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Developing Tendencies of Violation Correlating Physiological Signatures Amongst the School Going Children of India: A Systematic Review

Ms. Triptikana Chakraborty[1], Ms. Haimanti Chatterjee[2], Mr. Diptaman Samanta[3], Dr. Titlee Majumder[4*]&Dr. Subrata Ghosh[5]

[1]Research Scholar, Department of Physiology, Hooghly Mohsin College, The University of Burdwan, Chinsurah, Hooghly.
[2]State Aided College Teacher (SACT-I)- Department of Physiology, Suri Vidyasagar College & Research Scholar, Department of Physiology, Hooghly Mohsin College, The University of Burdwan, Chinsurah, Hooghly
[3]Research Scholar, Department of Physiology, Hooghly Mohsin College, The University of Burdwan, Chinsurah, Hooghly
[4*]Assistant professor- Grade II, Department of Medical Laboratory Technology, School of Allied Health Sciences, Techno India University, West Bengal, Kolkata.
[5]Associate Professor, Department of Physiology, Hooghly Mohsin College, The University of Burdwan, Chinsurah, Hooghly

***Corresponding Author:** Dr. Titlee Majumder
*Assistant Professor- Grade II, Dept of MLT, SAHS, Techno India University, West Bengal,
Email: titlee.m@technoindiaeducation.com)

Abstract:
Behavior of a child is the amalgamation of biological factors and environmental experience. It has been identified that there are many biological factors emerge in growing selfish behavior amongst the children at their growing stage. There are various aspects and mechanisms of actions are dominant in releasing many neurotransmitters from brain whose regulations get expressed in the segregated domains of psychology, psychiatry, physiology and cognitive science. Early signs of vulnerable behavior help to identify the signs of criminology amongst the children of pre-puberty later on in their growing stage it can be checked and smothered. There are many intervention upon the pre- pubertal children have been performed like screening of responses generated by autonomic nervous systems, electroencephalography, slow skin conduction tests as well as biochemical tests etc. no such signs of biological triggers for the aggression, violence & criminological activities are potentially connected with each other rather genetic means violence is also not being understood but the role of exogenous markers are yet to be understood and researched. The researches focused upon foreign neurology has potentials for understanding deep routed reasons for committing crime as well as brain dysfunction. Illustrative researches in this domain will help to fetch better ideology.

Key words: Crime, psychology, psychiatry, neurology, neurotransmitter

1. Introduction

Juvenile offence is often treated as social than biological. Many researches have evidenced the fact that child offenders or crime makers lack their decision making abilities in a habit. Rather anger and rage have captivated their ways of making decisions in terms of enacting violence. The neurobiological researches are very dominant in showing relations amongst the behaviors and stress sensitive degenerations (1). Many interventions have showed that this such stress sensitive interventions are mainly dependent upon either previous family history or sociological experiences. Many theoretical parameters have been discussed in many researcheswhere as potential applications to control over such abnormalities are not yet found (2). Over the decades manyresearches have been came under the limelight in justifying the tendencies of cruelties amongst the children but no such concrete biological markers have been introduced tothe society so that it can be treated clinically (3). No such biological base rather cruel gene persist in the birth mode of any child. Socioeconomic differentiation is a major reason for growing this inequality amongst the societyand also for the generations upcoming. In biology it was showed that children with dysfunction in the pre frontal cortex leads to grow antisocial behavior amongst them (4). Nature of forcefully snatching of harming others are basically results of not fulfilling usual requirements. The basic societal needs are required to be fulfilled for every child. There are multidisciplinary approach has been made several times to find out the reasons of dissatisfaction and violence amongst the children of various socioeconomic status, even the data from various domains like physiological psychology, behavioral genetics, endocrinology and psychopharmacologyhave been emerged in assuring the reasons for this kind of behavior but no such reasons to be recognized as the exact (5). The assessment of pre and post crime behavior mark more significant to find out the reasons for their attitude of homicide. More data in this regard may give an eye opening thought for assessment of criminological behavior (6). The psychological factors determines the behavioral risks are yet

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to be identified by the researchers, academicians and other non-profit making organizations which may be helpful in identification of many other hazards relating harmful cognition (7). With the help of many physiologic markers for example; heart rate variability, precision of taking risks in day to day life, especially work related stress amongst the children as labors. There are many assessment principles incorporated in the assessment of violence and youngsters amongst which Structured Assessment of Protective Factors for violence risk-Youth Version (SAPROF-YV) is one of the finest, this helps in assessment of many hormones like cortisol and testosterone which are already known as markers for stress, depression, anxiety and violence (8). Even the race can be a very common cause to predict violence through it. Statistics portrays that many of the leading countries are in very vulnerable positions apart from India. Cutting edge therapies and psychosocial health to be promoted in many folds to the grown and growing countries so that the vulnerability amongst the students lowered and societies to be claimed as harm free for the upcoming generations.

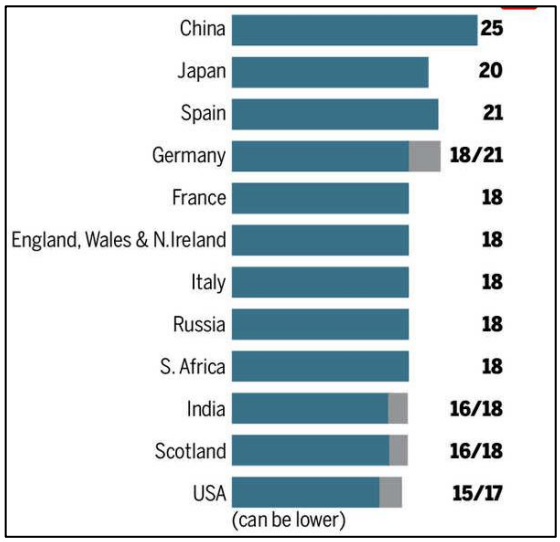

Figure 1: It shows the rate of crime done by youngest population in Globe (9).

The differences between the psychological trauma faced and neurological values observed in terms of assessing the parameters for the hyper kinetic behavior amongst the children are not completely understood. Sothe experimental designs to be made for better understanding of this part. Many trials have shown that the children who have faced abuse and cruelty are very poorly nurtured and are often said as violent on nature (10). Even the population based statistics in India show that,societal mismanagement rather environmentis the primary reason for being cruel for the children (11). Anthropometry has identified many key markers in terms of finding aggression amongst the children of various population. The changes occurred in nervous system namely Amygdala and Cingulate gyrus are not profoundly established for behavioral pattern changes whereas evidences are also limited in this regards(12). Growing addiction amongst the post-adolescent children are often rendered as tendencies for aggression amongst them.

2. Review of Literature & Contemporary Discussions:

Factors influence violence in children/ Juvenile

i) Social Disputes:

Juvenile offenders often display specific characteristics in their criminal behaviour, which can help in understanding their actions and devising appropriate interventions. Here are some common traits and patterns observed in juvenile offenders (13, 14, 15):

a) Peer Influence: Many juvenile offenders are significantly influenced by their peers. They may engage in criminal behaviour to gain acceptance, status, or to fit in with a particular group.

b) Impulsivity: Adolescents are often more impulsive than adults, leading to rash decisions and actions without fully considering the consequences.

c) Risk-Taking Behaviour: Juveniles may engage in risk-taking behaviour due to a lack of maturity and a heightened sense of invulnerability. This can manifest in illegal activities like drug use, vandalism, or reckless driving.

d) Family Environment: A dysfunctional family environment, including factors like neglect, abuse, or parental criminal behaviour, can contribute to juvenile delinquency. Family dynamics and parenting styles play a crucial role in shaping behaviour.

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e) Educational Challenges: Poor academic performance, school truancy, and a lack of engagement in educational activities are often linked to criminal behaviour in juveniles. School failure can contribute to a sense of hopelessness or frustration.
f) Socioeconomic Factors: Juveniles from lower socioeconomic backgrounds may face more stressors, such as economic hardship or limited access to resources, which can increase the likelihood of engaging in criminal activities.
g) Mental Health Issues: Some juvenile offenders may have underlying mental health issues, such as conduct disorders, ADHD, or depression, which can affect their behaviour and decision-making (16).
h) Substance Abuse: Drug and alcohol abuse is common among juvenile offenders and can exacerbate or contribute to criminal behaviour. Substance abuse can impair judgment and increase the likelihood of engaging in illegal activities.
i) Lack of Supervision: Insufficient parental or guardian supervision can lead to increased opportunities for delinquent behaviour. Juveniles left unsupervised may be more likely to engage in illegal activities.
j) Exposure to Violence: Exposure to violence, whether in the home, community, or media, can normalize aggressive behaviour and contribute to a cycle of violence and criminal activity.
k) Trauma and Adverse Childhood Experiences: Experiencing trauma or significant adverse childhood experiences can impact a juvenile's behaviour. Trauma can influence their coping mechanisms and increase the likelihood of criminal behaviour (17).
l) Developmental Factors: Adolescents are still developing their decision-making and self-regulation skills. Developmental factors, including brain maturation, can impact their propensity for criminal behaviour.
Understanding these characteristics can help in designing effective prevention and intervention strategies to address juvenile delinquency. Tailored approaches that consider these factors are often more successful in redirecting young individuals away from criminal behaviour and towards positive development (18).

ii) Biological Disputes:
Biological markers, or physiological and genetic factors, can play a role in influencing behaviour and may be linked to a predisposition for criminal activity in children. While it's important to recognize that biology is just one aspect of a complex interplay of factors contributing to behaviour, some biological markers have been identified that may be associated with a higher risk of engaging in criminal activity:
1. Genetic Predisposition: Research suggests that certain genetic factors can influence predispositions towards aggression, impulsivity, and antisocial behaviour. For example, variations in genes related to neurotransmitter systems (like serotonin and dopamine) may affect mood regulation and impulsivity, which can be linked to criminal behaviour (19).
2. Neurodevelopmental Abnormalities: Structural or functional abnormalities in the brain, such as in areas responsible for impulse control, emotional regulation, and decision-making (e.g., the prefrontal cortex), may be associated with higher risks of criminal behaviour. Neuroimaging studies have found differences in brain structure and function in individuals with antisocial behaviour (20, 21).
3. Neurotransmitter Imbalances: Imbalances in neurotransmitters, such as serotonin, dopamine, and norepinephrine, can impact mood, aggression, and impulse control. For instance, low serotonin levels have been linked to increased aggression and impulsivity.
4. Autonomic Nervous System (ANS) Functioning: Some studies suggest that individuals with lower baseline levels of physiological arousal (as measured by heart rate or skin conductance) may have a reduced response to stress and a higher likelihood of engaging in risky or antisocial behaviour. This reduced arousal can be associated with a lack of empathy and increased aggression (23).
5. Hormonal Factors: Hormonal imbalances or variations, such as higher levels of testosterone, have been linked to increased aggression and antisocial behaviour. However, the relationship between hormones and criminal behaviour is complex and influenced by environmental factors.
6. Prenatal and Perinatal Factors: Exposure to certain conditions during pregnancy, such as maternal drug or alcohol use, prenatal stress, or birth complications, can impact brain development and increase the risk of behavioural problems in children. These factors can contribute to a higher likelihood of engaging in criminal behaviour (24, 25).
7. Neurodevelopmental Disorders: Conditions such as Attention-Deficit/Hyperactivity Disorder (ADHD) and Conduct Disorder (CD) have biological underpinnings and are associated with increased risks of antisocial and criminal behaviour. Children with these disorders may have difficulties with impulse control and aggression (26).
8. Genetic-Environmental Interactions: It is essential to consider that genetic factors often interact with environmental influences. For example, a child with a genetic predisposition towards aggression may be more likely to engage in criminal behaviour if exposed to adverse environmental conditions, such as a violent home environment or poor parenting (27).
While these biological markers can provide insights into potential predispositions, they do not determine an individual's behaviour. Environmental, social, and psychological factors play significant roles in shaping behaviour, and interventions that address these factors are crucial in preventing and managing criminal behaviour in children (28). Understanding the interplay between biological and environmental factors can help in developing more effective prevention and treatment strategies.

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iii) Gender Based Disputes

When comparing male and female infants in the context of criminal behaviour, it's important to consider that criminal activity in very young children, including infants, is extremely rare. However, understanding differences in behaviour between genders can provide insights into developmental patterns and risk factors (29). Here's a comparative overview:

1. Behavioural Tendencies

- **Male Infants**: Generally, male infants may exhibit higher levels of physical activity and impulsivity compared to female infants. This can sometimes translate into higher instances of physical aggression or risk-taking behaviour as they grow older (30). While these tendencies are more pronounced in older children, the early signs of impulsivity and physical aggression can be observed from infancy.
- **Female Infants**: Female infants often show more cautious and less physically aggressive behaviour compared to males. They may display more social behaviours and be more responsive to emotional cues (31). However, this does not mean that females are immune to developing behavioural issues; the manifestations and patterns may simply differ.

2. Risk Factors for Future Criminal Behaviour

- **Male Infants**: Research indicates that males are more likely to exhibit externalizing behaviours, such as aggression and defiance, which are risk factors for later criminal behaviour. From a very young age, males may show more signs of behavioural regulation issues, which could predispose them to delinquency as they grow older (32).
- **Female Infants**: Female infants might not display externalizing behaviours as frequently in infancy, but they are not exempt from risk factors. When behavioural issues do emerge, they may be more likely to manifest in internalizing forms, such as anxiety or depression, which can also contribute to later issues if not addressed (33).

3. Socialization and Environmental Influences (34)

- **Male Infants**: Societal expectations and norms often encourage more active and assertive behaviour in males, which might influence their behavioural development. Boys are sometimes encouraged to engage in rough-and-tumble play, which can impact their aggression levels.
- **Female Infants**: Social norms typically encourage females to be more nurturing and compliant. This socialization can influence their behavioural patterns, leading to fewer externalizing behaviours in early childhood compared to males.

4. Parenting and Caregiving Practices

- **Male Infants**: Parenting styles can vary based on the infant's gender. Parents of male infants may sometimes adopt more lenient or less structured approaches to discipline, which can impact behaviour. There may be a tendency to overlook aggressive behaviours as "normal" for boys.
- **Female Infants**: Parents of female infants might focus more on social skills and emotional development. There can be more emphasis on managing emotions and fostering interpersonal skills, which can influence behavioural outcomes (35, 36).

5. Biological and Genetic Factors (37)

- **Male Infants**: Hormonal differences, such as higher levels of testosterone, can influence early behaviour patterns. Boys are often more physically active and display higher levels of impulsivity from a young age.
- **Female Infants**: Female infants typically have lower levels of testosterone and may exhibit different developmental trajectories. They might show earlier social and communicative skills, which can affect their behaviour in distinct ways.

6. Early Warning Signs

- **Male Infants**: Signs of future aggressive or antisocial behaviour in males might be more apparent in early childhood. Behaviours such as excessive temper tantrums or difficulty with impulse control could be early indicators (38).
- **Female Infants**: Early signs of potential issues in females might be less overt and could manifest as internal emotional struggles. Behavioural problems might be less noticeable but can still be significant.

While gender differences can influence behavioural development, it's essential to approach these observations with caution. Most behaviours in infancy are part of normal development and don't necessarily predict future criminal behaviour. Environmental factors, parenting practices, and individual experiences play a critical role in shaping behaviour as children grow.

3. Conclusion

Understanding these dynamics can help in early identification and intervention, but it is crucial to focus on supportive and constructive measures rather than assumptions based on gender alone. Moreoverapart from biochemical assessments, haematological assessments and anthropometry recordings of electroencephalogram can be also said as key markers in assessments of aggression.

Conflict of Authors: There are no such conflicts found amongst the authors, whereas all have shown their immense contribution and dedication in explaining this piece of research.

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