Emotion Recognition and Traumatic Brain Injury

Abstract (100 Words)
Emotion recognition through facial expression plays a critical role in communication. Review of studies investigating individuals with TBI and emotion recognition indicates significantly poorer performance compared to controls. The purpose of the study was to determine the effects of different media presentation on emotion recognition in individuals with TBI, and if results differ depending on severity of TBI. Adults with and without TBI participated in the study and were assessed using the TASIT and the FEEST. Preliminary results indicate that emotion recognition abilities greatly differ between mild and severe and participants performed better with static presentation compared to dynamic presentation.

Proposal (1200 Words)

It is well documented in the literature that individuals who suffer from TBI present with deficits with emotion recognition that can significantly impact social functioning; however questions still remain regarding the nature of the deficit and how it relates to TBI as a spectrum of severity. The growing body of literature that offers insights to emotion recognition in TBI included only participants who have sustained severe TBI (Watts & Douglas, 2006; Croker & McDonald, 2005; Bornhofen & McDonald, 2008; Knox & Douglas, 2009). Individuals who suffer from TBI have a vast range of severities and repercussions, and the mild to moderate TBI range repeatedly remain unrecognized when discussing these deficits. Although the deficits may not be as easily identifiable as in individuals with severe TBI, the impact remains the same. For example, an individual with a mild TBI may have the capacity to attend college, but is unable to decipher a simple inference from a professor. By identifying deficits associated with the severity of TBI sustained, researchers, speech-language pathologists, and neuropsychologists will have a better understanding of their cognitive abilities for both future research and therapeutic intervention.

A popular aim in current TBI research, regarding emotion recognition and interpretation of facial cues, is determining the most sensitive method of assessment. Many researchers have used static assessments (i.e. photographs) to limit helpful contextual cues and focus on facial features alone (Calder et al., 2000; Calder et al., 1996; Hornak et al., 1996; Parry et al., 1991; Sprengelmeyer et al., 1996); however, the functionality of a static measure is limited. Participants are able to focus on facial features, but generalization to everyday social situations is not represented. In addition, studies focusing on media presentation revealed mixed results as to whether a dynamic display (i.e. video vignettes) was facilitative or added an increased level of difficulty (Knox & Douglas, 2009; McDonald & Saunders, 2005; Williams & Wood, 2009). In order to better understand social functioning for individuals with TBI and plan for possible intervention strategies, assessments should be administered in a method that is more representative of daily experiences.

The purpose of this study is to build on the previous research investigating emotion recognition and the ability to interpret nonverbal facial cues. Additionally, this study will examine a range of severities from mild to severe. The aims of the study are as follows: (1) To determine if emotion recognition ability using nonverbal cues only differs depending on severity of TBI, and (2) To determine if participants with TBI differ on emotion recognition tasks that include contextual cues (i.e. dynamic) compared to emotion recognition tasks that include only nonverbal cues (i.e. static).

METHOD

To date 22 adults with TBI have completed the study protocol. Inclusion criteria were as follows: (1) proficient in English; (2) at least one month post onset of the head injury; and (3) sufficient hearing and visual acuity as indicated by passing hearing and vision screenings. Severity of the brain injury was determined by the Glasgow Coma Scale score (GCS; Jennett & Teasdale, 1981) and/or duration of post traumatic amnesia (PTA) obtained from medical chart review.

Study participants completed a battery of assessments to measure their emotion recognition abilities. They included *The Awareness of Social Inference Test* (TASIT; McDonald et al., 2002) and *Facial Expressions of Emotion-Stimuli and Tests (FEEST): The Ekman 60 Faces Test* (E-60-FT; Young, et al., 2002). Additionally, study participants were administered the *La Trobe Communication Questionnaire* (LCQ; Douglas et al., 2000) to determine perceived communication competence.

The data were statistical analyzed using raw scores from the experimental measures. The TASIT: EET yielded a total possible score of 28 which included 4 examples of each emotion represented; happy, surprised, sad, angry, anxious, disgusted, and neutral. The FEEST:E-60-FT had a total possible score of 60 which included 10 examples of each emotion represented; happy, surprised, sad, angry, disgust, and fear. The TASIT served as the static emotional recognition task and the FEEST served as the dynamic emotional recognition task.

RESULTS and DISCUSSION

To determine if emotion recognition ability using nonverbal cues differed depending on severity of TBI, Mann-Whitney U tests were performed. Preliminary results indicated that the mild TBI participants performed significantly better on the TASIT ($p = .013$) and FEEST ($p = .025$) compared to the severe TBI participants. A paired sample t-test was performed to determine if the TBI participants differed across the emotion recognition tasks (TASIT, FEEST). Preliminary results indicated that participants performed significantly better on the FEEST compared to the TASIT, $t(21) = 2.56$, $p = .018$. These findings indicate that severity level greatly impacts emotion recognition abilities. Further, static media presentation was more facilitative for interpreting emotions compared to the dynamic media presentation. Clinical implications of the results will be discussed.

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