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Opinion

Form Attachment to Default Mode Network: Infant Care and Neurosciences

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Infant care represents a complex challenge for parents and caregivers. After the second world-war, in westernized countries infants' nurture often represented a challenge oriented primarily to physical wellbeing and only secondly to psychical issues [1]. The recent discoveries about the implications of attachment and mirror neurons on physical wellbeing of infants should overturn these priorities [2] because they evidenced that attachment issues influence also physical wellbeing either due to psychosomatic disorders [3] and directly because of the stress-mediated alteration of physical functioning [4]. Moreover the increasing epidemics of psychic problems in adolescence in all westernized countries stresses the need for a deep reflection on priorities and modality of infant care approach in our society [5].

Since twenties of the last century some scientists tried to encode new rules for caring newborn and children overcoming the habits of the tradition in the name of a new scientific and more advanced approach. In particular it was striking and very criticized the attempt of John Watson [6] who proposed a reductionist view of the needs of love in newborn until to define them as a sort of conditioned reflex which could be reduced by caregivers controlling the connected stimuli. Fortunately his proposals were criticized and contrasted by public opinion and also by the evidences of other scientists as Rene Spitz [7] who demonstrated the strong connection between affective cares and survival in orphanage contexts.

Despite his gross mistake, the attempt of Watson may be considered useful for at least two orders of factors:

1. It recommends a great cautiousness in the application of scientific findings to infants' care, in particular when they propose to subvert the natural parenting dispositions;
2. It courageously interprets the need to adapt child care to historical contexts, since infants' care needs are strictly related to the world in which infants live.

The evidences on which we can attempt a revision of infant care strategies nowadays are stronger and wider than those of Watson. Experimental psychology and psychiatry give a stronger basis to the advices that scientists may give to parents. In particular they are of interest those evidences derived from neuroimaging studies, since they directly approach to how the brain functions and develops and how external stimuli may improve or reduce the quality of its development. The recent paper by Scalabrini, Micci and Northoff [8] approaches in a neuroscientific based way the problem of personality development in relation to the development of the Self. This approach valorizes the Cortical Midline Structures (CMS) as those parts of the brain which are more connected to the constitution of the Self and consequently to the structuration of personality organization. The same structures are implied in the attachment functioning in mammals, and thus the stimuli influencing the tropism and connectivity of these cortical areas are influent on both attachment and Self-development. Emblematic at this regard is the study of Brauer and coworkers [9] which evidences that maternal care improves the connectivity of the MPCF producing a greater development of social brain. On the other hand the reduction of maternal loving attitudes coupled with higher pressure towards success produce the atrophy of the many brain areas involved in attachment and Self-development [10].

Scalabrini's paper also describes the possible way in which, by means of the Default Mode Network (DMN), the CMS are involved in the integration of internal and external stimuli with the functioning of the Self and how such integration influence the final personality structure of the individual. This issue is of fundamental importance since it stresses and supports the psychosomatic unity of the individual, the need of self-regulation and the connectedness of the individual Self with the social environment in which he/she is involved, which are the theoretical presuppositions of Individual Psychology founded by Alfred Adler almost a century ago [11].

Our society is developing with striking speed: in few decades increasing welfare and technological enhancement rendered it very complex, also for growing children. The immediate and easy accessibility to a very high number of proposed formative and entertainment activities for children, along with the exposition to many environmental scenarios through technological devices, expose infants and adolescents to a great number of stimuli. On one hand this increases the range of stimuli that the brain has to elaborate, on the other hand it may propose to the child realities which he/she is emotionally unprepared to manage (e.g. cyber bulling, sex or violence scenes, etc). This implies that the integration of these experiences in the Self by the developing brain of an infant or adolescent may represent a highly stressful challenge. It is so that these two orders of stimuli rise the overall level of perceived stress with the consequent need of applying stress control strategies. The most natural and healthy of these strategies is the attachment to parenting figures [4] which, according to the model of Scalabrini and coworkers [8], is strictly connected to the improvement of CMS structures development. More inadequate and risky are other coping strategies which are ranging from the repetitive use of videogames and other technological devices until to internet or videogames addiction, other kind of addictions, NSSI, until the development of psychiatric disorders [5]. According to the model, the lacking attachment not only implies a psychopathological expression, but also permanently influences the final structure of the Self and thus personality organization. The deficit of the Self construction and manifestation facilitate borderline structure outcomes which are so frequently evidenced in the emergency rooms of hospitals [12].

Finally, last but not least, the high complexity of external environment is coupled with a growing complexity of family environment. The traditional family with two parents living together lifetime has been replaced by new family patterns ranging from the extended families with more than two parental caregivers, untraditional families with homosexual parents, unstable families with repetitive partner changes by one or both parents, possibly with high degrees of conflicts between parents. Moreover, within the family the sharing of the parenting and working roles between mother and father produces a further degree of complexity (who is responsible for affective, educational and concrete needs of infants?) added to an overall lower possibility of care for children due to the fewer time spent at home by both parents. Attachment dynamics are thus heavily influenced by these new contexts that are less favorable than the traditional configuration in producing an integration of external reality with the Self of the individual. It is so that the need for attachment to parents or other caregivers is risen in our society. Moreover attachment is strongly requested also in adolescence because of the complex and stressful context in which adolescents are involved [13]. This rises a developmental conflict since adolescence is also the period in which the young should gain the independence and autonomy of his/her Self form parents. This represents a stronger request of active parenting to contemporary parents, stressing the possible inadequacies of those that in the last centuries could have been considered "normal" parents.

How our society will respond to these requests is highly relevant for the future of contemporary infants, but also of the future of our society itself. The need for an extensive education of parents but also professionals and other caregivers (podiatrists, neuropsychiatrists, family doctors, nurses, educators, and psychologists) to the new conception of attachment functions and Self-development is urgent and generalized [14]. On the other hand the research on attachment and brain development continues and may give further relevant indications in the future.

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