A "ghost in the shell"? Locked-in syndrome and the hypothesis of disembodied mind

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Abstract

Patients in a classical locked-in syndrome (CLIS) suffer from a paralysis of nearly all voluntary muscles, except for vertical eye movements and/or blinking. They are conscious, cognitively intact, and able to perceive the environment, but extremely limited in interaction and communication: literally, their minds seem 'locked' inside their body. Consequently, this syndrome represents a concrete objection to some theories of embodiment, claiming that the body is essential for cognition and consciousness (Noë 2004). Nevertheless, I will argue that, even in this clinically severe situation, the mind does not reach the supposed state of 'disembodiment' (Pistoia *et al*. 2016).

First of all, I will analyse the objective and subjective conditions of patients in CLIS and total LIS (no eye movement), with particular attention to clinical state, cognitive and perceptual abilities, bodily awareness, self-ownership and social relationship (Gosseries *et al*. 2009; Roquet *et al*. 2016).

Secondly, I will claim that patients generally continue to perceive their bodies as essential to define identity, both physically and phenomenologically (Nizzi *et al.* 2012). Above all, patients report that social interaction plays an important role in the evaluation of the quality of life and self-perception; thus, intersubjectivity could be useful to understand the embedded and social-oriented nature of consciousness, in LIS and even in TLIS–through Brain-Computer Interface (Hibbert 2016).

Lastly, analysing some theories of embodiment, I will argue that enactivism is the best approach to explain how consciousness in LIS maintains the embodied and embedded constitution (Kyselo, Di Paolo 2015). Therefore, from epistemological, cognitive and ethical perspectives, consciousness in LIS could be understood as fundamentally linked to a 'physically impaired' but 'subjectively lived' body and to a socially relevant environment–nonetheless with some worsening in TLIS (Murguialday *et al.* 2011; Kotchoubey *et al.* 2003).

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