



Department of Psychology
The University of Hong Kong

香港大學心理學系

Brown Bag Lunchtime Seminar (Via Zoom)
(Theme: Cognition and Neuroscience)

Examining Emotion-related Perceptual Decision Making in Internalising Psychopathology

12:30 p.m. – 1:30 p.m. | October 13, 2023 (Friday)



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Abstract

Background. Cognitive theories of internalising psychopathology (IP), such as anxiety and depressive disorders, highlight the role of biases. IP has been linked to a bias towards negativity and away from positivity, however, poor operationalisation and inadequate quantification of these biases have plagued theory advancement and treatment facilitation. In the current talk, I will present findings from three studies which systematically examined emotion-related perceptual decision making, highlighting potential maladaptation in IP. The perception of fearful stimuli has been of focal research interest, given their emotional saliency. The classical hypothesis postulates a fast access of threatening information via a bottom-up, subcortical ‘low road’ to the amygdala, facilitated by low spatial frequency (LSF) signals. However, this facilitation effect has not yet been reliably translated into behavioural findings. Also, in line with the predictive processing framework, threat information is susceptible to top-down influences, such as endogenously guided attention. It has remained elusive how threat perception is influenced by emotion-guided attention and the extent to which IP modulates this influence. Furthermore, in daily life, emotional information processing demands the deliberate sampling of multiple evidence pieces. Yet, our understanding of cognitive biases in IP is heavily reliant on research in a single-element context. Consequently, a gap between ecologically valid conceptualisations of cognitive biases, incorporating multi-evidence and deliberate information processing, and research attempts to investigate these processes has emerged.

Methods. We first established a novel paradigm which allowed examination of both bottom-up stimulus features and top-down attention-guided components (Study 1, N = 168). Next, we applied the introduced and tested paradigm among a clinical (IP) and healthy control (HC) sample (Study 2, N = 137). Study 3 addressed a different type of emotion-related perceptual decision making. We investigated potential differences among IP and HC under exposure to myriad pieces of emotional evidence (Study 3, N = 122). Here, we employed a multi-element paradigm under exposure to face crowds. In addition to behavioural data, we used computational modelling (Hierarchical Drift Diffusion Model, HDDM) and eye-movement pattern approaches to consolidate our findings.

Results. Our findings revealed that LSF signals were not superior in facilitating behavioural performance for threat detection, but individuals relied on high spatial frequency (HSF) instead. Furthermore, we found no between-group differences for IP compared to HC revealed by both behavioural and computational measures. For multi-element contexts, individuals with IP judged facial crowds to be more threatening than the HC group did.

Conclusions. Individuals with IP may not show biases in negative stimuli perception when their attention is already directed towards the incoming signal in single-element contexts. Our findings suggest a biased evidence-weighting process for IP in multi-element contexts, indicated by an initial orientation towards threat, followed by relative threat avoidance approach. Overall, the current talk provides important implications for theorisations of cognitive processing of threat in the general population, and cognitive bias models among clinical populations, and highlights future avenues to treatment facilitation.

About the speaker

Friederike is a final-year MPhil (Cognitive Psychology / Neuroscience). She earned a BSc in Management and a BSc in Psychology and Psychotherapy at Witten/Herdecke University, Germany, and read Psychological and Behavioural Sciences as a visiting student at the University of Cambridge, United Kingdom. After graduating, she joined the Psychopathology, Affective Neuroscience & Decision Making Laboratory (PANDM Lab) at HKU, trading the marshlands of Northern Germany for the concrete jungle of Hong Kong. She is also a scholar of the Studienstiftung des deutschen Volkes (German Academic Scholarship Foundation).

Zoom

<https://hku.zoom.us/j/3951550048?pwd=SncvL3RYakEycUtpL29vdDJEEdlEwdz09>

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