D ing he igh hing: A c mm n ne al ci c i f a ia e / i len c m a i na e beha i

John A. King,[a,*] R. James R. Blair,[b] Derek G.V. Mitchell,[b]
Raymond J. Dolan,[c] and Neil Burgess [a,*]

[a]I C)) D A , C , 17 , C1 3A ,
[b] A D I H , I H , D H H) ,
10 C D , B , D 20892-1381, A
[c]) D I)) I , C , 12 , C1 3BG,

Received 8 July 2005; revised 28 September 2005; accepted 5 October 2005

H man ha e a c n ide able facili ada hei beha i in a manne ha i a ia e cial cie al c n e . A fail e f hi abili can lead cial e cl i n and i a fea e f di de ch a ch a h and di i e beha i di de . We in e iga ed he ne al ba i f hi abili ing a c mi ed ide game la ed b 12 heal h a ici an in an fMRI canne . T c ndi i n in l ed e eme e am le f c n e -a ia e ac i n: h ing an agg e/i e h man id a ailan healing a a/i e nded e n. T c n l c ndi i n in l ed ca ef l ma ched im i ai ed i h ina i- a e ac i n: h ing he e n healing he a ailan . S i ingl , he ame ci c i , incl ding he am gdala and en medial ef n al c e , a ac/i a ed hen a ici an ac ed in a c n e -a ia e manne , he he being c m a i na e a d an inj ed c n ecific agg e/i e a d a/ i len a ailan . The finding indica e a c mm n em ha g ide beha i al e e/i n a ia e cial

responses in healthy individuals: an fMRI study reporting frontal involvement in the expression of imagined aggressive behavior (Pietrini et al., 2000). Relatively little previous work has

We compared the neural response to shooting assailants and healing casualties (the appropriate behavior conditions within our video game-like context) with the neural response to matched conditions of healing assailants and shooting casualties (inappropriate behaviors within our context). Significant activations in this comparison (summarized in Fig. 2, see Materials and methods)

It is important to note that the involvement of the amygdala-

response might also be a consequence of the engagement of the participant's emotional response and amygdala activation. Although memory was not tested in the current study, this explanation would predict that this hippocampal activity would be reflected in improved recall for these events (Cahill, 2000; Hamann, 2001; Hamann et al., 1999).

In conclusion, our results suggest that the expression of context-appropriate behavior in healthy participants is guided by a common neural system including the amygdala and ventromedial prefrontal cortex. These data support suggestions that dysfunction in this system underlies the presentation of inappropriate social behavior in some individuals (Blair and Cipolotti, 2000; Damasio, 1994; Davidson et al., 2000; Grafman et al., 1996). The paradigm presented here provides a way to begin to investigate the neural bases of socially appropriate behavior, how they fail in conditions such as psychopathy, and how this system is affected by manipulation of the (virtual) contexts encountered, or of the prior experience or pharmacological state of the subject.

Acknowledgments

We would like to thank Uta Frith for helpful discussions during the preparation of the manuscript and Tom Hartley for assistance in preparation of figures. This work was supported by the Medical Research Council and the Wellcome Trust, UK.

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