



THE EFFICACY OF R&R MODULE OF NEUROCRIMINOLOGY MODEL ON PRISON POPULATION WITH FOCUS ON JUVENILE DELINQUENTS: A PILOT STUDY

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ABSTRACT

Delinquency itself is socially inadequate adjustment on the part of the individual to difficult situations. Each juvenile offense is the outcome of a complexity of causes, some of whose origins date back years before the committal of the offense and others whose origins are more obviously and immediately connected with the act of delinquency. It has been shown that a different set of causes is involved in each individual case. The factors which operate to turn a child's behaviour in one direction rather than another may be very obscure, many as yet are beyond the detection of expert sociologists, psychologists, physiologists and others. This pilot study aimed to identify the effectiveness of Neurocriminology module on Juvenile Delinquents in Indian scenario. After data analysis, research concludes that neurocriminology modules are effective in reducing anti-social traits and helps to gain prosocial behaviour and thereby, can reduce recidivism in Indian Scenario.

KEYWORDS : Neurocriminology, Juvenile, Delinquency.

Introduction:

Violence is increasingly viewed as a world public health problem. A growing body of knowledge shows that there is a neurobiological basis to violence, and this has intensified judicial interest in the potential application of neuroscience to criminal law.

The great majority of children are not official delinquents because the family checks their unsocial conduct. Or it may intervene if the boy or girl has been caught in delinquency by a neighbour, or even by the police and accept full responsibility for his future conduct. These children are not stigmatized by the community as delinquent. They do not consider themselves as in that class. At most they think of themselves as "tough" and "wild." (Ernest W. Burgess, 1952-1953)

Juvenile delinquents are then those children who have official records as delinquent. They have completed one or more stages of the process by which a child becomes delinquent. They have been arrested by the police. They have appeared in the juvenile court; have been detained in the juvenile detention home; placed on probation. They have been committed to an industrial school, and have been released on parole. Many have violated parole and have committed new delinquency and have been apprehended by the police and gone through the process of delinquency- making again. (Ernest W. Burgess, 1952-1953)

Official records of delinquency including arrest, appearance in Juvenile Court, probation, commitment to institutions and later parole and recidivism characterize many children from low income families. These are seldom experienced by children from well-to-do homes. The proverbial black sheep of good family is an exception and sooner or later generally obtains a delinquency record. (Ernest W. Burgess, 1952-1953)

In spite of the great complexity and diversity of the causes of delinquency, cases are found to have many factors in common. The different combinations of these factors are largely responsible for the differences in offenses. (K. M. Banham Bridges, 1926-1927)

On the basis of a psychopathic constitution a person may develop a psychosis, a psychoneurosis, or a "psychopathic personality" according to the nature of the situations in life which he is called

upon to face. Any one of these mental conditions, as shown elsewhere, will result in abnormal behaviour and possibly in delinquency. (K. M. Banham Bridges, 1926-1927)

Neurocriminology is a neuroscience technique to probe the causes and cures of crime. Neurocriminology studies the makeup and composition of the brain and looks for correlations between characteristics of the brain and criminal behaviour. The very rapid developments taking place in brain-imaging science are creating a new approach to our concepts of responsibility and retribution on the one hand, and understanding and mercy on the other. (Ross RR. 2008)

Neuro-criminologists by considering, pondering and interpreting brain-imaging, endeavour to prove relative offenders responsibility. There are multiple neuro-scientific documents that imply the truth of their claims. To test their hypotheses, neuro-criminologists combined functional magnetic resonance imaging (fMRI) with a third-party punishment task, asking healthy subjects to estimate how much punishment a hypothetical offender deserved for a set of prototypical offenses ranging across severity of crime from property destruction and theft to rape and murder. (Krueger F, Hoffman M, Walter H, Grafman J, 2014)

Advances in neuroscience are providing increased understanding of how our biology influences our behaviour – for both good and bad. The emerging field of neurocriminology seeks to apply techniques and principles from neuroscience to better understand, predict, and ultimately prevent crime. Such an approach brings with it both the potential economic and social benefits of violence reduction and also neuro ethical concerns. (Raine 2013)

In the light of above introduction this pilot study is aimed to identify the effectiveness of neurocriminology module on Juvenile Delinquents in Indian scenario.

Review of Literature

Neurocriminology concentrates on studying the brains of criminals, putting the psychopathic brain in the spotlight (A., Raine (2013), E. Lerner (2011)). The field seeks to identify those with neurological and genetic predispositions for violent behaviour and to hopefully

engineer a treatment or prevention strategy ((A., Raine (2013), E. Lerner (2011)). While the field is still burgeoning, genetic and neurological evidence is making its way into the courtroom, raising ethical questions about how genetics, neurological functioning, and child abuse affect a criminal's responsibility (A., Raine 2013, E. Lerner 2011, L. Baker, S. Bezdjian, and A. Raine 2006, A. Raine 2013).

Adrian Raine is a leader in Neurocriminology as well as a professor at the University of Pennsylvania and chair of their criminology department (A. Raine, 2013). Raine explores genetic, environmental, and neurological factors that play into violent criminality in his most recent book, *The Anatomy of Violence*. In sum, in recent years, evidence of the importance of biological factors in antisocial behaviour has accumulated and is being recognized as valuable in our understanding of crime and violence (A. Raine, 2013).

Juveniles are indeed different from adults. First, the way the brain "works" changes during adolescence-not only is the brain's structure changing and developing, but so too is how the brain processes information (Elizabeth Scott & Laurence Steinberg, 2008). This realization has been made possible because of the recent studies that have employed functional magnetic resonance imaging (fMRI). (Laurence Steinberg, 2013).

The study of Van Honk and Schutter, (2006) suggests as the stress response system is important to the biological understanding of psychopathy because it is involved in generating the body's responses to harmful or fearful situations, including punishment. When functioning properly, the stress response system increases

the probability of withdrawal behaviour by inducing fear and increasing sensitivity to punishment

Methodology

Aim:

To determine the efficacy of Reasoning and Rehabilitation (R&R) module in prison population with focus to juvenile delinquents.

Objectives:

- To assess the psychopathological traits.
- To understand the efficacy of R&R Module.
- To see the feasibility of developing a policy to induct Neurocriminology model in India.

I. Hypothesis:

1. There will be a significant difference in mean score pre and post neurocriminology module intervention.

II. Tools:

1. Socio demographic data sheet
 2. Semi-structured interview schedule
- 20 participants were interviewed through Semi-structured interview schedule. Then, Neurocriminology module intervention have done on 10 participants and again tested. All the samples are from Ahmedabad and Nadiad.

Result and Discussion:

B) Table No. 1 Experimental Group (pre-score)

Table 1: Shows pre-module score of Experiment group.

Name	Superficial	Grandiose	Deceitful	lacks Remorse	Lacks Empathy	D.A.R	Impulsive	P.B.C.	Lacks Goal	Irresponsible	Pre-Total
E1	2	2	2	2	2	2	0	2	2	2	18
E2	2	1	2	1	0	2	2	2	2	2	16
E3	2	2	2	0	0	2	2	0	2	2	14
E4	0	2	2	1	2	2	2	0	2	2	15
E5	2	2	2	2	2	2	0	0	0	2	14
E6	2	2	2	2	2	1	1	2	2	2	18
E7	1	1	1	2	2	1	1	1	2	2	14
E8	1	1	2	2	2	2	1	0	2	2	15
E9	2	2	0	0	2	2	2	2	2	2	16
E10	2	2	2	2	2	1	1	2	1	1	16
										Mean	15.60

A. Table No. 2 Control Group (Pre-score)

Table:2 Shows pre-module score of control group.

Name	Superficial	Grandiose	Deceitful	lacks Remorse	Lacks Empathy	D.A.R	Impulsive	P.B.C.	Lacks Goal	Irresponsible	Pre-Total
C1	2	2	2	2	2	2	0	0	2	2	16
C2	0	0	2	2	2	1	1	2	2	2	14
C3	2	2	1	1	0	2	2	0	2	2	14
C4	2	0	1	2	2	2	0	2	1	2	14
C5	2	2	1	2	2	2	0	0	2	2	15
C6	0	0	1	2	2	2	2	0	2	2	13
C7	0	0	1	2	2	2	0	2	2	2	13
C8	2	2	0	0	0	2	2	0	2	2	12
C9	0	0	2	2	2	2	2	1	2	2	15
C10	1	1	1	2	1	2	2	0	1	2	13
										Mean	13.9

B. Table No. 3 Experimental Group (post score)

Table:3 Shows post module score of experimental group.

Name	Superficial	Grandiose	Deceitful	lacks Remorse	Lacks Empathy	D.A.R	Impulsive	P.B.C.	Lacks Goal	Irresponsible	Pre-Total
E1	0	2	2	1	2	2	1	2	2	0	14
E2	1	1	1	1	0	2	1	1	2	2	12
E3	2	0	2	0	0	1	2	0	2	2	11
E4	0	1	2	0	2	1	2	0	2	1	11
E5	1	2	0	2	2	2	0	0	0	1	10
E6	0	2	0	2	2	1	1	2	2	2	14
E7	0	1	0	1	2	1	0	1	2	2	10

E8	1	1	0	2	2	2	1	0	2	1	12
E9	2	2	0	0	2	1	2	1	2	0	12
E10	2	2	2	0	2	1	1	2	1	0	13
										Mean	11.90

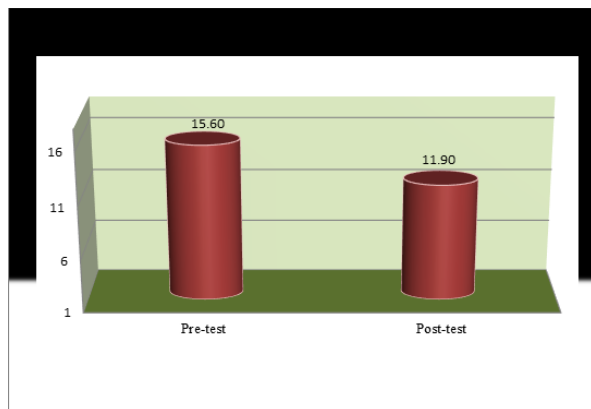
C. Table No. 4 Control group (post score)

Table:4 Shows post module scores of control group.

Name	Superficial	Grandiose	Deceitful	Lacks Remorse	Lacks Empathy	D.A.R	Impulsive	P.B.C.	Lacks Goal	Irresponsible	Post Total
C1	2	2	2	2	2	2	0	0	2	2	15
C2	0	0	2	2	2	0	1	2	2	2	13
C3	2	2	1	0	0	2	2	0	2	2	13
C4	2	0	1	2	2	2	0	2	1	2	14
C5	2	2	1	2	2	2	0	0	2	2	15
C6	0	0	1	2	2	2	2	0	2	2	13
C7	0	0	1	2	2	2	0	2	2	2	13
C8	2	2	0	0	0	2	2	0	2	2	12
C9	0	0	2	2	2	2	2	1	2	2	15
C10	1	1	1	1	1	2	2	0	1	2	12
										Mean	13.5

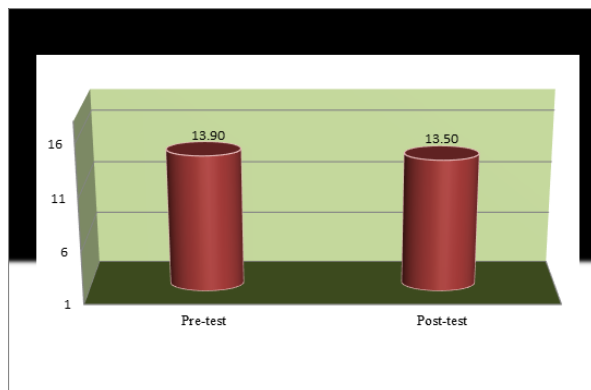
D. Chart No. 1 Experimental group

This chart shows the Mean difference of Pre & Post test.



E. Chart No. 2 Control group

This chart shows the Mean difference between Pre & Post Test.



F. Observations

- Researcher has observed that prior to application of neurocriminology module, juvenile have negative traits like superficial, lack of remorse, impulsiveness, lack of empathy, irresponsibility, poor behaviour contacts, deceitful, no acceptance of responsibility etc.
- Researcher has taken 20 juveniles for the research, as 10 selected as experimental group to whom neurocriminology module has applied and 10 for control group to whom neurocriminology module has not applied which helps researcher for comparison of results of both groups.
- Researcher had collected details about their socio-demographic details to know their background and livelihood. Data shows that majority juveniles belong to low socio economic status (SES).

- Also observed that most families depend on daily wages and irregular job. Few families have no fixed income source.
- Later researcher applied semi – structure interview schedule to analyse traits of anti-social behaviour and observed that from 20 respondents, 20 juveniles were having anti-social traits according to reference book **“THE HARE PCL : SV, PSYCHOPATHY CHECKLIST : SCREENING VERSION”**
- Researcher has divided 20 juveniles in two groups: Experimental and Control. 10 juveniles were in experiment group randomly chosen and 10 juveniles kept in control group.
- Researcher has given neurocriminology module to experimental group to reduce their anti-social traits. To bring them back to society and living structure with giving them scenario, situations, incomplete stories to narrate and complete, some conflict creating incidence which relate them with their own situation and interests. In that scenario researcher analyse their ability of decision making and enhancing pro-social traits.
- Researcher observed that experimental group to whom neurocriminology module have applied, noticeable decrease of anti-sociality traits.
- As control group to whom neurocriminology module not applied have no change in their behaviour.
- Researcher observed Experimental mean difference in pre module score **15.60** and post module score **11.90** and control mean difference in pre module score **13.90** and post module score **13.50**.
- Graphical representation of scores in Experimental group showing the mean difference in pre and post correctional module.

Conclusion:

First, the development of innovative and biological programmes for crime prevention.

Second, attempting to enhance the prediction of recidivism, with socially acceptable accuracy by including neurobiological predictors.

Third, including emotion alongside cognition in how we legally conceptualize responsibility.

Fourth, considering the adoption of a dimensional concept of partial responsibility.

Fifth, discussing the thorny neuro-ethical implications of this growing body of neurocriminology research that include the potential for conceptualizing crime as having a physical cause (for example, viewing crime as the result of psychological deficit), stigma and labelling (that is the potentially harmful effects of identifying individuals based on early biological predispositions).

Therefore, this pilot study aimed to identify the effectiveness of Neurocriminology module on Juvenile Delinquents in Indian scenario.

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