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IJLCD Annual Lecture: Innovations in Digital Health for Cognitive Communication Disorders

Thursday 08 June 2023
09.00 - 11.00

#IJLCDAnnualLecture

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Dr Paul Conroy

Dr Lindsay Pennington

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International Journal of Language & Communication Disorders

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International Journal of Language & Communication Disorders

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Editors Prize 2023

Camille Paynter, Susan Mathers, Heidi Gregory, Adam Vogel, Madeline Cruice:

The impact of communication on healthcare involvement for people living with motor neurone disease and their carers: A longitudinal qualitative study.

Data from 19 plwMND and 15 carers over a 26-month period to obtain their perspectives of the impact of communication on healthcare involvement

21 July 2022: https://doi.org/10.1111/1460-6984.12757

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Student Prize Winners 2023:

Neehal Molu, Reading University:

Diversity Equity and Inclusion in Speech and Language Therapy

Winner of the research category: cash prize, letter of congratulations and support to prepare their paper for submission to the journal.

Christianne Pollock, from Plymouth Marjon University:

The Development of a Website to support Better Communication and Interaction in Learning Disability Services.

Winner of the alternative project category:
cash prize & letter of congratulations.

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Coming soon.....

Special issue of IJLCD:

Clinical Management of Cognitive Communication Disorders

Editors: Togher, Rietdijk, Brunner, Jayes, Conroy

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Housekeeping

- RCSLT staff are on hand to help with any technical queries, you can get in touch with them via the chat button
- You can send in questions to our speakers today by using the Q&A button
- This event is being recorded and will be made available on the RCSLT website
- We would be very grateful if you would fill out the evaluation form that will pop up in a new window once the webinar window closes

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Speakers

Professor Leanne Togher

@LeanneTogher

Dr Rachael Rietdijk

@RachaelReedake

Dr Melissa ‘Liss’ Brunner

@LissBEE_CPSP

RCSLT

ABI Communication Lab, The University of Sydney
@ABICommLab

Your questions

Overview of recent evidence in the area of cognitive-communication disorders in traumatic brain injury (TBI)

Leanne Togher B.App.Sc (Speech Path) PhD
on behalf of the INCOG 2.0 team

Professor of Allied Health
The University of Sydney and Western Sydney Local Health District

Director Acquired Brain Injury Communication Lab
The University of Sydney, Australia

- **IJLCD Annual Lecture 2023**

incog rehabilitation guidelines

We acknowledge the tradition of custodianship and law of the Country on which the University of Sydney campuses stand. We pay our respects to those who have cared and continue to care for Country.

THE UNIVERSITY OF SYDNEY

Consequences of severe traumatic brain injury (TBI) can be far reaching and lifelong

- Medical difficulties
- Changes in physical and sensory abilities
- Changes in the ability to think and learn
- Changes in behaviour and personality
- Communication difficulties
  - Dysarthria (6-60% of cases)
  - Aphasia (5-60% of cases)(anomic)(Elbourn et al 2019)
  - Conversational skill difficulties – Cognitive communication disorders, disorders of social cognition, social communication difficulties (75% of cases)(MacDonald 2017)

Cognitive Communication Disorders

- Cognitive-communication disorders encompass difficulty with any aspect of communication that is affected by disruption of cognition. Communication may be verbal or nonverbal and includes listening, speaking, gesturing, reading, and writing in all domains of language (phonologic, morphologic, syntactic, semantic, and pragmatic). Cognition includes cognitive processes and systems (e.g., attention, perception, memory, organization, executive function). Areas of function affected by cognitive impairments include behavioral self-regulation, social interaction, activities of daily living, learning and academic performance, and vocational performance.(ASHA, 2005)

American Speech-Language-Hearing Association. (2005). *Roles of speech-language pathologists in the identification, diagnosis, and treatment of individuals with cognitive-communication disorders: position statement* [Position Statement]. Available from www.asha.org/policy.

Guidance for managing cognitive communication disorders after TBI

Togher et al., 2014; ERABI (Canada)

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J Head Trauma Rehabil
Vol. 29, No. 4, pp. 353–368

INCOG Recommendations for Management of Cognition Following Traumatic Brain Injury, Part IV: Cognitive Communication

Leanne Togher, BAppSc, PhD; Catherine Wiseman-Hakes, PhD; Jacinta Douglas, BAppSc, MSc; Mary Stergiou-Kita, PhD; Jennie Ponsford, MA, PhD; Robert Teasell, MD, FRCPC; Mark Bayley, MD; Lyn S. Turkstra, PhD, CCC-SLP; on behalf of the INCOG Expert Panel

ERABI EVIDENCE-BASED REVIEW of moderate to severe ACQUIRED BRAIN INJURY

About ERABI What's New

HOME MODULES GU

20. Cognitive-Communication Post Acquired Brain Injury

Cecilia Flores-Sandoval PhD, Shawn Marshall MD FRCPC, Shannon Janzen MSc, Penny Welch-West M.CI.Sc. SLP, Amber Harnett MSc, Connie Ferri MSc SLP, Leanne Togher PhD, Robert Teasell MD FRCPC

Download Module

Some questions to consider:

1. What is the current evidence supporting clinical practice in the field of cognitive communication and social cognition disorders? In other words, what has changed since INCOG 2014?

2. What treatment approaches are recommended for use to improve the cognitive communication disorders of people with moderate to severe TBI?

3. What tools are available to help with clinical decision making and to audit clinical practice?

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INCOG 2.0 Guidelines for Cognitive Rehabilitation following Traumatic Brain Injury, Part IV: Cognitive-Communication and Social Cognition Disorders

Togher, L., Douglas, J., Turkstra, L., Bragge, P., Bayley, M., Stergiou-Kita, M., Ponsford, J. Teasell, R. Wiseman-Hakes, C. (2023)

INCOG 2.0 International Expert Panel

CANADA/USA

- Dr. Mark Bayley, MD, FRCPC
- Dr. Robin Green, PhD, C.Psych
- Shannon Janzen, MSc
- Amber Harnett, MSc, BSc, BScN, RN (c)
- Dr. Eliyas Jeffay, PhD, C.Psych
- Professor Mary Kennedy, PhD, CCC-SLP
- Ailene Kua, MSc, PMP
- Lyn Turkstra, PhD, Reg-CASLPO
- Dr. Shawn Marshall, MD, MSc, FRCPC
- Amanda McIntyre, PhD (c), RN
- Eleni Patsakos, MSc, PhD (candidate)
- Dr. Robert Teasell, MD, FRCPC
- Dr. Diana Velikonja, PhD, MScCP
- Penny Welch-West, M.Cl.Sc, SLP Reg. CASLPO
- Dr. Catherine Wiseman-Hakes, PhD, Reg. CASLPO

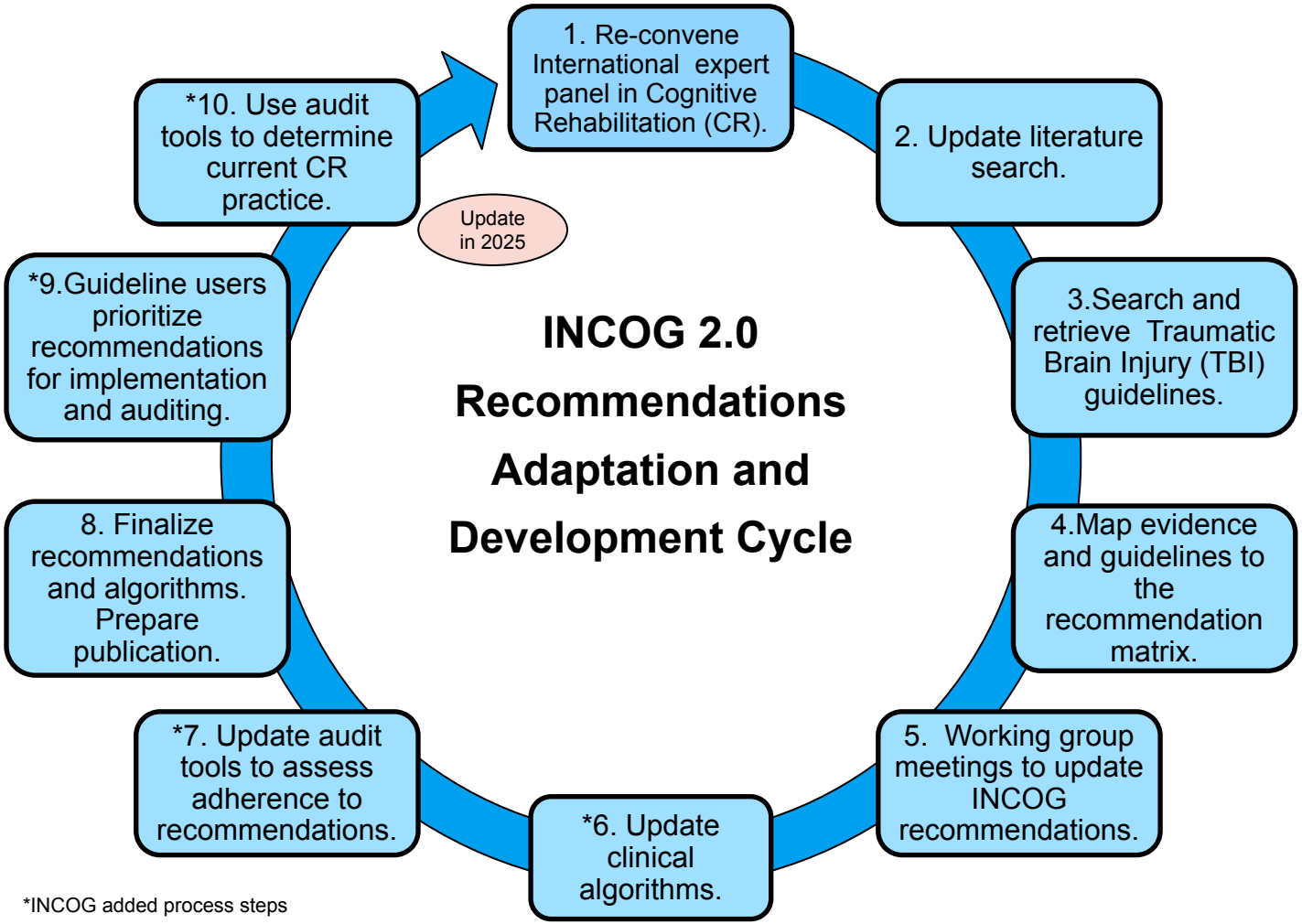
AUSTRALIA

- Dr. Peter Bragge, PhD
- Professor Jacinta Douglas, MSc (Psych), PhD
- Dr. Adam McKay, MPsych (Clinical Neuropsychology), PhD
- Professor Jennie Ponsford, AO, MA (Clinical Neuropsychology), PhD
- Professor Leanne Togher, B.App.Sc (Speech Path), PhD
- Dr. Jessica Trevena-Peters, Dpsych

INCOG 2.0 series of papers in Journal of Head Trauma Rehabilitation

January/February 2023 - Volume 38 - Issue 1 – ALL OPEN ACCESS!!!

INCOG 2.0 Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury: What's Changed From 2014 to Now?	INCOG 2.0 Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury Part III: Executive Functions
INCOG 2.0 Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury: Methods, Overview and Principles	INCOG 2.0 Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury Part IV: Cognitive-Communication and Social Cognition Disorders
INCOG 2.0 Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury Part I: Post Traumatic Amnesia	INCOG 2.0 Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury Part V: Memory
INCOG 2.0 Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury Part II: Attention and Information Processing Speed	The Future of INCOG (is Now)



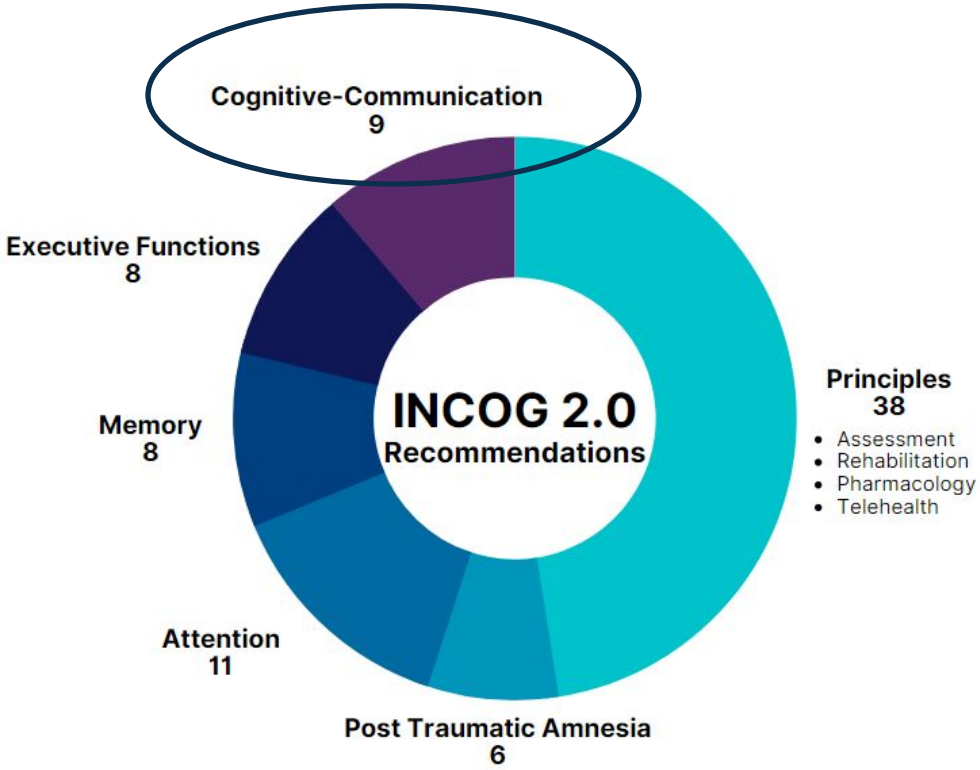
*INCOG added process steps

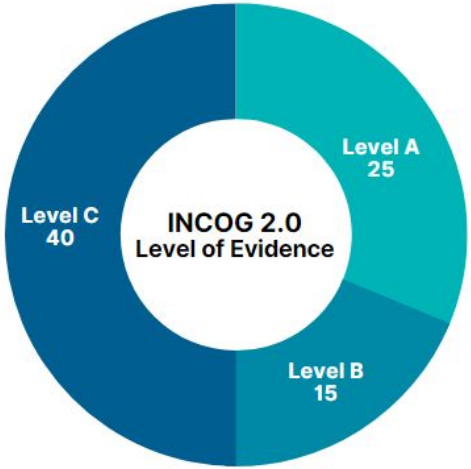
INCOG Level of evidence grading system

- **Level A:** Recommendation supported by at least one meta-analysis, systematic review or randomized controlled trial of appropriate size with relevant control group
- **Level B:** Recommendation supported by cohort studies that at minimum have a comparison group (includes small randomized controlled trials) and well-designed single case experimental designs
- **Level C:** Recommendation supported primarily by expert opinion based on their experience through uncontrolled case studies or series may also be included here

INCOG 2.0 Recommendations Breakdown

INCOG 2.0 Recommendations = 80 **New = 27**





- ✔New Evidence
- ✔Algorithm
- ✔Audit tool

J Head Trauma Rehabil
Vol. 38, No. 1, pp. 65–82

OPEN

INCOG 2.0 Guidelines for Cognitive Rehabilitation Following Traumatic Brain Injury, Part IV: Cognitive-Communication and Social Cognition Disorders

Leanne Togher, PhD, BAppSc(Speech Path); Jacinta Douglas, PhD, MSc(Psych); Lyn S. Turkstra, PhD, Reg-CASLPO; Penny Welch-West, MClSc, SLP Reg CASLPO; Shannon Janzen, MSc; Amber Harnett, MSc, BSc, BScN; Mary Kennedy, PhD, CCC-SLP; Ailene Kua, MSc, PMP; Eleni Patsakos, MSc; Jennie Ponsford, AO, PhD, MA(Clinical Neuropsychology); Robert Teasell, MD, FRCPC; Mark Theodore Bayley, MD, FRCPC; Catherine Wiseman-Hakes, PhD, Reg CASLPO

INCOG 2023 update overview

26 new references related to cognitive communication (from 2014) and 12 new references for social cognition (from 2000 forward) were included in the nine recommendations, including 5 updated recommendations, and 4 new recommendations addressing cultural competence training, group interventions, telerehabilitation and management of social cognition disorders

Cognitive communication has 8 recommendations (3 with Level A evidence, 2 at Level B and 3 at Level C)

Social cognition has 1 recommendation based on Level A evidence

Cognitive-communication #1

- Levels of communication competence and characteristics may vary as a function of communication partners, the environment, and personal factors. These variables should be considered when devising CCD management

- INCOG 2.0 adds physical, sensory, and psychosocial variables as factors to consider.

a. Physical: dysarthria, balance disorders,
b. Sensory: visual disturbance, hearing deficits, sleep wake disorders and pain
c. Psychosocial: anxiety, depression PTSD and impact of other cognitive impairments in attention, working memory, information processing, executive functions and processing speed

- No new references since 2014
- Level B

Cognitive communication #2

- Ensure rehabilitation programs are culturally responsive, and consider the person's premorbid variables, such as gender identity and cultural linguistic background including Native, first and preferred languages, literacy, and language proficiency.

- Since 2014, there has been increased recognition of the importance of diversity, equity, and inclusion (DEI) in the field of TBI rehabilitation.
- INCOG 2.0 adds specific mention of the importance of cultural awareness and culturally appropriate communication resources to assist healthcare interactions.
- Level C (MacDonald 2017)

Cognitive communication #3 NEW!!

- Staff should receive cultural competence training
  - ASHA cultural competence resources are recommended here
- Level C

COGNITIVE COMMUNICATION #4

Intervention should focus on improving and restoring cognitive and social communication functions, with gradual reintegration to daily functions and productive activities which are dependent on cognitive-communication skills.

The person with TBI should be provided with individualised interventions which help them adjust to their cognitive-communication impairments and take the person's context into account.

Cognitive communication #4 (Levels A-C)

- Includes new evidence for recommended cognitive communication interventions, including:
  - 4a. Communication partner training (A)
  - 4b. Communication strategy and metacognitive awareness training (A)
  - 4c. Reintegration to daily functions, productive activities, participation and competence, modification of the communication environment, assistance with adjustment to impairments (C)
  - 4d. Communication coping treatment (C)

4e. Confidence, self-esteem and identity formation (C)

4f. Provision of education and information regarding the nature of CCD for the patient, close others and communication partners (C)

CC4a Communication partner training evidence (Level A)

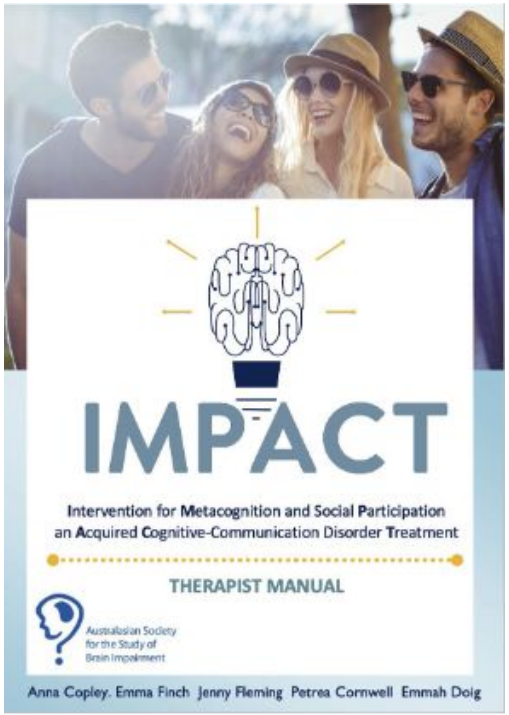
4a. Communication partner training: Level A evidence.

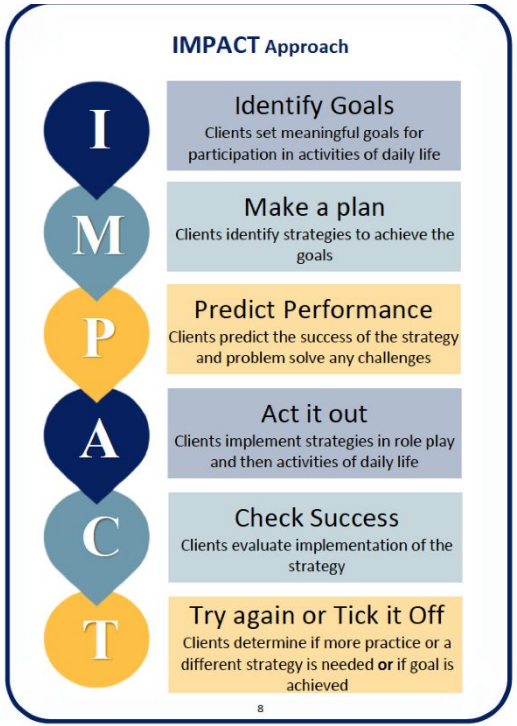
New work since 2014:

1. **Systematic Reviews:**
   a. Behn et al., 2021
   b. Wiseman-Hakes et al., 2020
2. **RCTs:**
   a. Rietdijk et al., JSLHR, 2020
   b. Rietdijk et al., JHTR, 2020
   c. Togher et al., 2016

https://abi-communication-lab.sydney.edu.au/courses/interact-abi-lity

CC4b Communication strategy and metacognitive awareness training (Level A)





Reviews

a. Le et al, 2022;
b. MacDonald, 2017,
c. Meulenbroek et al., 2019

Pilot work

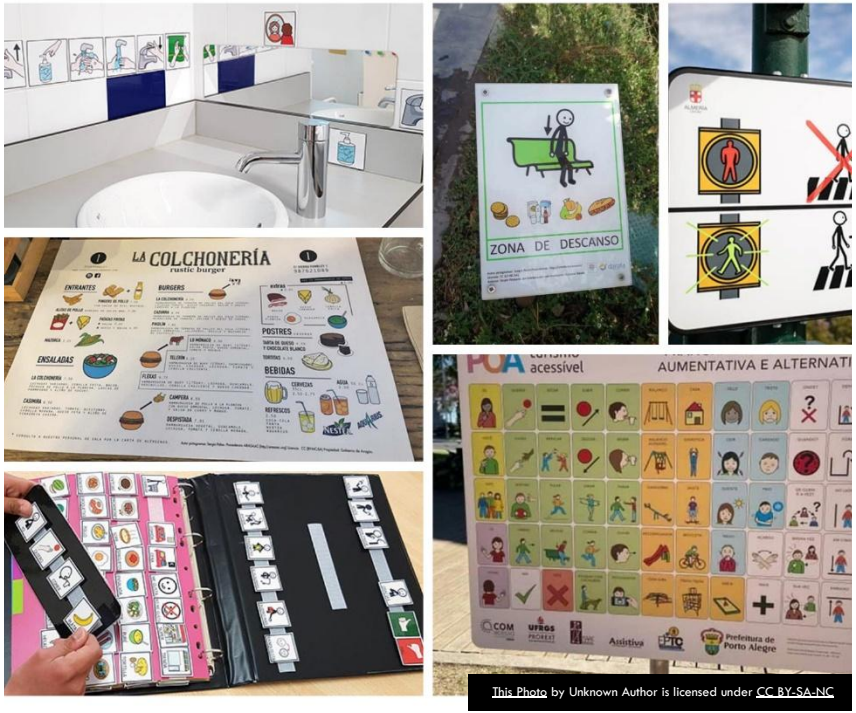
a. Copley et al., 2022
b. Finch et al., 2017

https://assbi.com.au/Resource

Cognitive communication #5

- Individualized, goal- and outcome-oriented treatment should be appropriate to the context of the person, including where they live, study, and work.
- While this recommendation is unchanged from INCOG 2014, goal-attainment scaling (GAS) has been added to measure personally relevant progress.
- Level A

Cognitive communication #6



- Recommends augmentative and alternative communication (AAC) for people with severe communication disability, in combination with training for family members, caregivers, and other communication partners.
- While there were no new RCTs since INCOG 2014, it was recommended that AAC should be routinely offered within the context of the person's everyday environment.
- Level C

Cognitive communication #7

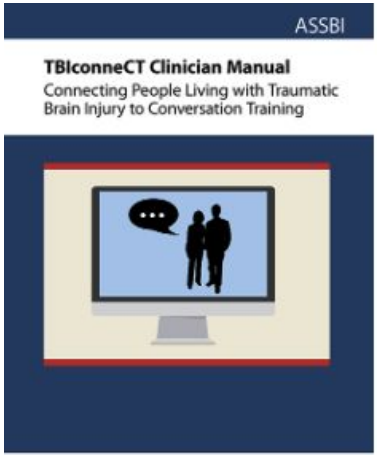
Consider group therapy for cognitive-communication training when social communication impairments exist, and where goals align.

Some example treatments:

- Group Interactive Structured Treatment (GIST)(Harrison-Felix et al 2018)(RCT)
- Cognitive-pragmatic treatment (Gabbatore et al., 2015)
- INSIGHT (Keegan et al., 2020)
- Project based treatment (Behn et al 2019 a,b)
- Level A

Cognitive communication #8 NEW!! – you'll hear more later in this lecture!

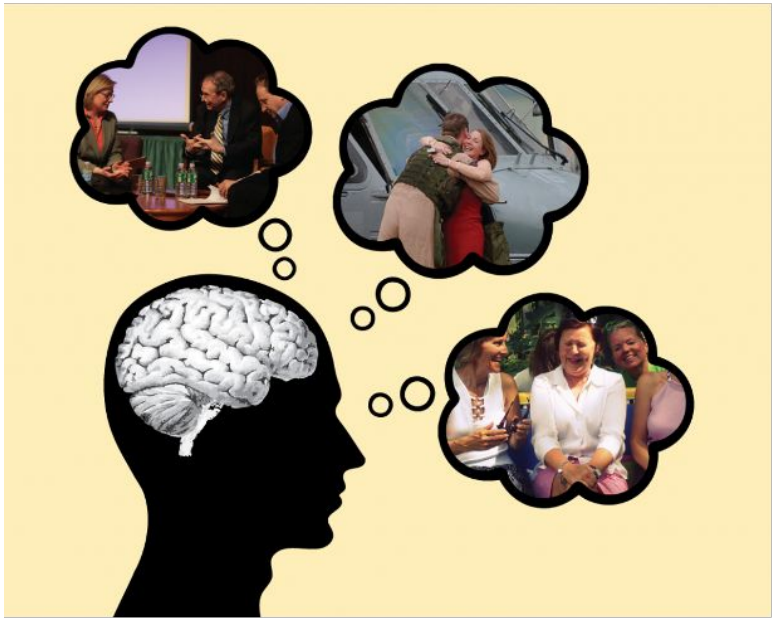
- Telerehabilitation is efficacious, feasible, and acceptable for communication partner training
- Rietdijk 2020a, 2020b, 2022
- Level B



Social cognition #1 NEW!!

- Clinicians should consider evaluating aspects of social cognition ability, including emotion perception, theory of mind (ToM) and emotional empathy.
- Computerized social cognition treatments are not recommended given lack of evidence of generalization to real life activities (INCOG 2022).
- Level A

Evidence for social cognition #1 (Level A)



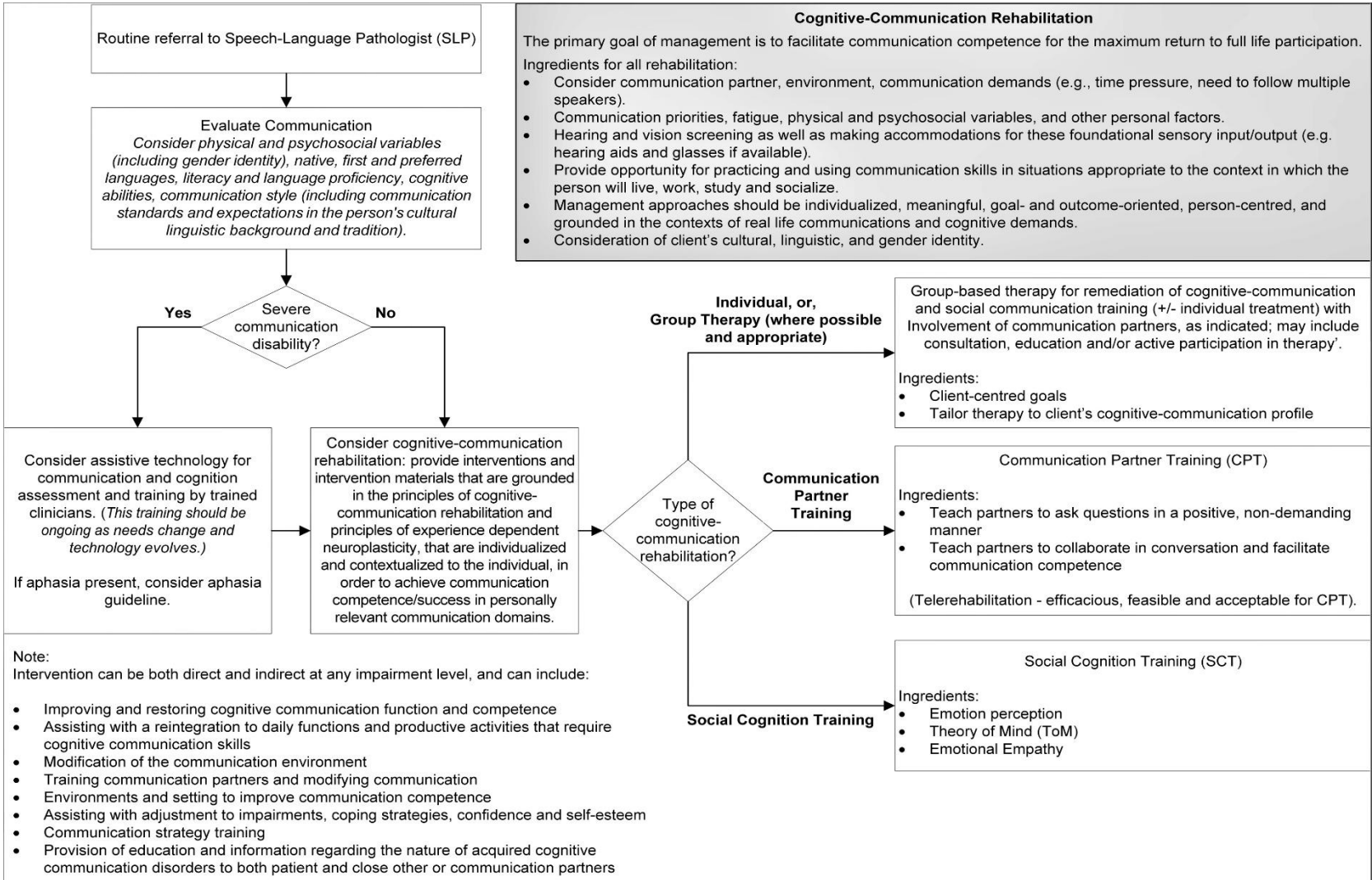
Reviews	RCTs	Other
Cassel 2019 Henry 2016 McDonald 2017 Turkstra 2020 Vallat-Azouvi 2019	Bornhofen 2008 McDonald 2013 Neumann 2015 Westerhof-Evers 2017	Cassel 2020 Gabbatore 2015 Ownsworth 2000 Rodríguez-Rajo 2022

Interventions are recommended which aim at improving:

- ✓ emotion perception
- ✓ perspective taking
- ✓ Theory of mind
- ✓ social behavior

INCOG 2.0 CCD/Social Cognition Algorithm

Togher et al 2023



Example from the INCOG 2.0 audit tool for cognitive communication and social cognition in everyday clinical practice

TABLE 3 *Audit guidelines for priority recommendations: Cognitive-communication* (Continued)

Intervention (guideline recommendation)	Specific activities, devices, or tools	Assessment of need and effectiveness	Patient characteristics	Discipline
Providing education and information regarding the nature of acquired cognitive-communication disorders to both patient and close other or communication partners				
Prescription of augmentative and alternative communication devices Individuals with severe communication disability following traumatic brain injury should be assessed by trained clinicians to determine appropriate augmentative and alternative communication intervention. The individual and close communication partners should be provided with training to effectively use augmentative and alternative communication aids. This training should be ongoing as needs change and technology evolves.		• Assessment for need conducted • Low-tech or high tech AAC systems are in place or have been trialed • Training provided	• Severe communication impairment (ie, unintelligible speech or lack of production of speech) • Unable to meet communication needs as per baseline	• SLP • OT • PT • MD • Neuro • Other
Communication participation in everyday social life should be measured Clinicians should consider group therapy as an appropriate means of intervention for communication and social skills when the individual has social communication impairments and group therapy aligns with the individual's communication goals.		• Results of assessment of participation in social life reported • Patient-identified goals measured and reported group training • Individual training	• Cognitive-communication impairment • Social cognition impairments	• SLP • OT • PT • MD • Neuro • Other

JOURNAL OF HEAD TRAUMA REHABILITATION/JANUARY–FEBRUARY 2023

Key Messages about INCOG 2.0 Cognitive communication and social cognition management

1. The evidence base for communication partner training is continuing to strengthen, with new RCTs and systematic reviews since the 2014 INCOG guideline
2. There is Level A support for cognitive communication treatment including communication partner training, communication strategy and metacognitive awareness training, group treatment and aspects of social cognition
3. The INCOG 2.0 algorithm provides clinicians with guidance regarding which approaches to consider
4. The INCOG 2.0 audit tool provides a way for clinicians to audit their clinical practice

Thanks to Prof Paul Conroy and the RCSLT team

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INCOG 2.0 Series

Using telehealth to deliver evidence-based intervention for communication partner training after traumatic brain injury

Dr Rachael Rietdijk
Lecturer, The University of Sydney

Using telehealth to deliver evidence-based intervention for communication partner training after traumatic brain injury

Acknowledgment: Research funding support provided by icare NSW

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icare™ Insurance and Care NSW

We acknowledge the tradition of custodianship and law of the Country on which the University of Sydney campuses stand. We pay our respects to those who have cared and continue to care for Country.

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Disclosure statement

Relevant Financial Relationships:

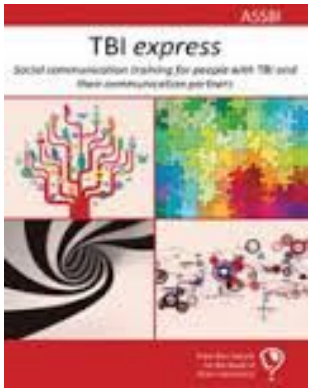
- Employee in the School of Health Sciences, Faculty of Medicine & Health at the University of Sydney

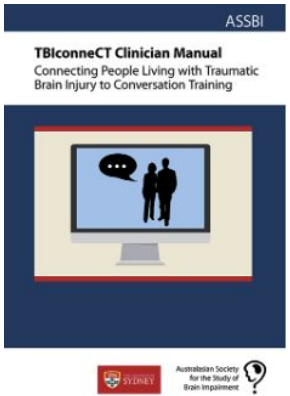
Relevant Non-Financial Relationships:

- I am one of the authors of TBI Express and TBIconneCT but do not receive any royalties from purchases of the programs.
- I am one of the authors of the convers-ABI-lity program and hold a share of the intellectual property underlying the content of the platform. I currently receive no income from the program but it may be commercialised in the future.

Objective of presentation

Be aware of **evidence-based options for providing communication partner training after traumatic brain injury,** including the use of telehealth and digital health





convers•ABI•lity

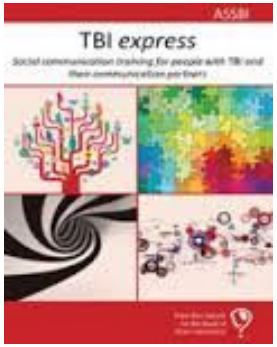
interact•ABI•lity

Cognitive-communication disorders after TBI

After a traumatic brain injury, over 75% of people experience a cognitive-communication disorder (Macdonald, 2017).

Recommendations for management of cognitive-communication disorders (Togher et al., 2023) include training of communication partners.

The TBI Express Program (2013)



Joint training for the person with TBI and their communication partner

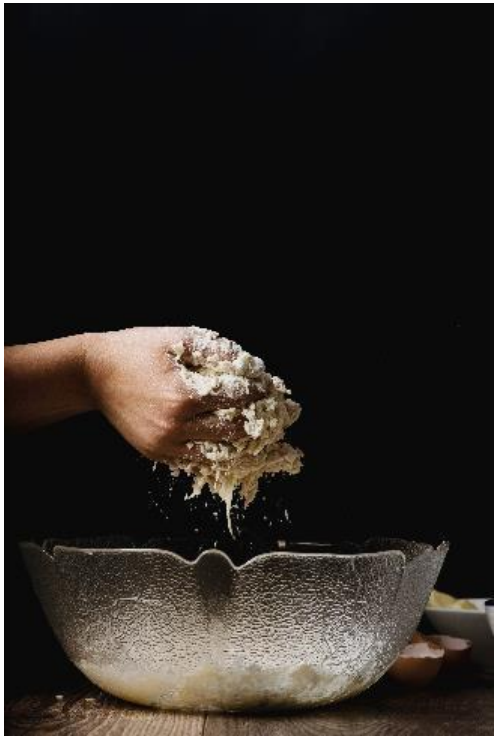
Aim: For people with TBI and their communication partners to have more positive conversations together

Clinical trial of TBI Express: After TBI Express program (joint training), participants had significantly better outcomes than controls in:

✔ Ratings of support and participation in conversations (Togher et al., 2013)

1: Introductions
2: TBI and Communication
3: Playing our Role
4: Effective Speaking & Listening
5: Collaboration
6: Elaboration
7: Asking Questions
8: Putting It All Together 1
9: Putting It All Together 2
10: Putting It All Together 3

What happens if we change the ingredients?



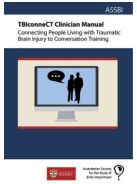
Dosage	• How much?
Format	• Individual or group? • Face-to-face or telehealth?
Treatment Components	• Processes and tasks

Meulenbroek et al., (2019)

Developing the TBIconneCT program (2020)

TBI Express

Togher et al., (2013)



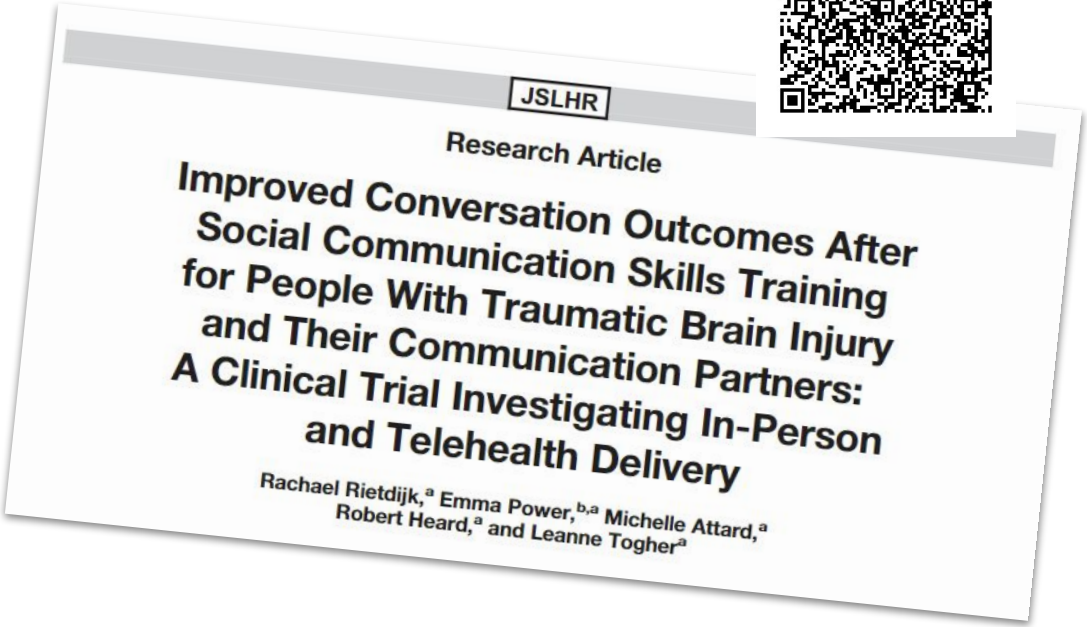
TBIconneCT

Rietdijk et al., (2020)

	TBI Express	TBIconneCT
Dosage	• 3.5 hrs weekly for 10 weeks • **35 hrs** total	• 1.5 hrs weekly over 10 sessions • **15 hrs total**
Format	• 2.5 hr **group session** weekly • 1 hr **individual session** weekly • All sessions attended by **both the person with TBI and their communication partner**	• 1.5 hr **individual session** weekly • All sessions attended by **both the person with TBI and their communication partner** • **In-person or telehealth delivery**
Treatment Components	• Repeated trials, clinical model, feedback, role-play, problem-solving / self-regulatory / self-monitoring strategy instruction, education, group process	• Treatment components retained except for **no group process component**

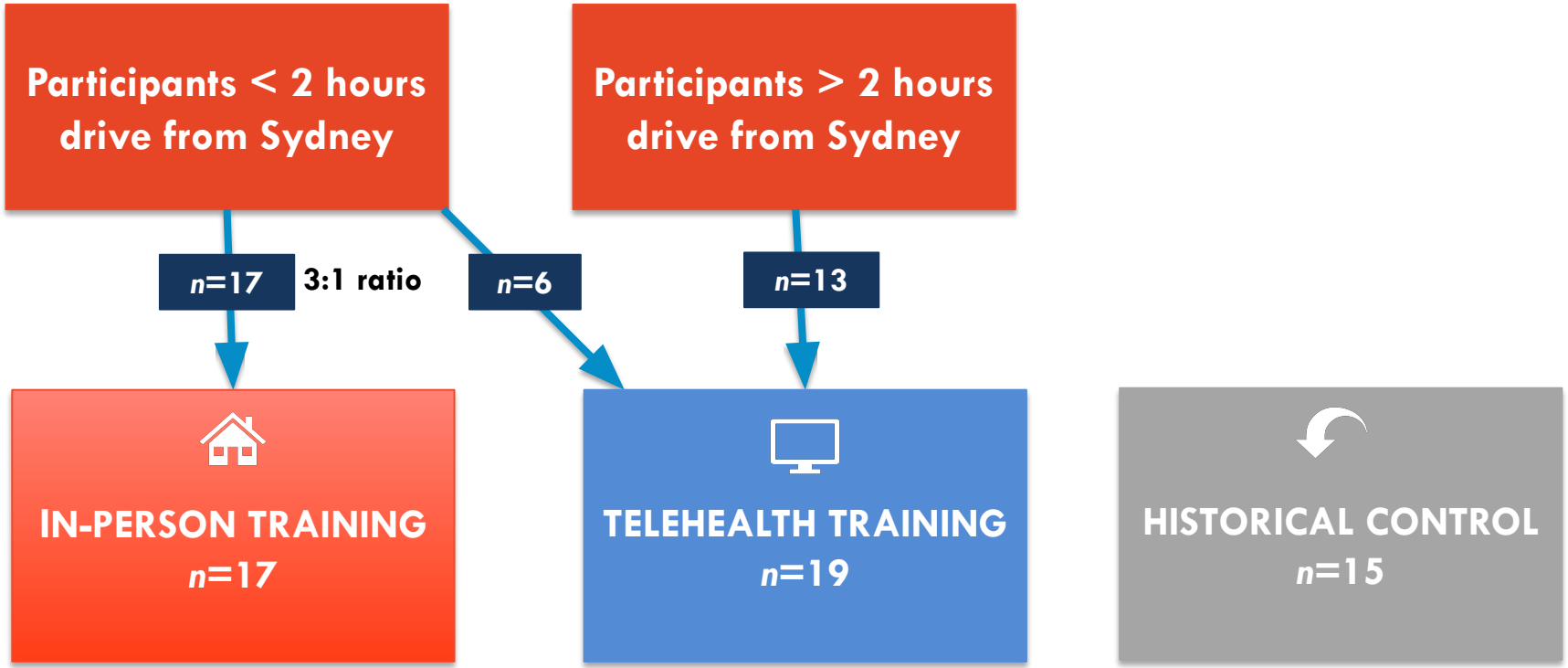
Evaluating the outcomes of TBIconneCT

- 51 participants with TBI were recruited through brain injury services and support agencies.
- Each participant nominated a communication partner.
- 17 participants and their communication partners completed in-person TBIconneCT (home visits).
- 19 participants and their communication partners completed telehealth-based TBIconneCT (Skype).
- 15 participants and their communication partners in a historical control group (Togher et al., 2013).



@RachaelReedake@twitter.com
#IJLCDAnnualLecture

TBIconneCT Clinical Trial



Participant inclusion criteria

Moderate to severe TBI at least 6 months prior

18-70 years old

Significant social communication skills deficits

Have a home computer with Internet connection

Adequate English proficiency

What do we do in a TBIconneCT session?

Core processes:

- ✔ reflect on positive and/or negative communication experiences since last session
- ✔ discuss completion of home practice tasks
- ✔ replay at least one recorded conversation
- ✔ discuss aspects of the conversation
- ✔ learn new information
- ✔ set home practice tasks together
- ✔ provide a session summary page.

Outcome Measure: Adapted Kagan scales

Casual Conversation: "Have a chat…"

Purposeful Conversation: "Come up with a list…"

Adapted Measure of Participation in Conversation:
Interaction and Transaction scales
Adapted Measure of Support in Conversation:
Acknowledge Competence and Reveal Competence scales **(Togher et al., 2010)**

Primary outcome measure:
Adapted Measure of Support in Conversation (Reveal Competence) in casual conversation

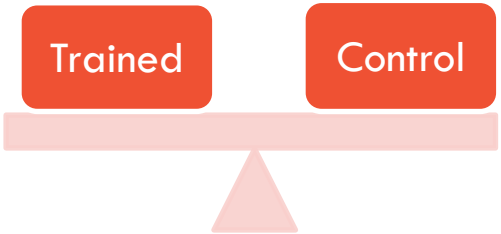
- Conversation samples were evaluated by an independent rater blinded to allocation and time-point (pre-training, post-training, or follow-up).
- A second rater evaluated 10% samples. Good inter-rater reliability (ICC = 0.67-0.93).

Research questions and data analysis

Research Question 1

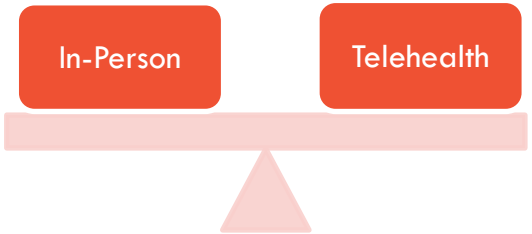
Did trained participants have better outcomes than the historical control group?

(Trained = In-Person + Telehealth)



Research Question 2

What was the magnitude of any differences between the in-person and telehealth participants?



Outcomes analyzed using planned orthogonal contrast ANOVAs.

Results: Demographic data

	IN-PERSON *n*=17	TELEHEALTH *n*=19	CONTROL *n*=15	*p*-value
Age, yrs, median (range)	54 (20-68)	42 (19-66)	36 (19-68)	0.06
Education, yrs, mean (SD)	14.4 (2.7)	13.8 (3.2)	12.7 (3.2)	0.32
TPI*, mths, median (range)	12 (6-574)	53 (6-342)	91 (24-276)	**0.03**
PTA*, days, median (range)	42 (10-98)	46 (1-183)	40 (6-182)	0.81
CP* age, yrs, median (range)	43 (20-78)	57 (27-67)	57 (21-79)	0.62
CP* gender, M/F, *n*	2/15	3/16	3/12	0.89
TBI gender, M/F, *n*	13/4	17/2	13/2	0.63
FAVRES Accuracy, median	41 (1-106)	41 (1-106)	42 (1-106)	0.90

* TPI = Time post-injury, PTA = post-traumatic amnesia, CP = Communication partner, FAVRES = Functional Assessment of Verbal Reasoning and Executive Strategies

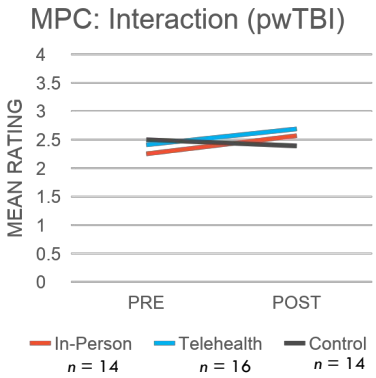
Results: Outcome measures at baseline

	IN-PERSON *n*=17	TELEHEALTH *n*=19	CONTROL *n*=15	*p*-value
ADAPTED KAGAN SCALES: CASUAL CONVERSATION				
MPC Interaction	2.09 (0.83)	2.34 (0.53)	2.37 (0.79)	.47
MPC Transaction	2.35 (0.84)	2.42 (0.73)	2.27 (0.59)	.83
MSC Acknowledge Competence*	2.0 (1.5-3.5)	2.5 (1.0-3.5)	2.0 (1.5-3.5)	.57
MSC Reveal Competence*	2.0 (1.3-3.3)	2.3 (1.3-3.3)	1.8 (1.0-3.2)	.06
ADAPTED KAGAN SCALES: PURPOSEFUL CONVERSATION				
MPC Interaction*	2.0 (0.0-3.0)	2.0 (1.0-3.0)	2.5 (1.0-3.0)	.20
MPC Transaction*	2.0 (0.5-3.0)	2.0 (1.0-3.0)	2.5 (1.0-3.0)	.09
MSC Acknowledge Competence	2.03 (0.60)	2.26 (0.84)	2.20 (0.77)	.63
MSC Reveal Competence	1.85 (0.60)	2.00 (0.68)	2.04 (0.74)	.70

MPC = Measure of Participation in Conversation, MSC = Measure of Support in Conversation. Scales range from 0 to 4, 0 = no participation / support, 4 = full participation/support. Data are means (SDs) except variables marked * which are medians (range)

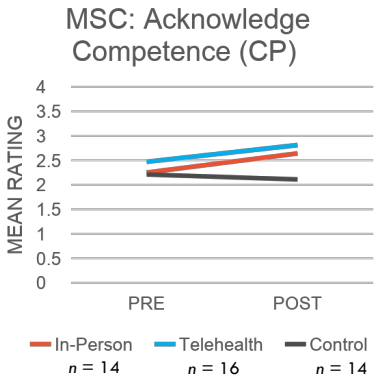
Adapted Kagan scales: Casual Conversations

Aim 1: Trained versus Control



Trained vs Control
p = .04 *
d = 0.70

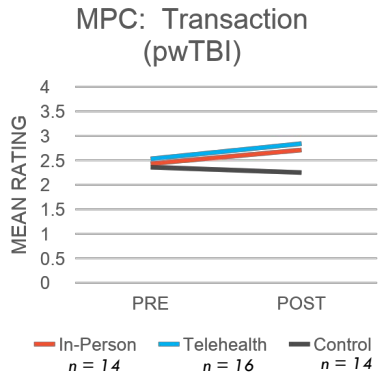
In-person versus Telehealth
p = .87
d = 0.07



Trained vs Control
p = .01 *
d = 0.88

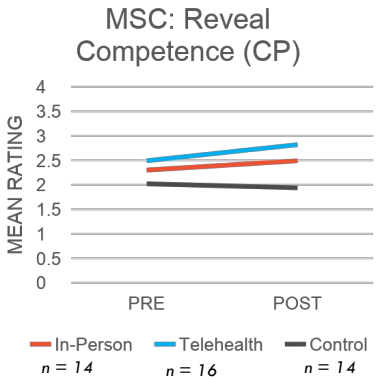
In-person versus Telehealth
p = .78
d = 0.11

Aim 2: In-Person versus Telehealth



Trained vs Control
p = .03 *
d = 0.76

In-person versus Telehealth
p = .90
d = 0.03

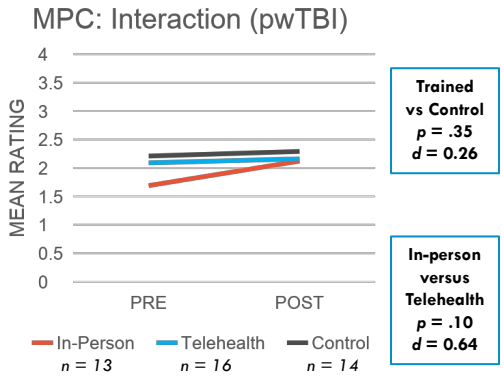


Trained vs Control
p = .04 *
d = 0.71

In-person versus Telehealth
p = .47
d = 0.26

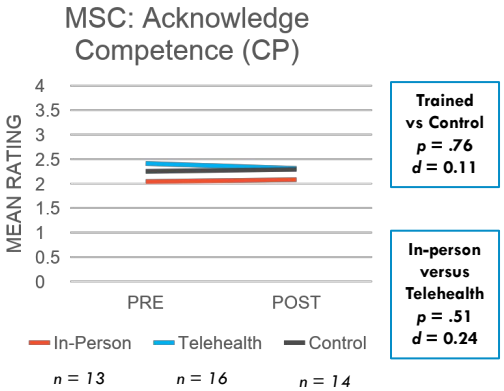
Adapted Kagan scales: Purposeful Conversations

Aim 1: Trained versus Control



Trained vs Control
p = .35
d = 0.26

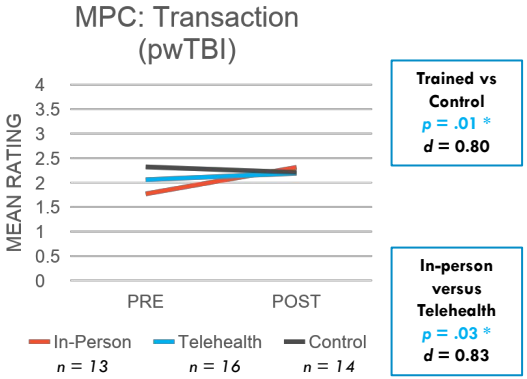
In-person versus Telehealth
p = .10
d = 0.64



Trained vs Control
p = .76
d = 0.11

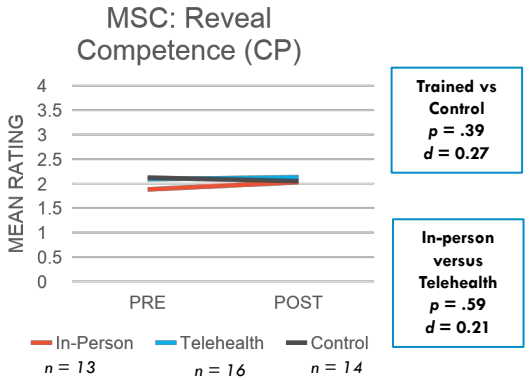
In-person versus Telehealth
p = .51
d = 0.24

Aim 2: In-Person versus Telehealth



Trained vs Control
p = .01 *
d = 0.80

In-person versus Telehealth
p = .03 *
d = 0.83



Trained vs Control
p = .39
d = 0.27

In-person versus Telehealth
p = .59
d = 0.21

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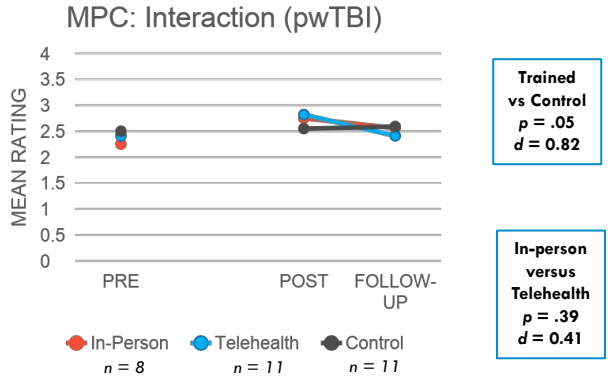
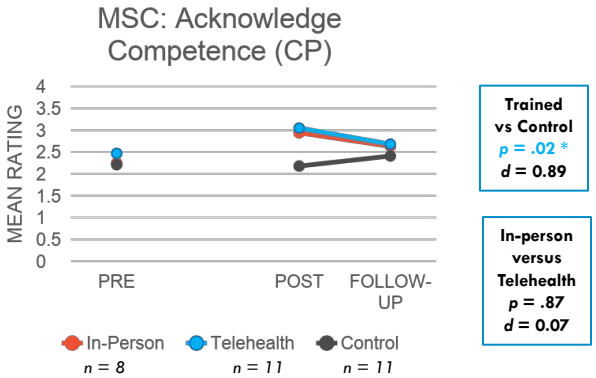
Maintenance of Treatment Effects: Casual Conversations

Aim 1: Trained versus Control



Trained vs Control
p = .05
d = 0.82

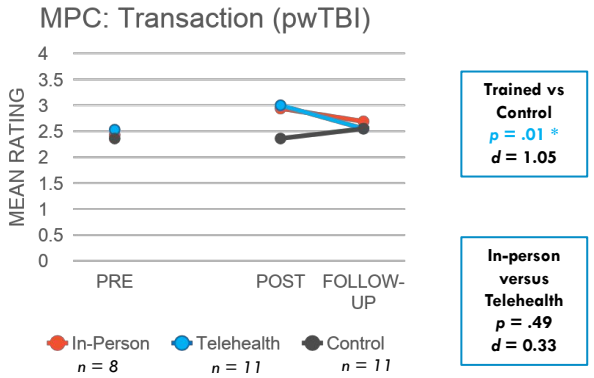
In-person versus Telehealth
p = .39
d = 0.41



Trained vs Control
p = .02 *
d = 0.89

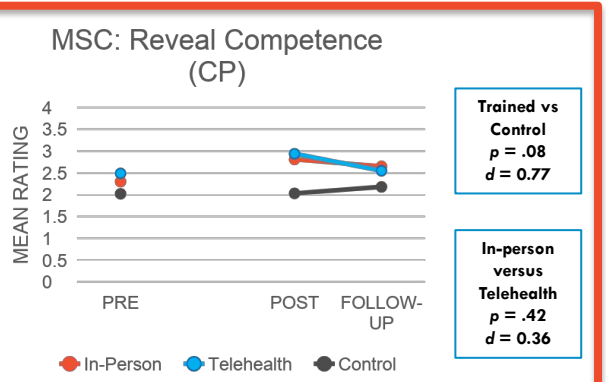
In-person versus Telehealth
p = .87
d = 0.07

Aim 2: In-Person versus Telehealth



Trained vs Control
p = .01 *
d = 1.05

In-person versus Telehealth
p = .49
d = 0.33

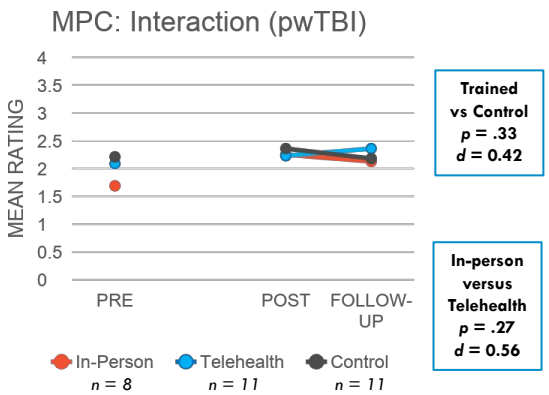


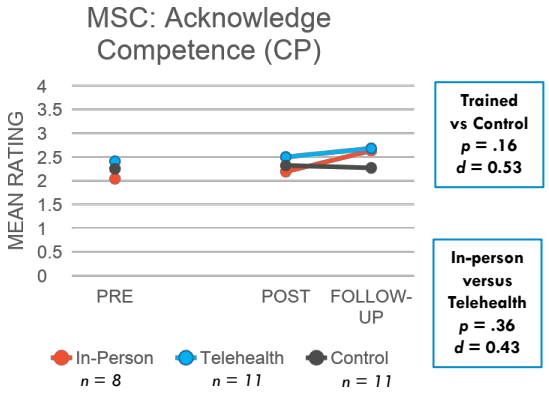
Trained vs Control
p = .08
d = 0.77

In-person versus Telehealth
p = .42
d = 0.36

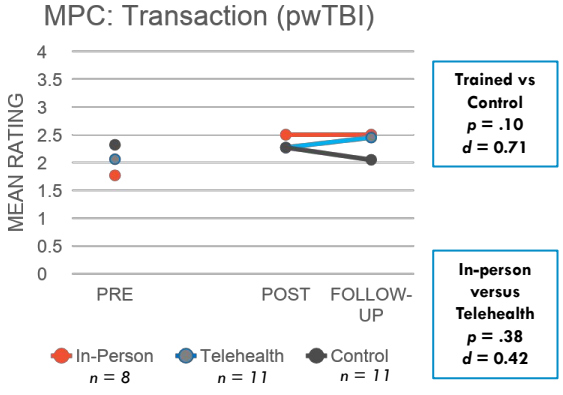
Maintenance of Treatment Effects: Purposeful Conversations

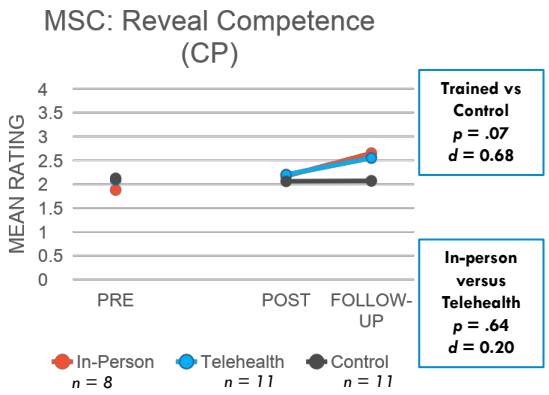
Aim 1: Trained versus Control





Aim 2: In-Person versus Telehealth





TBIconneCT compared to TBI Express: Treatment effects

	TREATMENT EFFECTS?	TBIconneCT	TBI Express
PwTBI	Casual: Interaction	✔	✔
	Casual: Transaction	✔	✔
	Purposeful: Interaction	☐	✔
	Purposeful: Transaction	✔	✔
CP	Casual: Acknowledge Competence	✔	✔
	Casual: Reveal Competence	✔	✔
	Purposeful: Acknowledge Competence	☐	☐
	Purposeful: Reveal Competence	☐	☐

The TBIconneCT program produced **similar improvements** to the original TBI Express program **at the end of the program.**

TBIconneCT and TBI Express: Maintenance over time

	Maintenance of outcome	TBIconneCT	TBI Express
PwTBI	Casual: Interaction	✔	✔
	Casual: Transaction	☐	✔
	Purposeful: Interaction	N/A	✔
	Purposeful: Transaction	✔	✔
CP	Casual: Acknowledge Competence	☐	✔
	Casual: Reveal Competence	✔	✔
	Purposeful: Acknowledge Competence	N/A	N/A
	Purposeful: Reveal Competence	N/A	N/A

Improvements were **not maintained as successfully** after TBIconneCT training, compared to TBI Express.

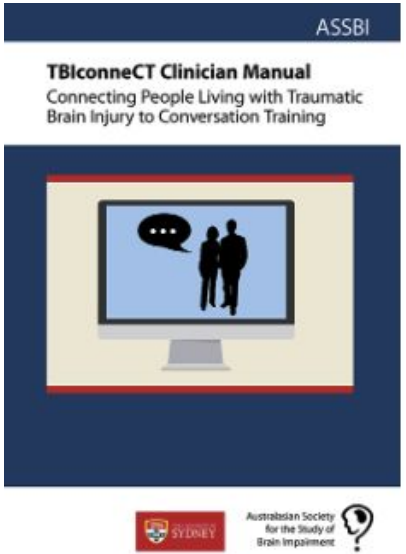
Limitations

- The trial was adequately powered for comparing the trained and control groups, but was not adequately powered for non-inferiority comparisons between in-person and telehealth training.

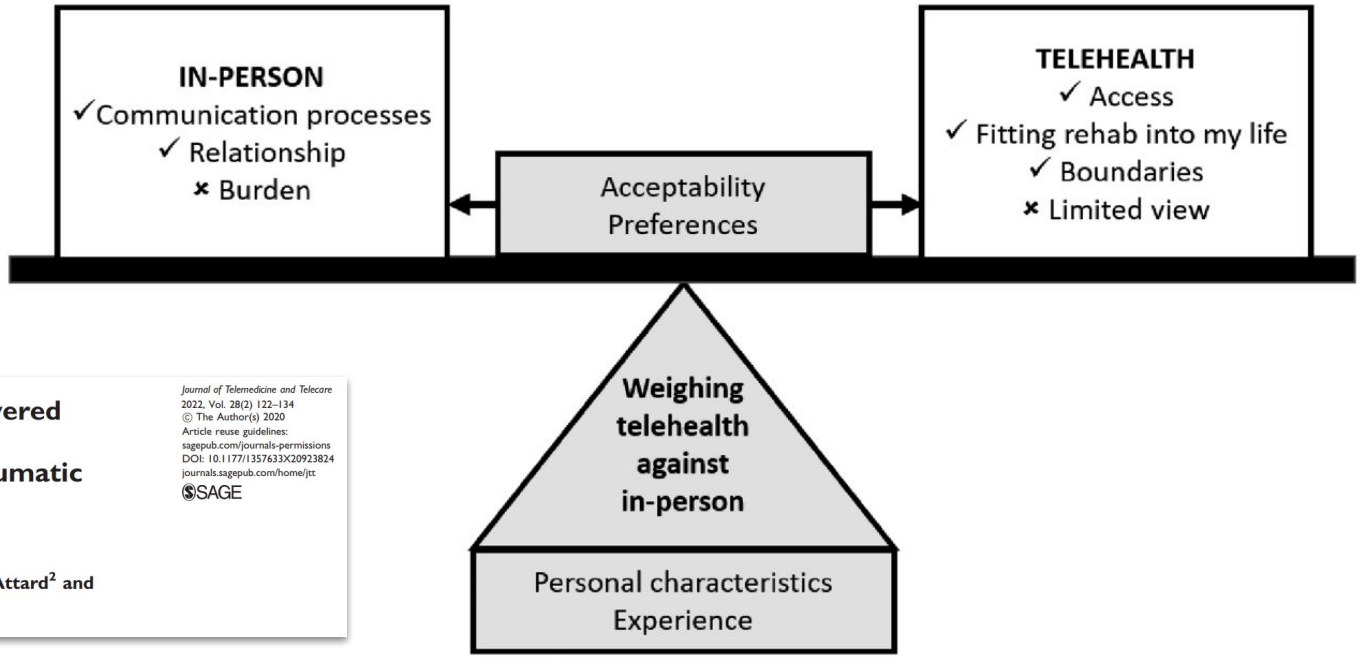
- Participants in the in-person group were from metropolitan Sydney. Participants in the telehealth group were distributed across metropolitan Sydney and regional and rural areas.

Key findings regarding the outcomes of TBIconneCT

- The Adapted MPC and Adapted MSC were sensitive to demonstrating effects of social communication skills training after TBI.
- TBIconneCT achieved commensurate outcomes to TBI Express:
  - with less training hours,
  - and without group delivery.
- Treatment effects were not maintained as successfully after TBIconneCT, compared to TBI Express.
- In-person and telehealth delivery had similar outcomes, indicating potential of telehealth delivery.



Telehealth: Other factors to consider



Acceptability of telehealth-delivered rehabilitation: Experiences and perspectives of people with traumatic brain injury and their carers

Journal of Telemedicine and Telecare
2022, Vol. 28(2) 122–134

DOI: 10.1177/1357633X20923824
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Rachael Rietdijk[2], Emma Power[1,2], Michelle Attard[2] and Leanne Togher[2]

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Future directions in digital health and CPT

THE UNIVERSITY OF SYDNEY UTS brain injury AUSTRALIA www.braininjuryaustralia.org.au changineers.com.au icare Insurance and Care NSW

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Development of convers-ABI-lity

convers•ABI•lity

Online platform for delivery of communication partner training after ABI

Focus of PhD research completed by Petra Avramovic

1. We all have some problems with conversation
2. We can keep improving our conversations
3. Match your conversation to the situation
4. Work together to get the message across
5. Talk like you are teammates
6. Keep your conversations going
7. Make your conversations organised

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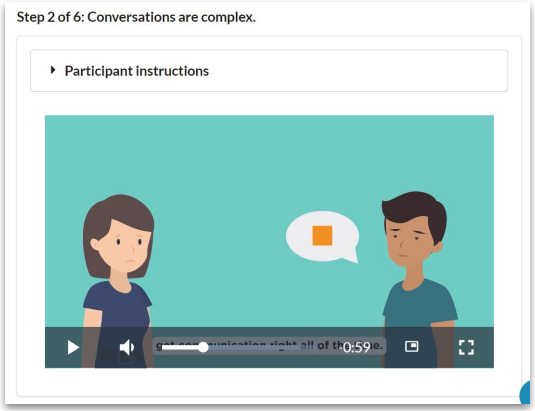
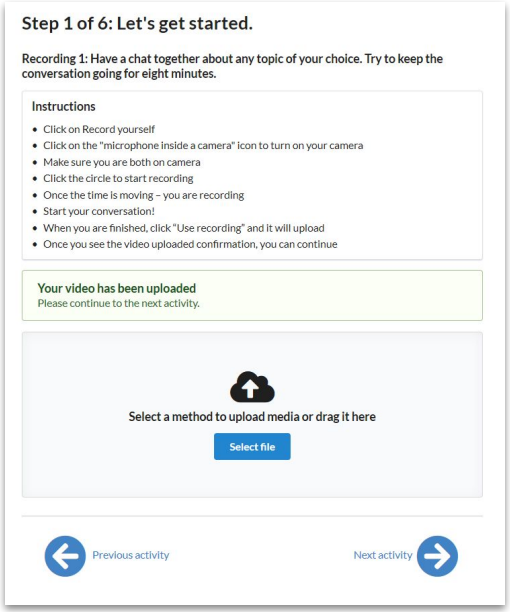
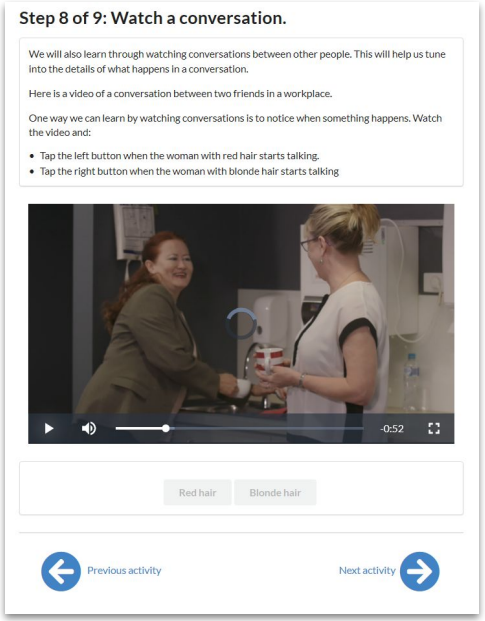
Harnessing digital health for communication partner training

convers•ABI•lity

Self-guided online modules







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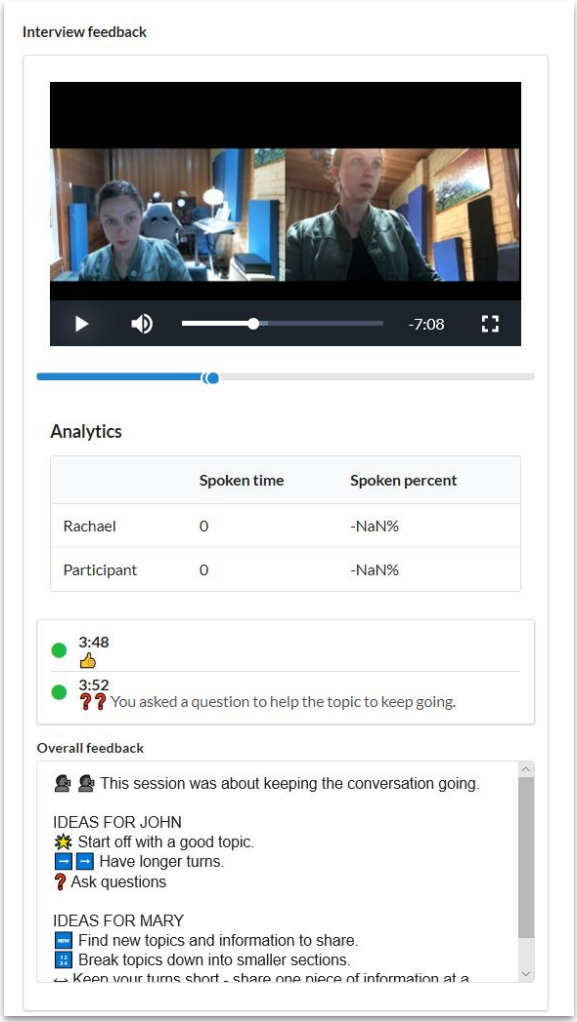
Harnessing digital health for communication partner training

Videoconferencing functions

convers•ABI•lity



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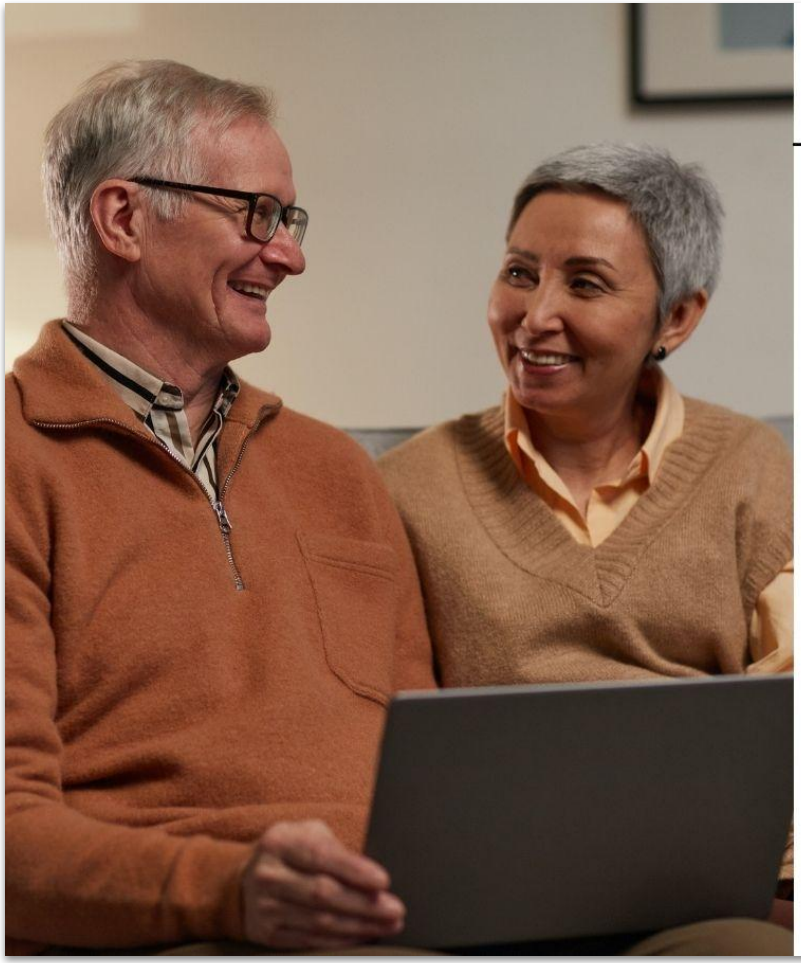

interact•ABI•lity

Learn how to interact successfully with people who have a brain injury

A team of researchers and speech pathologists has developed **interact-ABI-lity** – a communication skills resource for anyone who interacts with a person with an acquired brain injury (ABI).

This **free online tool** is for family members, friends, support workers, and professionals working in brain injury.

- **Hear from people** with a brain injury and their family members
- Learn about **communication changes**
- Learn how to **support people** with their communication
- Gain a **certificate** of completion

Access the resource at:
bit.ly/interact-ABI-lity

Scan this QR code with your camera and follow the link to the resource

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When accessing the resource, you can choose whether to participate in a research study.
This study is approved by University of Sydney Human Research Ethics Committee (HREC approval no: 2022/513)
social-ABI-lity Advertisement Version 1, dated 27/6/22

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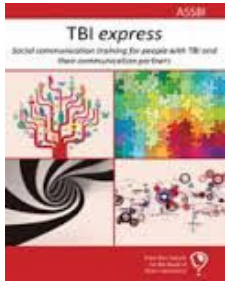
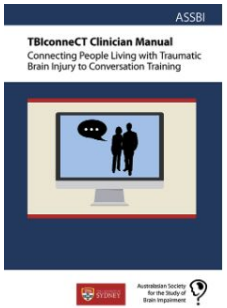
Evidence based options for communication partner training after traumatic brain injury





- ✔ Evidence from clinical trial
- ✔ Group-based, in-person program
- ✔ Available for purchase from ASSBI

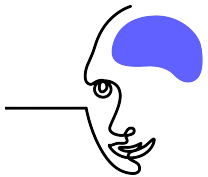
- ✔ Evidence from clinical trial
- ✔ Individual, in-person or telehealth program
- ✔ Available for purchase from ASSBI

www.assbi.com.au

Evidence based options for communication partner training after traumatic brain injury

convers•ABI•lity

- ✔ Evidence from pilot studies
- ··· Not yet available to clinicians
- ··· Adaptation for dementia in progress
  (Naomi Folder, Uni of Technology Sydney)



interact•ABI•lity

- ✔ Evidence from pilot studies
- ✔ Ongoing research in progress
- ✔ Available to anyone, for free, internationally

bit.ly/social-brain-toolkit

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IJLCD Annual Lecture 2023

Cognitive-communication disorders after TBI and the use of social media

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We acknowledge the tradition of custodianship and law of the Country on which the University of Sydney campuses stand. We pay our respects to those who have cared and continue to care for Country.

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Disclosure statement

Relevant Financial Relationships:

- Full time employee in the School of Health Sciences, Faculty of Medicine & Health at the University of Sydney

Relevant Non-Financial Relationships:

- I developed the social-ABI-lity program
- I receive no financial benefit from distribution/use of the social-ABI-lity program
- Board Member of speechBITE www.speechBITE.com
- Editorial Board (Social Media Editor) for the journal Brain Impairment

Learning outcomes

- Describe the benefits and risks of online social relationships and social media use after acquired brain injury
- Discuss the complexities of addressing social media use during brain injury rehabilitation, including the use of social media as a speech-language pathologist
- Explain where to find resources available to guide the incorporation of social media skills into collaborative social communication rehabilitation goals.

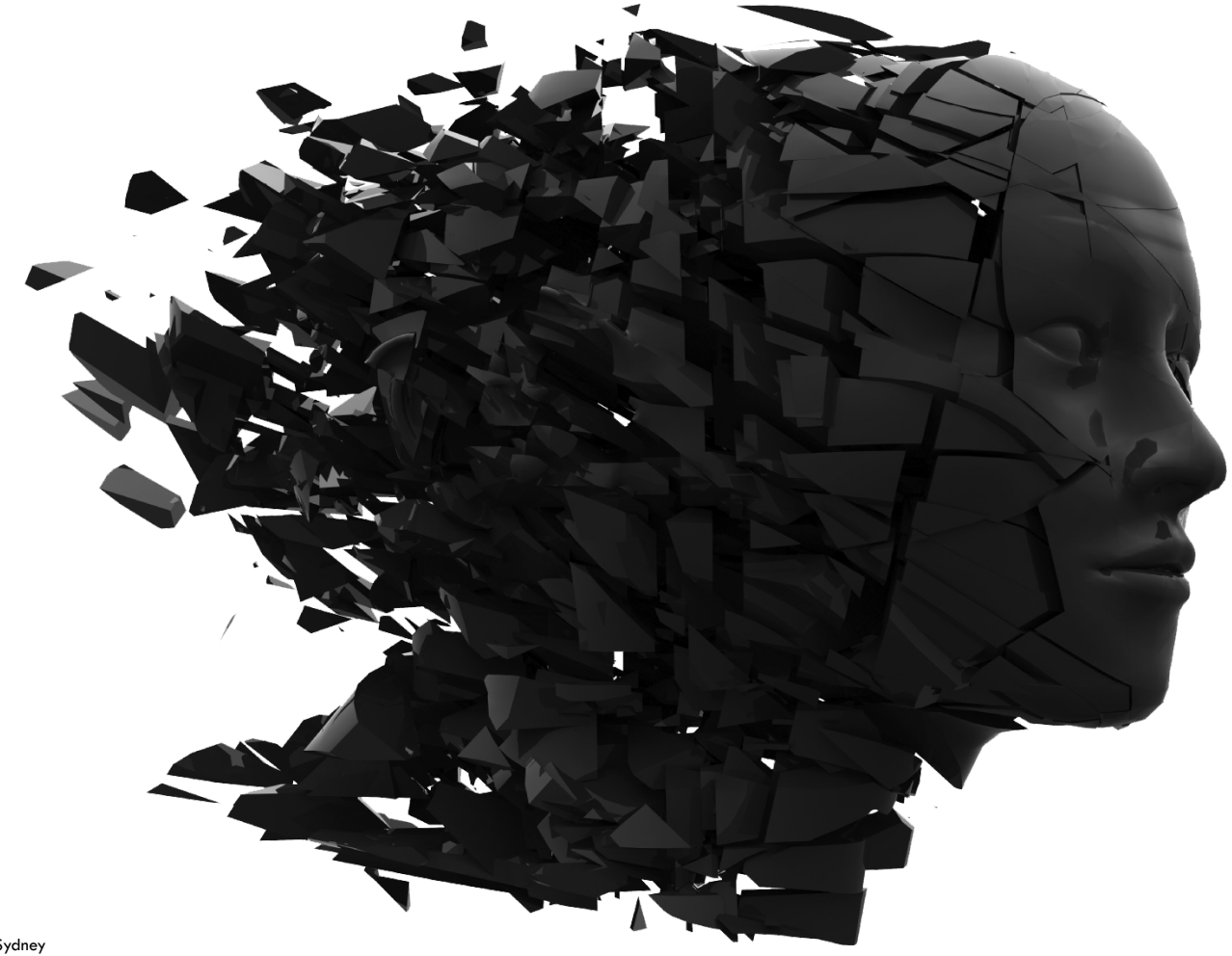

Image: shattered head bw by Molly Gilbert on Vinland Center

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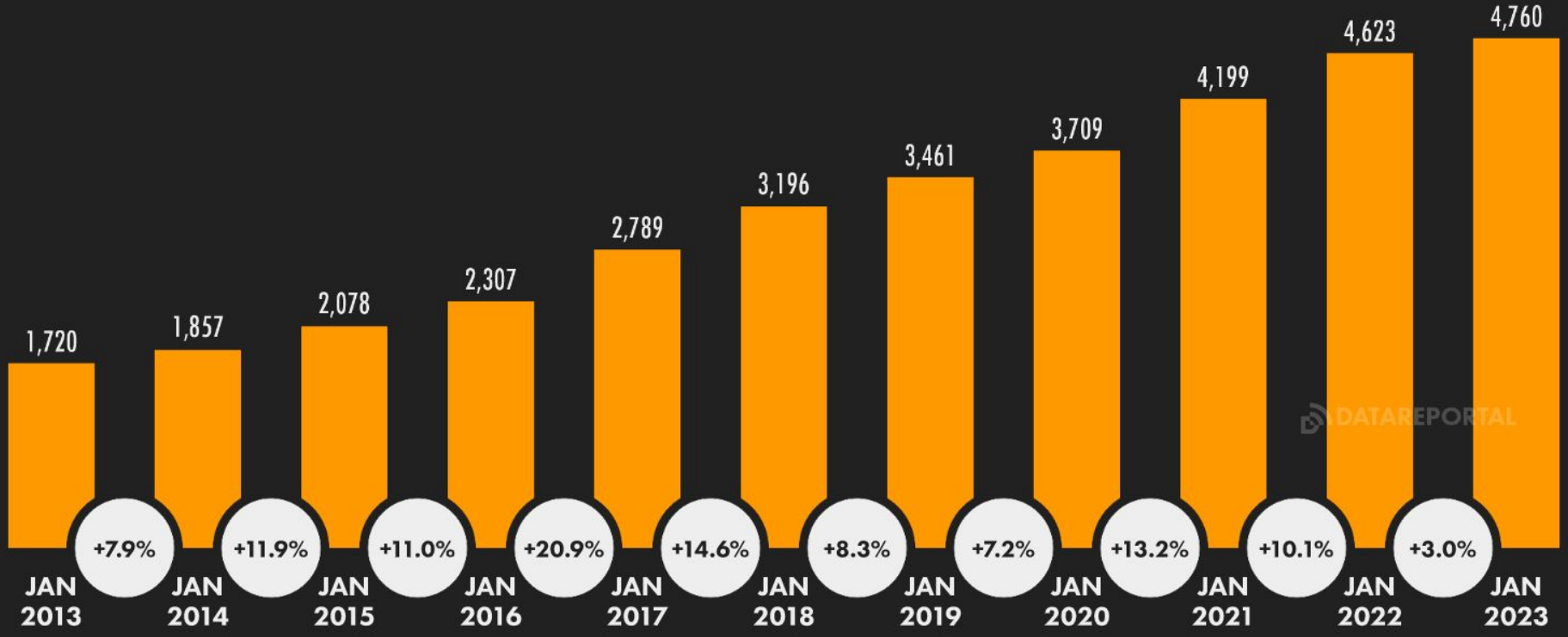
JAN 2023

SOCIAL MEDIA USERS OVER TIME (YOY)

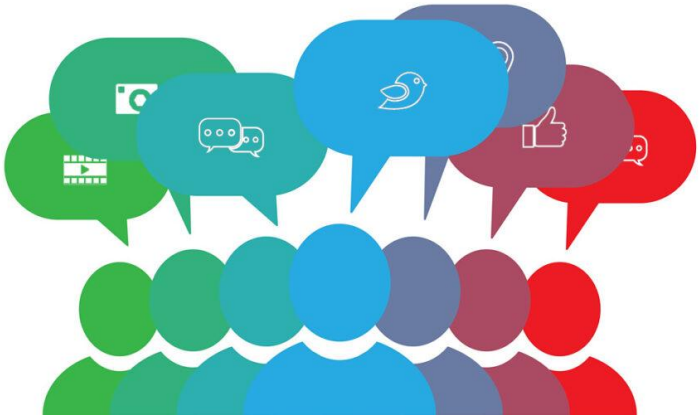
NUMBER OF SOCIAL MEDIA USERS (IN MILLIONS) AND YEAR-ON-YEAR CHANGE (NOTE: USERS MAY NOT REPRESENT UNIQUE INDIVIDUALS)

GLOBAL OVERVIEW



SOURCES: KEPIOS ANALYSIS; COMPANY ADVERTISING RESOURCES AND ANNOUNCEMENTS; CNNIC; BETA RESEARCH CENTER; MEDIASCOPE; OCDH. **ADVISORY:** SOCIAL MEDIA USERS MAY NOT REPRESENT UNIQUE INDIVIDUALS. **COMPARABILITY:** SOURCE CHANGES, BASE CHANGES, AND METHODOLOGY CHANGES. VALUES MAY NOT CORRELATE WITH THOSE PUBLISHED IN PREVIOUS REPORTS. SEE NOTES ON DATA FOR FURTHER DETAILS.

What is Social Media?



Internet-based applications/software that:

- allow the creation and exchange of **User Generated Content** (Kaplan & Haenlein, 2010)
- allow individuals, communities, and organizations to **collaborate, connect, interact, and build community** by enabling them to create, co-create, modifies, share, and engage with user-generated content that is easily accessible (McCay-Peet & Quan-Haase, 2017)
- enable users to **create, share and view content** in publicly networked one-to-one, one-to-many, and/or many-to-many communications (Hopkins, 2017)

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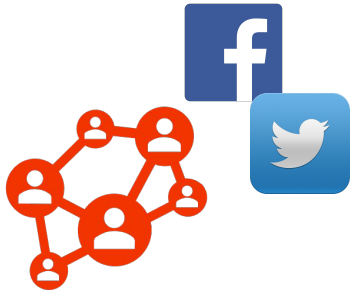
What is social media?

– Blogs

– Collaborations



Social Networking

– Content Communities

– Virtual Social Worlds

Virtual Game Worlds

(Kaplan & Haenlein 2010)

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Image: https://images.app.goo.gl/jQJBpCsb2oH2CEnJ6

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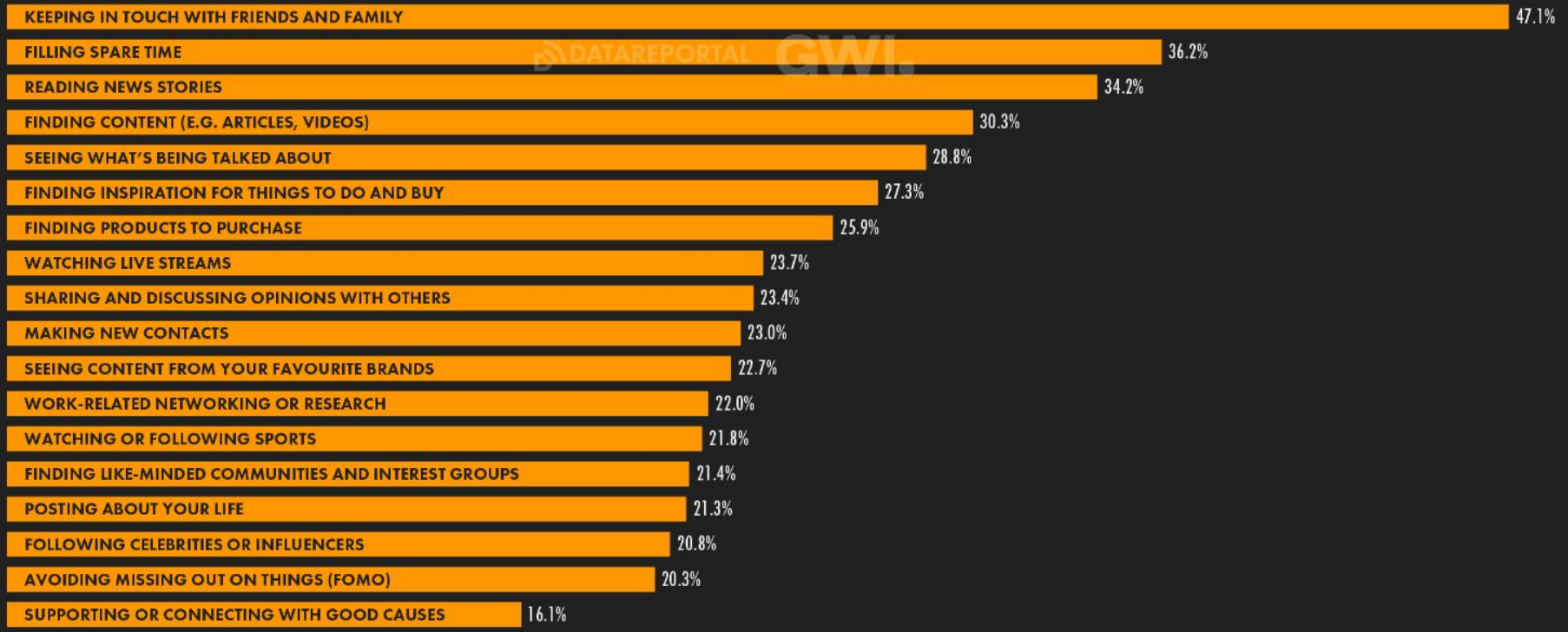
MAIN REASONS FOR USING SOCIAL MEDIA

PRIMARY REASONS WHY SOCIAL MEDIA USERS AGED 16 TO 64 USE SOCIAL MEDIA PLATFORMS

GLOBAL OVERVIEW



SOURCE: GWI (Q3 2022). FIGURES REPRESENT THE FINDINGS OF A BROAD GLOBAL SURVEY OF INTERNET USERS AGED 16 TO 64. SEE GWI.COM FOR FULL DETAILS. **NOTE:** FIGURES REPRESENT THE SHARE OF INTERNET USERS AGED 16 TO 64 WHO REPORT USING AT LEAST ONE SOCIAL MEDIA OR MESSENGER PLATFORM IN THE PAST MONTH.

Image: iStockphoto on Kiplinger

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Cognitive-communication functions & online interactions

Functions	Examples that could influence online interactions
Task initiation	Reduced output
Reasoning	Abstract concepts
Attention	Easily distracted
Flexible thinking	Adjusting to unexpected changes
Emotional control	Managing feelings
Working memory	Holding key information in mind
Self-monitoring	Awareness of performance
Impulse control	Stop before acting
Organisation	Keeping track of progress

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Brunner PhD: Mixed Methods Design exploring social media use after TBI

Background

Systematic Literature Reviews (Qualitative Evidence Synthesis)

1. Social Media & TBI
2. ICT & TBI rehabilitation

Hashtag Study (Context)

Twitter Hashtag Data Analysis

Public tweets containing TBI-related hashtags

Study 1

Narrative Interviews

People with TBI who use social media

Study 2

Narrative Interviews and Twitter Data Analysis

People with TBI who use Twitter

Study 3

Focus Groups

Health Professionals working in TBI Rehabilitation

Meta-Synthesis

Multi-Level Mixed Methods Research

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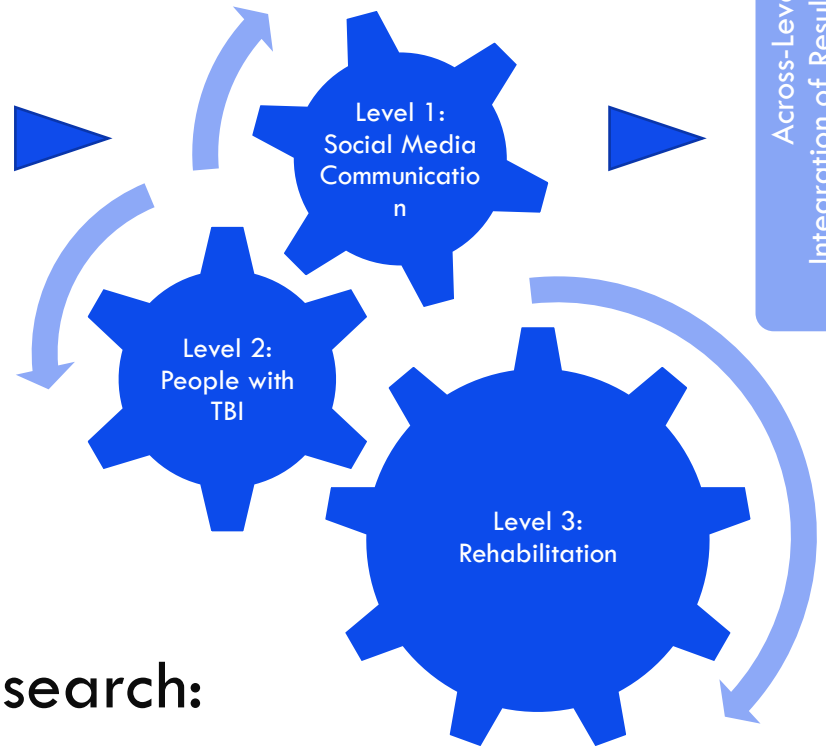
Context Research

Systematic Reviews



Across-Level Integration of Results

Meta-inferences on the use of social media in rehabilitation after TBI

#TwitterMind Research: Meta-Synthesis

Brunner, M., Hemsley, B., Togher, L., Dann, S., & Palmer, S. (2021). Social Media and People with Traumatic Brain Injury: A Meta-Synthesis of Research Informing a Framework for Rehabilitation Clinical Practice, Policy, and Training. American Journal of Speech-Language Pathology, 30(1), 19-33.

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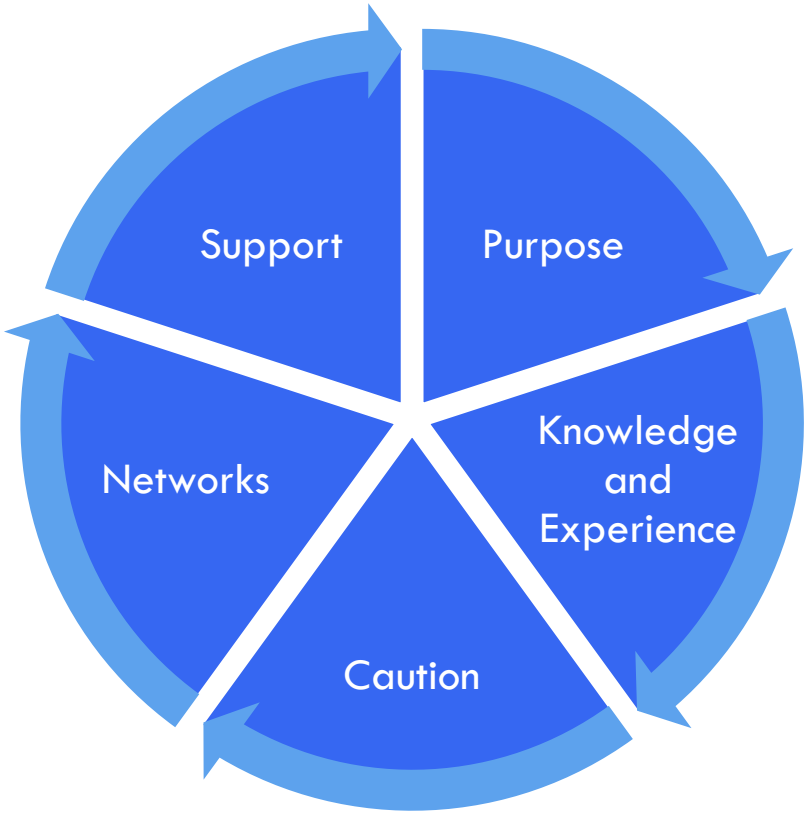
Five Key Concepts



Brunner, M., Hemsley, B., Togher, L., Dann, S., & Palmer, S. (2021). Social Media and People with Traumatic Brain Injury: A Meta-Synthesis of Research Informing a Framework for Rehabilitation Clinical Practice, Policy, and Training. American Journal of Speech-Language Pathology, 30(1), 19-33.

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An evidence-based protocol for addressing social media during rehabilitation after TBI

Concept	Facilitator of Social Media Use
Purpose	Identify digital communication systems that are personally meaningful
Knowledge and Experience	Identify barriers and/or challenges in using social media
Caution	Support cyber-safety and cyber-resilience
Networks	Support inclusion in online communities
Supports	Support access and participation in online communities

Brunner, M., Hemsley, B., Togher, L., Dann, S., & Palmer, S. (2021). Social Media and People with Traumatic Brain Injury: A Meta-Synthesis of Research Informing a Framework for Rehabilitation Clinical Practice, Policy, and Training. American Journal of Speech-Language Pathology, 30(1), 19-33.

Research in the ABI Communication Lab

Scoping Review

Social media skills training

Online support groups

The Social Brain Toolkit

interact-ABI-lity

social-ABI-lity

convers-ABI-lity

Content Analysis

Instagram

YouTube

Survey

Rehabilitation Professionals experiences of social media use during ABI rehab

Online Self-Identity

People with ABI and Dementia

What training is available?
Scoping Review

An integrative scoping review was conducted to locate and synthesise:

a) **research** investigating **training** for developing **social media skills** and safety;

b) **free online resources for social media skills training** for the general public; and

c) **online support groups for people with brain injury.**

Brunner et al. (2022). https://www.jmir.org/2022/4/e35595

Image: High impact designers for influencers by NordWood Themes on Unsplash

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Scoping Review Results

Social media training for people with brain injury should:

- Be co-designed
- Be interactive
- Be safe
- Provide opportunities to practice
- Provide choices
- Support memory

Brunner et al. (2022). https://www.jmir.org/2022/4/e35595

Scoping Review Results

Key issues identified to address in social media training for people with brain injury

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Scoping Review Results

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The social-ABI-lity program

SBT Team Members:
Rachael Rietdijk, Melissa Brunner, Emma Power, Petra Avramovic, Melissa Miao, Nick Rushworth, Renee Lim, Jarryd Daymond, Steven Maguire, Sophie Brassel, Liza Maclean, Anne-Maree Brookes, Rhys Ashpole, & Leanne Togher

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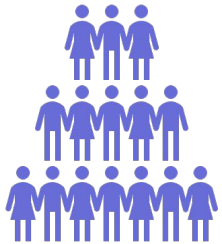
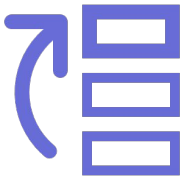
The collaborative design of social-ABI-lity

the social brain toolkit



23 participants:
- 5 People with TBI
- 10 Professionals
- 3 Speech Pathologists
- 5 Everyday Communication Partners

2 interviews each



1st consultation

Focus on:
- Accessibility
- Content
- Format
- Key priorities for learning

2nd consultation

Focus on prototype development

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"I reckon to other people who had a brain injury like me, I really benefit so many things from it."

Pilot study – 4 participants completed the course

- Acceptable, engaging, functional, & accessible
- No change in frequency of use
- Improved confidence & awareness

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https://abi-communication-lab.sydney.edu.au/courses/social-abi-lity

An online resource for people with brain injury to learn about using social media, connecting with other people, and staying safe

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The social-ABI-lity program

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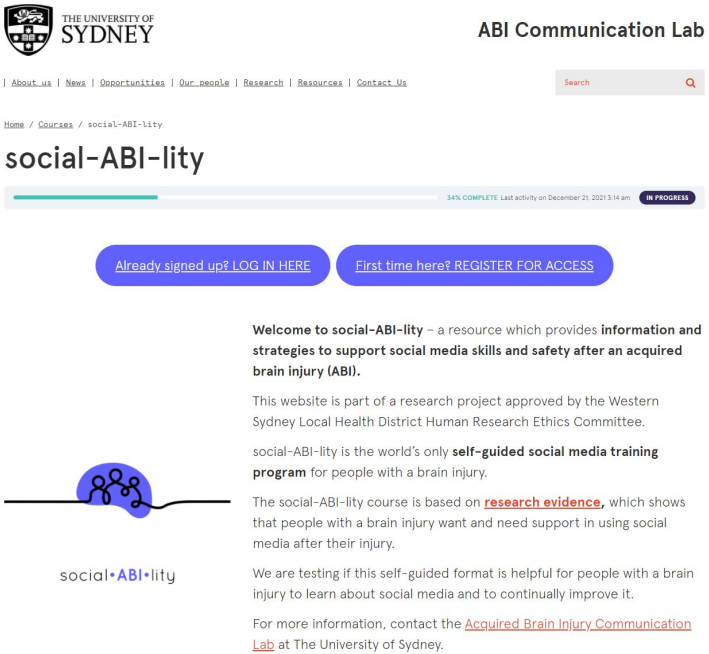

4 modules:

- What is social media?
- Staying safe in social media
- How do I use social media?
- Who can I connect with in social media?

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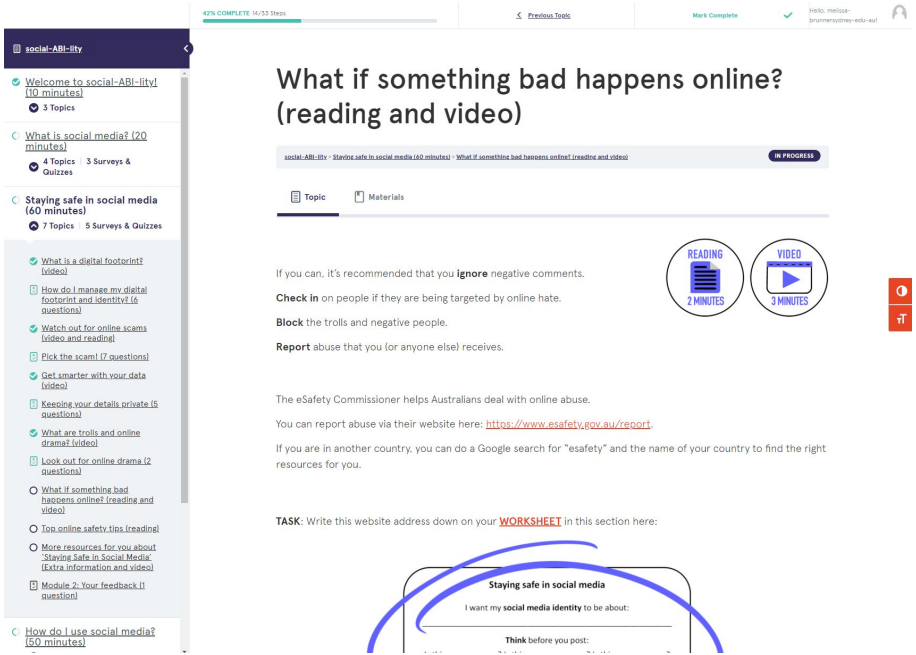

- **Information**
- Videos
- Questions
- Printable worksheet

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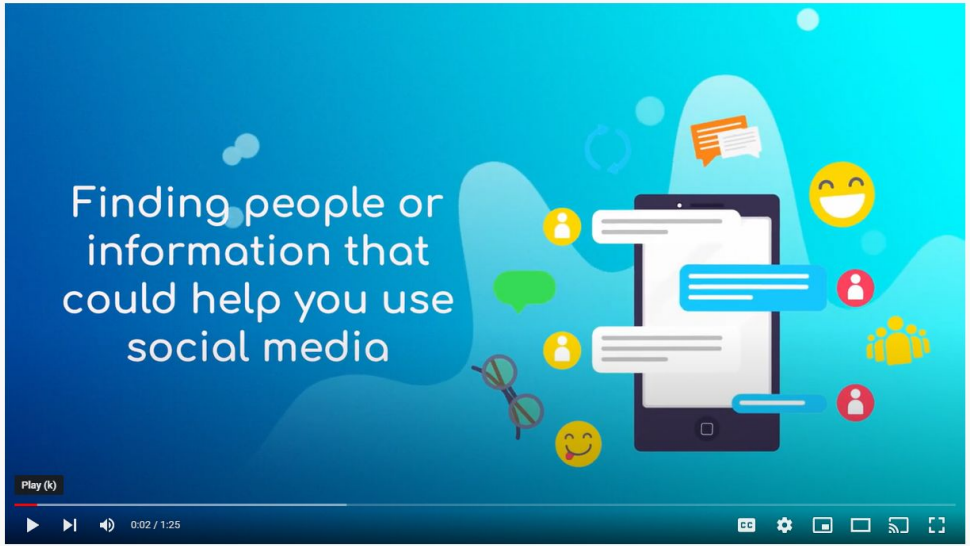

social-ABI-lity: Finding people or information that could help you use social media

- Information
- **Videos**
- Questions
- Printable worksheet

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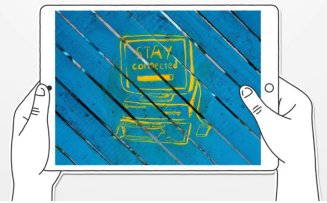
Time flies in social media

These days many of us spend a lot of time online

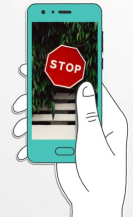


Time spent scrolling to stay up-to-date

Brain Fatigue and Overload

You may not get other things done

Tips to make social media work for you



Turn off your notifications

Follow fun, positive people

https://abi-communication-lab.sydney.edu.au/courses/social-abi-lity

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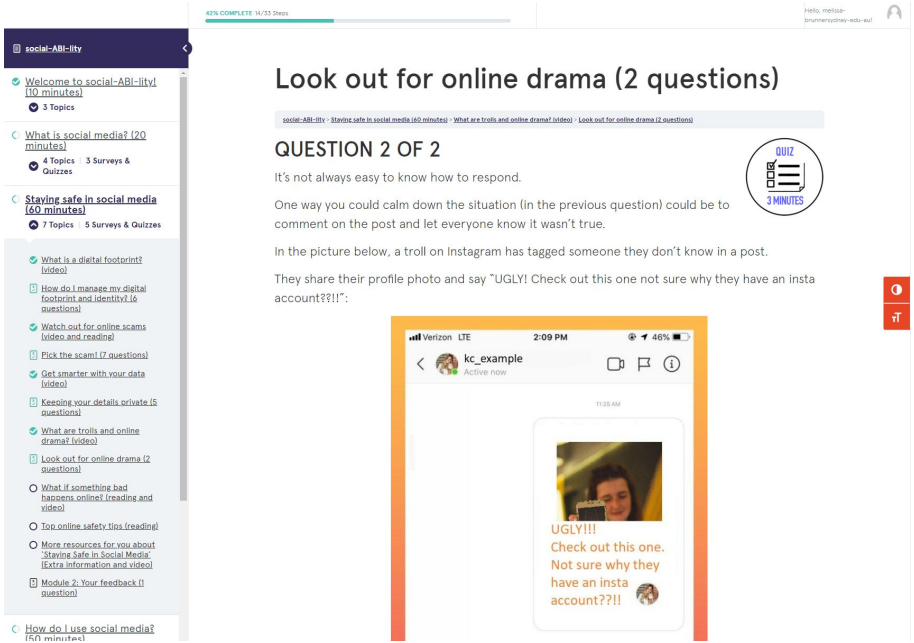

- Information
- Videos
- **Questions**
- Printable worksheet

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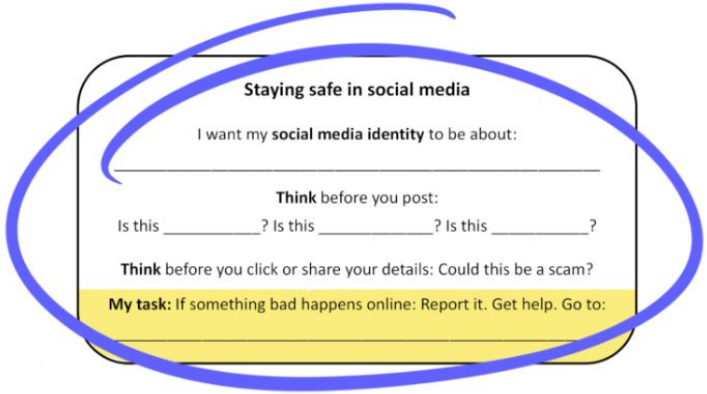
TASK: Write this website address down on your **WORKSHEET** in this section here:



Staying safe in social media

I want my **social media identity** to be about:

_____

Think before you post:

Is this _____? Is this _____? Is this _____?

Think before you click or share your details: Could this be a scam?

My task: If something bad happens online: Report it. Get help. Go to:

_____

(**Staying safe in social media section – My task:** If something bad happens online: Report it. Get help. Go to https://www.esafety.gov.au/report)

- Information
- Videos
- Questions
- **Printable worksheet**

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- Work at their own pace
- Save their progress
- Get a certificate at the end

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Pilot study of a multicomponent social media communication skills intervention

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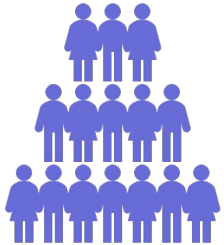
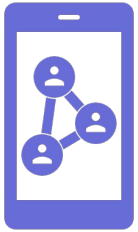


16 participants with ABI:
- 9 people in Group 1
- 7 people in Group 2

social-ABI-lity program
2-3 hours



social-ABI-lity+ Facebook group (BIA moderator)
12 weeks

The University of Sydney

https://doi.org/10.1111/1460-6984.12806

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12-week private Facebook group for practice

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- Conversation starters
- General discussion topics
- Tip sharing
- Polls
- Reminders
- Social media functions
- Social media safety

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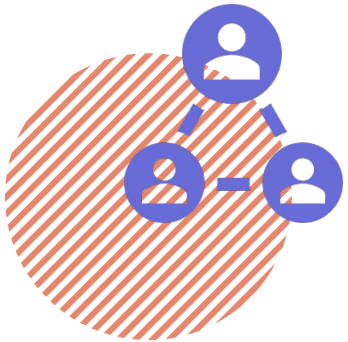

Facebook Group 1 – 7 participants

Facebook Group 2 – 9 participants

- Moderated by Sydney Uni and Brain Injury Australia

Data collection:

- social media knowledge, use, and enjoyment, and quality of life
- pre-intervention, post-intervention, & 3 months post-intervention

Brunner & Rietdijk et al. (2022)
https://doi.org/10.1111/1460-6984.12806

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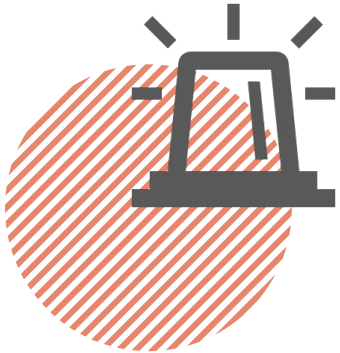
For the 16 participants in Groups 1 and 2:



9 people increased their knowledge of romance cyberscams

11 people gave more specific advice in response to cyberscams

https://doi.org/10.1111/1460-6984.12806

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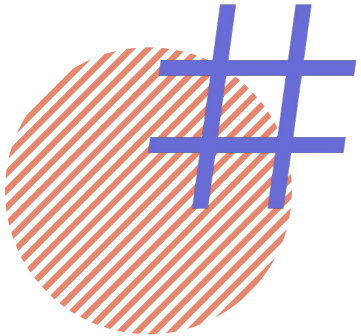
For the 16 participants in Groups 1 and 2:



5 people increased their knowledge of hashtags

7 people generated more hashtag suggestions

https://doi.org/10.1111/1460-6984.12806

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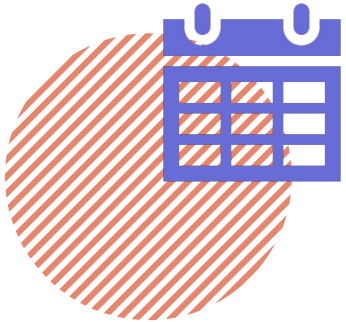
At their 3 month follow-up appointment:



15 people maintained their knowledge of cyberscams

13 people maintained their knowledge of hashtags

https://doi.org/10.1111/1460-6984.12806

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No change in how often Facebook was used

social-ABI-lity Group 1 social-ABI-lity Group 2

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Improved confidence (p = .002) and enjoyment (p = .013)

social-ABI-lity Group

social-ABI-lity Group 2

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"give it a go, 100 percent, give it a go"

social-ABI-lity Group 1social-ABI-lity Group 2

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Watch this space!

Facebook Group 3 – 9 participants

Peer moderated by 2 people with ABI

- Supported by Sydney Uni

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https://abi-communication-lab.sydney.edu.au/courses/social-abi-lity

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Building online resources for ABI rehabilitation

social•ABI•lity

#TwitterMind Doctoral Research → Scoping Review of Social Media Training → *social-ABI-lity* Self-directed Program → *social-ABI-lity+* Self-directed Program + Facebook Group → *SMART* social-ABI-lity Assessment Tool → *social-ABI-lity – clinician directed* Intervention Program → Future Possibilities…

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#TwitterMind Thesis Papers

Brunner, M., Hemsley, B., Palmer, S., Dann, S., & Togher, L. (2015). Review of the Literature on the Use of Social Media by People with Traumatic Brain Injury (TBI). Disability and Rehabilitation (Special Issue: Social Media and Communication), 37(17), 1511-1521.

Brunner, M., Hemsley, B., Togher, L., & Palmer, S. (2017). Technology and its role in rehabilitation for people with cognitive-communication disabilities following a Traumatic Brain Injury (TBI). Brain Injury, 31(8), 1028-1043.

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Brunner, M., Palmer, S., Togher, L., Dann, S., & Hemsley, B. (2019). Content analysis of tweets by people with Traumatic Brain Injury (TBI): Implications for rehabilitation and social media goals. Proceedings of the Hawai'i International Conference on System Sciences (HICSS-52), Honolulu Hawai'i, USA: University of Hawai'i at Manoa.

Brunner, M., Palmer, S., Togher, L., Dann, S., & Hemsley, B. (2020). "If I knew what I was doing on Twitter then I would use it more": Twitter experiences and networks of people with traumatic brain injury (TBI). Brain Impairment, 21(1), 1-18.

Brunner, M., Togher, L., Palmer, S., Dann, S., & Hemsley, B. (2019). Rehabilitation Professionals' Views on Social Media Use in Traumatic Brain Injury Rehabilitation: Gatekeepers to Participation. Disability and Rehabilitation (Published online 07 November 2019).

Brunner, M., Hemsley, B., Togher, L., Dann, S., & Palmer, S. (2021). Social Media and People with Traumatic Brain Injury: A Meta-Synthesis of Research Informing a Framework for Rehabilitation Clinical Practice, Policy, and Training. American Journal of Speech-Language Pathology, 30(1), 19-33.

Latest publications in this space (all #OpenAccess)

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