# The Aging Social Brain: Neural and behavioral age-related changes in social cognition and decision-making

## ABSTRACT:

**Background**
Social cognition comprises emotional recognition, theory of mind (ToM), moral judgment, and decision-making. Age-related changes on neurophysiological correlates of social cognition are scarcely studied.

**Aim**
To analyze age changes in behavioral and neurophysiological correlates of social cognition.

**Method**
30 younger (YA; *M*age=26.6, *SD*=4.05), 30 middle-aged (MA; *M*=48.4, *SD*=5.50) and 29 older adults (OA; *M*=64.5, *SD*=4.10) performed experimental tasks targeting each social cognition component, during an EEG.

**Results and Conclusions**
***Emotional recognition*** - OA had higher N170, despite similar behavioral performances in all groups. ***ToM*** - YA and MA outperformed OA. YA and MA showed higher late positive potentials (LPP) in congruent than incongruent conditions, while OA had similar amplitudes in both. This may affect OA's ability to use others' facial expressions to understand their inner states. ***Moral judgement*** - OA were less accurate than YA, which was consistent with the N2 attenuation during the perception of accidental/intentional harm. ***Social economic decision-making*** (Ultimatum Game) - OA accepted more unfair offers than YA and MA. As the Medial Frontal Negativity amplitude did not differ between groups, decisions may be explained by different economic/social preferences, rather than unfairness sensitivity. ***Decision-making under risk*** - OA were less risk-averse than YA. YA had higher Feedback Related Negativity for favorable than unfavorable outcomes, while MA and OA had similar amplitudes in both. Similarly, the P3 amplitude of OA did not differ between gains and non-gains. This suggests that aging is accompanied by a decline in the ability to adjust economic decisions according to feedback.

**Keywords**
Aging, Social cognition, Moral judgment, Decision-making, ERPs

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