THEORY OF MIND AND REASONING BIAS IN SCHIZOTYPY

MONESTES, J. L.[1], VILLATTE, M.[2], YON, V.[1], & LOAS, G.[1]
[1] Hôpital Philippe Pinel, Amiens, France. CNRS 8160- Laboratoire de Neurosciences Fonctionnelles et Pathologies
[2] Université de Picardie Jules Verne, Amiens

✓ OBJECTIVES : To compare performances at jump to conclusions and theory of mind exercises in schizotypal and control participants

The concept of **schizotypy** (Meehl, 1962) has been proposed to refer to individuals with an **underlying vulnerability to schizophrenia** including **interpersonal aversiveness**, anhedonia, ambivalence and cognitive slippage. A "**jump to conclusions**" (JTC) tendency has been observed in schizotypy (Sellen et al., 2005), as in schizophrenia (Garety et al., 1991).
Theory of Mind (ToM) is the « *ability to explain the behavior of others in terms of their mental states* » (Corcoran et al., 1995; Premack and Woodruff, 1978). Difficulties in ToM have been frequently observed in schizophrenia (Brüne, 2005, for a review) and schizotypy (Pickup, 2006).

We studied JTC and ToM in subjects with high social anhedonia, one of the main characteristics of schizotypy, and the relationships between both. Our hypothesis is that participants with ToM difficulties would have a tendency to jump to conclusions .

✓ METHOD

PARTICIPANTS:

25 subjects with high score (>17 for females and >19 for males) on **Social Anhedonia Scale** (SAS - Chapman et al., 1976).

20 control subjects with modal score on SAS (score = 7) without any psychiatric history

Jump to conclusion TASK

We use the « **jar and beads** » task, a probabilstic task of choice (Garety et al., 1991), with a **85/15 ratio**. The results are the number of beads asked by each subject.

ToM TASK

This task is adapted from Corcoran et al. (1995). It consists in **20 short stories involving two caracters in interaction**. Subjects have to **infer real intentions** behind indirect speech utterances.

☞ For example:

John is on the phone with a friend since one hour. He says to his friend

« My mother ought to call me in a few minutes »

What does John mean when he says this ?

Total score range from 0 to 60 (3 points max for each story)

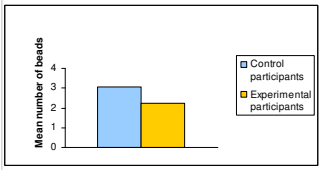
✓ RESULTS

Mean comparison JTC

Mean number of beads asked before decision:

Control participants 3.05 (Sd:1.30)
Experimental participants 2.22 (Sd:1.29)

t= 2.13; p<0.05

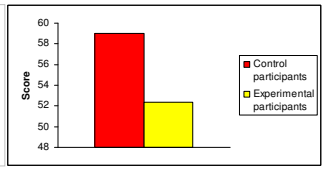


Mean comparison ToM

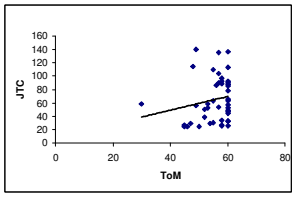
Score at ToM task (max=60)

Control participants 59.05 (Sd:1.60)
Experimental participants 52.36 (Sd:6.73)

t= 4.33; p<0.0001



Correlation JTC-ToM



Linear regression equation

$y = 1.0333 x + 7.6712$
$R^2 = 0.0347$

Weak correlation between ToM and JTC

✓ CONCLUSIONS

✓ **Difficulties in ToM** are observed in our group of participants scoring **high on social anhedonia scale**, according to results with schizotypal participants (Pickup, 2006).

✓ **Schizotypal** participants **need less beads than control** participants before making a decision in the conditional decision task

✓ There is **no correlation between performances at JTC and ToM**. The absence of correlation may be attributed to a discrepancy between experimental and ecological contexts for conditional reasoning. We need to **create a more ecological task for JTC**.

➢ It seems interesting to **train ToM abilities in schizotypy and schizophrenia**, as tested by Kayser et al. (2006) and Silver et al. (2004). Taking account of jump to conclusion tendency in this rehabilitation process may be very interesting. This might be done by **teach to slow down while training to infer mental states in others.**

KEYWORDS: Schizophrenia - Schizotypy – Theory of Mind – Conditional reasoning

REFERENCES

Brüne, M. (2005). "Theory of mind" in schizophrenia: a review of the literature. *Schizophrenia Bulletin, 31*, 21-42.

Chapman, L.J, Chapman, J.P., & Raulin, M.L. (1976). Scales for physical and social anhedonia. *Journal of Abnormal Psychology, 85*, 374-82.

Corcoran, R., Mercer, G., Frith, C.D. (1995). Schizophrenia, symptomatology and social inference: investigating "theory of mind" in people with schizophrenia. *Schizophrenia Research, 17*, 5-13.

Garety, P.A., Hemsley, D.R., & Wessely, S. (1991). Reasoning in deluded schizophrenic and paranoid patients. Biases in performance on a probabilistic inference task. *Journal of Nervous and Mental Disease, 179*, 194–201.

Kayser N, Sarfati Y, Besche C, Hardy-Bayle MC. Elaboration of a rehabilitation method based on a pathogenetic hypothesis of "theory of mind" impairment in schizophrenia. *Neuropsychological Rehabilitation, 16*, 83-95.

Meehl, P.E. (1962). Schizotaxia, schizotypy, schizophrenia. *American Psychologist, 17*, 827-838.

Pickup, G. J. (2006). Theory of mind and its relation to schizotypy. *Cognitive neuropsychiatry, 11*, 177-92.

Premack, D., & Woodruff, G. (1978) Does the chimpanzee have a theory of mind? *Behavioral and Brain Sciences, 4*, 515-526.

Sellen, J.L., Oaksford M, & Gray NS. (2005). Schizotypy and conditional reasoning. *Schizophrenia Bulletin, 31*, 105-116.

Silver, H., Goodmana, C., Knolla, G., & Isakova, V. (2004). Brief emotion training improves recognition of facial emotions in chronic schizophrenia. A pilot study. *Psychiatry Research, 128*, 147-154.

CONTACT

JL MONESTES
Service Universitaire de Psychiatrie
Neurosciences Fonctionnelles & Pathologies
CNRS 8160
Centre Hospitalier Ph. Pinel
Route de Paris -DURY
80044 AMIENS CEDEX 1
FRANCE

jlmonestes@yahoo.fr