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Evidences of a “protection” of Social-cognition Abilities Against the Effect of Subclinical Psychotic Symptoms in General Population: Thymic Symptoms and Theory of Mind

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INTRODUCTION

The relationship between “Theory of Mind” (ToM) or more generally, social cognition and psychotic symptoms is largely supported by the actual literature. What is less known is the relationship between mood symptoms and ToM.

Some studies found that bipolar disorder patients as well as depressed remitted patients have worse performances on ToM tasks than healthy subjects. This would explain the poor social abilities of depressive patients and constitute a risk factor of relapse for patients (Inoue, 2006).

One of the actual trends in psychiatric studies is to explore symptoms as latent dimensions, present, in variable proportions, in everybody (Ford et al. 2014). Some psychotic symptoms are present even in persons without severe mental disease, like auditory hallucination for example. These subclinical life-time symptoms are evaluated specifically by the Community Assessment of Psychic Experiences (CAPE, Brenner et al.¹).

AIMS

We study the relationship between mood and psychotic life-time subclinical symptoms and ToM performances in a group of undergraduate students.

METHODS

To assess the ToM we used the Reading the Mind in the Eyes Test (Eyes Test³). The test was administered to 141 undergraduate students, from which 137 have complete data (97% of total population). The reliability and validity of this test is demonstrated in another poster (Cohen et al.) and in Cohen et al. (submitted). The students fulfill also the CAPE-42, which is specifically developed to assess the subclinical life-times symptoms in healthy population¹.

We analyzed the relations between the score at the Eyes Test and the three scores of CAPE-42 : depressive, positive psychotic and negative psychotic symptoms subscales scores.

We computed **robust multiple linear regression** with, as **dependent variable, the total score at the Eyes Test 30 items** and as **predictor the three sub-scores at the CAPE-42**. We do not use classic multiple linear regression (MLR) because the linear model does not fulfill the criteria of normal distribution of the residuals and we wanted to confirm results with a **more sound statistical technique**.

The statistics were realized with R 3.1. (R Development Core Team, 2014) and package “robust” (Wang et al., 2014).

CONCLUSION

We observe with sound statistical methods that the subscale **depression score is positively related to social cognition performances**, when we take account the psychotic symptoms (positive and negative), whereas the positive psychotic symptoms **is negatively related to social cognition** as it presented a robust beta statistically significant. This demonstrate that depressive symptomatology is frequently confounded with negative psychotic (even subclinical) symptoms when authors study the relationship between depressive symptoms and theory of mind and found a negative relationship. The authors have to take into account the effect of the positive and negative psychotic symptoms when they study the relationship between thymic symptoms and ToM. We could not infer that the high level of social cognition abilities causes the higher level of depressive symptoms. We suppose that **the ToM abilities effectively protect against psychotic symptoms, but not against thymic symptoms**. This hypothesis has clear repercussion on the theorization of the link between depressive symptoms and social cognition and its link with behaviors associated with depression, like suicidality. The depressive symptoms have to be always studied in relation with negative symptoms, which could implied two types of depressive symptoms, with different repercussions on patients' live.

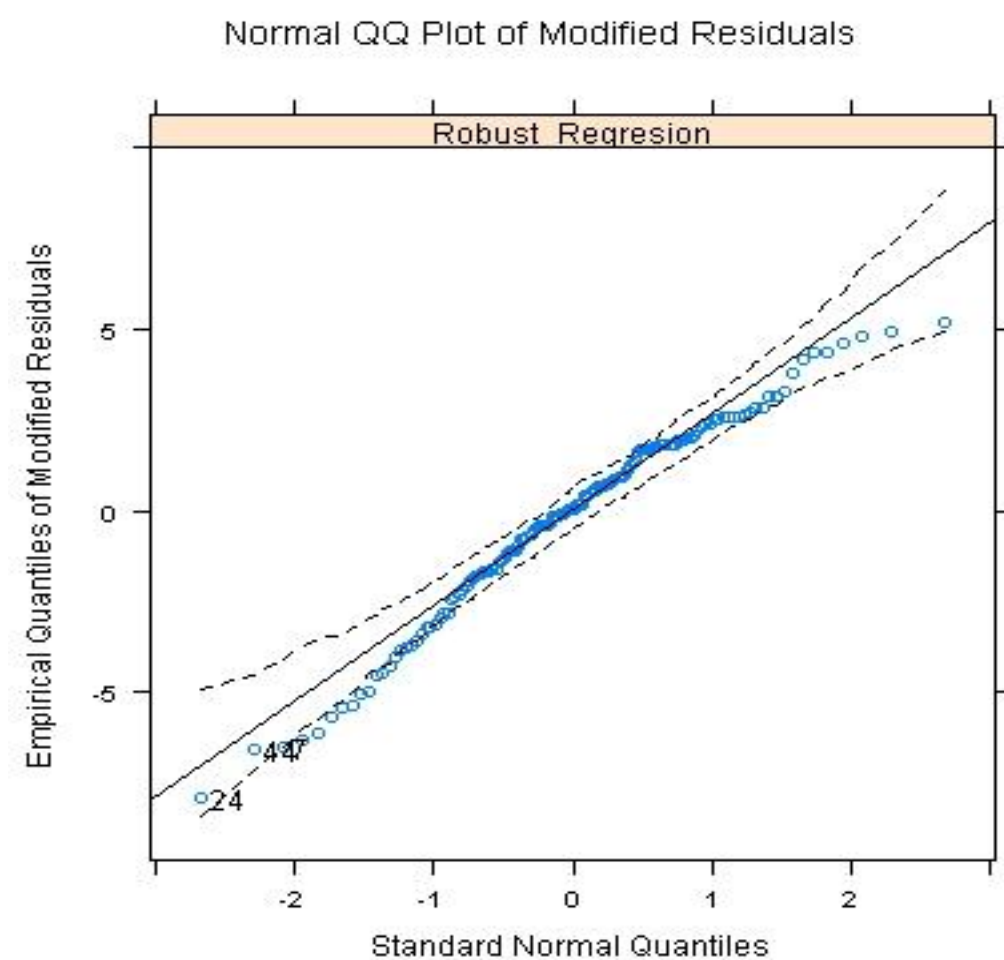
RESULTS

Three regression were performed, the first was a classic multiple linear regression, the second a robust regression which is significant with a **robust coefficient of determination of Renaud and Victoria-Feser⁴** (robust R^2 corrected adjusted for small sample) of 0.12. But in this second regression, **we found three clear outliers**.

A third regression was computed without these three outliers (N=134). The resulting beta coefficients of the first and third regressions are presented in table 1. The robust coefficient of determination of the third regression is the same as in the second regression.

Variables	Beta (S.E.)	Robust Beta (S.E.)
Depressive S.	0.38** (.09)	0.26** (.11)
Negative psychotic S.	-0.11 (.07)	-0.08 (.08)
Positive psychotic S.	-0.17** (.05)	-0.15** (.06)

Table 1: Beta coefficient of the classic and the robust regressions (S.=life-time symptoms; S.E. : standard error); ** p<.001



The Q-Q plot of the modified residuals supports the hypothesis of a good fit of the model. Therefore, **the depressive sub-score seems really positively related to Eyes Test performances**, when we take account of the effect of the subclinical positive and negative psychotic symptoms. The **positive psychotic symptoms is negatively related to ToM abilities**.

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