Neural basis of cultural influence on self-representation

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Culture affects the ps chological structure of self and results in t o distinct t pes of self-representation (Western independent self and East Asian interdependent self). Ho e er, the neural basis of culture–self interaction remains unkno n. We used fMRI to measured brain acti it from Western and Chinese subjects ho judged personal trait adjecti es regarding self, mother or a public person. We found that the medial prefrontal corte (MPFC) and anterior cingulate corte (ACC) sho ed stronger acti ation in self- than other-judgment conditions for both Chinese and Western subjects. Ho e er, relati e to other-judgments, mother-judgments acti ated MPFC in Chinese but not in Western subjects. Our findings suggest that Chinese indi iduals use MPFC to represent both the self and the mother hereas Westerners use MPFC to represent e clusi el the self, pro iding neuroimaging e idence that culture shapes the functional anatom of self-representation.

K o : C e ; ; C; e

Introduction

R y . y (H , 2001; M K y , 1991) (N A E) y ( ). I , E A , (-). H , - . R - (R ., 1977) - . I , . A , y y . y y, - (- ; y J , 1997). , (MPFC) - - (C ., 1999; K y ., 2002; L ., 2004; ., 2006), MPFC - , y . I - y . y - - - (L , 1980; K ., 1989; B G , 1979) C - - - y (, 2002), C y y . C , H . (2006) MPFC - - A . , y, MPFC - , C . O y MPFC y - - y C . y y y (MRI) C y - . MPFC y - - - (. .,) C y y - . A y - . (K y ., 2002),

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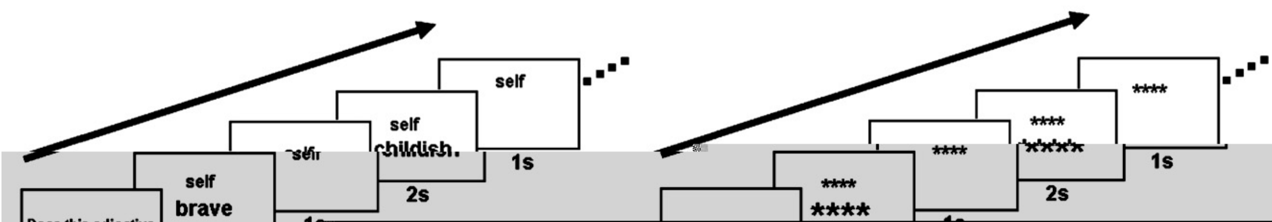

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R=1600 , E=3.93).

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Results

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ANOVA. C
(,)
- ($F(3,72)=58.41$, <0.01)
C ($F(1,24)=25.46$, <0.01).
($F(3,72)=9.52$,
<0.01),
. y
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-
(C : : $F(1,24)=4.69$, <0.05; : $F(1,24)=4.87$, <0.05; : : $F(1,24)=4.90$, <0.05; : $F(1,24)=5.71$, <0.05).
- -
C (: $F(1,24)=1.65$, >0.1; :
$F(1,24)=1.10$, >0.1) - -
(: $F(1,24)=3.68$, <0.06; : $F(1,24)=5.80$, <0.05; F . 2).
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C (1).
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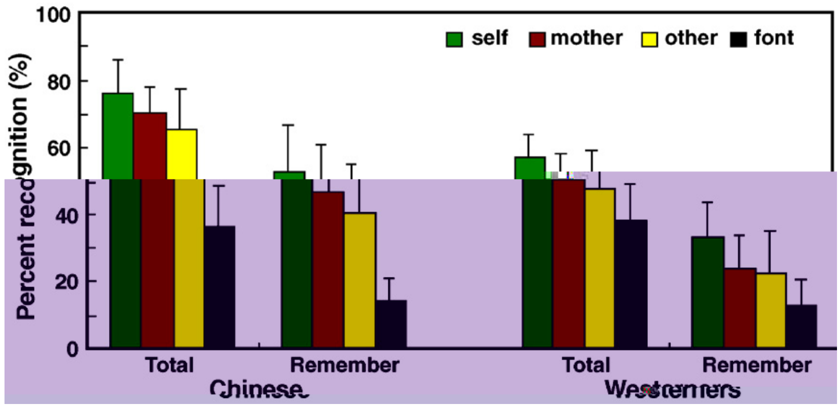
- - . MPFC y
- - C (/ / =8/55/6, =3.68, BA 10) (0/51/3, =4.07, BA 10; F . 3).
A ACC (−6/36/20, =3.62 −2/33/30, =3.76, BA32) (−24/57/12, =4.27, BA10) C y ACC (−6/33/0, =4.70, BA24). -
- MPFC (2/55/3, =3.49, BA10; F . 3), ACC (0/18/18, =3.50) (−22/59/15, =3.49) C .
H , y ACC (−4/35/−2, =4.11) .
MPFC (−4/46/−6, =3.78, BA10; F . 3) C .
ROI y MPFC (8/55/6 (C) 0/51/3 ( )) - (. .,). -
MPFC y - MPFC y (F . 4). MPFC y -
C
. A



. 2. B

MPFC y $(F(2,48)=3.58,$ $<0.05)$. P MRI ((12)=2.624, <0.01)

C ((12)=1.138, >0.05).

, MRI

ANOVA MRI C (C .) R (.) $(F(1,24)=6.67,$ $<0.05)$. P $(F(1,24)=5.96,$ $<0.05)$ C $(F(1,24)=1.47,$ $>0.05)$.

ROI y MRI ACC (−6/36/20 (C) −6/33/0 ( ); F . 4). ACC MPFC . H , C J (F (2,48)=1.17, >0.05) C R $(F(1,24)=0.35,$ $>0.1)$,

ACC y. F y, y ANOVA MRI C (C .), R (.) A F (MPFC . ACC) C R A F $(F(1,24)=5.90,$ $<0.05)$, y MPFC y.

e 1

(<0.05)

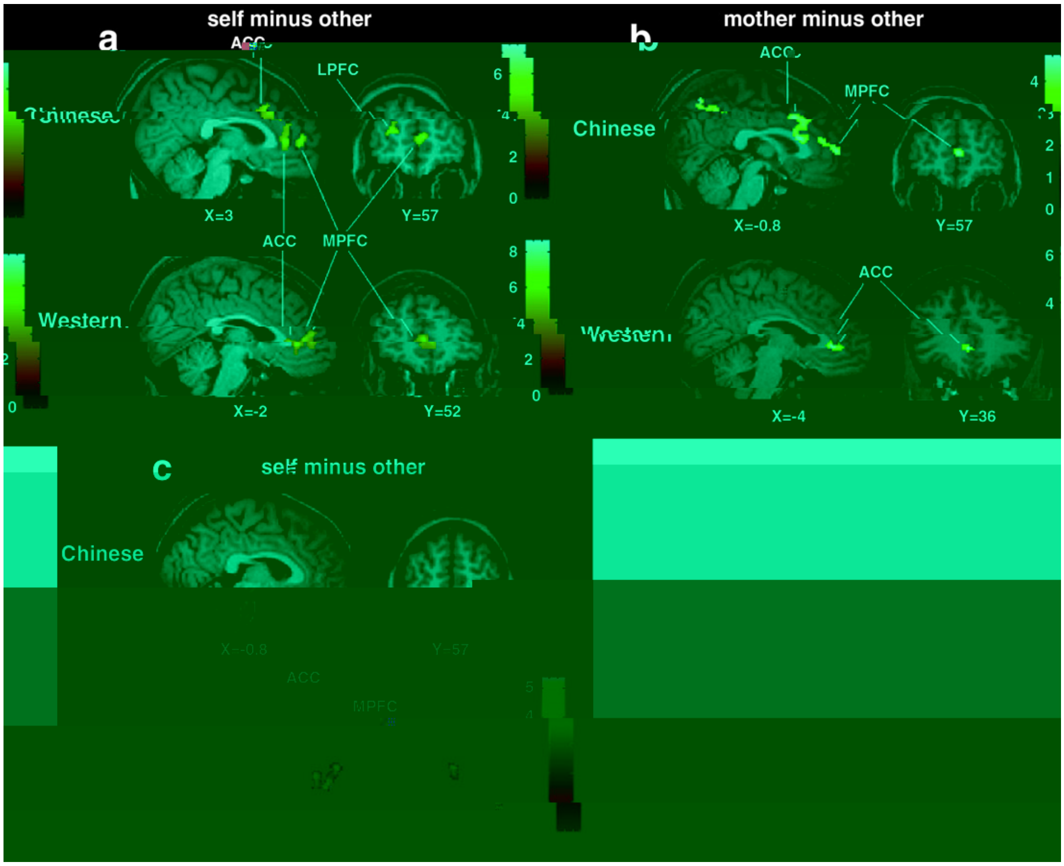
C /		BA		y		Z
C						
e						
y	747	47	−42	22	−12	4.92
y	442	9	2	54	20	4.84
y	***	9/10	−14	60	32	4.56
e						
y	409	47	−50	32	−6	4.00
y	152	9	−6	54	40	3.76
y	***	10	−8	64	20	3.22
e						
y	404	45	−56	26	8	4.21
e						
y	374	22	−62	−36	4	5.04
y	232	47	−30	16	−14	4.59
y	152	6	−6	24	62	4.35
y	217	8	−6	52	44	4.18
e						
y	1099	47	−54	28	−6	5.23
y	320	21	−56	−30	2	4.95
y	492	6	−10	34	52	4.12
e	305	30	−22	−68	6	4.45
e	193	17	16	−96	−2	4.07
y	156	19	22	−60	0	4.05
e						
y	942	21	−58	0	−18	4.78
y	157	38	54	10	−20	4.55
y	286	18	32	−90	2	4.47
y	244	9	−6	58	34	4.60
e	123	30	20	−66	10	3.68

= BA=B *** y y

Discussion

(L , 1980; K ., 1989; H ., 2006), y (B G , 1979). N ,

MPFC y (., 2004; ., 2004; O ., 2005), H . (2006) y MPFC y ( )



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.[1] H ’ C . - C , - - - C , y (, 2002). O MRI MPFC - - , (K y ., 2002; L ., 2004). I H . (2006), MPFC - ROI y - y -

, , - MPFC y - MPFC y . MPFC y , y - - , , MPFC MPFC y - - C . MPFC y , MPFC - ’ . N , C - , - MPFC y - . C - y , C - , MPFC y , C MPFC . I , MPFC y y . MRI MPFC . y y , (H , 2001; M K y , 1991), MRI y . y y C

[1] . (2004), . (2004) (2005) C y C C C. C.

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(K ., 2001). ACC

(B ., 2000) -

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B..., 2000. C... C... 4, 215–222.
C..., D..., 1999. ... 10, 26–34.
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