

Emotion Recognition and Aging: Research Perspectives

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Editorial

An important aspect that has raised the interest of many scholars in last decades concerns the changes in conscious and unconscious perception that occurs over the life span. In particular, social perception has gained great consideration due to his fundamental role in the human interaction dynamics. The capacity of forming impressions and make inferences about other people refers broadly to the ability to understand and react appropriately to the social signals sent out by other people. This ability in identify the other people's emotions is a predictor of well-being, mental health and social competency.

The recognition of other people's feelings is possible through the decoding of different kinds of expression such as changes in facial expression, eye contact, body posture and movements. A difficulty in emotion recognition, that is a central component of nonverbal communication, is considered a critical factor associated with the maintenance of various psychopathologies [1]. One of the main clues that people grasp to identify emotional states of others is linked to changes in facial expression. There are in fact a wide range of neural systems that are involved in this capacity including: dorsolateral prefrontal cortex [2], ventral striatum [3], superior temporal sulcus [4,5] and processing areas in the parietal and occipital lobes [6]. The amygdala is specialized in the detection of facial expressions of fear [6,7-11] whereas basal ganglia and insula are specialized in the detection of disgusted faces [3]. Several studies point out that older adults have more difficulty than younger when recognizing emotion from facial expressions, in particular for anger, sadness and fear [12,13]. Although there are many experimental studies that have focused on this aspect, the link between the impairment in other's emotions recognition and the cognitive modifications that occur during life span is still debated. Some scholars have pointed out a correlation between age-related changes in the capacity of emotion recognition and the well-known modifications of brain regions caused by aging [3,14,15]. Specifically, the age-related modifications of frontal and temporal areas may have a main role in emotion recognition impairments. [16,17]. Moreover some studies indicated also a reduction of the volume of amygdala with age [18-21]. Following this evidences we might hypothesize that the deficit in the recognition of some emotional expressions by older people could depend on the loss of brain volume due to aging neural modifications in some areas relevant for emotion recognition [9,17,23]. On the other hand, some scholars hypothesized a further theory that suggests the establishment of a perceptual bias in elderly people, known as the "Positivity effect". This effect would be the reflection of an information processing bias in attention and memory that impairs the capacity of pay attention on negative emotional stimuli when presented jointly to positive ones [24-26]. The "Positivity effect" is evident only when positive information (e.g. happy faces) and negative information (e.g. angry,

disgusted and sad faces) are presented in pairs. Differently, when the negative stimuli are shown individually, the opposite pattern has been observed in older people which exhibit longer fixation times on negative pictures compared to positive ones [26,27]. How positivity bias affects the recognition of the principal emotional expressions is still under debate. Williams et al. [28] hypothesized that the positivity bias might be linked to age changes in motivational priorities. This could result in a perceptual bias in the classification of negative and positive emotions. Furthermore this effect may lead to the modification of the perception of social aspects in elderly people due to their more extensive life experience in analyzing emotional cues and interpersonal communication that could determine changes in attentional allocation processes. Another idea that could explain the positivity effect suggested that elderly people may use different facial exploration patterns. Sullivan [27] experimentally showed that in elderly subjects there is a preferential exploration of the mouth area when emotional faces are presented. This behavior contrasts with the young people facial exploration strategy that show a preference in the exploration of the eye region (that is more informative in the classification of emotional faces). It is therefore possible that the older people use different decoding strategies of emotional expressions, as they rely on different areas of the face than younger people. If this was confirmed, then we could hypothesize that the elderly people difficulties in labeling negative emotional faces is linked to a differentiation in the face exploration patterns. These differences could result in impairments in emotional faces perception and especially could affect the categorization of these stimuli. In the light of these evidences, it is clear that older adults are worse than younger adults on at least some emotions, with a clear general trend for the worsening of emotion recognition with age. Although, the presented literature have provided interesting insights, a full explanation for this phenomenon has yet to be established. This indicates the need for further studies that explore emotional face processing and categorization during the life cycle.

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