Inference in Conversation of Adults with Traumatic Brain Injury
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Introduction
Social communication problems are common among individuals with TBI (Togher, et al., 1999). impairments in social communication may be the biggest obstacle to an individual’s social reintegration after TBI (Milon, et al., 1994), as they may lead to unsuccessful social interactions, which in turn may lead to the disconnection of others to initiate or maintain social contact in all contexts (McDonald, et al., 2008). This study examined one factor that may contribute to social communication problems in individuals with TBI: inference comprehension. Inference is a necessary skill for social reintegration because in order to respond appropriately in any social context, people must have the ability to “read” social contexts accurately (McDonald, et al., 2008). Previous studies have supported the notion that individuals with TBI have impairments in inference comprehension (Bergemalm & Lyxell, 2005; McDonald, 1999; Moran & Gillon, 2005), but none have shown how inference comprehension of individuals with TBI may be affected in everyday conversations.

Inference was examined during 20 minute conversations by 7 communication dyads. Participants were adults with moderate-to-severe TBI who engaged in conversations with everyday partners. Inferences were categorized as automatic or elaborative, and as missed or understood.

Hypothesis
- Individuals with TBI will make more errors on elaborative inference than automatic inference in everyday conversations.
- Individuals without TBI will make fewer errors on elaborative inference in everyday conversations when compared to the individuals with TBI.

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Methods
- Identified implicature by conversation partner and participant’s response
  1) Transcript review without video
  2) Transcript re-review with video
  3) Categorized each inference as automatic vs. elaborative
  4) Determined if implicature was understood or missed

Types of Inference

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<tr>
<th>Automatic</th>
<th>Elaborative</th>
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<tr>
<td>Quick &amp; easily available</td>
<td>Controlled, strategic</td>
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<tr>
<td>Require relatively few processing resources</td>
<td>Require more processing resources</td>
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<tr>
<td>General knowledge; anaphoric reference</td>
<td>Shared experience</td>
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Example: “Close the door.”

Materials
- 2 sets of 20-minute conversations between adults with and without TBI and an adult who each participant nominated as his or her most frequent communication partner
- Conversations elicited by topic-starter task
- Transcripts recorded without video

Results
- Dependent variable was calibrated for opportunities:
  1) Full-20-minute segment
  2) First-29 inference opportunities: based on dyad with smallest inference opportunity

Inter-rater reliability >80% for 3 measures:
- # of missed inferences
- # of implicatures by partner
- # of missed inferences vs. automatic inference (vs. elaborative)

Examples of Inference-related items:
- 19) Keep track of the main details of conversations
- 27) Answer without taking time to think about what the other person said

Discussion
How are inference comprehension deficits perceived by conversation partners?
1) Changing topic abruptly
2) Inattention
3) Inappropriate content

What effect do conversation partners have on inference comprehension?
1) Shared knowledge
2) Experience/practice
3) Conversational needs of individual

What contexts are identified as concerning by communication partners?
1) Group settings
2) New acquaintances
3) Work
4) School

Do people who know each other well infer more than people who do not? (Stinson & Ickes, 1992; Colvin, Vogt, & Ickes, 1997).

Summary
- Individuals with TBI missed a significant number of elaborative inferences in conversations with their most frequent communication partner. As research shows that people who know each other well infer more than people who do not, individuals with TBI are at risk for being perceived as socially inept with both unfamiliar and familiar communication partners in a variety of contexts.

References