Neuropsychology Cognitive Research Lab

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Attitudes Towards ABI:

Gaining insight into the factors contributing to prejudice towards the ABI community

Ontario Neurotrauma Foundation
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Ontario Brain Injury Association

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Background

Any minority group is susceptible to prejudice (the endorsement of negative stereotypes and generation of negative emotional attitudes) simply because they are different.[1] The Acquired Brain Injury (ABI) community is no exception to this form of social judgement; poor understanding of the effects of ABI has already been shown to facilitate prejudice in this population.[2] It is imperative to correct negative attitudes as prejudice has the capacity to hinder the quality of necessary social and medical support during rehabilitation and acts as a barrier to community reintegration.[3] Therefore, the purpose of this study was to examine four variables that may be contributing to the formation of negative attitudes towards those with ABI.

Variable I: Injury Responsibility (Responsible vs. Not Responsible)
People make attributions about the cause and controllability of a person's injury that lead to implications of responsibility. These, in turn, lead to emotional reactions such as anger or pity according to the Attribution Model of Public Discrimination.[4]

Those who believe in a just world are more apt to demonstrate prejudice against those who were actively responsible for their injury since they believe that bad things only happen to "bad people".[3]

Variable II: Behaviour Presentation (Socially Disruptive vs. Not Disruptive)
Frontal lobe injury sequelae typically includes socially disruptive behaviour that can lead to difficulties in social reintegration due to attributing these behaviours to the agent's inappropriate social grace and personal characteristics rather than towards a "silent" physical injury.

Injury sequelae (i.e., posterior) that have more visible and evident physical characteristics are more synonymous with the public's idea of "disability" and will elicit less prejudice due to attributing the behaviour to the injury.

Variable III: Mild Head Injury Status (MHI vs. No-MHI)
Previous literature shows that the prefrontal cortex (especially the ventromedial prefrontal cortex (VMPFC) may be particularly vulnerable to damage, even in MHI.[5] The VMPFC acts as a bridge between the dorsolateral prefrontal cortex (problem solving) and subcortical emotional centers (e.g., the amygdala) to regulate emotion and add emotional context to decision making in the form of SNS physiological arousal or "gut feelings" (e.g., Somatic Marker Hypothesis[5]). Injury to this region results in a disconnect between emotion and rational decision making that may have implications for the process of forming negative attitudes.

Variable IV: Mood State/Arousal (Arousal via Positive & Negative Stimuli vs. Control)
Mood state can influence one's perspective in terms of highlighting the salience of certain information. Therefore, judgement of individuals with ABI may be state-dependent (a positive mood may highlight positive information; negative mood may promote a preference for/bias towards negative information).

As per the Yerkes-Dodson law, particularly low or high levels of arousal cause cognitive performance to decline. The most optimal level of cognitive performance occurs at a medium level of arousal. Therefore, change in arousal, independent of valence, may be mediating prejudice.

Moreover, previous literature demonstrates that those who have sustained a MHI are typically physiologically underaroused in comparison to their no-MHI cohort (e.g., Underarousal Hypothesis[6]). Therefore, decision making and social attitudes may be particularly at risk in individuals reporting a MHI. In fact, arousal may be mediating the use of somatic markers in making socially conscious decisions and underarousal may be providing an added detriment to the integration of emotion and decision making.

Hypotheses

Hypothesis I: Those who are responsible for their injury will be judged more negatively.

Hypothesis II: Those who demonstrate socially disruptive behaviour (frontal lobe injury) will be judged more negatively.

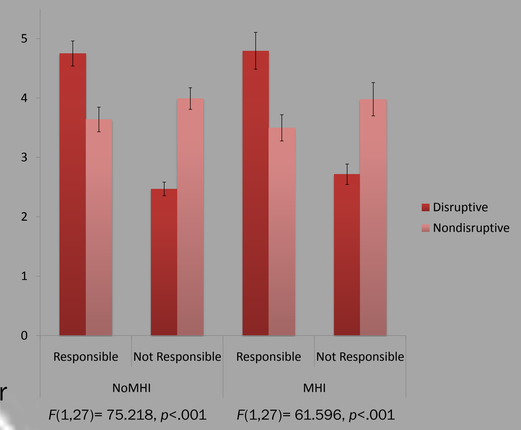
Hypothesis III: An increase in arousal (via positive or negative stimuli) will decrease negative attitudes.

Hypothesis IV: Persons with a MHI will benefit more from an increase in arousal as their negative attitudes will demonstrate a greater decrease than their no-MHI cohorts. These decreased attitudes may reflect no-MHI attitudes at baseline.

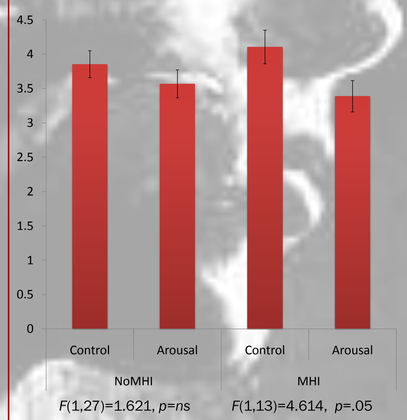
Results

Hypothesis I: Participants (with or without MHI) rated characters depicting responsibility for their injury more negatively than those who were helpless victims.*

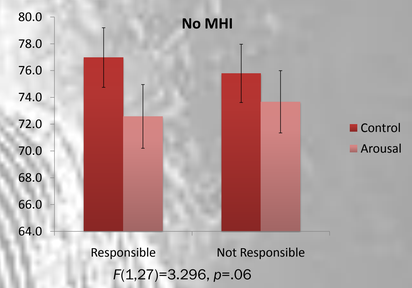
Main effect of Responsibility:
MHI: F(1,27)=11.451, *p*=.005
No MHI: F(1,27)=47.684, *p*<.001

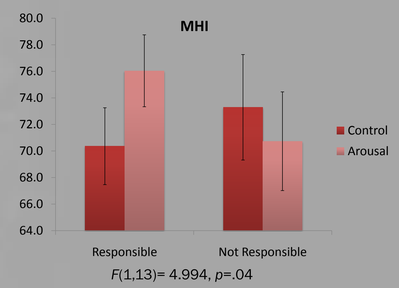


Hypothesis II: The interaction between injury responsibility and presentation of behaviour shows a tendency to rate characters more negatively as a function of socially disruptive behaviour.*



Hypotheses III&IV: Participants (with MHI) who experienced an increase in arousal (via music) rated characters less negatively than those who did not experience an increase in arousal (pink noise).*
Moreover, persons with a MHI show the expected pattern of negative attitudes decreasing more between the control and arousal conditions when compared to their no-MHI cohorts.*





Heart rates vary as a function of arousal (emotion laden music). Participants with MHI showed an increase in arousal when judging characters who were responsible for their actions. No MHI subjects showed the opposite pattern.**

*operationally defined by social judgement score (Likert Scale: 1-Positive, 5-Neutral, 9-Negative)
**operationally defined by measures in pulse frequency

Methods

Participants
Brock University Students (N=45)
•33% (n=15) reported sustaining at least one MHI (7-Male, 8-Female)
•67% (n=30) reported never sustaining a MHI (5-Male, 25-Female)

Methods and Procedure
Participants' physiological arousal levels were continuously measured (HR, EDA) using polygraph equipment (Polygraph Professional). Arousal was manipulated via the induction of negatively or positively charged music (or pink noise for control). Four vignettes depicting a characters' responsibility and presentation of behaviour were read, followed by taking a measure of social judgement (19-item questionnaire of social attitudes). Lastly, a demographics questionnaire asked various questions regarding individual differences including whether or not the individual had a previous experience of an alteration in consciousness after sustaining an injury to the head (MHI).

Discussion

As expected, a person responsible for causing the injuries associated with their ABI is judged more negatively and with greater prejudice. The effect of responsibility on attitude towards persons with ABI are the same as that found with other 'outgroups'[3,4]; those who are actively responsible for their injury are often perceived less favourable and as people who are receiving their "just" karma.

Importantly, social context and style of interaction associated with the type of injury sustained also negatively impacts the perception of people who have an ABI, despite the fact that this is beyond the person's control and is a result of the neural injury. Individuals who demonstrate socially abrupt behaviour as the result of a frontal lobe injury are at a greater risk of prejudice than those who have other cognitive or physical disabilities. This effect of presentation of behaviour on attitude is consistent with the barrier effect socially disruptive behaviour can have on acceptance and reintegration.

Interestingly, the physiological status of the individual impacts social attitudes and interpretation such that an increase in arousal may decrease the negative attitudes perhaps through increased attention and alertness. This is compatible with the Yerkes-Dodson law that predicts, when underaroused, cognitive performance suffers. Improved attention to the social context and message of the vignettes, in turn, may allow for more appropriate judgements. The implied increased benefit in arousal, particularly for those with lower baseline arousal (i.e., MHI, ABI), indicates that arousal may be mediating the use of somatic markers (i.e., visceral cues) in decision making and choices.[5]

Conclusion

In summary, prejudice and negative attitudes are greater if the agent is responsible for the cause of their injury and/or exhibits socially disruptive behaviour. Moreover, the judge is more likely to endorse prejudice and negative attitudes if they are less aroused. This may place persons with MHI, or ABI in general, at a particular disadvantage in that they may be more judgemental of persons with injuries similar to their own than others. These findings also indicate a possible means by which to influence prejudice in a broader social context. Perhaps manipulating arousal can be applied to real world settings such that increasing arousal may reduce social barriers that minorities typically face. Fortunately, the potential for both valences to decrease negative attitudes indicates that manipulation in arousal may be achieved by positive stimuli (rather than typical arousal manipulation via negative or unpleasant stimuli). Moreover, having an understanding of the sources of prejudice that apply to 'invisible' (i.e., not physical) injuries will assist in targeting and ameliorating difficulties in social reintegration particularly for those who have sustained an ABI.

References

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