



THE UNIVERSITY *of* EDINBURGH

Edinburgh Research Explorer

Implicit nationality primes modulate brain activation when processing another person's experience of pain.' British Neuroscience Festival, Edinburgh

Citation for published version:

Cram, L, Moore, A, Skewes, J, Nicol, K, Roepstorff, A, Prkachin, K & Roberts, N 2015, 'Implicit nationality primes modulate brain activation when processing another person's experience of pain.' British Neuroscience Festival, Edinburgh' BNA 2015 Festival of Neuroscience, Edinburgh, United Kingdom, 12/04/15 - 15/04/15, pp. 672-673.

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Publisher's PDF, also known as Version of record

General rights

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact openaccess@ed.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.



Poster Ref: P3-D-032

Theme: D: Learning, Memory and Cognition

Implicit nationality primes modulate brain activation when processing another person's experience of pain.

Katie Nicol⁽¹⁾, Joshua Skewes⁽²⁾, Else-Marie Jegindo⁽²⁾, Adam Moore⁽³⁾, Kenneth M. Prkachin⁽⁴⁾, Neil Roberts⁽⁵⁾, Andreas Roepstorff⁽²⁾ and Laura Cram⁽⁶⁾

¹School of Social and Political Sciences/ Centre for In Vivo Imaging Science (CIVIS), University of Edinburgh, ²Interacting Minds Centre, University of Aarhus, Denmark, ³School of Psychology, Philosophy and Language Sciences, University of Edinburgh, ⁴Health Psychology Laboratory, University of Northern British Columbia, Prince George, BC, Canada., ⁵Clinical Research Imaging Centre (CRIC), University of Edinburgh, ⁶School of Social and Political Sciences, University of Edinburgh

Nationality is a real world marker of group identity. We explore the effect of implicit nationality primes on empathy for others in pain, using functional magnetic resonance imaging (fMRI). 25 Danish participants completed an MRI scan and 40 item Empathy Quotient (EQ) questionnaire. During the fMRI sequence, participants viewed a series of videos of individuals experiencing shoulder pain and were asked to rate both pain intensity and pain unpleasantness. Individuals in each video were either the same nationality as participants (Danish) or a different nationality (German). Videos were classified using the facial action coding system as either "high pain" or "low pain". An implicit prime was also displayed, which was either the participants' national flag (Danish flag) or no flag. Controlling for individual differences in empathising at the trait level, significantly greater activation in response to high pain compared to low pain videos was observed in the bilateral inferior frontal gyrus ($p < 0.001$), left middle temporal gyrus ($p < 0.001$), right pyramis ($p = 0.001$) and left superior frontal gyrus ($p = 0.002$). A main effect of prime (flag/no flag) was also observed in left superior parietal lobe ($p = 0.004$) (figure 1), and a trend towards significance in two large clusters within right insula ($p = 0.071$, $p = 0.118$) following small volume correction (SVC). A positive nationality x prime interaction was evident in left middle temporal gyrus ($p < 0.001$) and left culmen ($p = 0.001$). All p values reported at a threshold of 0.005 and FWE corrected. We observe a significant effect of prime, such that presence of an implicit national flag was associated with increased activation in superior parietal lobe, and a trend towards significant activation in the insula, both of which are known to be involved in the processing of empathy for pain. Furthermore, our results show that as activation in response to nationality increased, so did activation in response to national flag in the culmen and middle temporal gyrus, which have previously both been found to show increases in activation in response to viewing others in pain. We have, for the first time, provided biological evidence for the arousing effects of national flags, and have demonstrated that such cues affect how we perceive others.

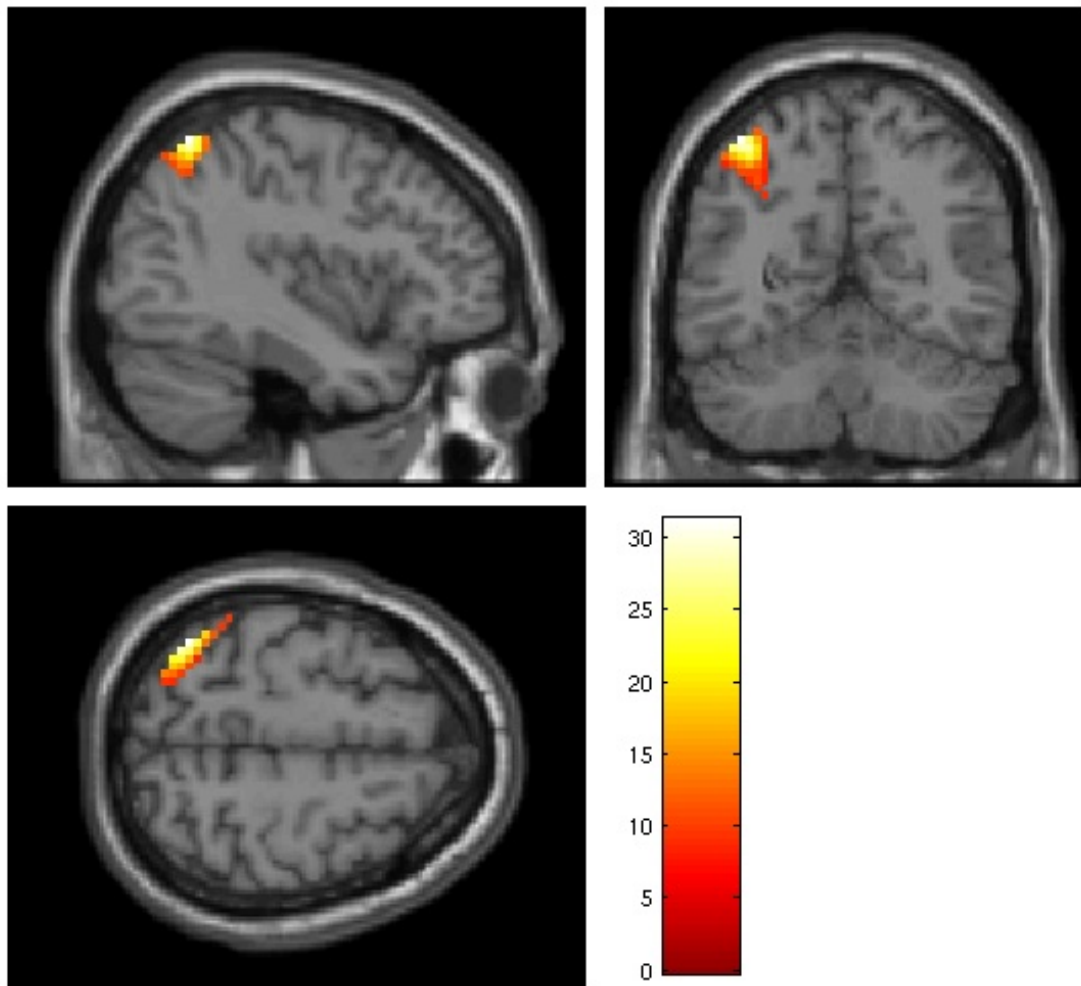


Figure 1. Main effect of implicit prime (flag/no flag) in the left superior parietal lobe.