



Welfare Schemes and Brain Development

For Prelims: Hippocampus, Anti-Poverty Policies

For Mains: Relationship between poverty and brain development, Importance of investments in social safety net programs

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Why in News?

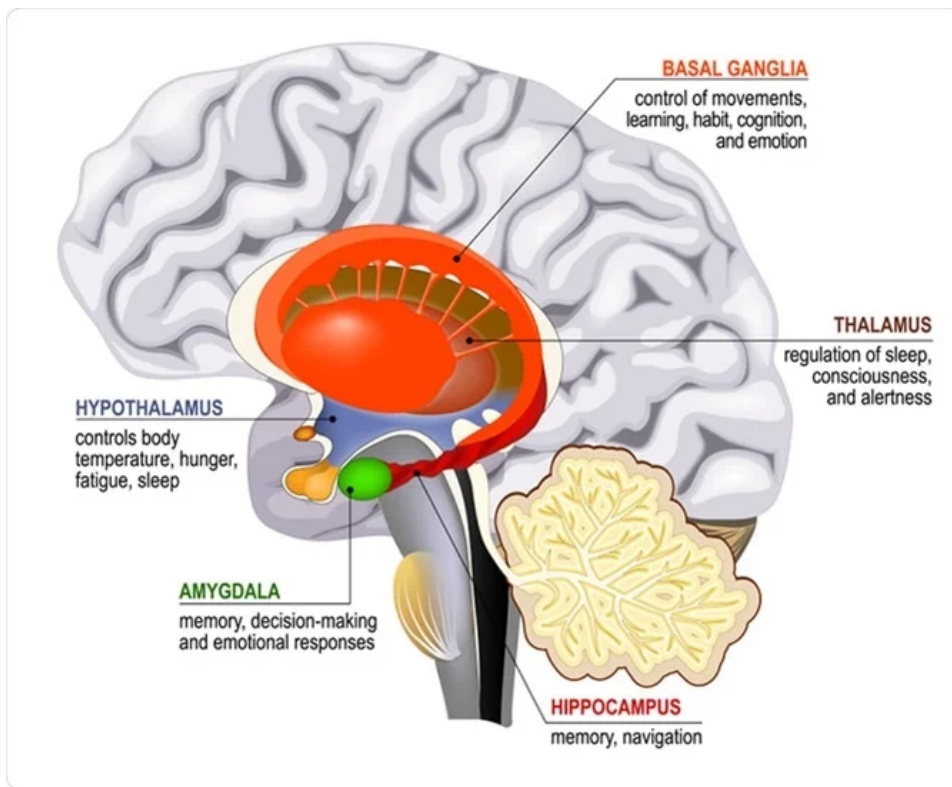
Recently, a study published in the *journal Nature* has shed light on the **impact of [welfare schemes](#) on brain development**, particularly in children from **low-income families**.

- The study, based on **brain scans of over 10,000 children aged 9-11** from **17 U.S. states**, aimed to explore the **relationship between [poverty](#) and brain development** and the role of anti-poverty policies in mitigating its effects.

What are the Key Highlights of the Study?

- **Poverty's Effect on Brain Development:**
 - Previous studies have consistently demonstrated that **growing up in low-income families** can **adversely affect brain development** and **cognitive abilities**.
 - In 2015, three studies reported that human children and young adults growing up in low-income families had **lower cortical volume and did relatively poorly in tests for academic performance**. The cortex is the outer layer of the brain.
 - Children from low-income families showed a higher risk of having a smaller **hippocampus**, a **structure crucial for learning and memory**.

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▪ **Impact of Anti-Poverty Policies:**

- Generous anti-poverty policies were found to **substantially lower the risk of a smaller hippocampus** in children from low-income families.
- The **size of the hippocampus correlated positively** with family **socioeconomic status**.
- Researchers found a significant three-way interaction between **family income, cost of living, and cash assistance programs** in predicting hippocampal volume.
 - In **low-income households** residing in **high-cost-of-living states**, and **received generous cash benefits**, their hippocampal volumes were, on average, **34% larger** than those who lived in **low-income households in states with a relatively higher cost of living and lower cash benefits**.

▪ **Welfare Schemes and Mitigating Biological Effects:**

- **Access to more financial resources** through welfare schemes **can shield families from chronic stressors** associated with low income, potentially influencing hippocampal development.
- Anti-poverty policies can **reduce stress levels** and allow families to make decisions that lead to decreased stress, such as working fewer hours.

▪ **Future Implications and Limitations:**

- **Longitudinal Study:**
 - The researchers plan to examine how **policy changes since the data collection period have influenced the mental health and brain development trajectories** of the participants.
 - Monitoring the **long-term impact of policy changes** can provide valuable insights into the effectiveness of anti-poverty measures.
- **Addressing Socioeconomic Disparities:**
 - The study highlights the importance of **investments in social safety net programs** to address socioeconomic disparities in **neurodevelopment**.
 - Such programs can potentially **lower the costs associated with mental health, education, and economic challenges** resulting from socioeconomic inequalities.

What are the Major Poverty Alleviation Programs in India?

- [Integrated Rural Development Programme \(IRDP\)](#)

- [Pradhan Mantri Awaas Yojana](#)
- [National Old Age Pension Scheme](#)
- [Mahatma Gandhi National Rural Employment Guarantee Act \(MGNREGA\) 2005](#)
- [Deendayal Antyodaya Yojana - National Rural Livelihood Mission \(DAY-NRLM\)](#)
- [National Urban Livelihood Mission](#)
- [Pradhan Mantri Kaushal Vikas Yojana](#)
- [Pradhan Mantri Jan Dhan Yojana](#)

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. In a given year in India, official poverty lines are higher in some States than in others because (2019)

- (a) poverty rates vary from State to State
- (b) price levels vary from State to State
- (c) Gross State Product varies from State to State
- (d) quality of public distribution varies from State to State

Ans: (b)

Exp:

- In India, poverty is estimated at absolute level or the minimum money required for subsistence. Presently, the poverty line is defined as the minimum money required for maintaining a per capita caloric intake of 2,100 calories in an urban area and 2,400 calories in a rural area.
- Thus, according to the Poverty Estimates (2011-12) of the Planning Commission, the poverty lines vary from State to State because the price of per capita goods varies due to interstate price differentials.
- **Therefore, option (b) is the correct answer.**

Mains

Q. "The incidence and intensity of poverty are more important in determining poverty based on income alone". In this context analyse the latest United Nations Multidimensional Poverty Index Report. **(2020)**

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