

# Does prefrontal non invasive brain stimulation alleviating symptoms in depression and schizophrenia impact mood and emotional processing?

M. Psomiades, C. Fonteneau, F. Haesebaert, J. Brunelin, M.F. Suaud-Changy.  
 Ψ R2 team, Lyon Neuroscience Research Center - INSERM U1028 / CNRS UMR5292 / Univ. Lyon 1  
 CH Le Vinatier – Lyon FRANCE

## 1. Background

Non invasive brain stimulation (NIBS) over the dorsolateral prefrontal cortex (DLPFC) can reduce symptoms in patients with depression and schizophrenia.

The DLPFC is involved in the expression of psychiatric symptoms, but also in mood and in emotional processing.

## 2. Objective

To establish whether NIBS over the DLPFC influences specifically symptoms, mood and emotional processing in patients with depression and in patients with schizophrenia.

## 3. Method



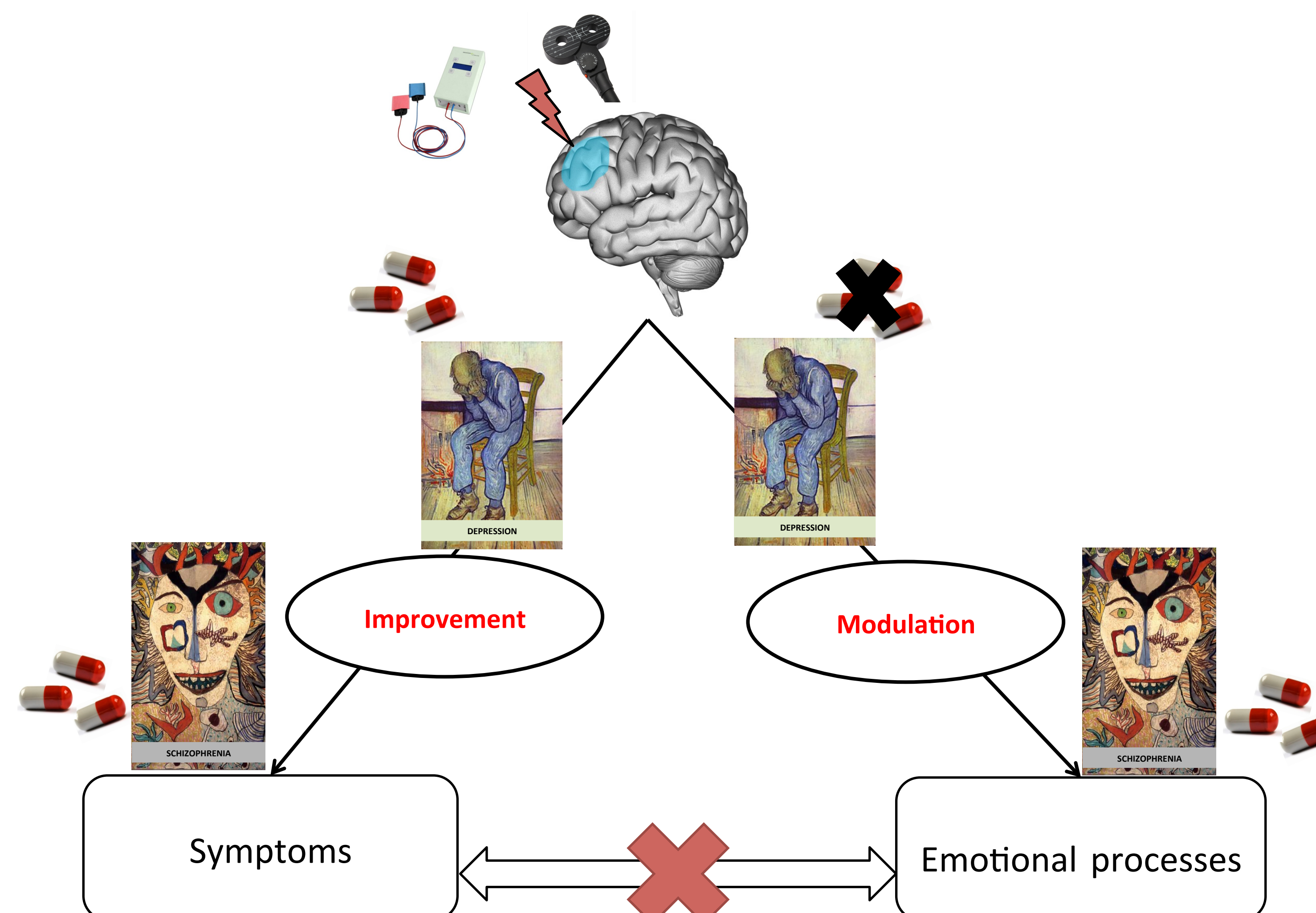
Review of the literature

Selected studies :

- assessed clinical improvement and mood and/or emotional processes
- included patients with major depressive disorder (n=8) or patients with schizophrenia (n=2)
- used transcranial direct current stimulation (tDCS, n=3) or repetitive transcranial magnetic stimulation (rTMS, n=7) over the DLPFC.

## 4. Results

Study	Population	Stimulation parameters	Effet on symptoms	Effects on mood	Effects on emotion
Dang et al., 2007	68 - 35 A / 33 S	15 sessions rTMS 10 Hz left DLPFC	+	-	
Anderson et al., 2009	20 A	15 sessions rTMS 10 Hz right DLPFC	+/-	-	
Szuba et al., 2001	14 - 9 A / 5 S	10 sessions rTMS 10 Hz left DLPFC	+	+	
Palm et al., 2012	22 cross-over	10 sessions Anodal left DLPFC / cathodal FP2	-	+	
Berpohl et al., 2006	18 cross-over	rTMS 1Hz left / right DLPFC	-		+
Boggio et al., 2007	12	10 sessions Anodal left DLPFC 2mA	-		+
Leyman et al., 2011	14 A	10 sessions rTMS 10Hz left DLPFC	+	-	+
Vanderhasselt et al., 2009	15	rTMS 10 Hz DLPFC gauche	+	-	
Wölwer et al., 2014	32 - 18 A / 14 S	10 sessions rTMS 10Hz left DLPFC	-		+
Rassovsky et al., 2015	32 - 24 A / 12 S	1 session tDCS Anodal left DLPFC / cathodal F4			+



## 5. Discussion

There is a dissociation between the effects of NIBS on symptoms, mood and emotional processing.

The associated pharmacological treatment may be a confounding factor that may influence mood and emotional processing.

## 6. Conclusion

Although sharing common brain structures (e.g., the DLPFC), the brain networks involved in the expression of psychiatric symptoms, mood and in emotional processes would be separate in depression as well as in schizophrenia.