

The dorsolateral prefrontal cortex presents structural variations associated with empathic capacity in psychotherapists

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Introduction

Empathy refers to all the processes that enable a person to understand the affective state of another through the activation of the own representations of such states. [1] It has a bottom-up component related to first-hand experiencing of an emotion and a top-down component related to mentalizing and emotion regulation (ER). [2]

Psychotherapists have been shown to possess higher cognitive empathic and ER capacities. [3]

We sought to determine whether there is an association between brain cortical thickness and empathic skills in person-centered psychotherapists, in relation to non-therapists.

Materials and methods

18 psychotherapists (9f; age mean 54.9 ± 7.6) and 18 non-therapists (9f; age mean 54.7 ± 7.6) were recruited for the study.

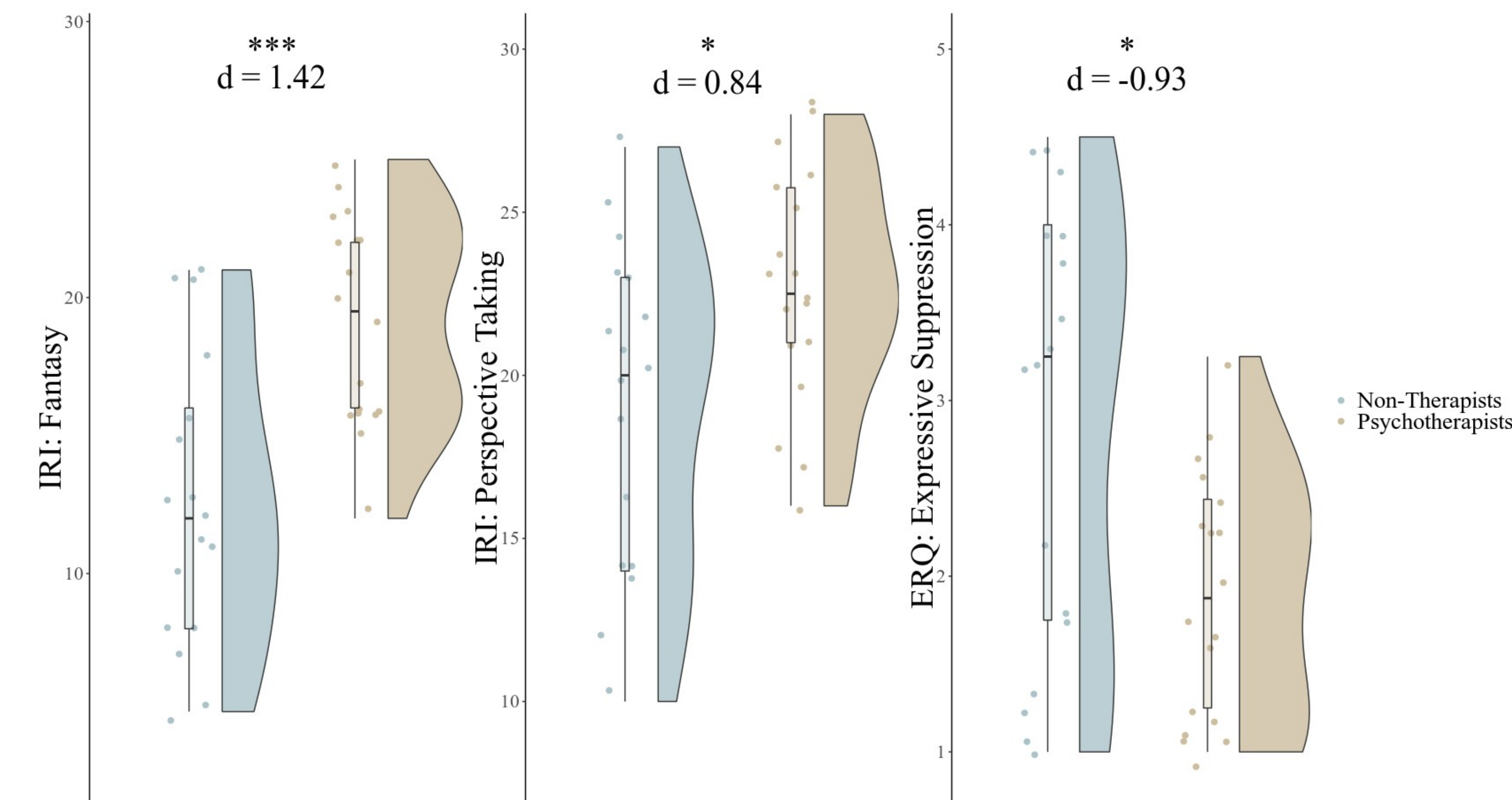
Psychometrics: Interpersonal Reactivity Index (IRI) [4] and Emotion Regulation Questionnaire (ERQ) [5].

sMRI was performed on a 3 Tesla scanner with a 32-channel head coil. T1w images were acquired through an SPGR sequence. CIVET and FreeSurfer were both used to extract brain surfaces and estimate cortical thickness (CT) [6]. Group differences were calculated using both pipelines.

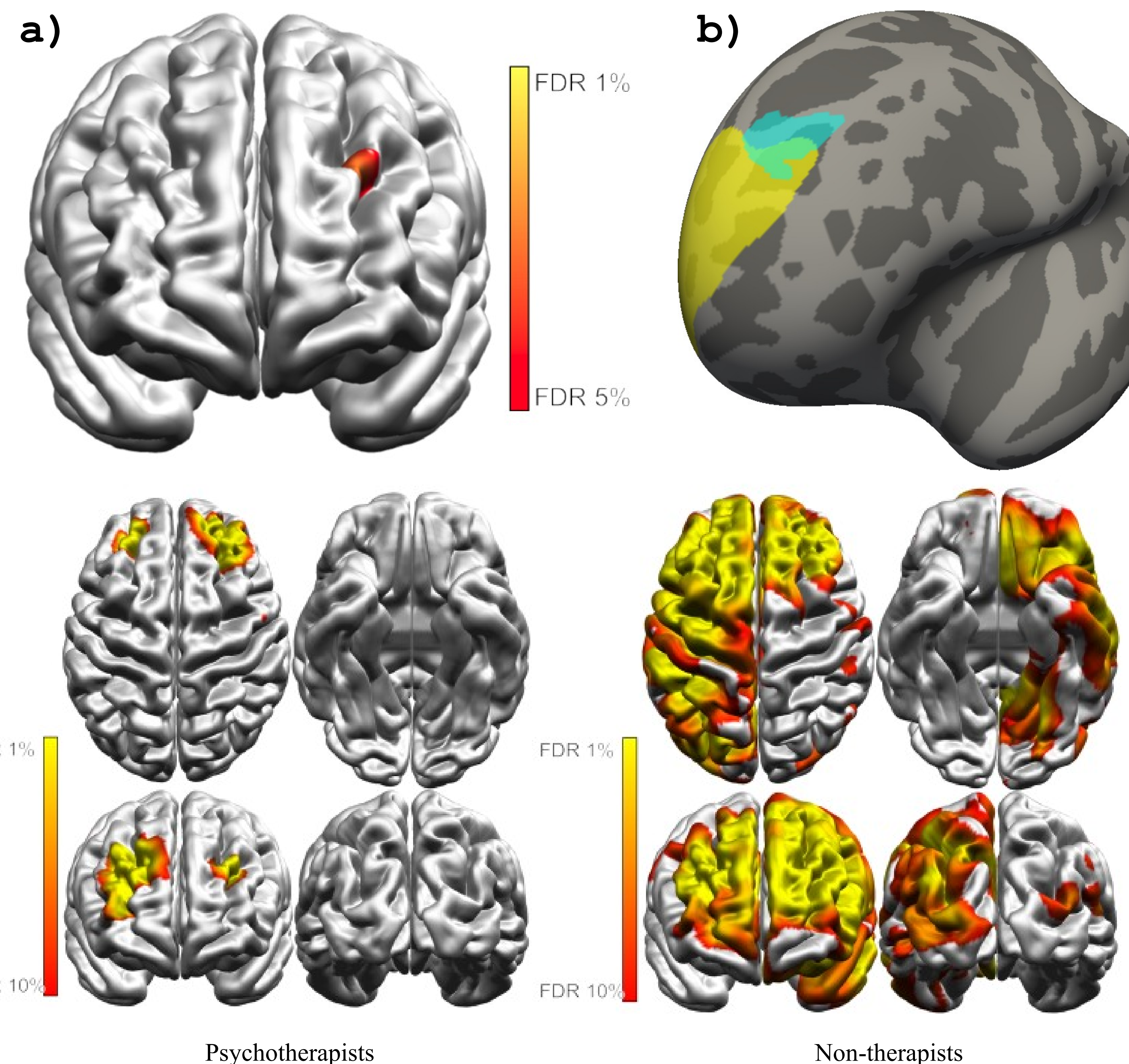
Mapping anatomical correlations across cerebral cortex (MACACC) analysis was used to identify covariance patterns.

Results

Scores where significant inter-Group differences were found.
* $p < 0.05$; *** $p < 0.001$



a) Left A9/46d dlPFC region, where CT was found to be significantly different ($p < 0.05$, FDR corrected);
b) FreeSurfer significant cluster (in yellow), partially overlapping with the A9/46d region (blue) in the left dlPFC.



Vertices correlated with dlPFC seed vertex (FDR corrected at 10%) in each group in the MACACC analysis.

Conclusions

These findings reveal that a region in the dlPFC was significantly thicker in a group of psychotherapists. The cortical thickness in this region negatively correlates with the tendency to feel empathic concern (EC) for others. Overall, these results suggest that expertise in such a profession that demands augmented empathic skills could be reflected in cortical dorsolateral prefrontal variations.

This region is relevant especially for the cognitive ER aspect of the empathic response. [2]

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- Consult complete reference list at: <https://tinyurl.com/y6tg6fjd>

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