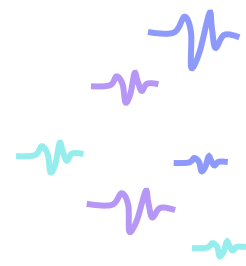


# SYNAPTIC HOMEOSTASIS AND FAKE NEWS

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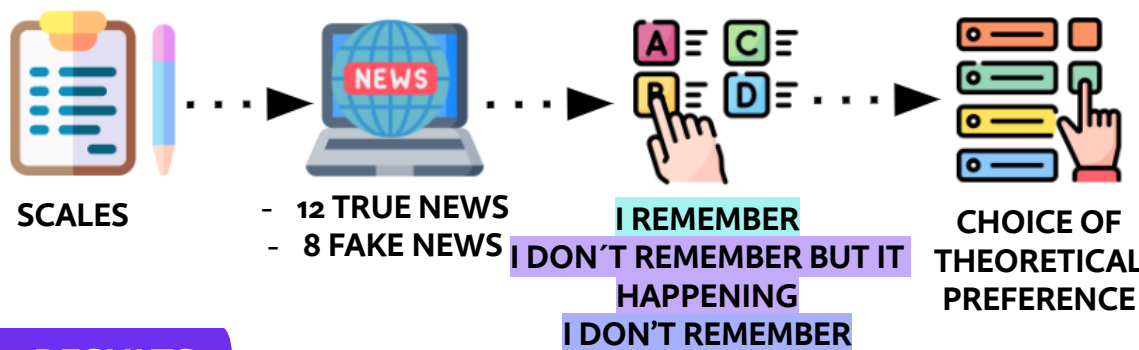
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## INTRODUCTION

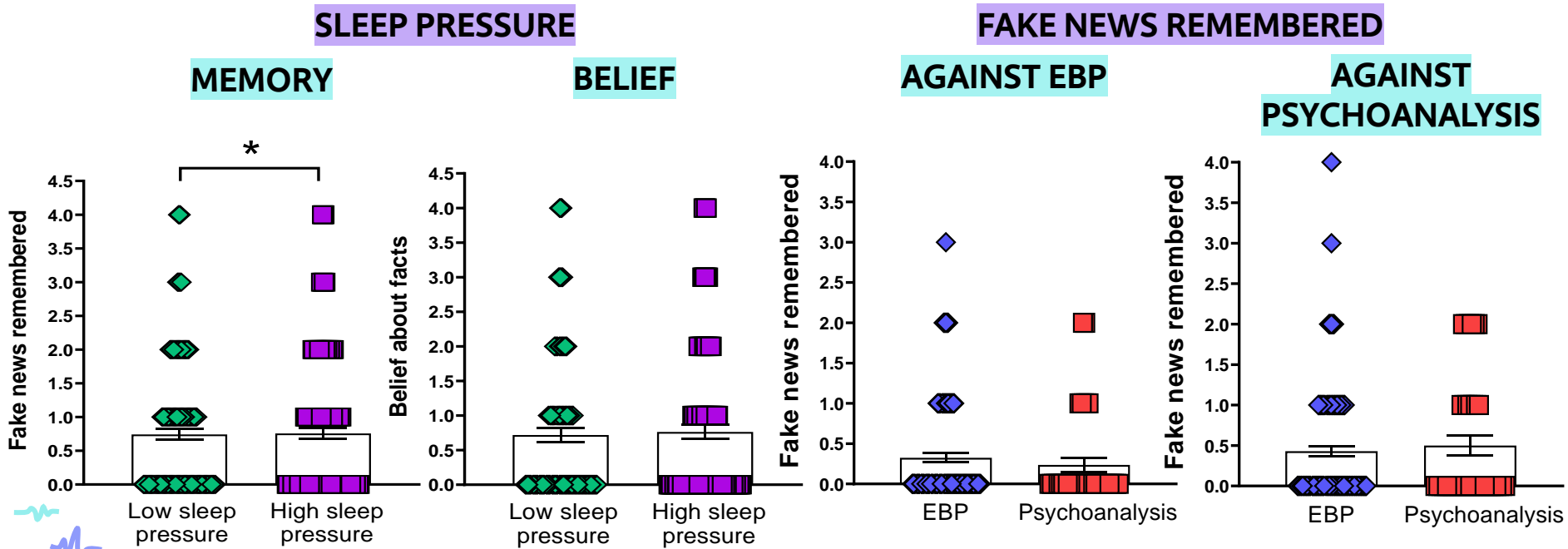
The spread of fake news has become a major problem for societies. Recent studies showed that when people are confronted with invented news, can believe and even generate a false memory of these events<sup>1</sup>, and this is increased when the content of the fake material is consistent with their ideology<sup>2</sup>. Further, it has been observed that there are individual factors such as cognitive or analytical thinking abilities that influence the generation of false memories<sup>3</sup>. Besides, a recent study found that decision-making is a result of the combination of the person's chronotype and the sleep pressure they have at the time of the evaluation<sup>4</sup>. Here, we hypothesize that people's sleep pressure when observing fake news is a predictor of the capacity to generate false memories about fake news. To study this, we developed a set of fake news that was presented mixed with real news. We discuss the results in the framework of the Synaptic Homeostasis Hypothesis.

## METHODS



Psychology students and graduates  
 N = 91 (Preference for psychoanalysis 38, for Evidence-Based Practice (EBP) 123)  
 AGE  $\bar{x}$  = 28.09  
 - Half of the news were against psychoanalysis and the other half against neuroscience or cognitive science.

## RESULTS



People who took a nap were excluded for this analysis. The groups were formed according to the mean hours without sleep (M = 9.16)

## DISCUSSION

First, we observed that the group with high sleep pressure remembered more fake news than the group with low sleep pressure. This result is explained by the cognitive degradation that occurs as we spend more time without sleeping, that is, as sleep pressure increases<sup>5</sup>. Furthermore, these results are in line with the synaptic homeostasis theory<sup>6</sup>, since sleep favors synaptic downscaling and the longer the time from the moment of awakening, the greater the saturation of synapses. This produces progressive synaptic overload that can lead to cognitive deficits, such as source monitoring error, one of the main responsible for the false memories<sup>7</sup>.

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