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Evolution of Neuroparenting: A Literature Review

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ABSTRACT

Neuroparenting is the practical operation of neuroscientific perceptivity to caregiving, aimed at fostering child development by aligning parenthood practices with the brain's natural armature. This composition provides a comprehensive overview of the field, exploring its interdisciplinary roots. A significant focus is placed on the Islamic perspective, which elevates parenthood from a social responsibility to a spiritual trust (Amanah). By integrating principles similar as mercy (Rahmah), tolerance (Sabr), and moral parenting (Tarbiyah), Islamic training addresses the development of both the brain and the soul, offering a spiritual complement to natural data. The text traces the line of parenthood advice, pressing a transition from 19th-century hygiene enterprises to amid-20th-century "cerebral culture" shaped by attachment proposition. By the 1990s, the "first three times" movement politicized parenthood, framing early brain intervention as a result to social inequality, a shift embedded in neoliberal testaments of individual responsibility. Biological foundations are further examined through the lens of brain malleability, with exploration indicating that caregiving surroundings, similar as those affected by motherly depression, can physically alter a child's neural regulation and emotional growth. While neuroscience has told positive changes, similar to legal reforms regarding adolescent brain development, the composition identifies several critical challenges. These include the "expert irruption" of family life, which may undermine maternal suspicion, and the spread of neuromyths that exaggerate experimental" windows of occasion. Likewise, the converse frequently imposes a gender bias, placing the primary burden of neural optimization on mothers. The text concludes that neuroparenting should be used as a tool for family commission and public investment rather than a deterministic set of rules, balanced by social support and spiritual values.

Keywords: *Neuroparenting, Islam, Neuroscience, Tarbiyah, Child's Growth, Parenting, Caregiving Techniques.*

Introduction

In order to develop a comprehensive understanding of 'Neuroparenting' it's vital to make a foundational sapience on Neuroscience. At its core, "Neuroscience is the study of the nervous system from structure to serve, development to degeneration, in health and in complaint. It

covers the whole nervous system, with a primary focus on the brain" (King's College London, n.d.).

It's claimed that from minor conduct to major achievements, everything is dependent on our brain. It's an interdisciplinary approach that forms a liaison with other disciplines similar as Mathematics which relates to specific hemispheric functions, (Nufus A. F., & Silmi, I. 2024) Linguistics which explores brain grounded language development (Brunner, R. 2020) ,Engineering which contributes to the navigation of complex systems,Computer wisdom, Chemistry, Philosophy Psychology(Ulfah, M., Aryani, S. A., & Maemonah, M. 2023), and Medicine.

While neuroscience provides a sapience into natural armature and synaptic pruning, neuroparenting emerges as the practical and applied perpetration of this natural perceptivity within responsible caregiving environment. Neuroparenting is a parenthood style where neuroscientific perceptivity is used to facilitate parenthood, and thereby to foster child development. (Snoek & Horstkötter, 2021)

Neuroscience, when viewed as a lens for understanding mortal growth, offers further than a roster of brain structures and chemical signals; it provides a frame for interpreting how lived gests carve the mind. The nervous system is not a static reality but a dynamic network that constantly reorganizes itself in response to stimulants, connections, and surroundings. This rigidity, frequently appertained to neural malleability, underscores why early caregiving practices apply similar profound influence on experimental issues. By stating that every commerce whether soothing a crying child, encouraging exploratory play, or modeling emotional regulation leaves a trace on the child's neural pathways, we begin to appreciate the depth of responsibility bedded in parenthood. In the following picture, CT scans provided by Bruce Perry are attached which shows the difference between a normal and extremely neglected child.

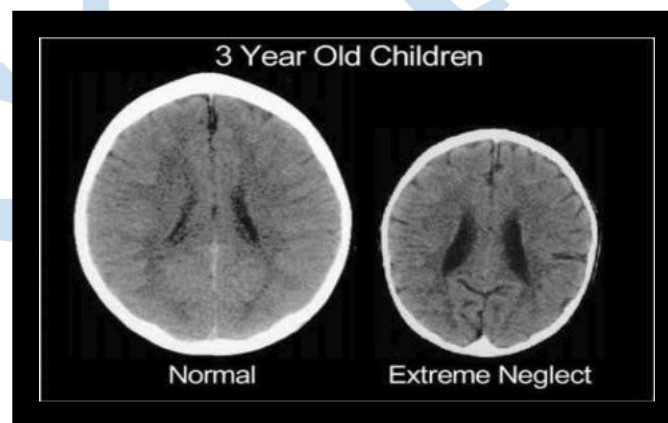


Figure 1: comparison of brain's CT scans between normal growth and extreme neglect of a 3-year-old child

The interdisciplinary nature of neuroscience enriches this understanding further. Perceptivity from cognitive psychology reveals how attention and memory processes evolve concertedly with development, while educational lores punctuate the part of structured literacy in buttressing neural connections. Ethical gospel contributes by questioning how scientific findings should be applied in family life, icing that parents are not reduced to technicians but remain nurturers

guided by compassion. Indeed, fields like anthropology and sociology add nuance, reminding us that brain development is always positioned within artistic surrounds and social morals.

Within this broad intellectual geography, neuroparenting emerges as a ground between proposition and practice. It translates laboratory findings into everyday strategies, encouraging caregivers to align their styles with the stages of brain growth. Rather than defining rigid formulas, it advocates informed inflexibility; parents acclimatize their responses grounded on experimental stages, emotional requirements, and environmental conditions. This approach emphasizes that nurturing is both natural and relational; the armature of the brain is strengthened not only by nutrition and sleep but also by warmth, empathy, and harmonious presence.

In Islamic tradition, parenthood is not simply a social responsibility but a spiritual duty, deeply embedded in *Qur'an* and Predictive guidance. The *Qur'an* emphasizes the constructive part of parents in nurturing both intellect and character, as seen in Luqman's counsel to his son, which highlights moral instruction alongside emotional care.

The Prophet Muhammad (peace be upon him) described the significance of parenthood and early nurturing, stating, **"Every child is born upon fitrah (natural disposition), and it's the parents who shape him"** (Sahih al- Bukhari, 1385) This perspective resonates with neuroscientific findings that the first original days are critical for development. Therefore, Islamic parenthood principles emphasizing mercy, thickness, and moral parenting, give a spiritually predicated complement to neuroparenting, icing that care paying addresses both the brain and the soul of the child. Islamic parenthood is a holistic frame that views child - parenting as both a spiritual responsibility and a practical duty, emphasizing the nurturing of faith, character, and emotional well - being from the foremost stages of life. The *Qur'an* and Sunnah punctuate the significance of compassion, tolerance, and moral guidance, encouraging parents to cultivate a terrain where children feel secure, loved, and guided toward righteousness. Parenthood in Islam is not limited to tutoring rituals or discipline; it encompasses the development of empathy, adaptability, and social responsibility.

The conception of *Tarbiyah* (holistic parenting) reflects this multidimensional approach, where parents are entrusted with shaping the child's geek, emotional, and spiritual growth in harmony. This responsibility extends beyond the nurture and support, as Islam situates parenthood within a collaborative environment, feting that extended family and society play a part in buttressing values and furnishing support. Such a vision ensures that children are not only set for success but are also inseminated with a sense of belonging and responsibility toward the wider community. Importantly, Islamic parenthood emphasizes gradational literacy, liar, and modeling of merits, styles that align with how children naturally absorb assignments through observation and relational gests.

Historical Context

Having established a grip on the interdisciplinary nature of neuroscience & neuroparenting along with Islamic perspective, it's necessary to trace their line to know how this monumental change in introductory hypotheticals has evolved across the periods. Parenthood advice had first surfaced in the late 19th century centered on public health, child mortality, maternal care which also shifted its focus towards the creation of seminaries for mothers in UK & Germany, and in the environment of child weal ideas transnational conferences were held within the period of 1880 – 1920 (Martin, 2023, pp. 131–132).

According to Claude Martin, following World War II, psychologization of parenthood guidance unnaturally altered domestic life. Benjamin Spock's "The Commonsense Book of Baby and Child Care" (1946) encouraged a more lenient, permissive and child centric parenthood approach, prioritizing socio-profitable development through play, enjoyment, and the intuitive understanding of mothers captured in his well-known consolation, "You know more than you think you do." This signified a break from the strict behavioral rules supported by earlier figures like John B. Watson. Coincidentally, John Bowlby's attachment proposition (1952, 1958) emphasized the pitfalls associated with motherly privation, establishing secure attachment as pivotal for emotional growth.

Lately, Diana Baumrind's parenthood style (1966, 1991) presented the significant "authoritative" model, which is positioned between the axes of authoritarian and permissive styles. These scholars inclusively converted the discussion about parenthood from a focus on survival and hygiene to centered on cerebral health and emotional stability, spreading extensively through books, radio, TV, and magazines, thereby establishing what Martin refers to as a "cerebral culture" girding maternal guidance.

By the 1980s, the word "parent" evolved into the action "parenthood," indicating a new understanding of raising children as a skill that requires guidance and oversight. In the 1990s, this conception came politicized as governments in Europe and North America began to address parenthood as an issue of public policy.

Impact around the world:

As noted by Martin, enterprises aimed at supporting parents were forced to educate them, regulate those considered shy, and advocate for "good practices" through shops, conferences, and programs grounded on substantiation. This enterprise, which was constantly embedded in behaviorism, gained transnational traction and were funded by both public and private sources, illustrating the emergence of neoliberal social programs that shifted the focus of children's success on parents rather than collaborative weal systems.

This shift corroborated a two-tiered treatment working class families were targeted with corrective interventions, while middle-class families were encouraged to borrow "ferocious parenthood" strategies to optimize their children's success and happiness. The politicization of parenthood therefore marked a transition from collaborative social investment to individual maternal investment, bedding parenthood within broader neoliberal testaments of tone responsibility and threat operation to parents rather of participated weal systems.

The emergence of parenthood as a political concern in the late twentieth century reshaped the way societies approached the family unit. What had formerly been understood as a collaborative responsibility supported through weal systems, community networks, and public institutions was gradationally reframed as an individual duty. This ideological shift was not neutral; it carried with it a distinct position of treatment. Families from working class backgrounds were frequently deposited as subjects of corrective programs, where interventions sought to "fix" perceived scarcities in caregiving practices. These enterprises were generally conventional, emphasizing compliance with standardized behavioral models and buttressing the notion that poor homes needed external regulation to guard children's future.

In discrepancy, middle class families were encouraged to embrace a different line the pursuit of "ferocious parenthood". This model emphasized constant investment of time, emotional energy, and fiscal offers into children's development, with the pledge of optimizing their success and

happiness. Parenthood came from a design of maximization, where every choice, from nutrition to adulterous conditioning, was framed as a determinant of long-term achievement. The implicit communication was clear about children's issues depended less on collaborative support and further on the grim fidelity of individual parents.

This approach reflected broader neoliberal currents that were sweeping across social policy. Governments decreasingly promoted the idea that threat of operation and tone of responsibility should be the guiding principles of family life. Parenthood was no longer simply about nurturing; it came a point of regulation, where parents were anticipated to internalize scientific advice, borrow substantiation grounded programs, and shoulder the burden of icing their children's competitiveness in a fleetly changing world. The weal state's part lowered, replaced by a frame that placed responsibility exactly on the shoulders of mothers and fathers.

The consequences of this metamorphosis were profound. Parenthood was politicized not only in rhetoric but in practice, as programs and programs corroborated social divisions. While middle class families were celebrating their visionary engagement, working class families were scanned and chastened. This binary system settled inequality, bedding parenthood within a larger narrative of neoliberal governance where individual responsibility transcended collaborative solidarity.

Eventually, the politicization of parenthood marked a decisive turn for the family came both the target and the agent of social policy. By shifting the burden from participating weal systems to private homes, societies readdressed child parenting as a matter of particular investment rather than collaborative care. This reorientation continues to shape contemporary debates, revealing how deeply political testaments percolate indeed the most intimate aspects of family life.

By the 1990s, the converse around parenthood was decreasingly shaped by neuroscience, formed in what came known as the "first three times" movement. Arising in the USA, this alliance of child weal lawyers and politicians argued that social problems similar as inequality and educational underachievement could be answered through early intervention in child brain development, a communication that snappily gained transnational legality (Macvarish, Lee, & Lowe, 2014).

Biological context:

Neuroparenting's natural environment is amended by reviews of deterministic taglines similar as "wired for life," which Garrett (2018) warns against by emphasizing the brain's adaptability and malleability across the life course. Neuroparenting is forcefully embedded in the natural lores, particularly neuroscience, which explains brain development through the functioning of the brain and nervous system. The nervous system operates like an electrical string transmitting signals from the brain to the senses, shaping it from early life. Also, indeed in the womb, the fetus perceives motherly conditions via the placental cord, emphasizing the antenatal natural foundations of caregiving.

Emotional regulation is linked to the limbic system, with tools like EEG used to descry emotional countries, while differences in manly and womanish brain hemispheric development are emphasized as factors shaping parenthood approaches. In this way, neuroparenting emerges as the applied perpetration of natural perceptivity into responsible caregiving, aligning parenthood practices with neurological development stages (Fauzan, 2024).

Children's neurodevelopment is profoundly shaped by the caregiving environment, and Dawson (2003) demonstratess this by examining how maternal depression influences preschool

outcomes through alterations in children's brain activity. Their study found that children of chronically depressed mothers exhibited reduced frontal and parietal activation, particularly diminished left frontal EEG activity, which was associated with fewer positive "approach" emotions and greater behavioral problems.

Importantly, depression during the first two years of life predicted a typical frontal EEG pattern, highlighting sensitive developmental windows in which caregiving exerts biological effects. Path analyses confirmed that children's frontal brain activity mediated the relationship between maternal depression and later behavioral difficulties, situating brain function as a biological mechanism through which parenting environments shape developmental trajectories. This evidence underscores the biological context of neuroparenting, where caregiving practices directly influence neural regulation and emotional growth.

Implications:

Neuroparenting has transitioned from simple advice into a framework for social policy, legal reform, and consumer culture. Governments increasingly view early childhood as a form of national investment. For instance, in their 2010 collaboration, Graham Allen and Iain Duncan Smith argued that positive stimuli in the first three years are crucial for developing brain cells and synapses. (Snoek & Horstkötter, 2021) Such "early intervention" programs are presented to address social problems like inequality, poverty, and crime by protecting cognitive and emotional development (Lesnik-Oberstein, 2017). This perspective encourages middle-class families to focus on the malleability of the brain to ensure success in a competitive society, while families in poverty are often targeted with parent-training programs that may overlook the wider social factors influencing development. (Snoek & Horstkötter, 2021)

In the legal sphere, neuroscience is influencing youth justice by demonstrating that the adolescent brain is still undergoing significant structural and functional changes (Steinberg, 2009). This evidence supports arguments for more compassionate treatment of young offenders; for example, in the Netherlands, neuroscientific evidence regarding brain maturation was used to support raising the age of criminal responsibility. (Dünkel et al., 2020) Concurrently, neuroparenting has fueled a "parenting market" with an exponential supply of devices and products marketed to enhance brain growth. (Macvarish, 2016; Martin, 2024)

Criticism held on neuroparenting:

While neuroparenting offers a biological perspective on raising children, it faces major criticisms. Macvarish discusses an "expert invasion of family life," where parental intuition gives way to reliance on expert advice (Macvarish, 2016; Snoek & Horstkötter, 2021). Studies point out a "gap" between neuroscience findings and the parenting advice that follows, which often spreads "neuromyths" (Snoek & Horstkötter, 2021). A key example is John Bruer's criticism of the "first three-year movement." He argues that the notion of a crucial "window of opportunity" is usually based on misinterpreted animal studies and a misunderstanding of how synapses grow (Macvarish et al., 2014; "Neuroscience for Babies," 1999; Snoek & Horstkötter, 2021).

Moreover, scholars highlight a gender bias in "scientific mothering," placing the responsibility for optimizing a child's brain mainly on mothers (Chen, 2019). This conversation often pressures mothers to engage in intense emotional management to secure their child's success (Snoek & Horstkötter, 2021). Sociologically, this change is seen as a method of neoliberal self-management that reframes broader social issues as personal biological failures of "risky" parents (Macvarish et al., 2015; Snoek & Horstkötter, 2021). Lastly, while neuroscience can promote understanding

by recognizing developmental limits, critics caution that using brain imaging as evidence has serious drawbacks and could be misused to label individuals based on their brain characteristics (Mobbs et al., 2007; Peckover, 2019).

Conclusion:

However, as neuroscience continues to influence public policy, legal systems, and consumer markets, it's important to keep a critical view. The shift to a "biological" model of parenting should be weighed against the risks of harmful "neuromyths," the excessive pressure on mothers, and the tendency of neoliberal policies to blame individuals for larger social problems. While understanding the brain is crucial for supporting healthy development, neuroparenting should empower families rather than impose strict rules. It should ensure that the "science of the cradle" enhances the well-being of the entire family, without undermining the essential role of parental intuition and social support. From an Islamic perspective, parenting is not only a biological or social responsibility but also a spiritual trust (*Amanah*). The Qur'an and Hadith emphasize mercy (*Tahmah*), patience (*Sabr*), and moral upbringing (*Tarbiyah*) as essential foundations for child development.

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