 2007; Moll & de Oliveira-Souza, 2007; Moll et al., 2002). Therefore, it may be hypothesized that the IPS is engaged in assessing relative positions of social status within a hierarchy, and the VMPFC is engaged in the affective evaluation of social status.

The current study attempted to identify the neural responses to social targets varying on two distinct social status dimensions (i.e., financial and moral status). In an event-related fMRI design, participants were presented with photographs of unknown individuals preceded by information describing either their financial (i.e., based on income) or moral (i.e., based on professional occupation) status. Of particular interest was the activation in brain regions hypothesized to either: (1) support the cognitive assessment of hierarchical standing (e.g., IPS); or (2) support the affective evaluation of social targets based on their social status (e.g., VMPFC).

2. Method

2.1. Participants

Twenty-three participants were recruited from an urban university community. Of these 23 subjects, four were excluded from subsequent analyses for not performing the task (i.e., did not respond to a least 70% of the trials) and/or reported a possible abnormal neurological history. The remaining nineteen were between the ages of 19 and 34 years (8 male, mean age=24.2 years) and reported no significant abnormal neurological history. All participants had normal or corrected-to-normal visual acuity. Seventeen subjects were right-handed as measured by the Edinburgh Handedness Inventory (Oldfield, 1971). Subjects were paid for their participation and gave informed consent in accordance with the guidelines set by the Committee on the Use of Humans as Experimental Subjects at MIT. Of the 16 participants who accepted to disclose their salaries, 14 disclosed earning less than $40,000, 1 disclosed earning between $40,000 and $60,000, and 1 disclosed earning between $60,000 and $80,000. Importantly, this indicates that financial status of participants in the study, as indicated by their salaries, was closer to the low financial status targets than the high financial status targets presented during the experiment.

2.2. Material and pre-rating task

In a pilot study, participants ($N=12$) rated a list of sentences created to represent either professional occupations with low moral status (i.e., *is a member of the paparazzi*) or professional occupations with high moral status (i.e., *is a leading neurologist*). Their task was to rate how much they respected on a moral level the described professional occupation (on 7 point scale, 1=“Very little” to 7=“Extremely”). These participants were also asked to rate the level of earnings associated with each professional occupation (on 7 point scale, 1=“Very low” to 7=“Extremely high”). From this pilot study, we identified two lists of sentences equated on perceived earnings for the moral status conditions (low moral status: perceived status mean (s.d.)=2.40 (0.48), perceived earning mean (s.d.)=4.37 (0.83); high moral status: perceived status mean (s.d.)=5.97 (0.40), perceived earning mean (s.d.)=4.20 (1.23)) that were subsequently used in the functional imaging task.

Salaries representing low financial status varied between $12,400 per year to $39,400 per year and salaries representing high financial status varied between $125,000 per year to $349,200 per year.

Face stimuli consisted of 120 unfamiliar male faces used in previous studies (Cloutier et al., 2008) further supplemented with unfamiliar faces compiled from the media. The faces were cropped below the chin line and around the outer hairline, were scaled to center a 13.33 × 13.33 cm black canvas and displayed direct eye gaze. Faces were equated on attractiveness and emotional expressions (depicting either a neutral expression or a slight smile). The presentation of each face in the four experimental conditions was counterbalanced across participants.

2.3. Functional imaging task and procedure

In the fMRI experiment, subjects formed impressions of the presented faces (120 photographs of unknown male individuals) paired with information describing the target as having either a low financial status, a high financial status, a low moral status or a high moral status (30 items of each type of status information preceded the presentation of 30 unique faces) (Fig. 1). This resulted in 30 unique low financial status face trials, 30 unique high financial status face trials, 30 unique low moral status face trials and 30 unique high moral status face trials. During these trials, participants were instructed to form impressions of the faces based on their immediate reactions following consideration of the information paired with the faces.

Importantly, response to the faces, not the sentences, was of interest in the current experiment. Accordingly, trials during which only status information was presented (i.e., professional occupation and salary) were included as “catch-trials” (partial trials during which a sentence was not followed by a face). During these trials, participants were told that they should simply ignore the “catch-trial” sentences. Fifteen partial trials of each condition (low financial status, a high financial status, a low moral status or a high moral status) were included so that unique estimates of the hemodynamic response function could be computed for each subcomponent of the trial (Ollinger, Shulman, & Corbetta, 2001). Trial types, including partial trials, were pseudorandomly presented within each run.

Status information was presented for 3500 ms and followed by a centrally presented fixation crosshair for 500 ms. Components of full-trials (i.e., sentence and faces) were pseudorandomly interspersed with fixation trials consisting of a fixation crosshair presented for 2000 ms to introduce jitter into the fMRI time series (Ollinger et al., 2001). This resulted in a mean ISI of 2500 ms (range=500 ms to 4500 ms). Faces were presented for 1000 ms and were followed by a centrally presented fixation crosshair for 1000 ms. All trials, including catch-trials, were pseudorandomly interspersed with fixation trials consisting of a fixation crosshair presented for 2000 ms to introduce jitter into the fMRI time

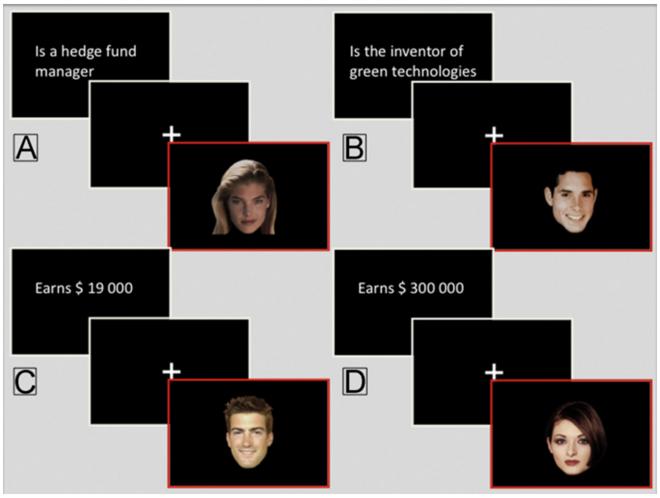

Fig. 1. The figure displaying an example of each full trial: (A) Low morale status, (B) high morale status, (C) low financial status, (D) high financial status. Of interest was the hemodynamic response function during the presentation of the faces.

series (Ollinger et al., 2001). This resulted in a mean ITI of 3000 ms (range= 1000 ms to 5000 ms). Participants responded to each face presentation by pressing a response button with both hands to indicate having performed their impression of the target. More specifically, participants were asked to form an impression of the faces on the basis of all the information available. Once their impressions were formed, subjects were instructed to press a response button with both hands. As in previous studies (Cloutier et al., 2011; Mitchell, Macrae, & Banaji, 2004), participants were told to form their impressions at their own pace and that they would later be tested on these impressions. While the present study was not interested in the motor responses, such responses were required in order to help sustain an adequate level of attention from the participants.

2.4. Functional imaging acquisition

Anatomical and functional whole-brain imaging was performed on a Siemens 3T Tim Trio Scanner using a phase-array 32-channel head coil (Siemens Medical, Erlangen, Germany). An Apple Macbook Pro running the Psychophysics Toolbox extensions in Matlab (The Mathworks, Natick, MA) was used to present stimuli to the participants. Anatomical images were acquired using a high-resolution MPRAGE sequence (128 sagittal slices, TE=3 ms, TR=2500 ms, flip angle=7°, $1 \times 1 \times 1$ mm voxels). Functional images were collected in 5 functional runs of 112 time points each, using a gradient echo, echo planar sequence sensitive to BOLD contrast (T2$*$) (32 axial slices per whole-brain volume, 2 mm in-plane resolution, 4 mm thickness, 0.8 mm skip, TR=2000 ms, TE=30 ms, flip angle=90°).

2.5. Data analysis

Functional MRI data was analyzed using SPM5 (Wellcome Department of Cognitive Neurology, London, UK). Prior to statistical analysis, images were preprocessed to remove sources of noise and artifacts. Functional data were realigned within and across runs to correct for head movement and transformed into a standard anatomical space (3 mm isotropic voxels) based on the ICBM 152 brain template (Montreal Neurological Institute). Normalized data were then spatially smoothed (8 mm full width at half maximum) using a Gaussian kernel. Finally, using in-house artifact detection software, individual runs were analyzed (on a participant-by-participant basis) to find outlier timepoints as measured by two criteria: we excluded from further analysis volumes during which head motion exceeded 1 mm or .75°, and volumes in which the overall signal for that timepoint fell more than three standard deviations outside the mean global signal for the entire run. Outlier time-points were excluded from the GLM analysis via the use of subject-specific regressors of no interest. Each participant's data was high-pass filtered at 128 s. Analyses took place at two levels: formation of statistical images and regional analysis of hemodynamic responses. In the first analysis, a GLM incorporating task effects for the four trial types of interest (low financial status faces, high financial status faces, low moral status faces, high moral status faces), sentences from all trial types and covariates of no interest (a session mean, six movement parameters derived from realignment corrections, and regressors to deweight individual outlier volumes) was used to compute parameter estimates ($ß$) and t-contrasts images (containing weighted parameter estimates) for each comparison at each voxel and for each subject. Individual contrast images were submitted to a second-level random-effects analysis to create mean t-images (thresholded at $p < 0.005$, minimum cluster size=15 voxels).

Regions of interest (ROI) were defined from peak activations taken from relevant previous studies. Two 8 mm spherical ROIs were created based on the reported peak activation in right IPS (Tal: 45, −47, 55) reported to be involved in social status magnitude judgments by Chiao et al. (2009) and the reported peak activations in VMPFC (Tal: 6, 55, −1) reported to be involved in moral judgments by Moll et al. (2002). Parameter estimates from contrast images comparing each of the four trial types to the baseline control (fixation) were extracted from the ROIs and submitted to the relevant statistical analyses.

3. Results

3.1. Behavioral results

Reaction times associated with responses to each of the four conditions were only obtained from six of the participants (due to unforeseen technical issues). Based on this data, no significant differences in reaction time or omissions were observed between the four trial types (low financial status, mean (s.d.)=1385 ms (621 ms), 3 omissions (4.1); high financial status, mean (s.d.)= 1374 ms (693 ms), 2.2 omissions (2.6); low moral status, mean (s.d.)=1292 ms (560 ms), 2.5 omissions (2.8); high moral status, mean (s.d.)=1213 ms (475 ms), 2 omissions (2.4). A 2 (Status Level: high or low) by 2 (Status Type: financial or moral) repeated-measures ANOVA reveal no main effect of Status Type (rt: $F[1, 5]=3.49$, $p=121$; omissions: $F[1, 5] < 1$), no main effect of Status Level (rt: $F[1, 5]=2.83$, $p=153$; omissions: $F[1, 5]=2.29$, $p=191$), and no interaction (rt: $F[1, 5] < 1$; omissions: $F[1, 5] < 1$).

3.2. fMRI results

Regions of interest analyses were employed to characterize activations for all trial types in the two brain regions hypothesized to be involved in either the cognitive assessment of hierarchic differentiation (IPS) or the affective evaluation of social targets (VMPFC) as a function of their social status. For each participant, signal intensities for the ROIs were calculated separately for the four trial types and examined statistically in a 2 (Status Level: high or low) by 2 (Status Type: financial or moral) by 2 (ROI: IPS or VMPFC) repeated-measures ANOVA. These analyses reveal no main effect of Status Level ($F[1, 18] < 1$), no main effect of ROI ($F[1, 18] < 1$), a marginal main effect of Status Type ($F[1, 18]=3.06$, $p=.097$), a significant interaction between Status Level and Status Type ($F[1, 18]=8.07$, $p=.011$), a significant interaction between Status Level and ROI ($F[1, 18]=10.8$, $p=.004$), a marginal interaction between Status Type and ROI ($F[1, 18]=3.68$, $p=.071$) and no 3-way interaction between Status Level, Status Type and ROI ($F[1, 18] < 1$).

Subsequent simple comparisons were performed to directly compare activation in response to low and high status targets for each information type in both regions of interest separately. Results of these analyses (Fig. 2) reveal distinct patterns of response to high and low financial and moral status. Activation in the right IPS was greater for faces paired with low financial status compared to high financial status (IPS: $t[18]=2.60$, $p=.018$), but there was no difference in activation between faces paired with high moral status and low moral status (IPS: $t[18] < 1$) (Fig. 2, upper panel). Activation in VMPFC was greater for faces paired with high moral status compared to low moral status (VMPFC: $t[18]=2.53$, $p=.021$) but there was no differences in activation between faces paired with high financial status income and low financial status (VMPFC: $t[18] < 1$) (Fig. 2, lower panel).

Additional whole-brain analyses were performed to confirm the involvement of IPS and VMPFC during the perception of targets varying on social status and to identify additional brain regions sensitive to differences in each dimensions of status. Results of these analyses are reported in Table 1 and confirm the preferential activation of VMPFC to targets paired with high compared to low moral status and of IPS to targets paired with low compared to high financial status.

4. Discussion

The current study demonstrates the involvement of distinct brain regions during the spontaneous evaluation of social targets as a function of their social status. Differential activation in the IPS was found for targets varying on financial status, but not for targets varying on moral status. In contrast, differential activation for targets varying on moral status, but not on financial status, was observed in VMPFC. These findings extend previous investigations demonstrating the impact of person-knowledge on the neural substrates of person perception (Cloutier et al., 2011; Todorov et al., 2007). Furthermore, in contrast to previous investigations requiring subjects to explicitly assess the social status of the targets (see Chiao et al., 2009), in the current study, the status information was spontaneously ascribed to the targets (i.e., subjects were not asked to explicitly identify the financial or moral status of the targets).

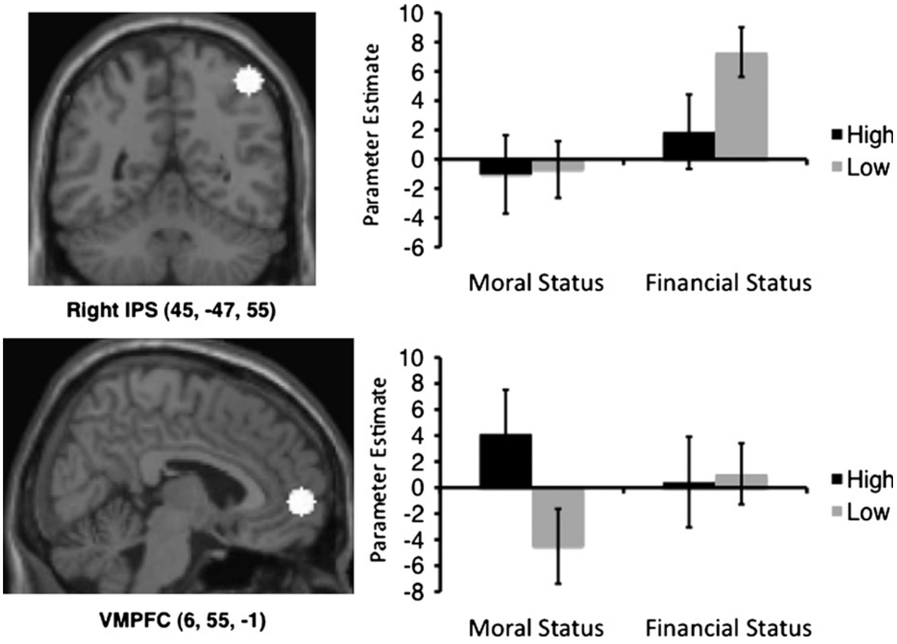

Fig. 2. Coronal section (top left) and sagital section (bottom left) illustrating spherical ROIs hypothesized to support the cognitive and affective components of social status perception [right IPS and VMPFC, respectively]. Graphs to the right of the image display signal change (parameter estimates extracted from the spherical ROIs) for each trial type (high moral status, low moral status, high financial status, low financial status) for each of the brain regions. Inspection of these figures indicates differential activity of IPS in response to the financial status of the targets and differential activity of VMPFC in response to the moral status of the targets.

Table 1
Identification of BOLD signal differences between high and low moral status and high and low financial status.

Brain region		***P*** uncorrected	***k***	***T***	***x***	***y***	***z***
High > low morale status							
BA 38	R superior temporal gyrus	0.001	60	3.96	52	4	−12
BA 11	Ventral medial prefrontal cortex	0.001	38	3.71	0	52	−6
BA 10	Medial prefrontal cortex	0.001	19	3.57	4	58	16
Low > high financial **status**							
BA 9	R middle frontal gyrus	0.000	202	4.87	42	18	34
BA 40	R intraparietal sulcus	0.000	381	4.29	48	−62	46
–	–	0.000		4.14	58	−54	38
–	–	0.000		4.06	54	−62	32
	L cerebellum	0.001	34	3.86	−34	−48	−36
BA 22	R superior temporal sulcus	0.001	32	3.71	52	−42	2
BA 31	Posterior cingulate gyrus	0.001	16	3.68	6	−32	32
BA 6	R superior frontal gyrus	0.001	15	3.63	14	−4	74
BA 9	L middle frontal gyrus	0.002	23	3.37	−42	20	34
High > low financial **status**							
BA 6	L precentral gyrus	0.001	16	3.91	−24	−12	76

Activations determined to be significant (threshold=$p<0.005$, uncorrected; clusters >/=15 voxels; actual values are reported in the table). BA=approximate Brodmann's area location. *x*, *y*, *z* values represent MNI coordinates. Locations of the activations are determined based on the functional responses superimposed on averaged anatomical MRI images. No results were obtained when contrasting low > high morale status.

Previous brain-imaging studies requiring participants to perform explicit social distance judgments can be informative considering the potential functions of the IPS during person perception. Indeed, greater activity in the IPS was observed when perceivers explicitly evaluated the distance between targets who were "socially closer" compared to targets who were "socially further" from each other (Chiao et al., 2009; Yamakawa et al., 2009). For example, IPS activation was found to be greater when participants from the military were asked to compare two targets closer to each other in a military hierarchy compared to two targets further apart in the hierarchy (Chiao et al., 2009). Operations required to compare social distance are believed to be similar to those involved in number comparisons (Chiao, Bordeaux, & Ambady, 2004). Although it has been suggested that the IPS may be specialized for number processing (Dehaene, Piazza, Pinel, & Cohen, 2003; Simon, Mangin, Cohen, Le Bihan, & Dehaene, 2002), there is evidence it may instead support domain-general operations (Shuman & Kanwisher, 2004). Indeed, instead of being dedicated to number processing, the region may be recruited when more general discriminations are performed between two targets on the same continuum (but see Piazza, Izard, Pinel, Le Bihan, & Dehaene, 2004). Such findings seem congruent with patterns of IPS activation identified when participants evaluate distances between either numbers or social targets; with greater activity found for pairs that are closer to each other (Chiao et al., 2009). Accordingly, during person perception, operations supported by the IPS may enable the perceivers to establish the relative positions of individuals within a given hierarchy. This process would enable hierarchical differentiation, which is fundamental in the creation and maintenance of social hierarchies (Magee & Galinsky, 2008). Considering that no explicit comparisons were required to perform the impression formation task, our findings suggest that perceivers may have implemented such process by spontaneously comparing the financial status of the targets to their own, which led to increased IPS activity in response to low financial status targets. Participants were closer in financial status to low financial status targets, who on average earned about $21,000, than to high financial status targets, who on average earned about $200,000. Interestingly, in contrast to explicit self-referential processes shown to recruit MPFC (Kelley et al., 2002; Moran, Macrae, Heatherton, Wyland, & Kelley, 2006), implicit self-involvement (Cloutier & Macrae, 2008) may also recruit areas of the parietal cortex (Powell, Macrae, Cloutier, Metcalfe, & Mitchell, 2010). Alternatively, instead of indexing comparison to self, the observed pattern of activation in IPS may simply reflect increased responses to low financial status individuals (Klein, Deaner, & Platt, 2008). Lack of variability in the relative financial status of the participants prevents us from distinguish between these interpretations. The absence of differential activity in IPS in response to the moral status of the targets remains to be explored. It may be due to the increased variability of the perceiver's moral status or the greater complexity involved in representing and evaluating one's own moral status. Another possibility may be that moral status is assessed categorically based on affective evaluations of the social targets, which do not take place when evaluating social targets based on financial status.

The greater activation of VMPFC when forming impressions of people with occupations associated with higher moral status is congruent with its involvement in moral reasoning and moral judgment (Anderson et al., 1999; Decety et al., 2012; Greene, 2007; Koenigs et al., 2007; Moll et al., 2002). Furthermore, these results bolster our hypothesis that the VMPFC supports the affective evaluation component of status perception. A growing body of research, both with human and non-human subjects, demonstrates the involvement of the VMPFC when perceiving the value of a wide range of stimuli in a variety of contexts (Berridge & Kringelbach, 2008; Bouret & Richmond, 2010; Bzdok et al., 2011; Kringelbach & Rolls, 2004; McClure et al., 2004; Rolls, Grabenhorst, & Parris, 2008). In light of these findings, and the fact that the VMPFC has previously been suggested to play a role in person evaluation (Adolphs, 2009; Bzdok et al., 2011; Croft et al., 2010; Heberlein, Padon, Gillihan, Farah, & Fellows, 2008; Said, Haxby, & Todorov, 2011; Zaki, Schirmer, & Mitchell, 2011), we believe it is likely that the preferential activity in VMPFC to high compared to low moral status targets indicates that perceivers ascribed greater value to social targets with higher moral status. Furthermore, there may be noteworthy conceptual overlap between the assessment of a target's moral status and evaluation of affiliation, warmth or likability; which are social dimensions that have also been suggested to guide person perception.

An alternative interpretation for the observed preferential activity in VMPFC towards targets with high moral status may be that perceivers identified with the high moral status individuals and consequently recruited simulation operations to form impressions of these targets. Along these lines, the VMPFC has been suggested to support such simulation operations (Jenkins, Macrae, & Mitchell, 2008; Mitchell, Banaji, & Macrae, 2005; Mitchell, Macrae, & Banaji, 2006). However, if simulation based on perceived similarity were responsible for VMPFC activity during impression formation, increased activity in this region may have been expected for social targets with similar financial status (i.e., low compared to high financial status). This could be perceived as incompatible with the recruitment of simulation processes during impression formation. Nevertheless, affective evaluation and personal identification may not be mutually exclusive explanations when exploring the functions of VMPFC during person perception. A recent study during which non-human primates performed evaluation tasks found that the VMPFC may support subject-centered evaluations and motivational processes while another brain region (i.e., the orbitofrontal cortex) may support environmentally driven evaluations and motivational processes (Bouret & Richmond, 2010). Inasmuch as the perceivers in the current experiment ascribed value to high moral status targets based on personal aspirations and experiences, self-relevant operations may be responsible for the evaluative role of the VMPFC. The absence of comparable differential activation in VMPFC in response to targets varying on financial status may be a consequence of difficulties ascribing value based on personal experience solely with information about their salaries.

The current study extends previous investigations of the influence of person-knowledge on the neural substrates of person perception. Going beyond identifying the general impact of person-knowledge availability on the neural substrates of person perception, our findings demonstrate that the type of person-knowledge available (i.e., different social status dimensions) dictates the recruitment of specific components of an extended network of brain regions ostensibly supporting person perception (Cloutier et al., 2011; Gobbini & Haxby, 2007; Todorov et al., 2007). When available, knowledge pertaining to distinct dimensions of social status spontaneously guides the implementation of impression formation operations. Future investigations replicating and extending the current findings, notably by considering additional social dimensions from which status can be inferred and examining the impact of the subjective social status of perceivers (see Ly et al., 2011) will contribute to a better understanding of such fundamental aspects of person perception.

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