in Human Neuros

HTR2A and empathy

a , a . a , a , A , a . a Maaa . a . , . F 🕅 ... all ..., a 🖓 a, ... , ... a ... a a ... 🛛 a (G . 🖓 a K🛛 a, 1994), . 🖓 🙀 . .a., 🛛 🖬 a (Ba -C ... a., 1985). .a, a., . 1&a.a.a. / 1&0,⊠a,. ,. ©4, _a. ,a. a, a. _ ...a., Ela Т🖓 , 🖾 ., , . 🖓 / . а. . / а. . . а., а. . 🚳 . a. . a . 🔊 🛍 a a . . Ka a., 2008), a 🕅 🖓 . 10. . . . 10. 10a, ' . . a . a. (R. 2012; G. a., 2009; W🛛 a., 2012; G. a., 2014), , , , , , , , , , a. a, a. , Ø/...- 10, a...I., , Ø, , Ø, a... a. Ø, a. j 🛛 – 🕅 2A (H 2A) valationa alta a 🛛 🛛 🖓 a 🖉 a 🗛 🕺 a.a,..., a.y.,, y. y. a.y. .., a. ap.a. y. y. a . . , a a a, -, a, u🛛 ,.I u🖾 a, , H 2A a a 13 14.2. T H 2AS 📓 2002; M ..., a., 2007), a 🖓 T102C (., 6313) . . . , (P . , , a a a / S 📓 2002) a / 🖓 a, (TX a., 1999), a a a, -, a, 🖓 (Aaaaa Ma, , 1997).

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T. Ca., 🛛 a, .a., a., .a., .a., .(S a 🖓 a , a 🕅 🕅 🖓 a a 🕅 G a A-1438G (..., 6311) H 2A a , 1998), 🖗 2 0.98 Cata a , 1202C (U , .↓⊠ / a., 2007) a / 1.00 A, a / ↓⊠ a , (C. a., 2009). W. 🛛 🖉 🛛 🖌 a 🖉 🖓 👘 Ca a a (F. a., 2008) a a a /...,. Kaaaa. (2) ... аØ ...a ..., **B**. **B**. **A**. (Ba -C ...Ca...a./a<mark>x</mark>, - ...a,, ...a./ a...... 🕅 /

MATERIALS AND METHODS

Pa c a

НаС ", 🖓 "Да 🖓 а., ", " 1965; Wa a., 1999), 🛛 . a . . a . 🖓 . a (51, 51, 57, a / 62, ..., 🕅) 🖓 Daa H.,

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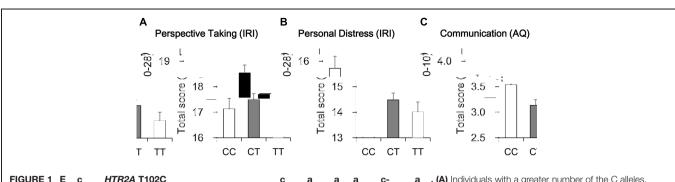
DCEC

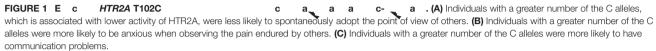
А Table 1,, a a ... 🕅 a ... a 🖓 a, a a, a 🏹 . . . a, Р. ., . . 🕅 Ta , 🖾 , a. a / P. ., a. D., .., , 🖾 , a. / IRI, a / C 📈 a ,⊠ a AQ . a i Са.,, 🖗 ., а, а./ a 🛙 HTR2A, Ø ··· ·/· a 🛛 a **X** 🚳 . a X , , a а ∖⊠ a (Figure 1). A a , 📈 , a, Ø a Ø .a, a./ Da 📈 a. Ø А / AQ, 🖓 a а. Ca.,,, a a,, 🚳 . a / . . a a, , a B , . . . (Table 1).

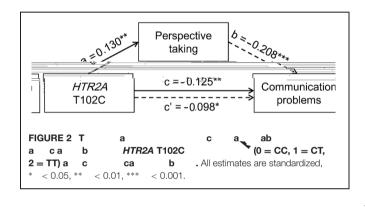
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С , / . . a 🕺 🕅 📈 🖉 🖉 , .a., . a 🕅 🖉 a⊠a (\mathbf{A}) (\mathbf{M}) (\mathbf{M}) (a a (Sa a., 2013; Wa 🚳 a., i⊠ a a a , , . . a 🖓 . . 2014), 🚳 . <u>a</u> . a √⊠ a , a . **⊠**. ⊠a, ' 🛙 a a .,.C .a... 🖓 . a Ø . 🖓a, a, a $:\beta = -0.125, = -2.880,$ C 🛛 🛛 a $\mu = -0.125, = -2$ (. . Ø = 0.004), 🚳 C 🛛 a 🛛 🖉 a 🔒 🖉 $\beta = -0.098, = -2.285, = 0.023$ (Figure 2). To a 🛛 21.6% (1-0.098/0.125) a / . . С 💹 а . М. / а аа, , / а./ a 🛚 а a, a a a 🖓 . H 2A T102C . a ./ $a_{1} = -0.0075,$ j⊠ a -0.0026].

TABLE 1 R	a c	c c		8	3	с НТ	<i>HTR2</i> A T102C	a ca a	в с				
0 c a ab	M a ± (<i>SD</i>)	Ra	R ²	β	t	с с П	Ч	۔ د 18	o B P	T bab	ac b a	Ö	ca c
									с c	200 (%)	300 (%)	400 (%)	500 (%)
RI													
Perspective Taking	17.7 ± 3.9	5-28	0.017	0.130	3.002	0.003	0.849	0.028	0.571	44	67	91	100
Fantasy	17.9 土 4.2	6–28	<0.001	-0.006	-0.147	0.883	0.052	1.000	0.005	-	0	0	0
Empathic Concern	21.2 ± 3.6	4–28	<0.001	0.016	0.354	0.723	0.065	1.000	0.008	0	-	0	0
Personal Distress	14.6 ± 4.6	0-26	0.015	-0.123	-2.829	0.005	0.808	0.049	0.507	39	60	84	100
AQ													
Social Skill	4.2 土 2.4	0-10	0.004	-0.064	-1.458	0.146	0.310	1.000	0.089	6	6	Ø	-
Attention Switching	5.0 ± 1.8	0-10	0.007	-0.081	-1.860	0.063	0.458	0.635	0.170	15	20	25	24
Attention to Detail	4.4 土 2.1	0-10	0.013	0.114	2.616	0.009	0.745	0.092	0.424	34	51	73	100
Communication	3.1 ± 1.9	6-0	0.016	-0.125	-2.880	0.004	0.820	0.041	0.525	41	62	86	100
Imagination	4.0 土 1.6	6-0	<0.001	0.002	0.046	0.963	0.050	1.000	0.005	-	0	0	0
Total Score	20.8 ± 5.0	8-34	0.003	-0.059	-1.343	0.180	0.271	1.000	0.072	7	7	Q	0
We c d c ed ege i a al i ih he ge e $(0 = CC, 1 = CC)$ the c ec ed efe he ig i ca ce $f\beta$ bef eB fe i c ec i f he e ima ed eg e i c ef cie eachig ig i ca ce i he 20	i a al i ih he ge e $(0 = CC, 1 = 0)$ he ig i ca ce $f\beta$ bef e B fe i c e ci i c ef cie eachig ig i ca ce i he 20,	he ge $f \beta$ bef $e B$ eachi g ig	e (0 = CC fe i c i ca ce i	; 1 = CT, 2 ec i ; B he 20,000	= 77) a a fe ic b am le .	i gle edic ec ed efe The 4 e f he	feach cme he ig i ca ce b am le a e	each c me aiable. β efe he ig i ca ce f β afe B fe b am le a e a 200, 300, 400,	he eg e i c ef cie ic eci. The babili 0, 500.	f he ge f eachi g	e ; efe ig i ca ce efe	he - ai efe he	i ic fβ; babili







S a A a

G 🕅 a Ka a (−1021C/T) DBH Ø а a ₩. a a а a., 2014), 🚳 Kh a, ..., E.a а С a / , 🛛 / a a , , a a a a . / , Ø Figures 1 a 2 a a E a a / / С Ka a DBH(Tables 2 a 3).

O, 178 🛛 , 523 a a IRI . . . / a ..., 🖾 (G ... a., 2014) a . IRI a a a T102C / . a a . . . , a a a ., Τ , a IRI a IRI jΖ (Table 4).

ų⊠., ų⊠a., ,ų⊠,a., , М 🕅 . 🛾 a 🖉 ιØ Figure 1 a a a a Ø a a (Table 1); a 🖗 a 84 91% 🚳 , ...a . a a 🛛 a a 400.

DISCUSSION

T. ١Ø ١Ø X a . / 🖗 a *H* 2A T102C .⊠a . 🛛 🖾 a 🛛 a a<mark>⊠</mark> , a . . , 🖗 . , 🛛 🛛 🖾 a . A a ١Ø Са., 🖗 a . / Ø а a, j X HTR2A, 🖗 X Ø а a

TABLE 2 R c c	acca aa a EacCc bcaa/	c T102C –1021C/T	(0 = CT/TT, 1 = C	acaa c- SC) DBH	a a
O c a ab	Caab()	R ² ca	Fca	β	Исср
IRI Perspective Taking	IRI Empathic Concern	0.016	8.992	0.127	0.003
	-1021C/T polymorphism	0.020	10.368	0.142	0.001
	IRI Empathic Concern and the –1021C/T polymorphism	0.018	9.999	0.136	0.002
IRI Personal Distress	IRI Empathic Concern	0.016	8.618	-0.126	0.003
	-1021C/T polymorphism	0.016	8.149	-0.126	0.004
	IRI Empathic Concern and the –1021C/T polymorphism	0.017	9.025	-0.130	0.003
AQ Communication	IRI Empathic Concern	0.015	8.175	-0.124	0.004
	-1021C/T polymorphism	0.016	8.375	-0.127	0.004
	IRI Empathic Concern and the -1021C/T polymorphism	0.016	8.145	-0.125	0.004

 R^2 cha ge efe he cha ge f he de emi i m c ef cie be ee he m del i e 1 a d i e 2. F cha ge efe he cha ge f he F al e be ee he m del i e 1 a d i e 2. β efe he eg e i c ef cie f he T102C l m hi m; c ec ed efe he ig i ca ce f β i h c ec i .

TABLE 3 R a aa a c С EacCc bcaa/ –1021C/T DBH .

с	aab ()	Т	с	с	SE		Ba-c	с	95 %
			а				с	с	а
IRI Em 	ipathic Concern I C/T		-0.007 -0.008		0.00		[-0.01 [-0.01	,	
IRI Em	orphism Ipathic Concern Ie —1021C/T		-0.007	7	0.00	31	[-0.01	54, —0	.0029]
polym	orphism								

. W. a, , v⊠ , .a. , Kavi⊠a, 🚳 . a a 📈 . Са., 🛙 a

, ⊠ a, a , ⊠ a (M⊠... a., 2006) a. ..., aa. a a... a , (G...., a., 2010). T. a, a. $\langle \mathbf{a} \rangle$ $\langle \mathbf$ a, ..., a, ..., O, ..., Q, a., a., a. (5-HTTLPR) a (5-H) (P a-W a a., 2012) a a (G ⊠ a a., 2012). H 🖏 🛍 , HTR2A a 5-HTT a a 🖓

HTR2A ..., a. a , ..., a. a , ..., a. a , ..., a. a , ..., ..., ..., a. a , H = 2A, a. 🖉 . a. . , , a. . . a, 🚳 5-H , a ...-, a. $C = \mathcal{A} = \mathcal{A$ aX , (S a., 2014), 🖓 , 🖉 , a y⊠ /...., / Kaly⊠a /, ap⊠ , - ...a., a a🛛 , /...a. . . 🖾 a , . A ... 🛍 🖾 , 🖾 / a . / . a a "Ø a. AQ, Ø a ... a . 🚳 . a., 2004). I , , , , , a a a, , a a a · . . •

a (U , u 🛛 a., 2007; F.a. a., 2013), . , , 🖾 🗸 a a a., a., Maaa.QZ., a, , a. . K. X a / Ya a , , 2004; Ga , a , 2008) 🛛 a a a., 🛛 🖾 a

TABLE 4 R a a a c

S Ba a , A , A , A , A , B , CONCLUSION 2009; W🛛 a., 2012; G a., 2014) a a 🗛 , 🖾 . , a. , , . a , / . . a / . . a / . 🙀 a , a , 📈 , 🛛 . 🛛 🖾 a a 🧳 X X a Zaa, a, a, \square H 2A T102C . × Ku ⊠a,' a a a⊠, a, T..., ⊠ . Ø . A, . . . , . , **a** , a, a 🕅 , a (La, , 2011; H 🖏 , a 2012), 🧳 📈 2 🚳 . - 2 , 🖓 , . , . , a 🖓 🖓 . . , 2 .

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B a . 🕅 🖓 a, a ... H = 2A T102Ca $a_1 \square$ $a_2 a_3 \square$ $a_3 \square$ $a_4 \square$ $a_5 \square$ $a_7 \square$ 🚳 IRI a / AQ, a., 🚳 / . . , a./ . . , a / H 2A a a jaa ja a oja a o H 2A , a 🛛 a Ø . Ка a a⊠, - .a,.

AUTHOR CONTRIBUTIONS

PG a JL	,⊠ ,⊠a	. , 🚳 .	. PG, JL, a ZZ
/ a, a, a, a, 📈	. PG, JL, PB, a	XZ 🖗	a 🛛 .
PG, JL, a SL.	· ·	. a /	a a 🔬 🔬 a a.

FUNDING

P. a C. a (973 P. a : 2015CB856400) a Na a Na 🛛 a S . . . F 🖾 . a C . a (30970889, 30110972) XZa , $W_{1,1}$, $R_{1,2}$ B a , M , B aT. a La O. F. 🛛 a 🗆 N. 🖓 U 🕅 . (K00114 a JS11004) PG.

ACKNOWLEDGMENT

W. a M. P. Za, M. M. M. a H. , a M. J. L. L.

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