

# Brain substrates of perceived spatial separation between speech sources under simulated reverberant listening conditions in schizophrenia

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<sup>2</sup> , B , B , 10087 B , B ,  
<sup>3</sup> , , B , ,

## Background.

) , ( ) , ( ) ,

## Method.

20 16 ( )

## Results.

( ) - ( ) (1) , (3) , (4) , (5)

## Conclusions.

- fi 2014 2015 24 2015 B

## Key words:

## Introduction

& 1984 & 1983 ( 201,2013 )  
( 2013 1994 1998 , fi

\* : , 100871,  
( : )  
† -fi ( ) 1999 . 2004,

2013; . 2005; . 2006; . 2008).

( . 1999; . 2004, 2013; . 2005; . 2006; . 2008).

: (1) - - ( ) -

; (2) - , -

(. . . ( . . . ), / , -

); (3) - , . , -

( . 2013). -

fl -

(. . . & , 2003; . 2004; & , 2012; . 2012; & , 2013), -

( & , 1996; . 1999; & , 2000; . 2003; . 2004; . 2005). -

( & , 2005) -

( ) . - / -

( . 2012). -

fi fl : fl - -

( . 2005), - , -

( . 1949; , 1980; . 1991; . 2011). . fi -

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**Method**  
**Participants**

18

59 . ( )

2004). ( . 2012). - ( )

fi 6 , / -

6

90 90  
 ( )  
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 fi 3  
 (<30  
 ) 125 8000 fi 3  
 3  
 ( ) ( . 2004)  
 18 ( ) 24  
 / 3  
 16 20 ( - 824;  
 1) ( 450 97,  
 ) ( 600;  
 ) 60 .

**Stimuli and equipment**

: -8, -4, 0 4 .  
 ( , 1997; . 2007).  
 ( ) ( 0.70).  
 60 ( -4 .  
 ) ( )  
 47- ( ) ( : 64 64 33  
 - 3.44 3.44 4.6 <sup>3</sup>; : 2000  
 ( ; : 9000 ; : 30 ; fl  
 ) : 90 ; fi : 211 211 <sup>2</sup>).  
 ( ) ( 1- 256  
 . 2007). 256 188 1 1  
 1 <sup>3</sup>, ( ): 8.2 ; : 3.8  
 - ( ) ; fl : 7 .

**Design and procedures**

-fi ( . 2005; **B**  
 . 2008, 2009). fi ,  
 fi ( . 2008), fi - : (1)  
 ( fi , , ). ) ( , ); (2) (-8, -4, 0 4  
 fi ( , , ). ) 12 ( 12 - )

2012),

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( . 1),  
800

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1

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$$= 1/[1 + -\sigma(-)],$$

fi

*fMRI data processing and analyses*

( )  
50%

$\sigma$

( 8;  
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2004; . 2007).

: (1)

; (2)

$\Delta$  ( )

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( ) 8  
; (3)

-B

16.0

( ).  
0.05.

3.0 3.0 4.0 <sup>3</sup>; (4)  
8-

8-

10-

8-  
60

8.

fi

, 20

( , )

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120

( , -

( . 1996).

( . 1999).

(

> -

fi



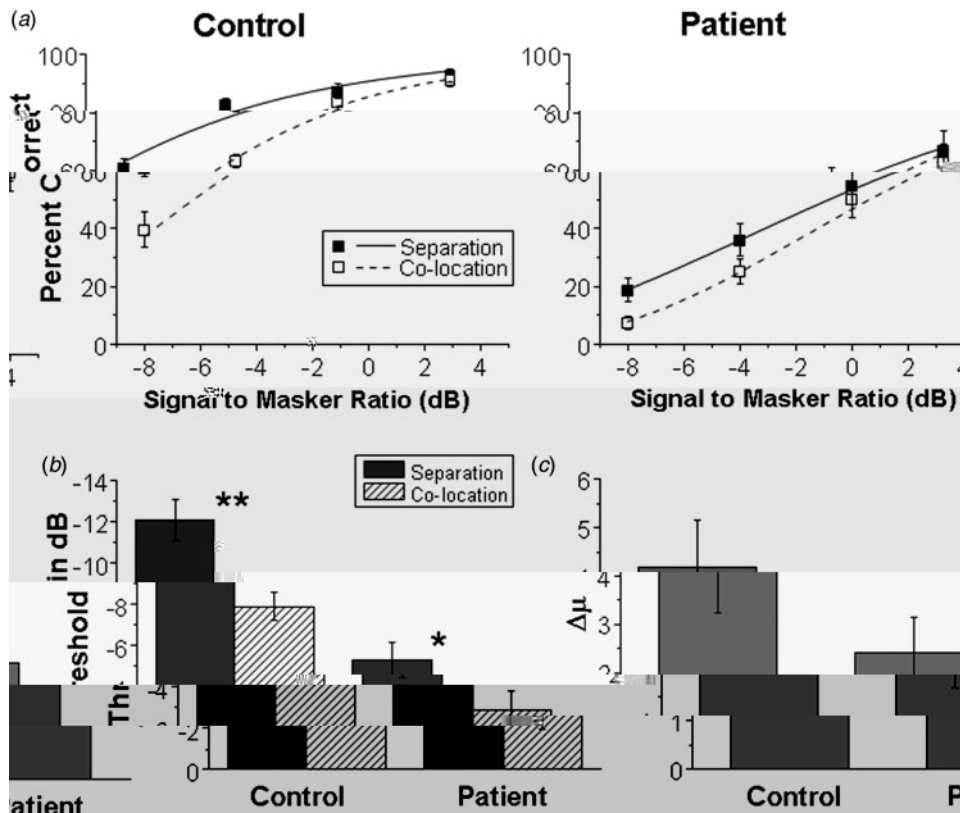


Fig. 1. ( )

( ) ( ) -fi  
 ( ) ( ) 50%  
 ( ) \* <0.05, \*\* <0.01. ( )  
 ( ) ( )  
 ( ) fi  
 ( <0.05,  
 )  
 fi  
 ( ,<sub>34</sub> = 2.255, = 0.142).  
 2.  
 2.

*fMRI experiment*

*B B* ( )  
 ( ) ( )  
 ( ) ( <0.05, )  
 ( . 2, )  
 ( = -0.550, = 0.027)  
 ( = -0.538, = 0.021)

(a) **Group Differences Related to either PSS or PSC Condition**

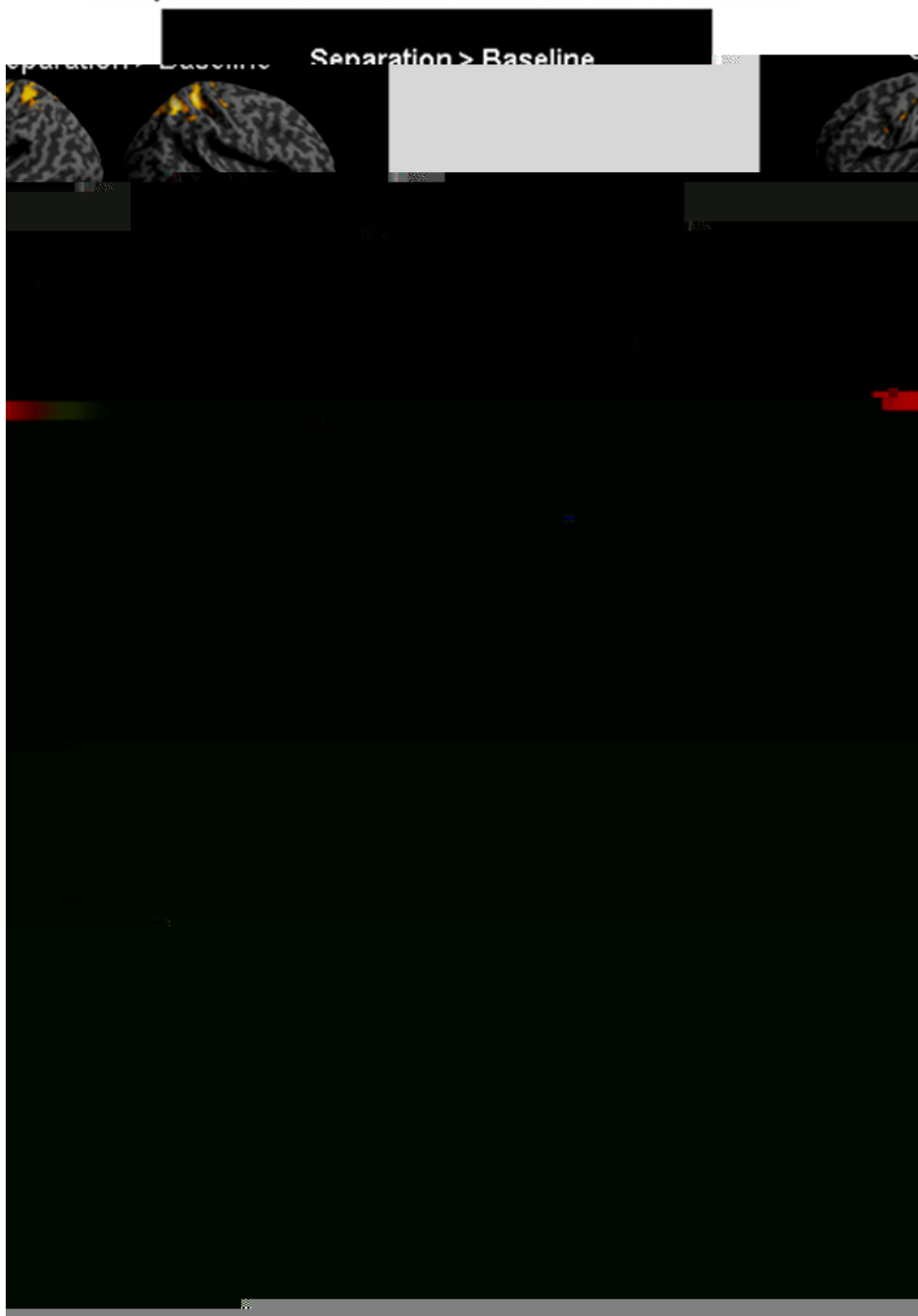


Fig. 2. ( ) fi  
( )> ' - ( )> .  
> ' -  
> ' -  
10 ( ) <0.05 ( 8 - ( ) ( ) ' >  
' ( ) )  
> ' ( ) .  
' fi .

$$\begin{aligned} & ( = -0.635, = 0.003) \quad . \\ & ( \quad .2 ), \quad \text{fi} \quad - \end{aligned}$$

' > ' .

*B* *B*

.3 3

fi





**Fig. 3.** ( ) , ( ) > ( ) - ( )' <0.05 ( ) ( ) 10 ; , ' ; , ' .( ) ; ' > , ( ) ' > , Δ Δ .( ) ' > , <0.05 ( 10 ) 8 . ( . 2002; & , 2006; & , 2007). , . 2011; . 2013). , ( . 2013). , / . 2003; & , 2006; fl , , 2011).





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)

fi , - 5). ( -  
- ( Δ ) ( 6). fi-

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fi - ,  
( Δ ) - 5). (

fi , - fi  
fl - , -

*The default mode network (DMN)*

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- , -  
- ( . 2001; fi -  
2009; - , 2012; & , 2012).

fi  
( . 2007),  
( . 2004)

( . 2002; & ( -  
, 2009). , - )

( . 2007),  
- fi fi  
- ( fi - . 2009;

*PSS-related functional connectivities*

( . 2001) fl fi ( ; . 2015),  
( . 2007)  
( . 2006).

## Supplementary material

[:// . . /10.1017/ 0033291715001828](https://doi.org/10.1017/0033291715001828)

## Acknowledgements

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- fi

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