

MOTIVATIONS AND EMOTIONS CONTRIBUTE TO A-RATIONAL UNCONSCIOUS DYNAMICS: EVIDENCE AND CONCEPTUAL CLARIFICATION

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Turnbull and Solms (2007, this issue) call attention in their target article to several ways in which neuropsychological and psychoanalytic concepts throw light on each other. They conclude that emotion and motivation so central to psychoanalysis have been underinvestigated in neuroscience. We agree with this position, but believe there is more to psychoanalytic theory and its implications for neuroscience than the authors have discussed.

AWARENESS

After a brief review, the authors conclude that “The principle distinction is that the findings... confirm the existence of *cognitive* processing outside of conscious awareness, whereas Freud claimed specifically that *motivational* and *emotional* factors shape conscious mental life” (p. 5). Fortunately, there have been quite a few studies of unconscious processes dealing with emotional and motivational factors. Employing a time-frequency analysis of ERPs, Shevrin et al. (1992) have identified neurophysiological markers for unconscious conflict in social phobics which correlate with personality measures related to repression. Unconscious conflict is a central concept in Freud’s theory of psychopathology, and involves powerful emotional and motivational factors. Shevrin et al. (2002) have shown that the same measure of repression correlates significantly with Libet’s measure of time-to-consciousness of a stimulus, repressive subjects having a greater time to consciousness. In a series of two subliminal aversive conditioning studies, Wong et al. (1994, 1997) have demonstrated that, 1) a frowning face conditioned to a shock consciously when presented subliminally subsequently will elicit a greater P300 than a pleasant face, 2) the same frowning face can be aversively conditioned unconsciously with the same difference in P300 present in subsequent supraliminal presentations. Bernat et al. (2001) have shown that negative valence words presented

subliminally will elicit greater event-related potential amplitudes for components across the brain (N100, P200, P300, LP1, LP2) than positive valence words.

The investigation of unconscious emotional and motivational factors is alive and well in neuroscience and speaks to a greater convergence of interests between neuroscience and psychoanalysis in the study of unconscious processes than identified by Turnbull and Solms.

EMOTIONS AND MOTIVATIONS

The authors appear to be of two minds about the role of emotional and motivational factors in false beliefs. At one point they appear to consider them to be independent factors: “...the central psychoanalytic claim is that emotion systems (*and the drives that govern them* (italics ours) might distort cognitive representations of reality...” (p. 8). Elsewhere the authors confound the two: “...there is powerful support for the claim that *basic instinctual emotion systems* (italics ours) represent an important component...” (p. 8). Furthermore, while they emphasize how emotions generate false beliefs in anosognosia, they also describe how patients need to maintain a state of positive feeling through denial while dealing with loss, thus implicating motivation. Following their own formulation these motivations would presumably constitute one set of causes governing the emotional dysregulation, along with the presumed direct effect of right hemisphere lesions on emotional systems.

Finally, the authors are clear in identifying an independent motivational system when they refer to findings that “...dreaming stops completely when fibers in the ventromedial frontal lobes are severed; a symptom that coincides with a general reduction in *motivated behavior* (italics ours)” (p. 15), which they then relate to similar effects produced by prefrontal leucotomy involving destruction of the same pathways. However, almost immediately after

making these points, the authors revert to placing primary importance on the role of “powerful positive emotions... at the heart of the ‘false belief’ states that generate the dream process” (p. 16).

The authors need to clarify to what extent they mean emotion and to what extent motivation. This distinction is of prime importance in Freud’s theory of mind, as well as mobilizing different physiological systems. Drives and motivational systems induce action by mobilizing motor systems from motor areas to striate muscles; by contrast, emotions primarily mobilize the inner body smooth muscle and gland systems, the effects of which are sensed as affects. In our view Freud did not understand delusions, confabulations and dreams as primarily a dysregulation of emotion systems, but as a different organization of action systems. Indeed, Freud (1895/1966) would not hold that individuals experiencing false beliefs, delusions, or dreams simply behave irrationally, but that they are employing different rules, namely those of the primary process that Brakel has suggested should be referred to as a-rational (Brakel, 2002). For Freud (1895, p. 325-326), the primary and the secondary process are both differently organized action systems. Only the secondary pathway, referring to the rational has the means, thanks to the ‘indications of reality’ (1895, Freud, p. 309), to engage in a reality check. Freud’s take on the role of primary processes in a-rational behavior is very much consistent with modern sensorimotor theories: indeed different authors (Frith, 1992; Blakemore et al., 2000) have underscored the role of absent or dysfunctional efference copies leading to a disturbed reality check in psychosis and there is good argument for a functional equivalence between the efference copies and Freud’s secondary process ‘indications of reality’ (Bazan, in press). Moreover, the suggestion that a-rationality is due to an action rather than to an emotion dysregulation, also makes it easier to understand why all delusions are not mostly positively biased. While the authors propose that positive affective bias of false beliefs serves as a defense against an unbearable reality it should be stressed that neither psychotic delusions, nor dreams are mostly positively biased. In delusions, paranoid imagery of

poisoning, weapons etc is very common; when positive imagery is present, it is always together with negative (paranoid) ideas. For all these reasons, we doubt the author’s proposition that “...the growing interest in emotion will be accompanied by increasing awareness of the importance of emotion in *all* classes of delusional thinking.” (p. 18).

In summary, although we agree on the need of neuroscience to take unconscious emotion and motivation into account, we stress that (1) significant experimental results have already been obtained in these areas, and (2) dysregulation at the level of the organization of action, and not primarily at the emotional level, is a more likely explanation for “a-rational” behavior in accord both with Freud and modern sensorimotor theories.

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