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# **Shadows of Emotion:**

Emotional processing deficits in Parkinson's disease  
and their impact on social relationships.

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the degree of Doctor of Philosophy in Psychology.  
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## **Abstract**

Evidence suggests individuals with Parkinson's disease (PD) may be impaired at production and recognition of affective prosody and facial expressions of emotion. When united with social psychology's assertion that nonverbal cues, including facial expressions and voice tone, facilitate effective communication within social relationships, it suggests that these impairments impact negatively on quality of life for individuals with PD. This thesis aimed to investigate emotional processing deficits in PD, systematically, and their possible affect on social relationships. Thirty PD and 30 closely-matched control participants participated in three studies. Study 1 found that raters were less able to recognise emotional expressions from facial expressions and affective prosody in the PD group than the Control group. Study 2, using the Aprosodia Battery (Ross et al., 1997), found PD participants were impaired at recognition of affective prosody. A novel task was developed to assess recognition of facial expressions, comprising prototypical facial expressions and more subtle facial expressions. The PD group was impaired at recognition of subtle facial expressions but not prototypical facial expressions. Positive associations were found between performance on some recognition and production tasks in the PD group, providing support for an overall impairment in emotional processing in PD. When the PD group was subdivided based on side of symptom-onset, the group who developed right-sided symptoms first were more impaired compared to the Control group, than those who had left-sided onset of symptoms, suggesting a possible left-hemispheric lateralisation of emotional processing. Study 3, using a semi-structured interview, found that individuals with PD were less satisfied with their relationships with close others and acquaintances than the Control group, and that this was associated with how well the PD participants felt that others understood their facial expressions and affective prosody. Findings support the contribution of the basal ganglia to emotional processing, possibly as part of the thalamo-cortical loops, specifically, the skeleto-motor circuit, the lateral orbito-frontal circuit and the anterior cingulate circuit.

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