



Review

Early maternal separation: a rodent model of depression and a prevailing human condition

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Abstract:

The early life of most mammals is spent in close contact with the mother, and for the neonate, early maternal separation is a traumatic event that, depending on various conditions, may shape its behavioral and neurochemical phenotype in adulthood. Studies on rodents demonstrated that a very brief separation followed by increased maternal care may positively affect the development of the offspring but that prolonged separation causes significant amounts of stress. The consequences of this stress (particularly the hyperreactivity of the HPA (hypothalamic–pituitary–adrenal) axis) are expressed in adulthood and persist for life. Maternal separation in rodents, particularly rats, was used as a model for various psychotic conditions, especially depression. The most popular separation procedure of a 3-h daily separation from the second to the 12th postpartum day yields a depression model of high construct and predictive validity. The results of studies on maternal separation in rats and monkeys prompt a discussion of the consequences of traditional procedures in the maternity wards of developed countries where attention is focused on the hygiene of the neonates and not on their psychological needs. This alternate focus results in a drastic limitation of mother-infant contact and prolonged periods of separation. It is tempting to speculate that differences in the course and severity of various mental disorders, which are usually less prevalent in underdeveloped countries than in developed countries (as noted by Kraepelin), may be related to different modes of infant care. Only recently has so-called kangaroo mother care (establishing mother-infant skin-to-skin contact immediately after birth) become popular in developed countries. In addition to its instant benefits for the neonates, this procedure may also be beneficial for the mental health of the offspring in adulthood.

Key words:

maternal separation, depression, neonatal care, animal model, kangaroo mother care
