Socio-emotional Processing in Fragile X Syndrome

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Thesis Abstract

Fragile X syndrome (FXS) is a neurodevelopmental disorder, which is characterised by significant social impairments including: social anxiety and withdrawal, gaze aversion, reduced interaction with peers, as well as schizotypal personality and autistic features. The overarching aim of this thesis was to investigate the socio-emotional processing skills of individuals with FXS. More specifically, through a series of studies, this thesis aimed to provide a more detailed investigation of the cognitive, behavioural and psychophysiological aspects of socio-emotional processing in FXS individuals.

Using a broad cross-syndrome approach, Paper One compared the visual attentional functions that underpin how individuals with FXS process social information, to those with Williams syndrome (WS). Results revealed interesting dissociations between these two disorders, as well as between these clinical populations and chronological age (CA-) matched and mental age (MA-) matched controls. Papers Two and Three explored the explicit emotion recognition abilities of FXS individuals, while also investigating different aspects of implicit emotion recognition. In more detail, Paper Two explored how FXS individuals visually scanned emotional facial expressions, while Paper Three investigated whether autonomic hyperarousal was generalised or social-specific in a group of FXS females. Both papers revealed significant explicit emotion recognition difficulties in the FXS individuals compared to both CA- and MA-matched controls; however, the FXS individuals' visual scanning and autonomic arousal levels were similar to those of the MA-matched controls. Paper Four, the final empirical paper of this thesis, focused on higher-order socio-emotional evaluative processing, namely, whether FXS individuals display abnormal social approach judgements. Results revealed that when emotion recognition deficits were taken into consideration, the FXS individuals continued to display abnormal social judgements, consistent with the behavioural social aversion that is characteristic of FXS; and seen more generally in social anxiety.

The current thesis contributed to the literature on socio-emotional processing skills in FXS by providing empirical evidence of explicit emotion recognition deficits, which in the past has

been refuted. Importantly, it was determined that the observed emotion recognition deficits within the FXS group were apparent despite visual scanning of, and arousal from, emotional facial expressions being at developmentally equivalent levels. However, even after emotion recognition deficits were taken into consideration, FXS individuals were observed to make abnormal social judgements consistent with the social aversion reported behaviourally in the disorder. The current findings suggest that there is a complexity surrounding the socio-emotional processing in FXS that requires further research.

Statement

I certify that the work in this thesis entitled "Socio-emotional processing in Fragile X syndrome" has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University. I also certify that this thesis is my original work and all sources of information or assistance received have been appropriately acknowledged.

The research presented in this thesis was approved by Macquarie University Ethics Review Committee (HE23NOV2007-D05550/5200700547) and the Hunter New England Human Research Ethics Committee (08/11/19/5.03).

Signed: Date: / /

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Author Notes

The referencing styles used in the empirical manuscripts included in this thesis conform to the journals to which they have been submitted. However, for the purpose of consistency, formatting across this thesis, and referencing in Chapters 1, 2 and 7 reflect APA 6th Edition.

Due to the small sample sizes and associated reduced power, all multiple comparisons in this thesis are interpreted with an alpha level of 0.05. This approach is adopted to minimize the possibility of Type II error, in line with Rothman (1990). Exact *p*-values are reported for consideration by the reader.

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