

Social-behavioral Development

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Abstract

The early child period is considered to be the crucial in the human *life-span development*. Healthy and normal early development of a child, including his/her physical, cognitive, emotional, and social development, strongly influences the subsequent personal and social functioning, well-being and life success. Behavioral development, and in particular social/behavioral development, is a crucial tool for survival and adaptation. In this article, three mechanisms that work in an interrelated and cooperative way in determining behavioral development will be discussed in more detail. Given the purpose and design of this paper, we will focus on some of the latest studies of the environmental factors considered to have the power to influence ontogenetic behavioral development and in particular, social/behavioral development.

Keywords: behavioral development, social development, ontogenetic behavioral development.

1. Introduction

Behavioral development, and in particular social/behavioral development, is a crucial tool for survival and adaptation, whereby experience modulates the manner the people interact with their environment (Lindenberger & Bäckman, 2006). This process begins from birth and ends with the death and includes growth and decline, but also continuity and changes (Lindenberger & Vaupel, 2010).

Every person realizes his/her communication, interaction and exchange with the physical and social environment through behavior. On the one hand, the changing brain and the changing physical and cultural environment shape behavioral development, but on the other hand, behavior changes both the brain and the environment. For this reason, brain and environment are seen as antecedents, correlates, and consequents of moment-to-moment variability and long-term changes in patterns of behavior (Li, 2003). Therefore, brain, behavior, and environment form a system, where they are constantly coupled and interrelated, where they interact and influence each other to determine and drive a person's overall development (Li, 2003).

2. Mechanisms in determining behavioral development

Three mechanisms that work in an interrelated and cooperative way in determining behavioral development have been discerned (Lindenberger & Bäckman, 2006):

- maturation,
- senescence, and
- learning.

The first mechanism – maturation, refers to age-related brain mechanisms that are especially pronounced during early development. The second mechanism – senescence, refers to degenerative processes that become more important later in life. The third mechanism – learning, refers to learning throughout life, induced by behavior-environment interactions.

It is important to emphasize that while the effects of maturation and senescence on changes in behavior are especially pronounced early in life, respectively, the effects of learning act throughout life and induce changes in brain states with different duration by means of interactions between behavior and environment (Lindenberger, Li & Bäckman, 2006).

Another important thing is that maturation and learning are strongly connected and interdependent in their joint influences, especially during the early stages of ontogenetic development. This was evidenced by studies of so called “critical periods” of brain development especially in early postnatal ontogenesis, which have showed that development of neuronal circuits and connections in the brain including their shaping and structuring, entirely depends on experience (for a review of literature see Gale et al., 2004).

Similar is the situation regarding the impact of senescence on the brain of aging people – it depends on factors such as the subject’ past, present learning and maturational history (Werkle-Bergner, Müller, Li & Lindenberger, 2006). In important view is that processes related with brain maturation are not restricted to early stages of life, and vice versa – processes associated to senescence are not restricted to old and very old age (Raz et al., 2005).

This view receives additional support from studies that have revealed that neurogenesis and synaptogenesis, which are maturation-related processes, can be seen throughout all stages of ontogeny, not only in childhood (Kempermann, 2005), and vice versa, changes related to senescence, such as declines in dopaminergic neuromodulation can be seen in early adulthood (Bäckman, Nyberg, Lindenberger, Li & Farde, 2006).

All above-discussed come to evidence that the three factors – maturation, senescence and learning interact and influence each other throughout the life span, and at the same time they are dependent on and influenced by the characteristics of physical and social environments (Lindenberger & Vaupel, 2010).

3. Literature review

Given the purpose and design of the present paper, we will focus on some of the latest studies of the environmental factors considered to have the power to influence ontogenetic behavioral development and in particular, social/behavioral development.

Numerous factors can influence the behavioral development of a child. Among the most consistently reported as highly risk factors for cognitive impairments and behavioral problems are the adverse events and exposure during pregnancy, delivery, and the neonatal period (Edwards & Hans, 2015), as well as a low birth weight, preterm birth (Arpi & Ferrari, 2013), or small for gestational age (Takeuchi et al., 2016).

With the purpose to examine the unique and interactive contributions of infant negative emotionality and family risk factors in the development of internalizing and externalizing behavior problems in early childhood, Edwards and Hans (2015) carried out temperament assessments of 412 infants (5-7 months old) using interview of primary caregivers. The results showed that hostile parenting during infancy increased the likelihood that children would develop internalizing-only problems, whereas infants who were highly distressed in response to novelty were at increased risk of developing externalizing-only problems. In addition, multiple risk factors, including maternal anxious and depressive symptoms, family conflict, and younger maternal age, independently predicted early childhood co-occurring problems. A special finding was a significant interaction between infant anger/frustration and hostile parenting, as, infants high in anger and hostile parents were at increased risk of developing early co-occurring problems.

Especially the importance of the maternal pregnancy status has been well demonstrated by the results obtained in the study of Yang et al. (2018). Aiming to reveal the risk factors associated with the behavioral development among 24-month-old Chinese, the researchers used the Bayley Scales of Infant Development which assesses six behavioral factors in infancy: activity, social adaptability, reactivity, endurance, concentration, and motor coordination. The results demonstrated that maternal malnutrition, exposure to risk factors during pregnancy, and adverse birth outcomes negatively affected the behavioral development of children at 24 months, which is a common co-occurrence with cognitive and emotional problems.

Recently Richardson and co-workers (2017) conducted an interesting longitudinal study, which was design to investigate whether neighborhood natural space and private garden access had link with children's developmental change over time. Based on the pattern of the results the authors concluded that neighborhood natural space may reduce social, emotional and behavioral problems in children aged between 4 and 6 years, but a private garden access emerges as the most beneficial factors among surveyed.

Motivated by the reports that green spaces were related with improved mental health in children, Amoly and co-researchers (2014) designed a study aiming to investigate the effects of contact with green spaces and blue spaces (beaches) on indicators of behavioral development and symptoms of ADHD in schoolchildren. Parents and teachers of 2,111 children, 7–10 years of age, were interviewed. Pattern of the results supported beneficial influences of contact with green and blue spaces on behavioral development in schoolchildren.

Sammons et al. (2014) reported the results from a large-scale national representative community survey of approximately 3,000 children across different phases of education, from the age of 3 to age 16 years included the investigation of the relationships between a range of individual student, family, home, pre-school, primary and secondary school characteristics and children's social-behavioral development at age 16, i.e., in the end of compulsory education. In this study teachers were required to do individual assessment of students' social behaviour on four criteria: "self-regulation" (problem-solving, motivation, self-confidence, assertiveness etc.), "pro-social behavior" (peer empathy, co-operation, altruism etc.), "hyperactivity" (reduced self-control, impulsiveness etc.), and "anti-social behavior" (verbal abuse, aggression etc.).

The researchers listed the following key findings (Sammons et al., 2014: 4-6):

1. Students younger within their year group generally showed poorer social-behavioral outcomes and progress than the older students in the same year group.
2. Students with special educational needs were rated by the teachers as having significantly poorer behavior.
3. Socio-economic status, family poverty and parents' educational level were found to predict social-behavioral outcomes and developmental progress across 5 years

secondary school, as on average, children from families with Socio-economic status and with less well educated parents were rated as showing poorer behavior in school.

4. Coming from a single-parent household or a larger family (3 or more siblings) were weaker, but statistically significant predictors of poorer social behavior and progress.

5. Children who had experienced a more positive early years home learning environment during the pre-school period continued to show better social-behavioral outcomes in both year 11 and year 16, and also predicted better developmental progress across secondary school.

6. Living in a neighborhood with higher levels of disadvantage (for example, high percent of children living in poverty), deprivation or a higher proportion of White British residents, were factors predicting poorer social-behavioral outcomes and less favorable developmental progress.

7. High quality pre-school influences social behavior, but effects are stronger at younger ages and weaker at age 16. Therefore, having attended a high quality pre-school predicted better social-behavioral outcomes in the longer term, though the effects were small.

8. Attending a secondary school with a higher percentage of students recorded as having special educational needs predicted poorer social-behavioral outcomes, namely, reduced Self-regulation and Pro-social behavior, and increased Anti-social behavior in schools. The researchers noted that though statistically significant these compositional effects were weak.

9. Attending a secondary school that was rated more highly predicted better social behavioral outcomes, and attending a school with an overall “poor behavior climate” (disobeying rules, fights, bullying etc.) predicted less favorable social behavioral outcomes later on at age 16.

10. Students’ reports on the emotional climate of their secondary schools, in terms of positive relationships between staff and students and teacher support, were important predictors of positive social behaviors at the end of year 11.

11. External indicators of school academic effectiveness and of school quality did not predict differences in social behavioral outcomes. However, Sammons and co-authors indicated that a previous study have received the opposite results.

A parallel longitudinal study was carried out in Northern Ireland (Melhuish, 2002). In this study, the effects of pre-school experience as well as the influence to children’s development of individual and family factors such as gender, family size, parental education and employment, on children’s cognitive progress and social/behavioral development at the start of primary school were explored. The results revealed significant effects on social-behavioral development of children of:

- child variables *age* and *gender*, with older children and girls exhibiting better social behavior than younger children and boys, respectively;
- child variables *health*, *birth weight* and *previous behavior problem*, with children who had experienced some health problems or behavioral problems in their first three years, and children with lower birth weights, exhibiting worse social behavior in comparison to children without such problems and children with heavier birth weights, respectively;
- parent and socio-economic variables *poverty*, *socio-economic status*, *formal qualifications*, and *level of employment*, with poorly off children, children whose parents had no formal qualifications, children whose mothers are not employed or whose fathers work part time scoring lower on sociability;

- family and home variables *home learning environment* (HLE) and *peer play at home*, with children who experience no peer play at home and children who came from homes that had been rated lower on the HLE index scoring lower on some social/behavioral subscales.

As for the examination of differences between the home and pre-school groups, the researchers report that the home group do significantly worse on all social/behavioral subscales except co-operation/conformity where no significant between-group differences were registered.

4. Conclusions

All the above-discussed findings evidenced the complexity of child social-behavioral development as well as the existence of certain ambiguities concerning its determination.

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