

# Reward- Punishment Processing Deficits in Schizotypy with Callous Unemotional Traits

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**Submitter** Bess Yin-Hung Lam

**Affiliation** Department of Rehabilitation Sciences, Hong Kong Polytechnic University

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**Please list all co-authors for this poster submission.**

\* Presenting Author

First Name	Last Name	Affiliation
Bess Yin-Hung *	Lam *	Department of Rehabilitation Sciences, Hong Kong Polytechnic University
Shu-Mei	Wang	Department of Rehabilitation Sciences, Hong Kong Polytechnic University
K.S.	Lei	Department of Rehabilitation Sciences, Hong Kong Polytechnic University

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**Background** Schizotypy (individuals with schizotypal personality traits) are found to be at risk for later development of schizophrenia- spectrum disorders. In prior studies, the patients with these disorders are associated with social cognitive dysfunctions such as reward- punishment processing. These social cognitive deficits incur familial and financial burden in the society. However, whether these deficits are also associated with schizotypy is not studied. Therefore, this study aims to investigate the reward-punishment processing ability in schizotypy. By studying this group of non-clinical individuals, we can gain a better understanding of the etiology of schizophrenia- spectrum disorders which can further help design the intervention to reduce schizophrenia- related symptoms and social cognitive deficits in the community.

**Methods** A total of 474 participants were recruited with the following exclusion criteria: 1) not

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diagnosed with an Axis I psychotic diagnosis according to the Diagnostic and Statistical Manual of Mental Disorders, 5th edition; 2) without a history or the current presence of neurological diseases; and 3) with no medical diseases. A subsample of 65 participants (41 males and 25 females; mean age (SD)= 20.4 years (4.7)) was randomly selected to participate in this study. Monetary Incentive Delay task (MID) was used to assess the reward-punishment processing ability in the participants and schizotypal personality traits were assessed by three self-reported measures including Prodromal Questionnaire (CPQ-16), Community Assessment of Psychic Experiences (CAPE-C15) and Schizotypal Personality Questionnaire-Brief (SPQ-B). In addition, Antisocial Process Screening Device (APSD) was administered to assess psychopathic traits including callous-unemotional traits, narcissism, and impulsivity. Based on the ratings of these three schizotypy scales, participants were categorized into two groups: 1) schizotypy (high ratings) and 2) controls (low ratings).

**Results** Multiple regression analysis was performed to test the hypothesis of this study. The results showed that the levels of schizotypy ( $p= 0.06$ ) and the interaction effect (levels of schizotypy x callous unemotional traits) significantly predicted the accuracy of performance in MID ( $p= 0.03$ ). Specifically, the schizotypy group performed less accurately in the MID task when compared to the controls. In schizotypy, callous unemotional traits were negatively associated with the accuracy in the MID performance ( $r= -0.51$ ,  $p< 0.05$ ) while this association was not significant in the controls ( $p> 0.05$ ).

**Discussion** The present findings suggest that reward-punishment processing ability is impaired in schizotypy who are at risk for later development of schizophrenia- spectrum disorders. In particular, these deficits are exacerbated by increased level of callous unemotional traits in schizotypy. With the basis of the present findings, the intervention for schizophrenia- related symptoms and social cognitive deficits is suggested to incorporate the component to enhance callous unemotional traits in these individuals.

## Keyword

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## DISCLOSURE

Financial Relationships

**Disclosure** No, I have nothing to disclose.

**Employee Disclosures** No

**Signature** Bess Yin-Hung Lam