When participants observed a rubber hand being touched, their sense of touch was activated (rubber hand illusion). While this illusion might be caused by multi-modal integration, it may also be related to empathic function, which enables us to simulate the observed input. We examined individual differences in the RHI, including empathic and schizotypal personality traits, as previous research had suggested that schizophrenic patients would be more subject to the RHI. The results indicated that people who experience a stronger RHI might have stronger empathic and schizotypal personalities simultaneously. We discussed these relationships in terms of self-other representations.

**Individual differences in Rubber Hand Illusion**

- Total 72 university students participated in the experiment and questionnaire survey.
- The questionnaire battery included RHI questionnaire, and the schizotypal personality (SPQB) and empathic personality (IRI).

**Who are susceptible to RHI?**

- Participants were divided into 2 groups (RHI-low or RHI-high) according to their RHI index (drift+questionnaire).
- As a result, RHI-high group had enhanced schizotypal and empathic personality simultaneously.

**Results and Discussion**

- RHI index:
  - Proprioceptive drift
  - RHI questionnaire

**Pre-test judgment**

They indicated where it felt like the tip of their middle finger was located by reporting the corresponding number along a ruler.

**Visuo-tactile induction phase**

A 120-s induction phase began in which both the rubber hand and the participant’s hand were brushed with two identical paintbrushes. Brush strokes were made at approximately 1 Hz.

**Post-test judgment**

A post-test proprioceptive location judgment was made in the same manner as the pre-test. Following this proprioceptive judgment, the RHI questionnaire was administered.

**Rubber hand illusion?**

Watching a rubber hand being stroked synchronously with one’s own unseen hand for a short time causes the observer to attribute the rubber hand to one’s own body, to “feel like it’s my hand” (rubber hand illusion: RHI). The observation activated their own sense of touch (Botvinick & Cohen, 1998; Tsakiris & Haggard, 2005).

**Empathic personality?**

Empathic personality might be related to simulate other’s sensation as one’s own. Some previous studies suggested that RHI might be caused by a kind of empathy, but no direct evidence yet (Durgin et al., 2007).

**Supplementary data**

**Schizotypal experiences in terms of self-other representations**

**Rubber hand illusion, empathy, and schizotypal experiences in terms of self-other representations**

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**Backgrounds**

People with schizotypal traits, identified by questionnaires or semi-structured interviews, might have a predisposition to schizophrenia. Although people with schizotypal traits might experience schizophrenic-like experiences, many live normal lives. Schizophrenic patients may experience a stronger RHI (Peled et al., 2000).

**Empathic personality?**

Empathic personality might be related to simulate other’s sensation as one’s own. Some previous studies suggested that RHI might be caused by a kind of empathy, but no direct evidence yet (Durgin et al., 2007).

**The current study**

The purpose of the present study was to examine a potential individual differences in Rubber Hand Illusion, focusing on the schizotypal and empathic personalities that are both related to self-other representations in our brain.