Electronic Supplementary Material

ESM 3. Study characteristics

Study (year)	Cohort *N* (male)		Age *M* (SD)		Time postonset (months) *M* (SD)	TBI severity	Subcomponent social cognition measure	Subcomponent communication measure	Statistically significant relationship (yes: +/no: –)
	EG	CG	EG	CG					
Bosco et al. (2017)	30 (23)	30 (23)	37.13 (11.36)	37.03 (11.45)	60.01 (64.21)	Moderate – severe (GCS: 5-9)	*First-order ToM* Smarties Task (Perner et al., 1989), Sally-Anne Task (Baron-Cohen et al., 1985) *Second-Order ToM* Selection of 6 Strange Stories (Happé, 1994)	*Pragmatics (indirect speech acts)* Assessment Battery of Communication (ABaCo; Angeleri et al., 2012)	ra + ToM contributed significantly to linguistic comprehension, linguistic production, extralinguistic production
Bosco et al. (2018)	35 (29)	35 (29)	37.51 (12.25)	37.26 (11.58)	63.57 (74.34)	Moderate – severe (GCS: 3-13)	*First-order ToM* Smarties Task (Perner et al., 1989); Sally-Anne Task (Baron-Cohen et al., 1985) *Second-Order ToM* selection of 6 Strange Stories (Happé, 1994)	*Pragmatics (indirect speech acts; sincere, deceit, irony)* Assessment Battery of Communication (ABaCo; Angeleri et al., 2012)	ra + ToM contributed significantly to linguistic comprehension of deceit, extralinguistic comprehension of deceit, extralinguistic production of deceit, linguistic production of irony
Byom & Turkstra (2012)	5 (5)	5 (5)	44.58 (n.a.)	42.24 (n.a.)	n.a.	Severe	*ToM (exp.)* Manipulated version of RCIT → analysis of Mental State Terms (MST)	*Discourse production (exp.)* Relationship Closeness Induction Task (RCIT; Sedikides, Campbell et al., 1998)	Wilcoxon signed rank test + significant different pattern of mental state word use across conversation settings
Byom & Turkstra (2017)	21 (12)	23 (12)	Mdn: 33 (range: 21-59)	Mdn: 28 (range: 21-57)	Mdn 8 years (range: 1.4 – 40 years)	Moderate – severe (GCS < 13)	*ToM (exp.)* Manipulated version of discourse task (view of a fictional character holding the opposite opinion)	*Discourse production* (exp.) production of MST in discussion of controversial topics (e.g., animal testing)	ca + Significant correlation between frequency of mental state words and social acceptability rating
Channon, Pellijeff, & Rule (2005)	19 (15)	19 (13)	54.74 (rechnen)	n.a.	9.68 years (9.10)	Severe (PTA > 1 day)	*ToM (exp.)* Action Comprehension Task	*Pragmatics (sarcasm) (exp.)* Sarcasm Comprehension Task	ca + significant correlation between sarcasm comprehension and mentalistic action comprehension

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Study (year)	Cohort *N* (male)		Age *M* (SD)		Time postonset (months) *M* (SD)	TBI severity	Subcomponent social cognition measure	Subcomponent communication measure	Statistically significant relationship (yes: +/no: –)
	EG	CG	EG	CG					
Honan et al. (2015)	25 (18)	25 (18)	47.52	48,52	14.1 (8.85)	Severe (PTA> 1 day)	*ToM* TASIT (McDonald et al., 2003); Reading The Mind in The Eyes Test (Baron-Cohen et al., 2001); High-ToM-Condition of discourse task (exp.)	*Discourse Comprehension (exp.)* Comprehension of everyday conversation	ra – No significant difference between TBI group and controls on high-ToM task when controlling for WM abilities
Martin & McDonald (2005)	16 (12)	16 (10)	39.43	38.74	7.40 years (4.90)	Severe	*ToM (exp.)* Mental Inference Stories (Exp., Bibby & McDonald, 2005)	*Pragmatics (irony) (exp.)* Pragmatic Interpretation Stories (adapted from Winner et al., 1998)	ca – No correlation between ToM and irony comprehension
McDonald & Flanagan (2004)	34 (25)	34 (22)	41 (12)	36 (13)	9 years (8)	Severe (PTA > 1 day)	*ToM, emotion recognition* TASIT (McDonald et al., 2003)	*Pragmatics (sarcasm)* TASIT (McDonald et al., 2003)	ca –/+ No correlation between first-order ToM and emotion recognition and sarcasm; a correlation between second-order ToM and sarcasm
McDonald et al. (2004)	21 (15)	21 (14)	39 (12)	38 (15.7)	9 years (9)	Severe (PTA *M* 94 days)	*ToM, emotion recognition* TASIT (McDonald et al., 2003)	*Global communication* rating of spontaneous conversation with a known person with Behaviourally Referenced Rating System of Intermediate Social Skills—Revised (BRISS-R; Wallander et al., 1985) (subscale Personal Conversational Style)	ca + Significant correlation of ToM with global communication abilities rated by an independent rater
McDonald, Gowland, Randall, Fisher, Os-	25 (18)	28 (19)	48.2 (12.0)	49.0 (12.2)	13.6 years (9.0)	Moderate – severe (PTA *M:* 69.2 days	*ToM, emotion recognition* TASIT (McDonald et al., 2003) Reading The Mind in The Eyes Test (Baron-Cohen et al., 2001) High-ToM-Condition (Exp.)	*Discourse production (exp.)* naturalistic speech production; analysis of the number and adequacy of correct details in photograph description and association tasks	ra –/+ Significant influence of ToM only on discourse production tasks with high demand on inhibitory control

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Study (year)	Cohort *N* (male)		Age *M* (SD)		Time postonset (months) *M* (SD)	TBI severity	Subcomponent social cognition measure	Subcomponent communication measure	Statistically significant relationship (yes: +/no: –)
	EG	CG	EG	CG					
borne-Crowley, & Honan (2014)									
McDonald, Fisher, Flanagan, & Honan (2015)	30 (25)	30 (25)	47.27 (14.64)	46.37 (13.52)	13.40 years (13.40)	Severe (PTA M 51.37 days)	*ToM, emotion recognition* TASIT (McDonald et al., 2003) *Emotional Empathy* Balanced Emotional Empathy Scale (BEES; Mehrabian, 2000)	*Pragmatics (insincerity) (exp.)* Identification of (in-)sincerity	ca + Significant correlations between ToM and sensitivity of sincerity
McDonald, Fisher, & Flanagan (2016)	31 (22)	24 (14)	45.06 (13.61)	46.08 (12.40)	15.12 years (10.48)	Severe (PTA: 32,74 days M)	*ToM, emotion recognition* TASIT (McDonald et al., 2003)	*Pragmatics (hints) (exp.)* Audiovisual hinting task	ca –/+ Significant correlations between ToM and identification of hints, no correlation between emotion recognition and identification of hints
Milders et al. (2008)	33 (28)	34 (30)	37.5 (16.1)	35.6 (13.1)	2.1 months (1.8)	Mild – severe (PTA *M* 12.5 days)	*Emotion Recognition* Recognizing facial expressions (Ekman & Friesen, 1976) Florida Affect Battery (FAB: Bowers et al., 1998) *ToM* Faux Pas Test (Stone et al., 1998) Cartoon test (Happé et al., 1999)	*Global communication (proxy)* Neuropsychology Behavior and Affect Profile (NBAP; Nelson et al., 1998)	ca- /+ Correlation between emotion recognition and proxy-reported global communication, no correlation between ToM and proxy-reported global communication
Muller et al. (2010)	15 (13)	15 (13)	37,2 (12.3)	37.0 (12.5)	102.9 (121.2)	Severe (GCS: 3-7)	*ToM verbal* Faux Pas Test (Stone et al., 1989) First-order false belief task Second-order false belief task (Firth & Corcorn, 1996; Bach et al. 1998; Rowe et al. 2001)	*Pragmatics (indirect speech acts)* Montreal Protocol for the Evaluation of Communication (Joanette et al., 2004)	ca + significant correlations between (verbal) ToM tests and interpretation of indirect speech acts

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	EG	CG	EG	CG					
							nonverbal Character intention task Brunet et al. (2000) Reading The Mind in The Eyes Test (Baron-Cohen et al., 2001)		
Rigon et al. (2018)	46 (23)	42 (21)	47.09 (17.07)	45.74 (14.68)	at least 6 months (6-606)	Moderate – severe (GCS: < 13)	*Emotion Recognition* Emotion Recognition Test (ERT; Kessels et al., 2014)	*Global communication (self/proxy)* La Trobe Communication Questionnaire (LCQ; Douglas et al., 2000)	ca + Significant negative correlation between emotion recognition and proxy-reported global communication ra + Emotion recognition was a significant predictor of self-reported global communication
Saxton, Younan, & Lah (2013)	24 (18)	24 (13)	41.54 (14.29)	33.75 (15.67)	48 (20.04)	severe (GCS: 8.37; PTA: 28.67)	*Emotion Recognition* Montreal Set of Facial Displays of Emotion (MSFDE; Beaupre, Cheung, & Hess, 2000); *ToM* Adapted Stories Task (Bibby & McDonald, 2005) The Eyes Test (Baron-Cohen et al., 2001) *Empathy* Interpersonal Reactivity Index (IRI; Davis, 1980)	*Global communication (self)* Key Behaviors Change Inventory (KBCI; Kolitz et al., 2003; Vanderploeg et al., 2007) → domain "Communication Problems"	ca –/+ Significant correlation between empathy and self-reported global communication, no significant correlations between ToM or emotion recognition and self-reported global communication
Watts & Douglas (2006)	12 (11)	12 (11)	32.33 (13.89)	33.08 (13.47)	16.75 (13,77)	Severe (PTA ≥ 7 days)	*Emotion Recognition* TASIT; Part 1: Emotion Evaluation Test	*Global communication (self/proxy)* La Trobe Communication Questionnaire (LCQ; Douglas et al., 2000)	ca + Significant relationship between emotion recognition and global communication (proxy-report)

Notes. Ca: correlation analysis; CG: control group; EG: experimental group; GCS: Glasgow Coma Scale; *M*: Mean; PTA: Posttraumatic Amnesia; ra: regression analysis; *SD*: standard deviation.

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