

**A STUDY OF BIOPSYCHOSOCIAL FACTORS AND
PSYCHOPATHOLOGY AMONG ADOLESCENTS IN
JUVENILE HOMES**

*Dissertation submitted for partial fulfillment of the
rules and regulations*

**DOCTOR OF MEDICINE
BRANCH – XVIII (PSYCHIATRY)**

Reg. No. : 201728007



**THE TAMILNADU
DR.M. G. R MEDICAL UNIVERSITY
CHENNAI, TAMILNADU**

MAY 2020

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This is to certify that this dissertation entitled “**A STUDY OF BIOPSYCHOSOCIAL FACTORS AND PSYCHOPATHOLOGY AMONG ADOLESCENTS IN JUVENILE HOMES**” submitted by **Dr. RISWANA FATHIMA K** to The Tamilnadu Dr. M.G.R. Medical University, Chennai is in partial fulfillment of the requirement for the award of M.D. [PSYCHIATRY] and is a bonafide research work carried out by him under direct supervision and guidance. This work has not previously formed the basis for the award of any degree or diploma.

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Dr. RISWANA FATHIMA K under my direct supervision and guidance,
submitted to The Tamilnadu Dr. M.G.R. Medical University regulation
for **M.D Branch XVIII – Psychiatry.**

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DECLARATION

I, **Dr. RISWANA FATHIMA K**, solemnly declare that dissertation entitled “**A STUDY OF BIOPSYCHOSOCIAL FACTORS AND PSYCHOPATHOLOGY AMONG ADOLESCENTS IN JUVENILE HOMES**” is a bonafide work done by me at the Institute of Mental Health under the guidance and supervision of **Dr. P. POORNACHANDRIKA D.C.H., M.D.**, Professor of Psychiatry. It was not submitted by me or any other for any award, degree, diploma to any other university board either in India or abroad.

This dissertation is submitted to The Tamilnadu Dr. M.G.R. Medical University, Chennai in partial fulfillment of the rules and regulations for the award **M.D. Degree Branch – XVIII (Psychiatry)** to be held in May 2020.

Place:

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3. The children shall not be photographed or any matter regarding them published.

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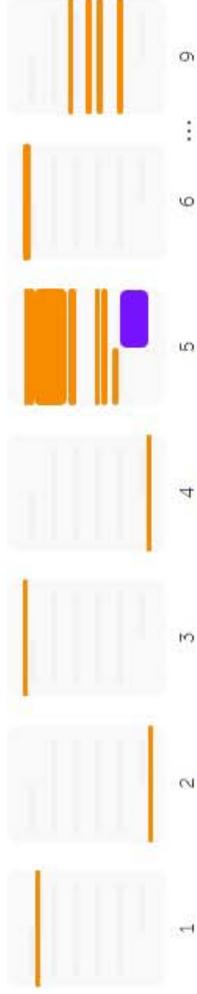
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INTRODUCTION

The World Health Organization defines adolescents as individuals in the age group 10-19-years and describes adolescence as a transition phase from a child to an adult. The development occurs on many fronts including the development of mental processes and adult identity, sexual and reproductive maturity and the transition from total socio-economic and emotional dependence to relative independence¹.

Adolescence is a critical phase of neural plasticity during which different areas such as limbic system, prefrontal cortices are still maturing. Synaptic pruning also occur in these area which mediates impulsivity, novelty seeking and risk taking behaviour. Much of these developments are linked to hormonal changes.

It is also a psychologically turbulent phase involving exposure to various social factors such as peer group formation, ultimately influencing personality development.

Juvenile Delinquency is a legal term used to refer to an act by a young person who has been convicted of an offence which would be deemed a crime if committed by an adult.

A large number of adolescents are involved in the juvenile justice system all over the world and there is an increasing trend of juvenile

crimes especially that of violent crimes. India shows similar trends of increasing rate of violent crimes committed by the juveniles. The National Crime Records Bureau estimates that around 35,000 juvenile arrests are made each year and a major proportion of them are placed in special observation homes.² An even greater number of children from difficult circumstances are placed in homes under the Juvenile Justice (Care and Protection of children) Act 2015³.

Many of these detained adolescents have mental health disorders, the rates of which exceed that of their peers in the general population⁴. However, psychiatric comorbidities among this population remain largely under diagnosed. Studies focussing on comorbid psychiatric illness are also limited.

Conduct Disorder is the most commonly occurring disorder in this population⁵. It is characterised by a persistent pattern of violating societal norms or rules and the basic rights of others. Of all the measured human traits other than intelligence, Anti-social behaviour is found to have the highest continuity into adulthood⁶. Crime represents only a subset of conduct problems. But there is a significant overlap between these two as it includes both aggressive acts like fighting and non-aggressive acts like theft and deception.

Substance use is another common comorbidity next only to Conduct disorder. The use of illicit drugs by adolescents is on a steep rise for the past 25 years ⁷. The pattern of use varies widely from simple experimentation to full blown dependence. The availability and supply of drugs as well as economic factors also play an important role in the prevalence rates. The relationship between substance abuse and criminal activity has been well established. It is complex and influenced by a number of factors including individual traits such as personality factors and various social factors.

Recidivism which is the tendency of a convicted person to reoffend is a major public concern. Peer influence, neglect and other social factors are found to have major influence on the trajectory of a juvenile offender ⁸. The age of onset of conduct problems is found to be an important predictor of whether a person will be developing a criminal career in future. Addressing these factors early is essential in order to prevent repeat offending.

This study is done to gain insight into the magnitude of the mental health problems faced by this population and thereby aiding improvement in appropriate areas to provide better mental health care. It will also help in emphasizing the importance of identification in the early stages so as to prevent recidivism.

REVIEW OF LITERATURE

Criminal behaviour occurs as a result of interplay between multitude of factors ranging from biological, psychosocial, cultural to political context. A number of Criminological theories have also been proposed to explain the causation of delinquency.

THEORIES OF DELINQUENCY:

DELINQUENT SUBCULTURE THEORY:

Cohen in 1955 hypothesized that, for lower-class youths, schooling experiences stand as barriers to conventional goal achievement. He proposed that delinquent behaviour is a "reaction formation" to these experiences.⁹

STRAIN THEORY

Proposed by Cloward and Ohlin in 1960

According to this theory, crime is viewed as a consequence of the difference between aspirations and what the individual can achieve through legitimate means. Delinquency results from the difficulty faced in achieving socially valued goals by legitimate means by those in poverty. Therefore, a social structure within a society may cause people to commit crimes.¹⁰

LABELING THEORY

Becker, 1963 stated that the social reaction to a deviant act produces a criminal identity and criminal behaviour. Once labelled as deviant, the person tends to carry the label and continue to do the acts associated with peers who have been similarly labelled.¹¹

Lemert in 1972 additionally suggested the terms primary deviance and secondary deviance to distinguish between acts that occur before and after the societal response.¹²

Primary Deviance: Acts that precede a social or legal response. They may be incidental or even random aspects of an individual's general behaviour. These initial acts however have little impact on the individual's self-concept.

Secondary deviance: Acts that follow the societal response. They involve a transformation of the individual's self-concept, producing specialized organization of social roles and self-regarding attitudes.¹³

CONTROL THEORY:

Proposed by Hirschi in 1969

According to this theory, social bonding to conventional others inhibits the commission of criminal acts.¹⁴

SOCIAL DISORGANIZATION THEORY:

Shaw and McKay in 1969 proposed that disorganized communities spawned delinquent individuals. According to this theory, crime is more likely to occur in areas where social institutions are unable to directly control groups of individuals¹⁵

DIFFERENTIAL ASSOCIATION THEORY

Sutherland & Cressey in 1974 stated that delinquent behaviour results when the majority of those with whom an individual interacts hold a normative definition of the behaviour as acceptable.¹⁶

SOCIAL LEARNING THEORY:

Akers, in 1985 hypothesized that the social environment is important in defining opportunities, contingencies, or reinforcements for behaviour. According to social learning theory, a practice that is rewarded teaches the individual to repeat the behaviour. Thus, certain environments teach crime through rewarding criminal behaviour. Other environments teach conventionality through rewarding the practice of conventionality.¹⁷

OTHER CONTEMPORARY THEORIES:

More Focused on individual characteristics of the child who is interacting with the social environment. These may be inherited

temperamental or character factors, traits that are deviant which tend to generate negative responses from and towards the social environment.

Wilson and Herrnstein in 1985 emphasized on the child's ability to delay gratification reduces deviant behaviour.¹⁸

Hawkins, Lishner, Catalano, & Howard, 1986 considered deficits in skills for controlling impulsive or antisocial behaviours or for performing behaviours required for the successful completion of normative expectations.¹⁹

Each of these perspectives views the onset of crime as the result of an interaction between the individual's propensity and the reinforcements presented by the social environments with which the child interacts.

EYSENCK'S THEORY OF CRIMINALITY:

Eysenck suggested that personality is biologically based. Extraversion, neuroticism and psychoticism are the traits which can be measured to predict criminal personality. High levels of extraversion require more environmental stimulation, which may include criminal behaviour, to fuel excitement. High neuroticism score indicates a person is less stable and more likely to engage in offending behaviour. Psychoticism relates to the degree to which somebody is anti-social,

aggressive and uncaring. People should score highly on these three dimensions to have criminal personality, according to Eysenck.²⁰

NEUROBIOLOGY

Impulsivity and aggression are complex concepts implied in a number of conditions. Aggression is defined as a behavior directed by one individual against another individual or object or self with the aim of causing harm.²¹ Many studies have explored the neurobiology of impulsivity and aggression.

NEUROANATOMY:

Specific brain structures are found to mediate different forms of aggression.²² Structural lesions of Hypothalamus are associated with unprovoked and undirected aggression. Temporolimbic lesions result in either enhanced or reduced aggression because of the modulatory function of amygdala. Prefrontal lesions produce different symptoms depending on the site of dysfunction.²³ Dorsolateral prefrontal cortex lesions result in apathy, lack of reactivity, impairment in planning, reduced intellectual functioning involving abstract reasoning and concept formation and inability to sustain attention and concentration. It can also result in an inability to evaluate the consequences of one's own behavior. Orbitofrontal lesions result in disinhibition, impulsive behavior, loss of guilt and remorse.^{24,25}

NEUROTRANSMITTERS:

Many studies now point towards a multiple neurotransmitter theory of aggression modulation. Different types of aggressive behaviour have differing neurochemical and neuroanatomical substrates. The most important neurotransmitters involved in aggression modulation are Serotonin, Norepinephrine and Dopamine.

SEROTONIN:

The serotonin system has received the most attention in terms of antisocial behavior. Impulsive individuals are behaviorally disinhibited because of an imbalance between the Behavioral activation system (BAS) and Behavioral inhibition system (BIS).²⁶ The BIS is modulated by serotonin through the septo-hippocampal system. Low levels of serotonin hence leads to increased aggression.²⁷

CSF 5-HIAA CONCENTRATION:

A substantial number of reports indicate that central nervous system 5-HT activity may be altered in suicidal behaviour in humans. There is an inverse relationship between measures of aggression and 5 hydroxy indole acetic acid (5-HIAA) in a variety of population samples. Brown et al in 1986 found that low CSF 5-HIAA in adulthood correlated

with both psychopathic deviance on the MMPI and a childhood history of aggressive / anti-social behavior.²⁸

TRYPTOPHAN STUDIES:

Tryptophan depletion or supplementation provides a relatively direct means of assessing the links between 5-HT activity and aggression. Cleare and Bond., demonstrated that tryptophan depletion resulted in increased behavioral and subjective measures of aggression.²⁹

PERIPHERAL MEASURES OF SEROTONIN

Peripheral blood 5-HT level is negatively correlated with levels of Central serotonergic activity. Pliszka et al and Unis et al have reported a positive correlation between conduct disorder ratings and whole blood 5-HT levels.^{30,31} Platelet 5-HT uptake studies in aggression indicate evidence of an association between low platelet serotonin uptake and aggressive behavior.³² Reduction in 5-HT₂ receptor platelet binding in delinquent adolescents has been reported.³³

MONOAMINE OXIDASE ACTIVITY

Low platelet MAO activity has been used as a biological marker of vulnerability to disinhibitory psychopathology like violent suicide attempts, hyperactivity and alcoholism.³⁴ Several reports suggest an association between low platelet MAO activity and criminal behavior.³⁵

NOREPINEPHRINE:

Increased alpha-2 noradrenergic system may have a positive influence on irritability. This finding is consistent with previous reports of 3-methoxy-4-hydroxyphenylglycol (MHPG, metabolite of norepinephrine) level elevation in aggressive men and previous animal studies showing association of aggression with increased noradrenergic function.^{36,37}

DOPAMINE:

Roy et al., has found that reduced CSF levels of Homovanillic acid (HVA, metabolite of dopamine) is associated with suicidal behavior.³⁸

NEUROENDOCRINE FACTORS

Multiple studies have found a role of hormones in impulsive-aggressive behavior as follows.

CORTISOL

In primates, hypothalamic pituitary axis function is related to social ranking and personality. In human studies, plasma cortisol levels in stress conditions were found to be low among habitually violent offenders with psychopathic personality.³⁹ Even among the habitually violent groups, those with a history of under socialization, truancy and attentional

difficulties at school had significantly lower cortisol than those without these characteristics.⁴⁰

TESTOSTERONE:

A number of findings suggest that gonadal steroid hormones significantly influence some aspects of aggressive behavior in primates. Studies of free salivary testosterone suggest that violent criminals have higher mean testosterone levels than non-violent criminals based on index offence or present behaviour.⁴¹ Virkkunen et al has found that higher free testosterone was present in alcoholic offenders with the diagnosis of antisocial personality.⁴²

CATECHOLAMINES – AROUSAL THEORY:

Arousal theory states that antisocial, impulsive, aggressive individuals are pathologically under aroused as indicated by low heart rate, low skin conductance and excessive slow wave electroencephalographic (EEG) activity.⁴³ Autonomic under-arousal appears to predispose to disinhibited temperament and behaviour.⁴⁴

GENETICS:

Considerable research work has been done in recent years to find the role of genetics in antisocial behaviour. Twin studies of delinquency by McGuffin et al conferred concurrence rates of 87% for monozygotic

twins and 72% for dizygotic twins.⁴⁵ Goldsmith et al has found a concordance rate of 95% for MZ twins and 73% for DZ twins.⁴⁶ These result suggest that juvenile delinquency is highly familial.

Adoption studies compare the rate of disorder among biological relatives of affected individuals with that of adoptive relatives. Adoption study findings are similar to those from twin studies. Although genetic factors appear to contribute, shared environmental factors exert a greater influence on antisocial behavior.⁴⁷

MOLECULAR GENETICS

Early studies suggested an increased rate of XYY syndrome in forensic units and prisons.⁴⁸ However recent studies have revealed that most individuals with and XYY anomaly do not show criminal behaviour. Current attention is focused on modern molecular genetics in identifying and localizing genes responsible for single-gene conditions which show predictable Mendelian inheritance. Brunner et al reported that in an extended Dutch family where multiple members exhibited violent criminal behaviour was found to be related to a mutation in the MAOA gene.⁴⁹ However isolated mutations of this type are rare and it is clearly not possible to consider such defects as major determinants of antisocial behaviour.

Quantitative trait loci (QTLs) include genes for dimensional risk factors such as personality traits or normal symptoms. QTL studies of personality traits show an association of Dopamine receptor DRD4 7 repeat allele with novelty seeking scores.

OTHER BIOLOGICAL FACTORS:

IMPACT OF PRE-AND PERINATAL FACTORS:

Maternal smoking during pregnancy appears to be an independent risk factor for conduct disorder. Lauren et al has found that mothers who smoked more than half a pack of cigarettes daily during pregnancy were significantly more likely to have a child with conduct disorder (odds ratio, 4.4; $P=.001$) than mothers who did not smoke during pregnancy.⁵⁰

Prenatal in utero exposure to alcohol and cocaine can impair brain development leading to lower IQ, impulsivity and subsequent antisocial behavior.⁵¹

Cannon et al has found that higher birth weight and larger head circumference at birth was significantly associated with the risk of criminal offending in adulthood. However, they did not find any significant relationship between pregnancy or neonatal complications and later criminality or violence.⁵²

Senol et al found that a comparison of children who were diagnosed with attention deficit hyperactivity disorder, conduct disorder and oppositional defiant disorder showed similarities in terms of perinatal factors.⁵³

GENDER:

Conduct disorder is more common among boys at all ages but the ratio of boys to girls depends on the type of disorder. For oppositionality, boys outnumber girls by around 4:1 in childhood which narrows down to 2:1 during adolescence. Ratio for conduct disorder, which includes several violent offences, however, is very high for boys of about 10:1.

AGE OF ONSET:

The age at which a first offense occurs is one of the best predictors of the future course of the criminal career.⁵⁴ Loeber et al found there is continuity in the development of antisocial behaviour from birth to adolescence and adulthood.⁵⁵ There are major differences between early and adolescent onset.

EARLY-ONSET-LIFETIME PERSISTENT GROUP:

Those with an early-onset display defiant and aggressive behaviour before the age of 8 years typically beginning at around 3 years. They present with difficult temperament, restlessness, inattention

negativity and irritability at school. They also have cognitive, language and motor deficits, reading difficulties adverse family context and poor parenting. They tend to be more aggressive and show increased antisocial behaviour in adulthood.⁵⁶

ADOLESCENCE- LIMITED:

More common than early-onset type with ratio of 3:1. This group does not have any significant antisocial behaviour early in their life and by their early twenties, most of them stop behaving antisocially. Less than 10% of these individuals persist to have criminality in adulthood.⁵⁷

FAMILY HISTORY:

There is an overwhelming evidence that antisocial behaviour aggregates within families. Rutter et al found that criminality in parents is associated with three to four fold increase in delinquency in their offspring.⁵⁸ Similarly, family studies show that biological parents of children with conduct disorder are significantly more likely to be diagnosed with antisocial personality disorder than parents of controls.⁵⁹

PSYCHOLOGICAL FACTORS OF DELINQUENCY

NEUROPSYCHOLOGICAL THEORIES:

Multiple hypotheses regarding antisocial behaviour have been proposed based on neuropsychological studies of criminal and delinquent populations.

FRONTAL LOBE DYSFUNCTION- IMPULSIVITY THEORY:

According to this theory, prefrontal dysfunction predisposes to violent behaviour through loss of frontal inhibition on the underlying subcortical structures that facilitate aggression.^{60,61} Functional neuroimaging studies show evidence of frontal dysfunction among delinquents and individuals with personality disorders.^{62,63}

LEFT HEMISPHERE DYSFUNCTION HYPOTHESIS:

This theory is based on reports showing impairment in language and verbal-skills related tasks.⁶⁴ It postulates that there is a structural damage to the left hemisphere and reduced lateralization for speech process leading to antisocial behaviour. Other studies have argued that a function impairment is more possible than a structural one.^{65,66}

These theories however are not mutually exclusive, with multiple studies having reported deficits in left frontotemporal regions among violent and antisocial populations. Deckel et al confirmed the presence of

frontal deficits in subjects with Antisocial personality and also observed an inverse relationship with left frontal activation on EEG.⁶⁷

INTELLIGENCE:

Children with early-onset conduct disorder have IQs about 8-10 points below that of controls. Walsh et al found that high-IQ delinquents committed less violent but more property offending crimes when compared to low-IQ delinquents.⁶⁸ However, low IQ alone does not appear to be an individual independent risk factor for antisocial behaviour. In the presence of other adverse factors like poor parenting, it has an interactive effect.

Many studies have consistently demonstrated a discrepancy in Verbal IQ and Performance IQ (VIQ<PIQ) among delinquent populations.⁶⁹ There appears to be a specific deficit in language manipulation and a relatively normal performance on visuospatial tasks among the juvenile offenders. This discrepancy is more prominent among those with violent and aggressive behaviour.⁷⁰ Sobotowicz et al., found that the verbal deficits remain persistent even after controlling for confounding factors such as learning difficulty.⁷¹

EXECUTIVE FUNCTION DEFICITS:

Many studies have found a correlation between delinquency and deficits in executive function tests.^{72,73} Berman et al observed that delinquent individuals showed decreased performance in Category test and Trail making test.⁷⁴ Other studies have also found deficits in Verbal fluency, perseveration tasks, sequencing tasks, mazes and Go/no-go learning tasks.⁷⁵⁻⁷⁸ Moffitt et al has found that delinquents with a past history of Attention deficit hyperactivity disorder (ADHD) were more impaired than other delinquents.⁷⁹ Lou et al has found focal hypoperfusion in white matter tissues connecting the frontal area to other brain structures in individuals with ADHD supporting the notion further.⁸⁰

TEMPERAMENT:

Temperament broadly refers to consistent individual differences in behaviour in response to prescriptive physical stimuli. Early difficult temperament leads to increased externalizing behaviours.⁸¹ Caspi et al found that infants with difficult temperament at 3 years of age are more likely to show aggressive symptoms later on. The dimensions involved are impulsivity, lack of restraint, motor restlessness and short attention span. Childhood temperament difficulty was found to be associated with increased convictions for violent offenses.⁸²

ATTITUDES AND BELIEFS:

Cognitive attributional bias has been found to be significant among aggressive children.⁸³ They tend to perceive neutral acts by others as hostile and also believe that conflicts can be resolved by aggression. The consequent peer rejection reinforces this attitude and they become more suspicious as they reach their late teenage.⁸⁴

Emotional processes among antisocial children have been scarcely studied. Available literature shows the presence of low self-esteem, increased feeling of misery, decreased plans for the future than their peers.

MORAL UNDERSTANDING:

Psychological studies reveal that the understanding about right and wrong begins in life as early as 2 years of age.⁸⁵ It consists of cognitive and emotional components guiding the child's appreciation of right and wrong of certain behaviours.⁸⁶ Turiel emphasized that children have a distinct moral sense depending on their understanding of how others feel. He also suggested two types of morality: Based on feelings and Based on Rules. This awareness depends on cognitive as well as emotional maturation. As a result of cognitive maturation, the child learns about rules and that a breach of rules has consequences. Emotional maturation leads to developing a capacity for empathy and the ability to experience

shame and guilt.⁸⁷ Both of these processes might be lacking in children with antisocial behaviour.⁸⁸ However, Aharoni et al has found that there was no significant association between moral classification accuracy and antisocial behavior and that the offenders can demonstrate normal knowledge of wrongfulness.⁸⁹

SOCIAL FACTORS OF DELINQUENCY

ENVIRONMENT WITHIN THE FAMILY

PARENTING STYLE

Conduct disorder is found to be strongly associated with harsh parenting, hostility directed at the child, erratic discipline, lack of warmth, early institutionalization, frequent change of care givers and poor supervision.⁹⁰ Follow up and intervention studies show that these factors have a causal role in initiating and maintaining the disorder.⁹¹ Discord between parents is associated with persistent antisocial behaviour. Large family size, broken homes due to divorce, single Parenthood or adoption do not appear to be independent risk factors and seems chiefly to be mediated by parenting practices and previous characteristics of the individual.

COMMUNICATION BETWEEN PARENT AND CHILD

Smith et al has found that moment to moment responses of parents towards children have a powerful effect on their behavior. Children with the conduct disorder are more likely to be ignored when they are behaving reasonably but criticized and shouted at when they are misbehaving. As a consequence, they behave badly to gain attention. These children prefer negative criticism over being ignored. This is known as “Attention rule”.⁹²

Other behaviors by parents such as giving in to the child’s demands and tantrums leading to positive reinforcement for negative behavior, as well as, giving up something that the child finds unpleasant (negative enforcement) also leads to increase in the probability of disruptive behavior in the child.⁹³

PHYSICAL AND SEXUAL ABUSE

It is well established that abuse can lead to the emergence of conduct problems in girls or boys who were previously free of such problems.^{94,95} Sexual and physical abuse are associated with a wide range of poor outcomes.⁹⁶ Widom et al found that early childhood victimization increased later criminality rate by 50%.⁹⁷ Kessler et al found that physical aggression from parents was associated with double the rates of conduct

disorder and the rates of antisocial personality disorder increased by 4 times.⁹⁸

PATERNAL CRIMINALITY

History of criminality in parents acts an environmental influence as well as poses an increased genetic risk for criminality in offspring. Mednick et al found that there was no significant difference between criminality of sons with or without criminal fathers.⁹⁹

SOCIOECONOMIC STATUS:

Conduct disorder is 3-4 times more common in children who belong to families in the low social economic status with low income, receiving welfare benefits etc. However, there is a considerable overlap between these factors.

ENVIRONMENT OUTSIDE THE FAMILY

THE PEER GROUP

Conduct disorder is more likely in children who associate with friends who have antisocial attitudes and values. Peer influence appears to be an independent risk factor for criminality. Most of the times, the antisocial activities are carried out with peers or as gangs. They are found to approve such activities among each other, thereby reinforcing the values placed on delinquent acts.¹⁰⁰ Peer rejection leads to an increased

risk of conduct problems in later life. This is more common with early onset conduct disorder.¹⁰¹

SCHOOL FACTORS

School organization has been considerably shown to affect the rates of antisocial behaviour independently of home background.¹⁰²

Poorly organized and unfriendly schools with low staff morale, poor contact with parents have higher conduct disorder rates.¹⁰³

LOCALITY AND NEIGHBORHOOD

Conduct problems are associated with overcrowding, poor housing and poor neighbourhoods. Stressful living conditions with fewer amenities for children impair parents' ability to bring up the children constructively and responsibly. Multivariate analyses show that these factors have an interactive affect rather than being causal.^{104,105}

Areas which show close relationships between neighbours with high social cohesion by residents and informal social controls have less antisocial behaviour.¹⁰⁶ Osborn et al found that moving out of a deprived area reduces the rates of antisocial behavior.¹⁰⁷

GEOGRAPHICAL LOCATION

Surveys carried out in western countries such as Britain, the United States of America, France, New Zealand and Canada show similar rates

of conduct disorder and juvenile crimes. Whereas surveys conducted in other countries such as South America and Hong Kong showed lower prevalences. Many studies have found increased rates in Urban population when compared to rural population in most of the countries.¹⁰⁸

PSYCHOPATHOLOGY AMONG JUVENILE DELINQUENTS

Many studies have found that the rates of comorbid psychiatric disorders among juvenile offenders are higher than that of general population. Conduct disorder is the most common psychiatric comorbidity seen in this population followed by substance use. Teplin et al found that even after excluding conduct disorder approximately 60% of males and 70% of females among the detained adolescents have a psychiatric disorder.¹⁰⁹

CONDUCT DISORDER

Conduct disorder can be defined as a persistent pattern of antisocial behaviour in which the individual repeatedly breaks social rules and carries out aggressive acts, which upset other people. Such behaviour, when at its most extreme for the individual, should amount to major violations of age-appropriate social expectations and is therefore more severe than ordinary childish mischief or adolescent rebelliousness.

DSM – 5 CRITERIA FOR CONDUCT DISORDER:

A. A repetitive and persistent pattern of behaviour in which the basic rights of others or major age appropriate societal norms or rules are violated, as manifested by the presence of at least three of the following 15 criteria in the past 12 months from any of the categories below, with at least one criterion present in the past 6 months:

Aggression to People and Animals

1. Often bullies, threatens, or intimidates others.
2. Often initiates physical fights.
3. Has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun).
4. Has been physically cruel to people.
5. Has been physically cruel to animals.
6. Has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery).
7. Has forced someone into sexual activity.

Destruction of Property

8. Has deliberately engaged in fire setting with the intention of causing serious damage.

9. Has deliberately destroyed others' property (other than by fire setting).

Deceitfulness or Theft

10. Has broken into someone else's house, building, or car.
11. Often lies to obtain goods or favors or to avoid obligations.
12. Has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery).

Serious Violations of Rules

13. Often stays out at night despite parental prohibitions, beginning before age 13 years.
 14. Has run away from home overnight at least twice while living in the parental or parental surrogate home, or once without returning for a lengthy period.
 15. Is often truant from school, beginning before age 13 years
- B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.
- C. If the individual is age 18 years or older, criteria are not met for antisocial personality disorder

SPECIFIERS:

1. ONSET OF SYMPTOMS:

312.81 Childhood-onset type

312.82 Adolescent-onset type

312.89 Unspecified onset

2. LIMITED PROSOCIAL EMOTIONS:

Lack of remorse or guilt

Callous – lack of empathy

Unconcerned about performance

Shallow or deficient affect

3. SEVERITY

Mild – very few conduct problems, relatively minor harm to others
like lying, truancy etc

Moderate – Intermediate level of problems like stealing without
confronting a victim, vandalism etc.,

Severe – Many conduct problems with considerable harm to others
like physical cruelty etc

ICD-10 CRITERIA

Coded as F 91 – Conduct disorders. Grouped under Behavioural and emotional disorders with onset usually occurring in childhood and adolescence

A duration of minimum 6 months is required for diagnosis. Isolated dissocial or criminal acts are not in themselves grounds for the diagnosis, which implies an enduring pattern of behaviour.

SUBTYPES:

1. F 91.0 Conduct disorder confined to the family context
2. F 91.1 Unsocialized conduct disorder, where the person has no friends and is rejected by peers
3. F 91.2 Socialized conduct disorder, where peer relationships are normal
4. F 91.3 Oppositional Defiant disorder
5. F 91.8 Other conduct disorders
6. F 91.9 Conduct disorder, Unspecified

It is recommended to specify the age of onset with childhood onset - manifesting before 10 years and adolescent onset - after 10 years. Severity should be categorized as mild, moderate, severe, according to

the number of symptoms or their impact on others like causing severe physical injury, vandalism etc.

SUBSTANCE USE:

The prevalence of Substance use among youth is on the rise. Most studies report Substance use disorder to be the common comorbidity among juvenile offenders next to conduct disorder.^{110,111}

The relationship between substance use and conduct problems is complex involving a number of factors including individual vulnerabilities, social, educational, family factors etc.,¹¹²

Young et al found that 78% of detained juveniles started abusing substances regularly at the age of 13 years and that Conduct Disorder findings were detected 3.6 years before the substance abuse.¹¹³ Reebye et al found that substance abuse disorder criteria were satisfied in 52% of cases with Conduct Disorder diagnosis.¹¹⁴ Schuckit et al revealed that Conduct Disorder was an early sign for alcohol and other substance abuse.¹¹⁵

ATTENTION DEFICIT HYPERACTIVITY DISORDER:

There is a significant association between Attention deficit hyperactivity disorder (ADHD) and criminal behaviour. Pratt et al in a meta-analysis found ADHD to be an important risk factor for

delinquency.¹¹⁶ Mannuzza et al in a prospective study found that even in the absence of comorbid conduct disorder in childhood, ADHD increases the risk for developing antisocial behaviour and substance use disorders in adolescence. This in turn increases the risk for criminal behaviour in adolescence and adulthood.¹¹⁷

LEARNING DISORDER:

There is significant evidence in literature that learning disorder occurs in an increased frequency among young offenders than in the general population. Many studies have given widely different incidence rates of Learning Disorder among law offenders. Elbeheri et al found that the percentage of juvenile delinquents presenting with dyslexia was more than 20%.¹¹⁸ Grigorenko et al estimated an incidence of 13% to 40% which amounts to more than 2-4 times the incidence among general population.¹¹⁹ It often occurs as comorbidity with other developmental and neuropsychiatric conditions, particularly attention-deficit/hyperactivity disorder.¹²⁰

AUTISM SPECTRUM DISORDERS:

Only few studies have examined the frequency with which youth with Autism spectrum disorders (ASD) are in contact with the juvenile justice system. Cheely et al found that young offenders with ASD had higher rates of crimes against persons and lower rates of crimes against

property.¹²¹ This is in accordance with previous literature which show that predatory aggression is very rare in autism and it mostly involves intraspecific and indiscriminate type of aggression. Geluk et al has found that Autistic symptoms were positively associated with delinquent behavior in childhood offenders, even after adjustment for externalizing disorders.¹²² Lundstorm et al studied the long-term effects of Autism spectrum disorders and other neurodevelopmental disorders on criminality. They did not find any significant association between ASD and violent crimes or future violent criminality.¹²³

DEPRESSIVE DISORDERS:

It has been well established that depressive disorders occur at higher rates among incarcerated youth than among non-delinquents. Kashani et al reported a prevalence of 18% and 4% among both the groups respectively.¹²⁴ Alessi et al studied the types of depressive disorders among detained youth and found that 15% had an active major depressive disorder, 8% had major depressive disorder in remission and 13% had a minor depressive disorder.¹²⁵ Chiles et al found an incidence of 23% and that there was no significant difference in the externalizing behaviour between depressed and non-depressed individuals. History of alcohol use, depression in a family member was found to be a significant predictor for depression.¹²⁶

BIPOLAR AFFECTIVE DISORDER:

Many studies have indicated a bidirectional overlap between conduct disorder and mania in children.¹²⁷ There is an elevated risk for conduct disorder among children with mania. Also, a high proportion of youth with conduct disorder will go on to develop manic symptoms. Kovacs et al found that conduct disorder was present in 69% of the sample of youths with mania.¹²⁸ Biederman et al found a 40% association between conduct disorder and mania.¹²⁹

SCHIZOPHRENIA AND PSYCHOTIC DISORDERS:

In early-onset Schizophrenia, there is evidence of neurodevelopmental abnormalities resulting in abnormal brain structures. The data on forensic aspects of early-onset schizophrenia is very scarce due to the low incidence rates. According to the adult data available, Wessely et al suggested that schizophrenia was not associated with overall rates of criminality.¹³⁰ However, the risk of violent crime rate was three times that of matched general population. Comorbid substance abuse considerably increases this risk.¹³¹ Cannon et al found similar results in a study to find association between Perinatal and childhood risk factors for later criminality and violence in schizophrenia.¹³² Hodgins et al suggested that Conduct Disorder is a distinct co-morbid disorder that runs parallel to the course of schizophrenia.¹³³

ANXIETY DISORDERS:

The comorbid rates of anxiety disorders among delinquent population have varied widely between studies. Those employing clinical interviews reported a higher prevalence of about 6%-41% than those not using interviews (0%-7%).¹³⁴ Substance use has been found to increase the risk.¹³⁵

More recent research specifically examining Post Traumatic Stress Disorder (PTSD) in incarcerated delinquents has suggested that PTSD tends to co-occur with other mental disorders such as substance abuse and conduct disorder at a high frequency, particularly among children exposed to serious interpersonal violence. Steiner et al has found an incidence of about 32% among delinquents, which was much higher than in the community.¹³⁶

DELIBERATE SELF HARM AND SUICIDE:

Deliberate self-harm (DSH) may be a serious attempt to die or to escape from unbearable situations or feelings. It can sometimes be a form of communication which includes cry for help as well as anger or hostility directed towards self or others. These acts are done to release feelings of inner tension or as a means of self-punishment.¹³⁷

The most common form of DSH is cutting or scratching followed by drug overdose. Following an episode of DSH, 10% are found to repeat

again within one year. Previous deliberate self-harm is found to be the strongest predictor of suicide.¹³⁸ Morgan et al found a lifetime prevalence of DSH of 15.6%, which is at least double the rate found in males in community samples (7.0%).¹³⁹ Casiano et al found the prevalence of lifetime suicidal ideation ranged from 16.9% to 59%.¹⁴⁰ Studies have found that self-harming behaviour is significantly associated with substance abuse, maternal psychopathology and poor peer relationships.¹⁴¹

THE LEGAL CONTEXT OF JUVENILE DELINQUENCY

CRIMINAL RESPONSIBILITY OF CHILDREN:

The belief that childhood is a distinct state is common to all societies. It is accepted world over that children need special nurturing and protection and they are not vested with full responsibilities. The process of acquiring responsibility especially with that for criminal acts is subject to social attitudes, which is very varied from that of the attitude about their rights.

Adolescents are often judged to be capable of being criminally responsible at a much younger age than they are believed to be capable of exercising rights like right to vote, drive etc., Attributing full responsibility to children will make them as liable as adults for their crimes.

“Doli incapax” is a latin term which means “incapable of committing a crime”. It is a set of presumptions in a doctrine describing the criminal liability of children.¹⁴² The age limit for this defense varies widely between countries. In England, the age limit is ten years. In Germany and Italy, it is 14 years. Sweden, Finland and Norway have a higher limit of fifteen years. In the United States, the age varies between states, from as low as six years in South Carolina. 11 years is the minimum age for federal crimes. In Asian countries like Philippines, it is 9 years whereas in Japan it is 14 years.

In India, no child below the age of seven years can be prosecuted for commission of any crime and for children between the ages of 8 to 14 years, the prosecution has a great burden of proof to prove the offence of the minor.

PROVISIONS OF THE INDIAN PENAL CODE

Section 82 of the Indian penal code states that nothing is an offence which is done by a child whose age is less than seven years

Section 83 of the Indian penal code states that nothing is an offence which is done by a child whose age is between 7 to 12 years if such a child has not attained sufficient maturity and understanding to comprehend the consequences of his actions

Section 108 of the Indian penal code related to the offence of abetment.

JUVENILE JUSTICE – GLOBAL SCENARIO

Prior to the 18th century juvenile offenders were treated as same as other criminal offenders. The United Nations General Assembly adopted a “Convention on the Rights of Child” which came into force on 2 September 1990. It became a landmark in the international Human Rights legislations. It clearly indicated the rights of the children and why they should be protected. The CRC is a legally binding agreement that sets out the civil, political, economic, social and cultural rights of every child, irrespective of their race, religion or abilities. Consisting of 54 articles, it sets out children’s rights and how governments should work together to protect these rights. 196 member countries are part of this human rights treaty including India. According to this Convention, there shall be no judicial proceeding and court trials against juvenile offenders in order to protect their social reintegration.¹⁴³

In 1995, the United Nations adopted the World Programme of Action for Youth (WPAY), providing a policy framework and practical guidelines for national action and international support to improve the situation of young people.¹⁴⁴

YOUTH AND VIOLENCE:

Reports show that in recent years, violence has become the manifestations of discontent by youth.¹⁴⁵ In addition to the rising

proportion of violent crimes committed by young people, youth are also increasingly likely to be victims of violent crimes.¹⁴⁶ There seems to be a relationship between high urban growth rates and violence in cities, with violence becoming more of an urban phenomenon. In the urban context, violence is acquiring more visibility than in the past, with much of it carried out on the streets, mostly in densely populated neighbourhoods.^{147,148}

DATA OVERVIEW OF VARIOUS CRIMES:

Type of offense	Percentage of court receiving the offence
Theft	91%
Vandalism/Graffiti	76%
Alcohol	73%
Disorderly Conduct	73%
Assault	67%
Possession of Marijuana	60%
Tobacco	59%
Curfew Violations	50%
School Disciplinary	45%
Traffic Violation	39%
Truancy	39%
Trespassing	38%
Criminal Mischief	30%
Possession of Drug Paraphernalia	24%
Other drug offenses	20%
Harassment	21%
Fraud	8%

WHO INITIATIVES TO PREVENT YOUTH VIOLENCE:

Developing schools-based violence prevention programmes and creating awareness regarding the magnitude of youth violence and the need for prevention

Building evidence on the scope and types of violence in different settings

Developing guidance for Member States and all relevant sectors to prevent youth violence and strengthen responses to it.

Supporting national efforts to prevent youth violence and collaborating with international agencies and organizations to prevent youth violence globally.

JUVENILE JUSTICE IN INDIA

BRIEF HISTORY OF JUVENILE LAWS

In India, the need for new legislations for children was felt under the British rule. Some specific laws were passed between 1850 and 1919.

APPRENTICE ACT, 1850:

Destitute or petty offenders in the age group of 10 and 18 years should be dealt with separately. The convicted children were required to work as apprentices for businessmen.

REFORMATORY SCHOOL ACT 1876, 1897:

Under this Act, provisions were laid down for placing the delinquents in reformatory schools for a period of two to seven years. After they attained the age of 18 years, they were shifted to adult prisons. In the 1897 Act, provision for treatment and rehabilitation of offenders was laid down.

After India attained independence from British Rule, the Juvenile Justice policy got restructured around various articles of the Indian constitution.

CENTRAL CHILDREN ACT, 1960: Section 2(e) of the Act states “child” means a boy who has not attained the age of sixteen years or a

girl who has not attained the age of eighteen years. This act Prohibited imprisonment of children under any circumstances.

JUVENILE JUSTICE ACT, 1986:

Aimed to provide care, protection, treatment and rehabilitation for delinquent and neglected children.

Juvenile courts were created for the offenders and juvenile welfare boards for the non- offenders/ neglected children.

There was another major change in the laws pertaining to Children after India joined the UNCRC in 1992. The laws were reformed according to the norms accepted globally for protection of children.¹⁴⁹

THE JUVENILE JUSTICE (CARE AND PROTECTION OF CHILDREN) ACT, 2000:

It provided for a uniform legal framework of justice across the country. The main objective of the new Act was to ensure that no child offender up to the age 18 years is lodged in jail. The Act also made provisions for the infrastructure and machinery for care, protection and rehabilitation of children. The Act was again amended in 2006 and then in 2010.^{150,151}

The Juvenile Justice Act, 2000 defines, under section 2 (I) defines:

JUVENILE IN CONFLICT WITH LAW: juvenile who is alleged to have committed an offence and is under 18 years of age (and above the age of 10 years) on the date of commission of crime.

Under section 2 (d) the Act, there is another category of children,

CHILDREN IN NEED FOR CARE AND PROTECTION: defined as the ones who are found without any home or settled place or abode and without any ostensible means of subsistence. They may be street children/ indulging in beggary, child laborers, orphaned/ abandoned/ destitute children, abused children/ trafficked children, children suffering from physical deformity/ mental illness or victims of conflict and disaster situations

The two categories of children are also treated by different institutions-

1. Juvenile offenders under the Juvenile Justice Board
2. Children in Need for Care and Protection under the Child Welfare committee.

JUVENILE JUSTICE (CARE AND PROTECTION OF CHILDREN) ACT, 2015:

This act aims to consolidate the laws relating to children alleged and found to be in conflict with law and children in need of care and protection.¹⁵²

According to this act, juvenile is a person who below 16 years. Prior to JJ Act of 2015, the age bar for juveniles was 18 years (Juvenile Justice (Care and Protection of Children) Act, 2000, 2006, 2012).

An amendment Bill to this act has been passed in the Lok Sabha in 2018.

JUVENILE JUSTICE BOARD :

Previously known as juvenile courts. It consists of:

1. A metropolitan judge, or judicial magistrate of first class
2. Two social workers, at least one of whom should be a woman.

Under the Act, there are also provisions for a Special Juvenile Police Unit in every police station.

The JJB has the power to deal exclusively with all proceedings under this Act relating to juvenile in conflict with law.

OBSERVATION HOMES:

Established and maintained by State Government either by itself or under an agreement with voluntary organizations in every district or a group of districts as needed.

Every juvenile who is not placed under the charge of parent or guardian and is sent to an observation home is initially kept in a reception unit of the observation home for preliminary inquiries, care and classification for juveniles according to his age group such as seven to twelve years, twelve to sixteen years and sixteen to eighteen years, giving due considerations to physical and mental status and degree of the offence committed, for further induction into observation home.

SPECIAL HOMES:

Provides various types of services which are necessary for re-socialisation of a juvenile,

Overall, the present Juvenile Justice System in India is made on the basis of the following goals:

1. Young offenders should not be tried in courts, rather they should be corrected in all the best possible ways,

2. They should not be punished by the courts, but they should get a chance to reform
3. Trial for child in conflict with law should be based on non-penal treatment through the communities based upon the social control agencies for e.g. Observation Homes and Special Homes.¹⁵

JUVENILE CRIMES IN INDIA – CURRENT TRENDS

According to the National Crime Records Bureau (NCRB) statistics², there is an increase in number of cases registered against juveniles in conflict with law. From 2005 to 2016, this number has increased from 18939 to 35849. The total cognizable IPC Crimes has increased from 1822602 to 2949499. Though the Percentage cases of Juvenile in conflict with law to total cognizable Crimes has ranged from 1.0 to 1.1, the Juvenile crime rate has increased from 1.7 to 2.5.

Among the states and Union territories, Delhi ranks first with a crime rate of 44.6. Considering the Incidence and % state share, Madhya Pradesh ranks first, contributing 20.6% of the overall juvenile crimes in India. Tamil Nadu ranks 11th according to crime rate (11.0) and 6th according to percentage share (6.2%).

DEFINITIONS OF THE COMMON IPCs:

IPC 378- Theft. Whoever, intending to take dishonestly any moveable property out of the possession of any person without that person's consent, moves that property in order to such taking, is said to commit theft

IPC 379-Punishment for theft. Whoever commits theft shall be punished with imprisonment of either description for a term which may extend to three years, or with fine, or with both.

IPC 380-Theft in dwelling house, etc. Whoever commits theft in any building, tent or vessel, which building, tent or vessel is used as a human dwelling, or used for the custody of property, shall be punished with imprisonment of either description for a term which may extend to seven years, and shall also be liable to fine.

IPC 392- Punishment for robbery

IPC 454-Lurking house-trespass or house-breaking in order to commit offence punishable with imprisonment

IPC 448-Punishment for house-trespass

IPC 323-Punishment for voluntarily causing hurt.

IPC 397-Robbery, or dacoity, with attempt to cause death or grievous
hurt

IPC 336- Act endangering life or personal safety of others.

IPC 506-Punishment for criminal intimidation.

IPC 302- Punishment for murder whoever commits murder shall be
punished with death, or imprisonment for life, and shall also be
liable to fine.

IPC 147-Punishment for rioting

IPC 148-Rioting, armed with deadly weapon

AIMS AND OBJECTIVES

AIMS:

To study the biopsychosocial factors and psychopathology among adolescents in state run juvenile homes.

OBJECTIVES:

Primary objectives:

1. To study the biopsychosocial factors among juvenile delinquents detained in Government observation home.
2. To study the prevalence and nature of comorbid psychiatric conditions among those adolescents.

Secondary objectives:

1. To study the pattern of substance use among this population
2. To study the factors associated with juvenile recidivism

MATERIALS AND METHODS

STUDY SETTING:

The study was conducted at Government Observational Home, Kellys, Chennai.

STUDY POPULATION

Adolescents detained by the Juvenile Justice Board in Observation home run by the State Government.

SAMPLE SIZE: 50

STUDY DESIGN: Cross sectional study

Inclusion Criteria

1. Adolescents in the age group of 10-17 years in juvenile homes
2. Individuals who are willing to participate in the study and for whom consent has been obtained from either a parent or the caretaker whoever is applicable.

Exclusion Criteria

1. Individuals unwilling to participate in the study.
2. Individual for whom parental/caretaker consent is not given

METHODOLOGY

To study detained adolescents, special procedures are required as they are minors and may not usually have a parent to give consent. Permission to conduct the study was obtained from Commissioner of Social Defense, Government observation home, Kellys, Chennai. Institutional Ethics Committee approval was obtained. The adolescents were explained in detail about the study and were assured about the confidentiality of the information they provide. Any queries they had were clarified. Willingness was ascertained from each individual and an assent form was obtained. Informed consent was also obtained from the caretaker.

Socio demographic details were obtained using a semi structured proforma. Genetic screening by physical dysmorphism exam tool and family history was obtained for biological factors. Intelligence assessment was done using standardized test to assess psychological factors. A semi structured questionnaire was used to identify social factors as well as substance use pattern.

To assess Psychopathology, the Strength and difficulties questionnaire was used for screening and if scores are high in specific domains, diagnosis is made according to DSM V criteria through semi structured interview.

TOOLS:

1. Dysmorphology exam proforma
2. Wechsler Abbreviated Scale of Intelligence (WASI-II^{INDIA})
3. Strength and Difficulties Questionnaire (SDQ)
4. Semi-structured questionnaire for family and social factors
5. Semi-structured questionnaire for substance use

STRENGTH AND DIFFICULTIES QUESTIONNAIRE

A screening tool for psychopathology.

25 items scale with 5 domains having 5 questions each.

Validated in the local language -Tamil, which gives it an added advantage.

Age group: 4-17 years

Three versions available:

1. Parent report version
2. Teacher report version
3. Youth self report version. Used in this study.

5 domains include:

1. Emotional problems scale
2. Conduct problems scale
3. Hyperactivity scale
4. Peer problems scale
5. Prosocial scale

The scores are categorized into four levels:

1. Close to average
2. Slightly raised
3. High
4. Very high

The total difficulties score is generated by adding scores from all the scales except the prosocial scale.

WECHSLER ABBREVIATED SCALE OF INTELLIGENCE:

WASI – II ^{INDIA} version is used in this study.

Individually administered intelligence assessment test

Age group: 6 – 90 years

Comprises of four subsets:

1. Block design
2. Vocabulary
3. Matrix reasoning
4. Similarities

Provides both four types of composite scores as follows:

1. Verbal Comprehension (Vocabulary + Similarities)
2. Perceptual Reasoning Index (Block design + Matrix Reasoning)
3. Full scale IQ - 4 subset score
4. Full scale IQ - 2 subset score (Vocabulary + matrix reasoning)

Earlier terms of Verbal IQ (VIQ) and Performance IQ (PIQ) have been replaced by Verbal Comprehension Index (VCI) and Perceptual Reasoning Index (PRI) respectively.

STATISTICAL ANALYSIS:

Frequency distribution, percentage, mean and standard deviation was used for descriptive statistics.

Chi square test was used to compare categorical variables.

Significance level was fixed as 5% i.e., if P-value < 0.005 , it is considered significant.

RESULTS

SOCIODEMOGRAPHIC VARIABLES

Table 1a: Age distribution

Age	Frequency	Percentage
13 years	3	6.0
14 years	7	14.0
15 years	7	14.0
16 years	15	30.0
17 years	18	36.0
Total	50	100.0

Table 1a shows that majority of the detained adolescents are 17 years of age (36%). Considerable proportion belong in the minimum age of 13 years (6%).

Table 1b: Age group distribution

AGE GROUP	Frequency	Percentage
<15 Years	10	20.0
>=15 Years	40	80.0
Total	50	100.0

Most of the population belong to the age group above 15 years (80%). About 20% of the detained youth are below the age of 15 years.

Table 2a: EDUCATION

Level of education	Number	percentage
primary	8	16.0
middle	20	40.0
high	13	26.0
higher secondary	7	14.0
Diploma	2	4.0
Total	50	100.0

Most of the adolescents have received up to middle school level of education (40%) followed by high school level (26%). The highest level of education attained by these youth is at the level of diploma (4%) and the lowest being primary school level of education (16%)

Table 2b: Drop out from school

Drop out from school	Frequency	Percentage
Present	30	60.0
Absent	20	40.0
Total	50	100.0

Table 2b shows that a vast majority of the adolescents have dropped out from school in the middle of an academic term (60%)

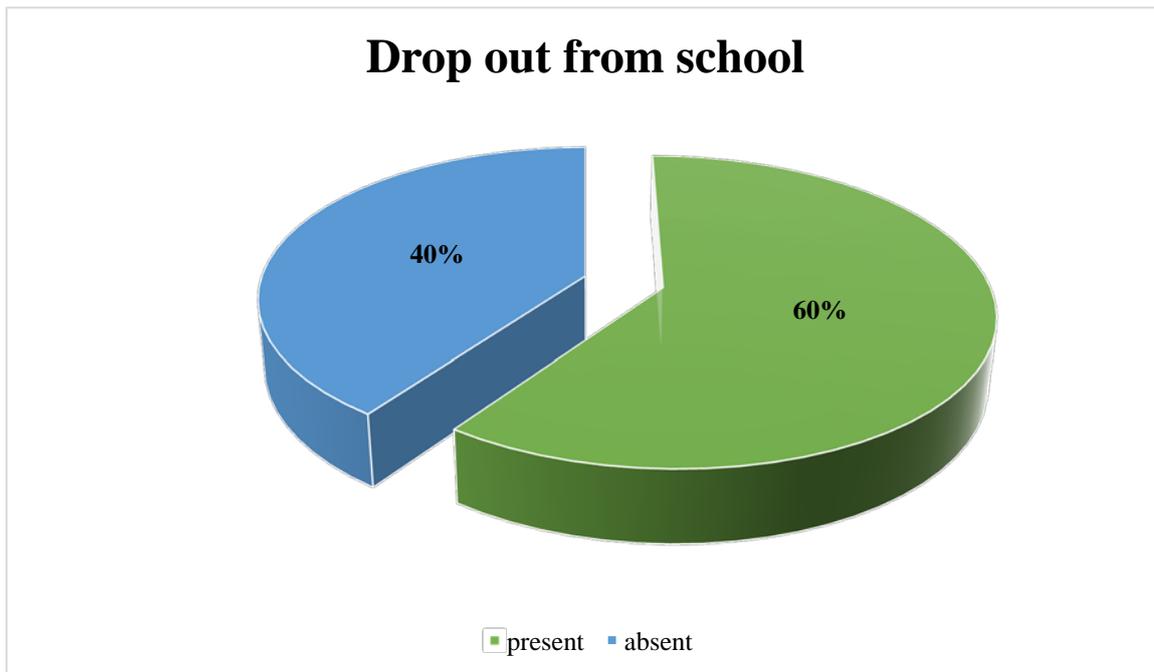


Table 3: Occupation

Occupation	Frequency	Percentage
Semiskilled	15	30.0
Unskilled	18	36.0
Unemployed	16	32.0
Student	1	2.0
Total	50	100.0

The above table shows that majority of the youths are employed as unskilled workers (36%) followed by semiskilled work (30%).

Table 4: RESIDENCE

Residence	Frequency	Percent
semi urban	1	2.0
urban	49	98.0
Total	50	100.0

Table 4 shows that Majority of the participants reside in urban areas (98%).

Table 5: SOCIOECONOMIC CLASS

Socioeconomic class	Number	Percentage
Class I	0	0.0
Class II	0	0.0
Class III	6	12.0
Class IV	41	82.0
Class V	3	6.0
Total	50	100.0

Majority of the detained adolescents belong to class IV : Upper lower socioeconomic status (82%)

CRIME RELATED VARIABLES

Table 6: Current Crime

Current crime	Frequency	Percentage
Theft	25	50.0
Grievous hurt	6	12.0
Murder	3	6.0
Sexual	2	4.0
Criminal trespass with burglary	12	24.0
Robbery	2	4.0
Total	50	100.0

The most common crime for which the youths are detained is theft (50%) followed by criminal trespass with burglary. About 3% are charged with murder.

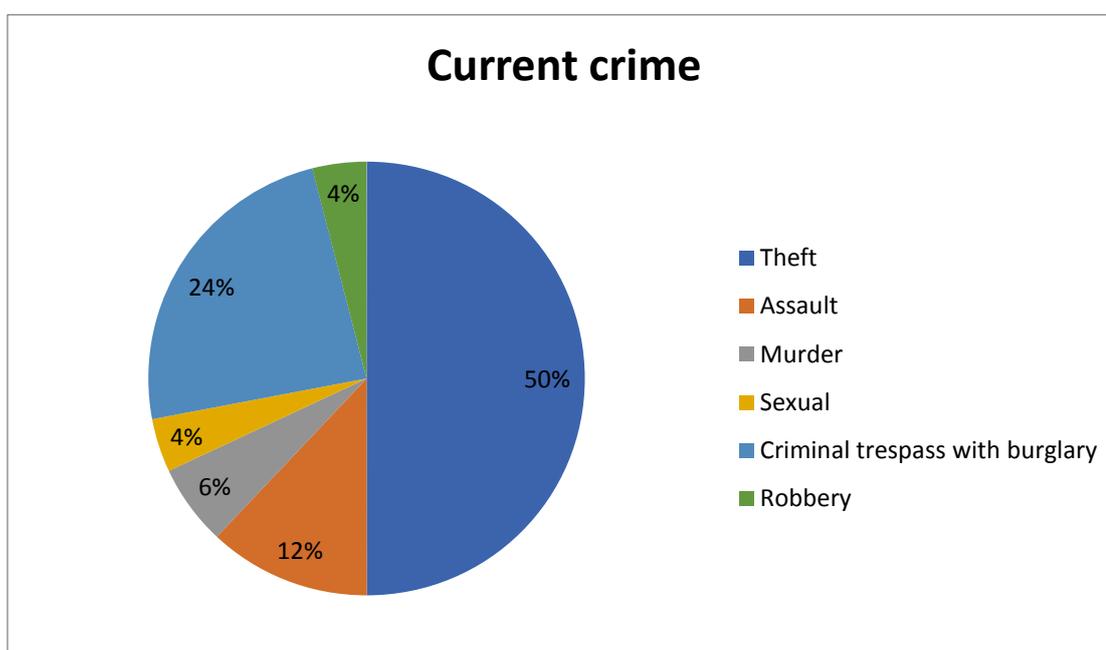


Table 7: Type of crime

Type of crime	Number	Percentage
Violent	16	32.0
Non-violent	34	68.0
Total	50	100.0

Most of the youths are involved in non-violent crimes (68%) than violent crimes (32%)

Table 8a: Age of entry into judicial system

Age	Frequency	Percent
12 years	1	2.0
13 years	4	8.0
14 years	11	22.0
15 years	14	28.0
16 years	12	24.0
17 years	8	16.0
Total	50	100.0

Most of the youth enter the juvenile justice system at the age of 15 years (28%)

Table 8b: Age limits of entry into judicial system

	Number	Minimum	Maximum	Mean	Std. Deviation
Age of entry	50	12.00	17.00	15.1200	1.27199

The minimum age of entry into justice system is 12 years with a mean age group of 15 years.

Table 8c: Age group distribution

AGE GROUP	number	Percentage
<15 Years	16	32.0
>=15 Years	34	68.0
Total	50	100.0

A considerable proportion of youths enter the juvenile justice system before the age of 15 years(32%)

VARIABLES RELATED TO BIOPSYCHPSOICAL FACTORS

Table 9: Dysmorphism screening

Dysmorphism	Number	Percentage
Present	1	2.0
Absent	49	98.0
Total	50	100.0

A single dysmorphism was seen in only 2% of individuals.

Table 10: family history of mental illness

Family history of	Any mental illness		Substance use disorders		Mental illness excluding SUD	
	number	%	number	%	number	%
Present	32	64.0	26	52.0	11	22.0
Absent	18	36.0	24	48.0	39	78.0
Total	50	100.0	50	100.0	50	100.0

As is evident from Table 10, a high proportion of these youths have a family history of mental illness (64%). Most common was Substance use disorders (52%). Even after excluding Substance use disorders, a considerable proportion of adolescents have a positive family history of mental illness (22%).

Table 11: Family history of criminality

Family history of criminality	Number	Percentage
Present	9	18.0
Absent	41	82.0
Total	50	100.0

Table 11 shows that about 18% of the youths have a positive family history of criminality.

Table 12: Order of birth

Order of birth	Frequency	Percentage
1	25	50.0
2	19	38.0
3 or more	6	12.0
Total	50	100.0

Most of the youths are first born in their families (50%).

Table 13a: INTELLIGENCE

IQ Range	Frequency	Percentage
Average	33	66.0
borderline	14	28.0
mild intellectual disability	3	6.0
Total	50	100.0

Table 13a shows that 66% of the adolescents had average level of intelligence whereas about 28% of them had below average level of intelligence. 6% of individuals have mild intellectual disability.

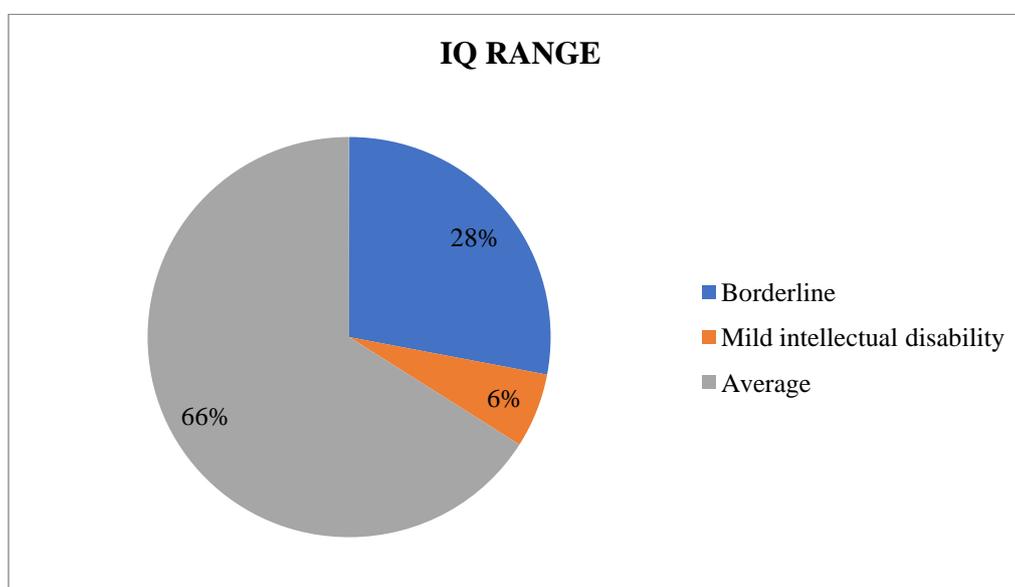


Table 13b: Comparison between intelligence and type of crime

IQ RANGE		Type of crime	
		Non-violent	Violent
Average	Number	21	12
	% within type	61.8	75.0
Borderline	Number	10	4
	% within type	29.4	25.0
Mild intellectual disability	Number	3	0
	% within type	8.8	0.0
Pearson Chi-Square		1.776	
P – value		p=0.411	

Table 13b shows that those with average level of intelligence are more involved in violent crimes than those having below average intelligence. But this was not statistically significant. (p=0.411)

Table 14a: Discrepancy between verbal IQ and performance IQ

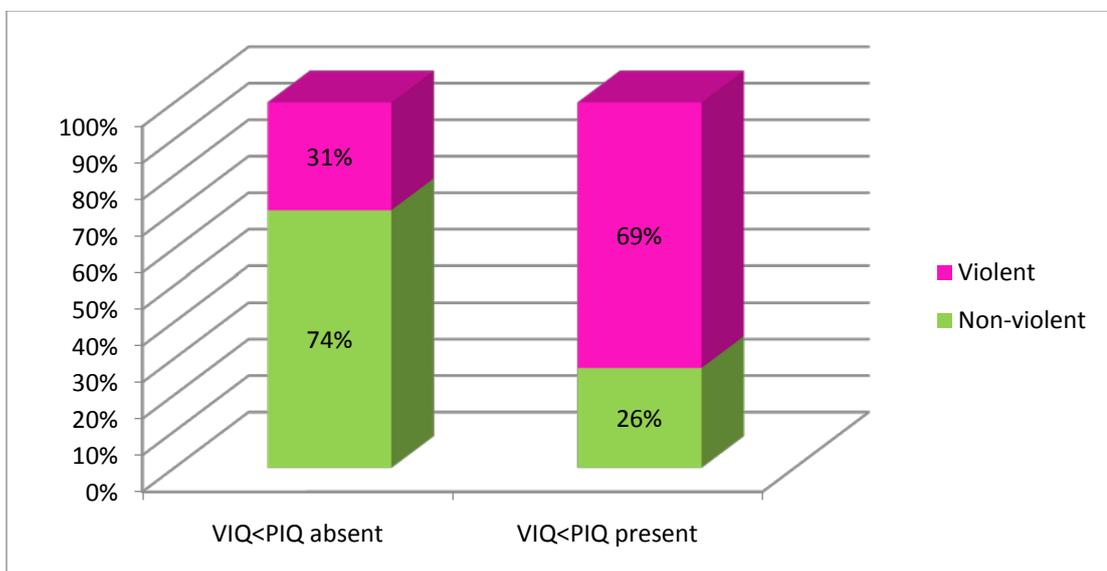
VIQ<PIQ	Number	Percentage
Present	20	40.0
Absent	30	60.0
Total	50	100.0

About 40% of the detained adolescents have discrepancy between verbal and performance IQ (VIQ<PIQ)

Table 14b: Comparison between type of crime and VIQ<PIQ discrepancy

VIQ<PIQ discrepancy	Type of crime		
		Non-violent	Violent
Present	Number	9	11
	% within type	26.5	68.8
Absent	Number	25	5
	% within type	73.5	31.2
total	Number	34	16
	% within type	100.0	100.0
Pearson Chi-Square		8.104**	
P – value		p=0.004	

Table 14b shows that the youths who have VIQ<PIQ discrepancy are involved in violent crimes more than those who do not have the discrepancy. This association is statistically significant (p=0.004)



VARIABLES RELATED TO SOCIAL FACTORS

Table 15: Parents education

Educational status	Father		Mother	
	Number	percentage	Number	percentage
Uneducated	6	12.0	9	18.0
Primary	20	40.0	26	52.0
Middle	13	26.0	11	22.0
High	10	20.0	2	4.0
Higher Secondary	1	2.0	2	4.0
Total	50	100	50	100

Majority of the fathers and mothers have attained education up to the primary level (40% and 52% respectively). Highest level attained was higher secondary education which forms the least proportion (2% and 4%). 12% of fathers and 18% of mothers are uneducated.

Table 16: Parents occupation

Occupation	Father		Mother	
	Number	percentage	Number	percentage
Professional	0	0.0	0	0.0
Semi-Professional	0	0.0	0	0.0
Clerical/shop	2	4.0	2	4.0
Skilled worker	6	12.0	2	4.0
Semi-skilled	22	44.0	1	2.0
Unskilled	20	40.0	20	40.0
unemployed	0	0.0	25	50.0
Total	50	100	50	100

Most of the fathers are employed as semiskilled workers (44%) followed by unskilled work (40%). About 50% of the mothers are unemployed. Among the employed, majority of them are employed as unskilled workers (40%).

Table 17: Adverse environmental factors

Adverse factors	Within family		Outside family		Both	
	Number	Percentage	Number	Percentage	Number	Percentage
Present	36	72.0	32	64.0	24	48.0
Absent	14	28.0	18	36.0	26	52.0
total	50	100	50	100	50	100

Majority of the detained adolescents have reported adverse social factors. 72% have adverse environmental factors within the family, 64% outside the family and 48% have reported adverse factors both within and outside the family.

Table 18a: Individual family factors

Family factors	Maternal loss		Paternal loss		Both parents expired		Absence of father figure	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Present	1	2.0	8	16.0	3	6.0	19	38.0
Absent	49	98.0	42	84.0	47	94.0	31	62.0
total	50	100	50	100	50	100	50	100

Table 18a shows that a considerable proportion have a history of paternal loss (16%). 38% have reported an absence of father figure.

Table 18b: Family factors

Family factors	Witness violence at home		Neglect		Verbal/Physical Abuse	
	Number	Percentage	Number	Percentage	Number	Percentage
Present	13	26.0	6	12.0	5	10.0
Absent	37	74.0	44	88.0	45	90.0
total	50	100	50	100	50	100

The above table shows that a considerable proportion of the adolescents have witnessed violence at home (26%). 12% of them have experienced neglect and 10% of them have experienced abuse.

Table 19: Societal factors

Societal factors	Homelessness		Witness violence in neighbourhood		Peer influence	
	Number	Percentage	Number	Percentage	Number	Percentage
Present	4	8.0	15	30.0	28	56.0
Absent	46	92.0	35	70.0	22	44.0
total	50	100	50	100	50	100

Table 19 shows that 8% of the detained youth are homeless. A considerable proportion have witnessed violence in their neighbourhoods (30%). Peer influence is present in majority of the youths (56%).

VARIABLES RELATED TO COMORBID PSYCHIATRIC CONDITIONS

Table 20: SCORES IN STRENGTH AND DIFFICULTIES QUESTIONNAIRE

SDQ scores	Emotional		Conduct		Hyperactivity		Peer problems		Total score	
	Number	%	Number	%	Number	%	Number	%	Number	%
Average	40	80.0	26	52.0	41	82.0	43	86.0	33	66.0
Slightly raised	3	6.0	11	22.0	5	10.0	3	6.0	12	24.0
high	1	2.0	0	0.0	2	4.0	2	4.0	5	10.0
Very high	6	12.0	13	26.0	2	4.0	2	4.0	0	0.0
Total	50	100	50	100	50	100	50	100	50	100

Majority of the adolescents have scored more than average in the conduct problems domain (48%). 20% have scored high on emotional problems and 18 % have elevated scores in the hyperactivity domain. The total score is elevated in 34% of the individuals.

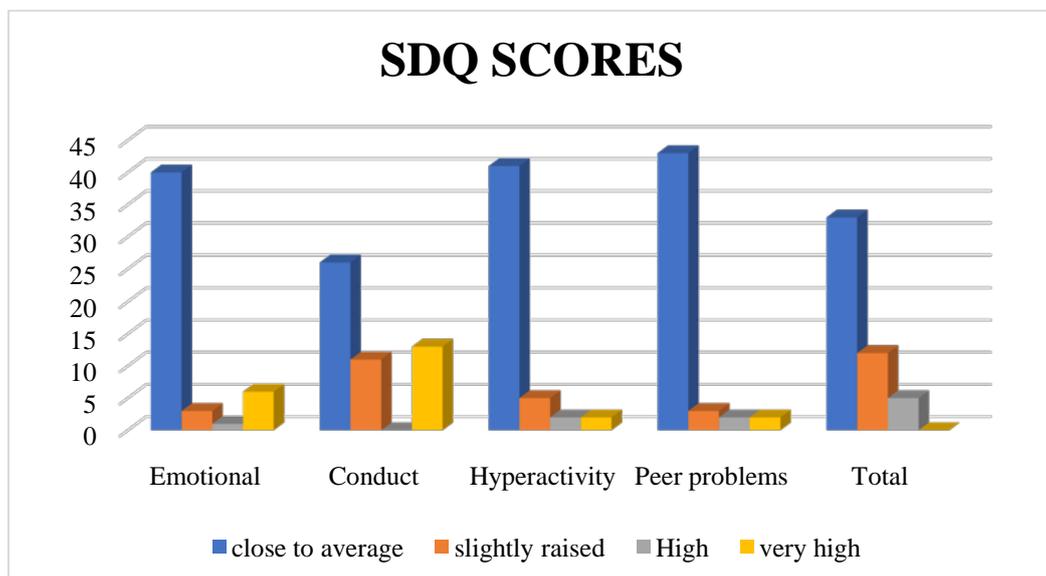
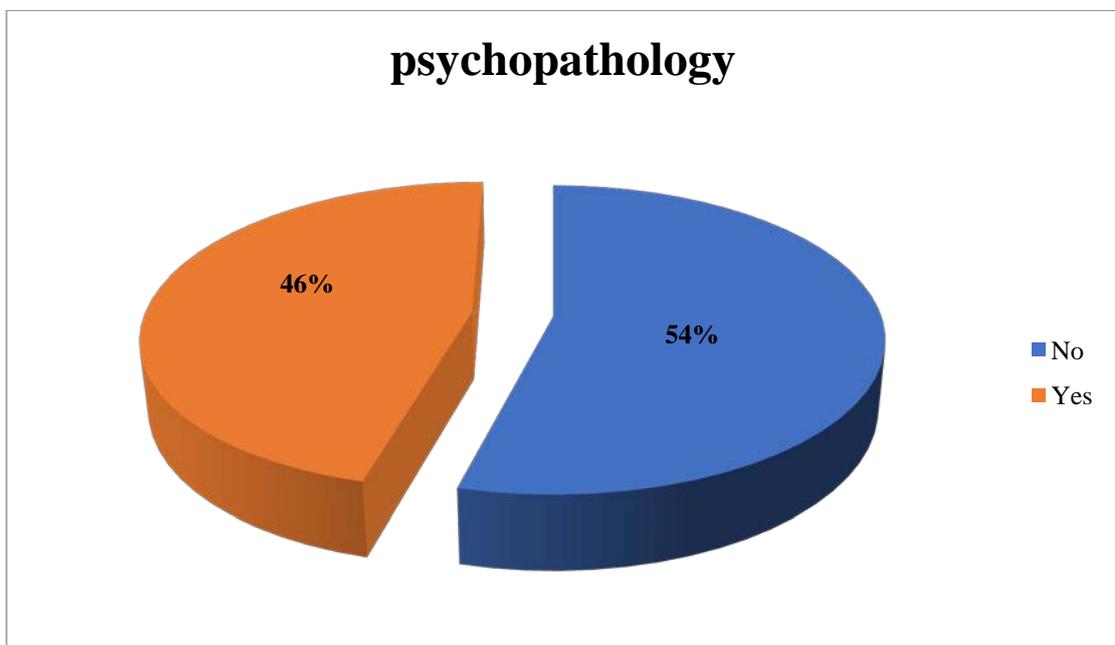


Table 21: COMORBID PSYCHIATRIC DISORDERS

Comorbid psychiatric disorder	Any psychiatric disorder		2 or more disorders		Excluding CD & SUD	
	Number	Percentage	Number	Percentage	Number	Percentage
Present	23	46.0	11	22.0	8	16.0
Absent	27	54.0	39	78.0	42	84.0
total	50	100	50	100	50	100

Majority of the detained adolescents have a comorbid psychiatric condition (52%). 22% of the youths met criteria for 2 or more disorders. After excluding the common comorbid disorders like conduct disorder and substance use disorder, 16% of the individuals satisfied criteria for a psychiatric disorder.



Psychopathology excluding CD & SUD

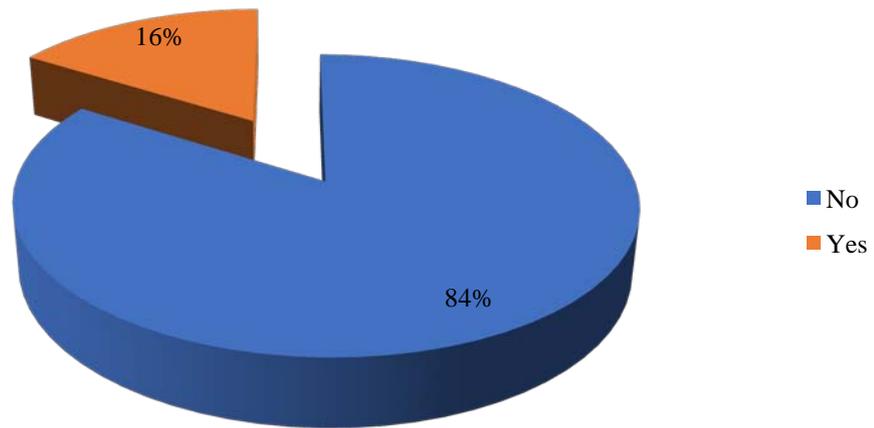


Table 22a: Individual comorbid disorders

Psychiatric disorder	Conduct disorder		Substance use disorder		Major depressive disorder	
	Number	%	Number	%	Number	%
Present	10	20.0	16	32.0	5	10.0
Absent	40	80.0	34	68.0	45	90.0
Total	50	100.0	50	100.0	50	100.0

The most common psychiatric comorbidity among detained youths is Substance use disorder (32%) followed by conduct disorder (20%). 10% off the adolescents met criteria for major depressive disorder.

Table 22b: Individual Comorbid Disorders

Psychiatric disorder	Bipolar disorder		Anxiety disorder		Psychotic disorder	
	Number	%	Number	%	Number	%
Present	1	2.0	1	2.0	1	2.0
Absent	49	98.0	49	98.0	49	98.0
Total	50	100.0	50	100.0	50	100.0

Bipolar affective disorder, Anxiety disorder and psychotic disorder was present in 2% of the adolescents respectively.

Table 23: Pattern of substance use

Substance use history	Any substance		2 or more substance	
	Number	Percentage	Number	Percentage
Present	25	50.0	18	72.0
Absent	25	50.0	7	28.0
total	50	100	25	100

A vast majority of the detained youths have used substance in the past year (72%). 72% among the substance users have used 2 or more substances.

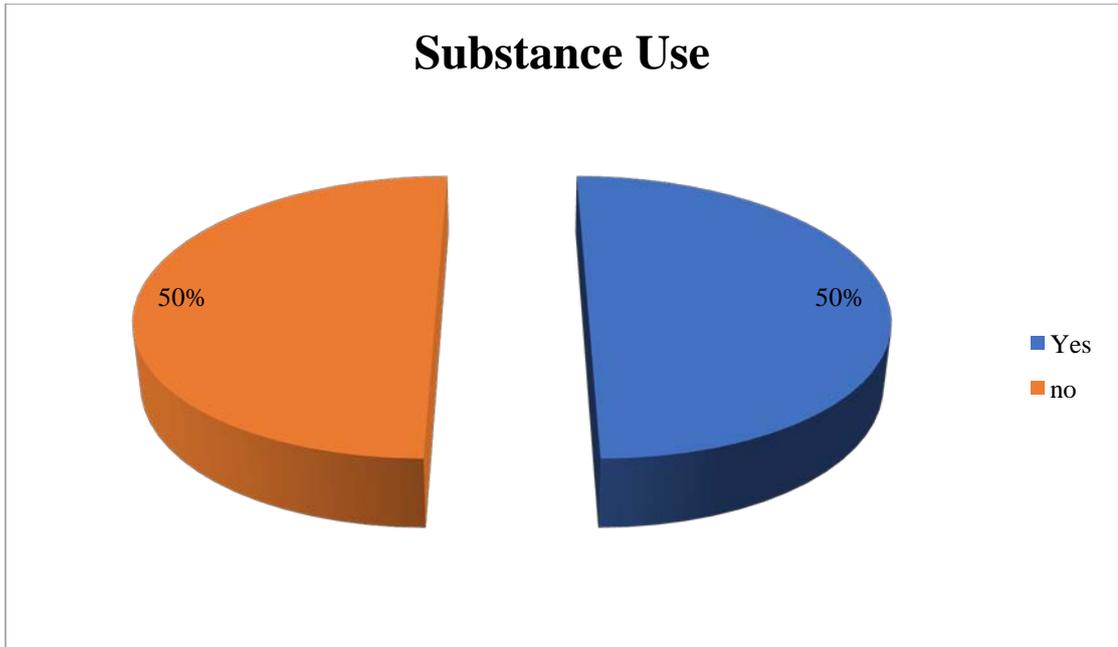


Table 24a: Type of substance

Substance use history	Tobacco smoking		Tobacco chewing		Alcohol		Cannabis	
	Number	%	Number	%	Number	%	Number	%
Present	28	56.0	11	22.0	19	38.0	20	40.0
Absent	22	44.0	39	78.0	31	62.0	30	60.0
total	50	100.0	50	100.0	50	100.0	50	100.0

Tobacco is the most commonly used substance. 56% of the adolescents smoke tobacco and 22% use the chewable form. This is followed by cannabis use (40%) and alcohol (38%).

Table 24a: Type of substance

Substance use history	Benzodiazepines		Inhalants		opioids		others	
	Number	%	Number	%	Number	%	Number	%
Present	4	8.0	6	12.0	2	4.0	3	6.0
Absent	46	92.0	44	88.0	48	96.0	47	94.0
total	50	100.0	50	100.0	50	100.0	50	100.0

Inhalants are the next commonly used (12%) followed by benzodiazepines (8%). 4% use opioids and 6% have reported use of other unknown substances.

Table 25: Comparison between Conduct disorder and substance use

Conduct disorder		Substance use history		Substance use disorder	
		present	absent	present	absent
Present	Number	10	0	8	2
	% within substance	40.0	0.0	50.0	5.8
absent	Number	15	25	8	32
	% within substance	60.0	100.0	50.0	94.2
total	Number	25	25	16	34
	% within substance	100.0	100.0	100.0	100.0
Pearson Chi-Square		12.500**		13.235**	
P – value		p<0.001		p<0.001	

All the detained adolescents who have conduct disorder have a history of substance use and a majority of them qualify for a diagnosis of substance use disorder. This association is statistically significant ($p < 0.001$).

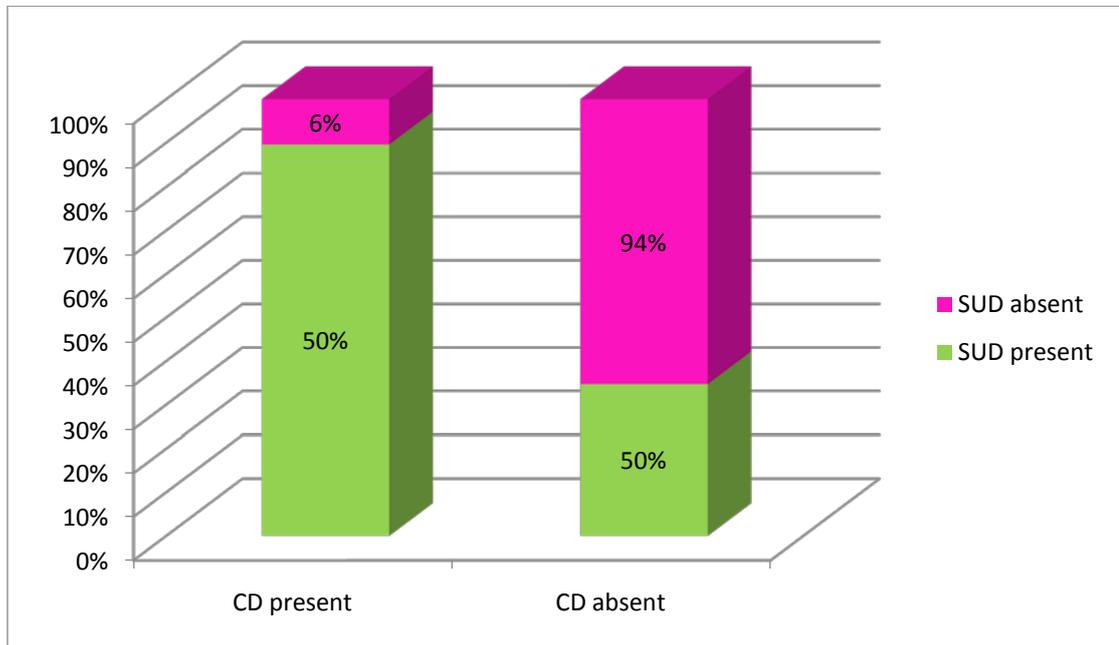


Table 26: Comparison between type of crime and comorbid conditions

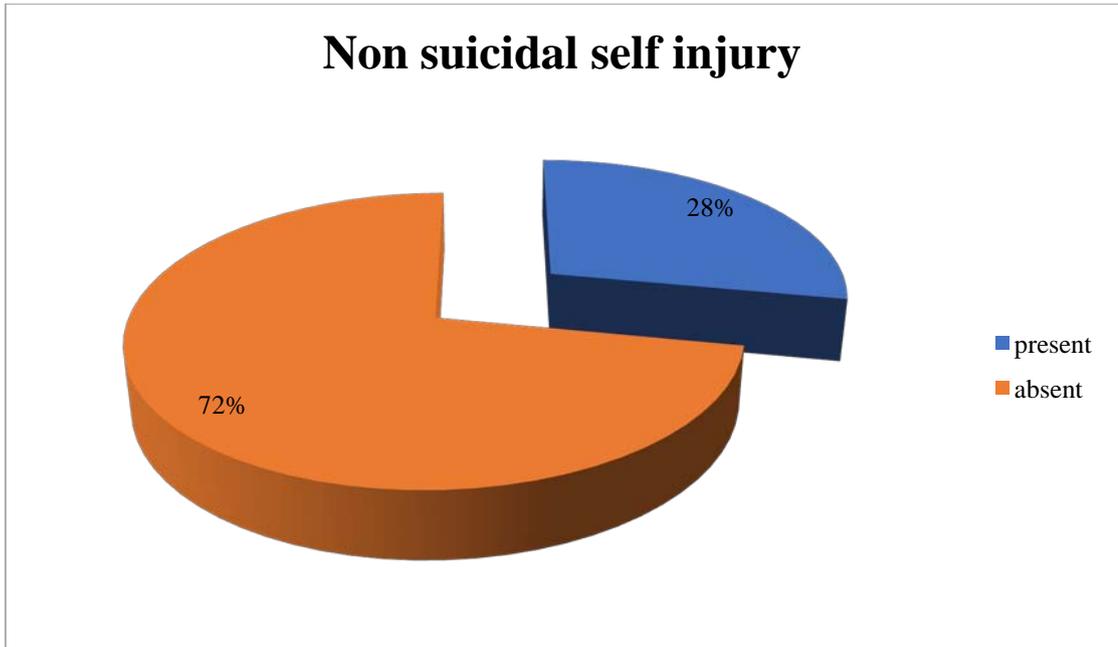
Type of crime		Conduct disorder		Substance use disorder	
		present	absent	present	absent
Violent	Number	4	12	8	8
	% within comorbidity	40.0	30.0	50.0	23.53
Non-violent	Number	6	28	8	26
	% within comorbidity	60.0	70.0	50.0	76.47
total	Number	10	40	16	34
	% within comorbidity	100.0	100.0	100.0	100.0
Pearson Chi-Square		0.368		3.503	
P – value		p=0.544		p=0.612	

There was no significant association found between type of crime and comorbid psychiatric conditions.

Table 27: Non-suicidal self injury

NSSI history	Number	Percentage
Present	14	28.0
Absent	36	72.0
Total	50	100.0

Table 27 shows that 28% of the individuals have a history of Non-suicidal self injury.



FACTORS ASSOCIATED WITH RECIDIVISM

Table 28: RECIDIVISM

RECIDIVISM	Number	Percentage
Present	22	44.0
Absent	28	56.0
Total	50	100.0

The above table shows that 44% of the detained youths have a previous history of offending.

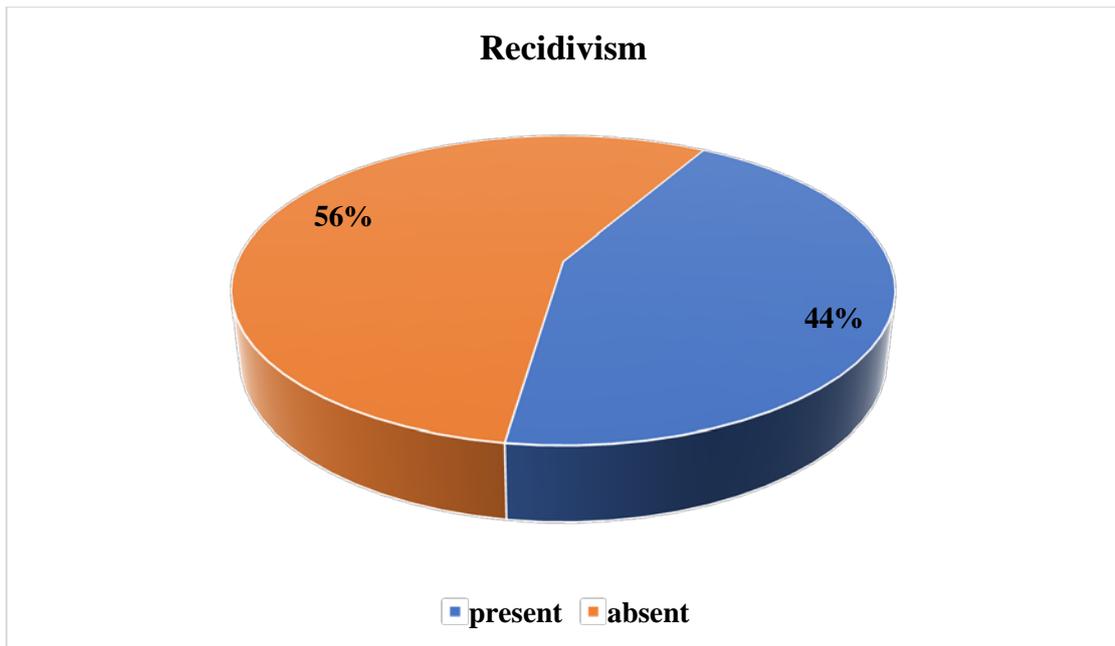


Table 29: Comparison of family history with recidivism

RECIDIVISM		Family H/o mental illness		Family H/o criminality	
		present	absent	present	absent
PRESENT	Number	18	4	6	16
	% within	56.2	22.2	66.7	39.0
ABSENT	Number	14	14	3	25
	% within	43.8	77.8	33.3	61.0
Pearson Chi-Square		5.414**		2.289	
P - value		p=0.020		p=0.130	

Majority of the juveniles who have a family history of mental illness show recidivism. This association is statistically significant. (p=0.020). The association with family history of criminality was not statistically significant (p=0.130)

Table 30: Comparison of intelligence with recidivism

RECIDIVISM		Average IQ	Borderline IQ	Intellectual disability
		present	present	present
PRESENT	Number	16	5	1
	% within	48.5	35.7	33.3
ABSENT	Number	17	9	2
	% within	51.5	64.3	66.7
Pearson Chi-Square		0.798		
P - value		p=0.671		

The above table shows there is no statistically significant association between intelligence and recidivism.

Table 31: Comparison of family factors with recidivism

RECIDIVISM	Family factors		Societal factors		Both	
	present	absent	present	absent	present	absent
PRESENT	18	4	13	9	12	10
ABSENT	18	10	19	9	12	16
Pearson Chi-Square	1.879		0.411		0.674	
P - value	0.171		0.522		0.412	

Table 31 shows that adverse environmental factors, both within and outside the family, do not have a statistically significant association with recidivism.

Table 32: Comparison of SDQ scores with recidivism

recidivism	emotional		conduct		hyperactivity		Peer problems		Total score	
	high	average	high	average	high	average	high	average	high	average
Present	6	16	16	6	8	14	2	20	12	10
Absent	4	24	8	20	1	27	5	23	5	23
Pearson Chi-Square	1.299		9.623		8.976		0.786		7.39	
P - value	p=0.254		p=0.002		p=0.027		p=0.375		p=0.007	

Majority of the adolescents who have elevated total score in the strength and difficulties questionnaire tool have recidivism. (p=0.007) Elevated scores in the individual domains of hyperactivity and conduct problems are also associated with higher proportion of recidivism. This is found to be statistically significant as evidenced from the above table.

Table 33: Comparison of psychiatric comorbidity with recidivism

RECIDIVISM		Conduct disorder		SUD		NSSI	
		present	absent	present	absent	present	absent
PRESENT	Number	9	13	11	11	11	11
	% within comorbidity	90.0	32.5	68.8	32.4	78.6	30.6
ABSENT	Number	1	27	5	23	3	25
	% within comorbidity	10.0	67.5	32.2	67.6	21.4	69.4
Pearson Chi-Square		10.735		5.850		9.432	
P - value		p=0.001		p=0.016		p=0.002	

A vast majority of the detained youths diagnosed with conduct disorder and substance use disorder show recidivism. This is statistically significant (p=0.001, p=0.016 respectively). Most of the adolescents having history of Non-suicidal self injury also had higher rates of Recidivism. This association is statistically significant.

DISCUSSION

This study was aimed at determining the biological, psychological and social factors associated with juvenile delinquency and also so to find out the prevalence of comorbid psychiatric disorders among detained adolescents in juvenile homes. Our study population consists only of male juvenile offenders. There is a huge difference between the number of children entering the juvenile justice system and the number of juvenile offenders being detained in observation homes. Only a negligent amount of female offenders are detained in observation homes throughout the year. Hence our study sample consists only of males. Most of the adolescents belong to the age group of 15 years and above. However, a significant proportion of youth enter the justice system as early as 12 years.

Majority of the detained adolescents have received education only up to elementary level. The highest level of education attained among our study population is diploma. Our study results show that there is an extremely higher amount of dropout rate from the school. More than half of the adolescence have discontinued studies during the middle of an academic term, which could have an important implication in future outcomes. Majority of these youths are employed as unskilled workers

and most of them reside in an urban setting and belong to lower socioeconomic class.

The most common crime for which the adolescents are detained is theft. this is followed by criminal trespass and burglary. About 3 % are charged with murder and to 4% are charged for sexual offences. This is consistent with the overall crime statistics published by the National crime records bureau (NCRB). A considerable proportion of the adolescents are involved in violent crimes (32%).

Many studies have reported genetic basis for criminality. In our study only one participant had a Simian crease which was not clinically significant as a solitary finding. Genetic analysis and karyotyping studies are beyond the scope of the study and could not be assessed. A majority of the detained adolescents have family history of mental illness, the most common being substance use disorders (SUD). However, even after excluding SUD, a considerable proportion of adolescents had significant family history of mental illness. About 16 % of the participants have a family history of suicide. A positive family history represents an increased genetic risk and acts as an environmental influence as well.

Intelligence is an important psychological factor influencing delinquency, as reported in earlier studies. There were several difficulties in administering the Wechsler abbreviated scale of intelligence test. The

date of birth was provided by the participating adolescents and many of them were not able to recall it properly. There were no official records to confirm it and it was not feasible to contact a parent or family member most of the times.

Hence the IQ scores, which are calculated based on accurate chronological age, have limited reliability. Also, the test is not standardized for local language and the fact that most of the adolescents have only elementary education is another factor limiting the reliability. Our study results show that a significant proportion of the detained youths have below average level of intelligence and 6% of them have mild intellectual disability. The discrepancy between verbal IQ and performance IQ is more pronounced among delinquents. They tend to do well in the performance tests but score lesser in the verbal tests. This discrepancy was found in about 40 percentage of our study population. Our study results also show that juvenile delinquents having this discrepancy are more prone to commit violent offences. This is consistent with results of many earlier studies¹⁰⁻¹². Personality studies have taken order of birth into account but there isn't considerable evidence in that arena. Most of our study participants are first born in their families.

Environmental factors related to juvenile delinquency can be both within and outside the family. Parents' education and parent rearing

practices are found to have a strong association with children's behaviour. In our study, majority of the parents have attained only elementary level of education. Most of them are employed as unskilled workers and about half of the mothers are unemployed. A significant proportion of the youths have reported an absence of father figure due to father's demise or separation between parents etc., This appears to be a culturally relevant and significant factor. Many of the adolescents have witnessed some form of violence at home and have experienced neglect and abuse, which according to previous studies, are found to be important risk factors for early criminality.

Significant proportion of them have witnessed violence in the neighbourhood. More than half of the detained adolescents have reported peer relationship factors as an important influence for their criminal actions. Many of them disclosed that they joined their peers during the offensive acts to gain recognition among the peer group. This is an important area of concern as well as a target for intervention strategies. School related factors could not be assessed in detail due to high drop out rate.

Comorbid psychopathology was screened using the strength and difficulties questionnaire. Our study results indicate that majority of them had elevated total scores. Pratt et al¹¹⁶ found that Attention deficit

hyperactivity disorder is a common psychiatric comorbidity among detained youths. In our study, a diagnosis of ADHD was difficult as the current DSM 5 criteria requires presence of symptoms in two or more settings which was not possible to assess with the youth self-report alone. However, it is to be noted that a significant percentage of adolescents have elevated scores in the hyperactivity domain of the strength and difficulties questionnaire which needs further research involving parents.

Similarly, a diagnosis of specific learning disorder was also difficult as the diagnosis warrants persistence of symptoms despite targeted interventions. However, 14% of the detained youths reported learning difficulty which is on par with other studies done by Elbeheri et al (20%) and Grigorenko et al (13%)^{118,119}

In our study the most common comorbid psychiatric condition was substance use disorder (32%) followed by conduct disorder (20%). This is not consistent with most of the other studies like a systematic review by Colins et al which have reported conduct disorder to be the most common psychiatric comorbidity followed by SUDs.¹⁵⁴ This could be due to underreporting by the youths and also because of the varying diagnostic criteria followed among those studies. About 10% of the adolescents fulfilled the criteria for Major depressive disorder. Even after excluding conduct disorder and substance use disorder, about 16 % of the

youth had a comorbid psychiatric condition which is higher than that of the general population. Anxiety disorder, bipolar affective disorder and psychotic disorder was diagnosed in 2% of the individuals respectively.

Our Study results show that 50% of the detained youths have a history of substance use and 72% among them have reported the use of two or more substances. Tobacco is the most commonly used substance followed by Cannabis and alcohol. Inhalant use is reported by 12% of the individuals and a small proportion have reported benzodiazepine and opioid use.

Many previous studies have found the association between conduct disorder and substance use. Our study results are consistent with this finding and support the bidirectional association between these two conditions about 80 % of the youth diagnosed with conduct disorder have comorbid substance use disorder and about 50% of those having substance use disorders qualify for a diagnosis of conduct disorder.

According to our study results, the rate of non-suicidal self injury, previously known as deliberate self harm, among detained youths is significantly higher (28%) than that of the general population. About 4 % of the participants had suicidal ideations at some point of time which is an important factor to be assessed in detail.

Many of the adolescents tend to enter into the juvenile justice system repeatedly leading to recidivism. In our study 44% of the detained youth had previous history of criminality. 18 % of them had committed criminal offenses more than three times. A comparison analysis was made to find out the factors which had significant association with recidivism. According to the results, family history of mental illness, comorbid conduct disorder and substance use disorder and history of non suicidal self injury were significantly associated with recidivism. An elevated total score in the strength and difficulties questionnaire as well as individual elevated scores in the conduct and hyperactivity domains are also found to be significantly associated with recidivism.

These factors could serve as strong predictors for future criminality. Therefore, addressing these issues and treating the comorbid conditions is essential to prevent the youth from entering into the justice system repeatedly and to have a better social functioning.

CONCLUSION

Adolescents detained in juvenile homes have considerable mental health needs. Our study shows that there are multiple adverse biological, psychological, socio-economic and environmental factors among these youths. Also, the psychiatric comorbidity among these youths are higher than that of the general population. There is therefore, an interplay of a variety of factors influencing delinquent behavior which should be addressed at individual, family and at the community level. This clearly emphasizes the need for organizing effective mental health services for them. Many high risk youth become repeat offenders. Hence without treatment, these disorders are likely to worsen and persist, resulting in negative social outcomes. An effective collaboration is needed between various public service departments such as the judiciary, education department, social welfare department and mental health care providers to minimize the rate of juvenile delinquency.

LIMITATIONS

Our Study has several limitations. The participants are from a single observation home. Hence there is an increased possibility that they share similar demographic profiles. Factors which might vary between Urban and rural population could not be assessed. The rates of comorbidity may vary depending on two factors. The percentage of detained youth are very minimal when compared to the actual number of youth entering the justice system. Secondly, the diagnoses were made based on self-report by youth, the reliability of which could not be ascertained. Underreporting due to stigma is also an important factor to be considered. Though efforts were made to contact family members, it was not possible most of the times. A prospective study design would have been more appropriate but due to limited resources it was not feasible. However, even with these limitations, our study findings have important implications as discussed above.

FUTURE DIRECTIONS

More knowledge is needed regarding the psychiatric comorbidity and the factors influencing delinquent behaviour in children and adolescents. Most of the available data in this field are from that of the developed nations. Therefore, it is of importance that more studies should be conducted in our country to find out the relevant clinical differences considering the various socio cultural and political backgrounds.

Studies are needed to find out the factors responsible for the high school drop-out rates and other school related factors. More studies are needed to find the prevalence of suicide and deliberate self-harm among this population.

Prospective intervention studies are needed to find the effectiveness of early intervention strategies among special populations in preventing youth from entering into the juvenile justice system and also to reduce the rates of recidivism.

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**A STUDY OF BIOPSYCHOSOCIAL FACTORS AND PSYCHOPATHOLOGY
AMONG ADOLESCENTS IN JUVENILE HOMES**

NAME OF THE PARTICIPANT:

AGE:

DATE OF BIRTH:

SEX:

RELIGION:

EDUCATION:

OCCUPATION:

FATHER'S NAME:

MOTHER'S NAME:

FATHER'S AGE:

MOTHER'S AGE:

FATHER'S EDUCATION:

MOTHER'S EDUCATION:

FATHER'S OCCUPATION:

MOTHER'S OCCUPATION:

SIBLINGS DETAILS:

ORDER OF BIRTH:

SOCIOECONOMIC CLASS:

ADDRESS:

CONTACT NUMBER:

CURRENT CRIME:

IPC:

PREVIOUS HISTORY OF OFFENCE:

NO. OF TIMES DETAINED:

AGE OF FIRST CRIME:

FAMILY HISTORY OF CRIMINALITY:

FAMILY HISTORY OF MENTAL ILLNESS:

FAMILY HISTORY OF SUICIDE:

ADVERSE FAMILY FACTORS:

ADVERSE SOCIETAL FACTORS:

PEER INFLUENCE:

SUBSTANCE USE:

DELIBRATE SELF HARM:

DYSMORPHOLOGY EXAMINATION:

WASI-II SCORE:

VCI: PRI: FSIQ: VCI<PCI:

STRENGTH AND DIFFICULTIES QUESTIONNAIRE:

EMOTIONAL: CONDUCT: HYPERACTIVITY: PEER PROBLEMS:

TOTAL DIFFICULTIES SCORE:

PSYCHOPATHOLOGY:

DSM V DIAGNOSIS IF ANY:

ஆராய்ச்சி தகவல் தாள்

ஆராய்ச்சி தலைப்பு : சிறார் கூர்நோக்கு இல்லத்தில் வசிக்கும்
இளஞ்சிறார்கள் இடையே உள்ள
மனப்பிணிகள் மற்றும் அவற்றின்
உயிரியல் உளவியல் சமூகவியல் சார்ந்த
காரணிகள் குறித்த ஆய்வு

ஆராய்ச்சியாளர் : மரு. கா. ரிஸ்வானா :பாத்திமா

பங்குகொள்பவர் பெயர் :

பெற்றோர்(அ)பொறுப்பாளர் பெயர்:

இடம் : அரசு கூர்நோக்கு இல்லம்,
சென்னை- 600010

தங்கள்(அ) தங்கள் பொறுப்பில் இருக்கும் குழந்தை இந்த
ஆராய்ச்சியில் பங்குபெறுவதற்கேற்ப தகவல்கள்
கொடுக்கப்பட்டுள்ளது. தங்கள் சந்தேகங்களை கேட்டு அறிந்து
கொள்ளலாம்.

ஆராய்ச்சியின் நோக்கம் :

நீதித்துறையின் பொறுப்பின் கீழ் வரும் இளஞ்சிறார்களின்
எண்ணிக்கை நமது நாட்டில் பெருமளவு அதிகரித்து கொண்டே
வருகின்றது. இச்சிறார்களிடையே நிலவும் மனநலம் சார்ந்த
பிரச்சனைகள் மற்றும் அவற்றின் காரணிகளை அறிவதே இந்த
ஆய்வின் நோக்கமாகும். இந்த ஆய்வின் தகவல்கள் மற்றும்
முடிவுகள் இக்குழந்தைகளுக்கு தேவையான மனநல சேவைகளைத்
தீர்மானிக்க உதவும். இதனால் இக்குழந்தைகளின் வாழ்வியல் தரம்
உயர்வதோடு சமூக முன்னேற்றமும் ஏற்படலாம்.

ஆராய்ச்சி முறை :

அரசு காப்பகத்தில் வைத்து உங்கள் விருப்பத்துடன் நேர்காணல் செய்யப்படும். தாங்களும் தங்கள் பொறுப்பில் இருக்கும் குழந்தையும் இந்த ஆராய்ச்சியில் பங்கேற்க விரும்புகிறோம்.

இந்த ஆய்வின் முடிவுகளை ஆராய்ச்சியின் போது அல்லது ஆராய்ச்சியின் முடிவின் போது தங்களுக்கு அறிவிக்கப்படும் என்பதையும் தெரிவித்துக்கொள்கிறோம்

இந்த ஆராய்ச்சியில் பங்கேற்பது தங்களுடைய விருப்பத்தின் பேரில் தான் இருக்கிறது. மேலும் நீங்கள் எந்நேரமும் இந்த ஆராய்ச்சியில் இருந்து பின் வாங்கலாம் என்பதையும் தெரிவித்துக்கொள்கிறோம்.

முடிவுகளை அல்லது கருத்துகளை வெளியிடும் போதோ அல்லது ஆராய்ச்சியின் போதோ தங்களது (அ) தங்கள் பொறுப்பில் இருக்கும் குழந்தையின் பெயரையோ அல்லது அடையாளங்களையோ வெளியிட மாட்டோம் என்பதையும் தெரிவித்துக் கொள்கிறோம்.

ஆராய்ச்சியாளர் கையொப்பம்:

பங்குகொள்பவர் கையொப்பம்

பெற்றோர்(அ)பொறுப்பாளர் கையொப்பம்:

இடம்:

தேதி :

ஆராய்ச்சி ஒப்புதல் கடிதம்

ஆராய்ச்சி தலைப்பு:

சிறார் கூர்நோக்கு இல்லத்தில் வசிக்கும் இளஞ்சிறார்கள் இடையே உள்ள மனப்பிணிகள் மற்றும் அவற்றின் உயிரியல் உளவியல் சமூகவியல் சார்ந்த காரணிகள் குறித்த ஆய்வு

பங்கு கொள்பவர் பெயர்:

பெற்றோர்(அ)பொறுப்பாளர் பெயர்:

ஆராய்ச்சியாளர் : மரு. கா. ரிஸ்வானா :பாத்திமா

இடம் : அரசு கூர்நோக்கு இல்லம் (அ) குழந்தைகள் காப்பகம்

சென்னை- 600010

..... எனும் நான் எனக்கு கொடுக்கப்பட்ட தகவல் தாளினை படித்து புரிந்துகொண்டேன். என்னுடைய சுய நினைவுடனும் மற்றும் முழு சுதந்திரத்துடனும் இந்த ஆராய்ச்சியில் என் குழந்தையைச் சேர்த்துக்கொள்ள சம்மதிக்கிறேன்.

எனக்கு இந்த ஆராய்ச்சியின் ஒப்புதல் படிவம் விளக்கப்பட்டது.

எனக்கு இந்த ஆராய்ச்சியின் நோக்கமும், விவரங்களும் விளக்கப்பட்டது.

எனக்கு என்னுடைய உரிமைகளை பற்றி விளக்கப்பட்டது.

எனது (அ) எனது பொறுப்பில் இருக்கும் குழந்தை இதுவரை எடுத்துக்கொண்ட அனைத்து மருத்துவ முறைகளைப் பற்றி தெரிவித்திருக்கிறேன்.

இந்த ஆராய்ச்சியில் இருந்து எனது (அ) எனது பொறுப்பில் இருக்கும் குழந்தை எந்நேரமும் பின் வாங்கலாம் என்பதையும் அதனால் எந்த பாதிப்பும் ஏற்படாது என்பதையும் நான் புரிந்துகொண்டேன்.

எனது (அ) எனது பொறுப்பில் இருக்கும் குழந்தையை பற்றிய எந்த தகவல்களும், அடையாளமும் வெளியிடப்பட மாட்டாது என்பதை புரிந்துகொண்டேன்.

என்னுடைய முழு சுதந்திரத்துடனும் இந்த ஆராய்ச்சியில் எனது (அ) எனது பொறுப்பில் இருக்கும் குழந்தையைச் சேர்த்துக்கொள்ள சம்மதிக்கிறேன்.

பெற்றோர்(அ)பொறுப்பாளர் பெயர் மற்றும் கையொப்பம்

.....தேதி:.....

பங்குகொள்பவர் கையொப்பம்

.....தேதி:.....

ஆராய்ச்சியாளர் பெயர் மற்றும் கையொப்பம்

..... தேதி :

INFORMATION TO PARTICIPANTS

Title:

**“A STUDY OF BIOPSYCHOSOCIAL FACTORS AND
PSYCHOPATHOLOGY AMONG ADOLESCENTS IN JUVENILE HOMES”**

Principal Investigator:

Dr. K. RISWANA FATHIMA,
1st year MD Psychiatry Postgraduate,
INSTITUTE OF MENTAL HEALTH,
Madras Medical College,
Chennai – 600 010.

Participant Details:

Name :

Age/ Sex:

Address:

Telephone:

Place of Study: Government Observational Home,

Government children’s Home for Girls who need care and protection,
Government children’s Home for Boys who need care and protection,
Chennai.

You are invited to take part in this research. The information in this document is meant to help you decide whether or not to take part. Please feel free to ask if you have any queries or concerns.

What is the purpose of research?

Juveniles getting involved in the justice system is a growing concern in the country. This study aims to determine the mental health issues related to these adolescents. We have obtained permission from the Institutional Ethics Committee.

The study design:

You and your child/ward will be interviewed in a privacy ensured environment in the government juvenile home.

Study procedures:

We will be interviewing you and your child/ward with various questionnaires. You and your child/ward will be required to spare roughly two hours for a one-time interview.

Possible benefits to other people:

The results of research may provide benefits to the society in terms of advancement of medical knowledge and planning for availability of better mental health care for the children.

Confidentially of the information obtained from you:

You have the right to confidentiality regarding the privacy of your medical information (personal details, medical history). By signing this document, you will be allowing the research team investigators, other study personnel and the Institutional Ethics Committee, to view your data, if required. The information from this study, if published in scientific journals or presented at scientific meetings, will not reveal your identity.

How will your decision to not participate in the study affect you?

Your decision not to participate in this research study will not affect your child/ward's care or protection provided by the institution. Your child/ward will be taken care of and will not lose any benefits to which he/she is entitled.

Can you decide to stop participating in the study once you start?

The participation in this research is purely voluntary and you have the right to withdraw from this study at any time during the course of the study without giving any reasons.

Signature of Investigator:

Signature of Parent/caretaker

Date :

Date

INFORMED CONSENT FORM

Title:

“A STUDY OF BIOPSYCHOSOCIAL FACTORS AND PSYCHOPATHOLOGY AMONG ADOLESCENTS IN JUVENILE HOMES”

Name of the Participant:

Name of Principal Investigator: **Dr. K. RISWANA FATHIMA**

Name of Institution: Institute of Mental Health, Chennai.

I _____ (name of parent/caretaker), have read the information in this form or it has been read out to me. I was free to ask any questions and they have been answered. I am exercising my free power of choice, hereby voluntarily give my consent for my child/ward to be included as a participant in this study.

- 1) I have read and understood this consent form and the information provided to me.
- 2) I have had the consent document explained to me.
- 3) I have been explained about the nature of the study.
- 4) I have been explained about my rights and responsibilities by the investigator.
- 5) I am aware of the fact that my child/ward can opt out of the study at any time without having to give any reason and this will not affect my child/ward's future stay in the home.
- 6) I hereby give permission to the investigators to release the information obtained from me and my child/ward as a result of participation in this study to the regulatory authorities, Government agencies, and ethics committee. I understand that they may inspect my child/ward's original records.
- 7) I understand that my child/ward's identity will be kept confidential if my child/ward's data are publicly presented.
- 8) I have had my questions answered to my satisfaction.
- 9) I consent voluntarily for my child/ward to participate as a participant in the research study.

I am aware, that when my child/ward opts out of the study, I should contact the investigators. By signing this consent from, I attest that the information given in this document has been clearly explained to me and understood by me. I will be given a copy of this consent document.

Parent/ Caretaker	Name	Signature	Date
Impartial Witness	Name	Signature	Date
Investigator	Name	Signature	Date

Name: _____ #: _____ Examiner: _____ Date / /
 BD: / / Ago: yrs m Dysmorphology Exam Setting: _____

Growth	Ht: (%; 50th for age) HR RR BP /	SCORING <input checked="" type="checkbox"/> Normal or: <input checked="" type="checkbox"/> Anomaly present: comments <input checked="" type="checkbox"/> -- other finding
	Wt: (%; 50th for age) OFC (%; 50th for age)	
Hair	<input type="checkbox"/> Normal <input type="checkbox"/> Unusual texture: <input type="checkbox"/> Sparse/alopecia <input type="checkbox"/> Unusual pattern, extra whorls <input type="checkbox"/> Unruly, uncombable	<input type="checkbox"/> Underweight for height <input type="checkbox"/> Short stature <input type="checkbox"/> Microcephaly <input type="checkbox"/> Overweight for height <input type="checkbox"/> Tall stature <input type="checkbox"/> Macrocephaly
	<input type="checkbox"/> Low Anterior Hair Line <input type="checkbox"/> Frontal Upweep <input type="checkbox"/> Low Posterior Hair Line <input type="checkbox"/> Abnormal Hair Whorl <input type="checkbox"/> Double Hair Whorl	
Head	<input type="checkbox"/> Normal <input type="checkbox"/> Abnormal shape: <input type="checkbox"/> Ridged suture(s): <input type="checkbox"/> Open suture(s): <input type="checkbox"/> Abnormal fontanelle(s): <input type="checkbox"/> -- (cm x cm)	<input type="checkbox"/> Shallow Midface <input type="checkbox"/> Frontal Bossing <input type="checkbox"/> Prominent Occiput <input type="checkbox"/> Flat Occiput
	<input type="checkbox"/> Normal <input type="checkbox"/> Unusual gestalt: <input type="checkbox"/> Asymmetry: <input type="checkbox"/> Round <input type="checkbox"/> Coarse <input type="checkbox"/> Long/narrow <input type="checkbox"/> Myopathic <input type="checkbox"/> --	<input type="checkbox"/> Bitemporal Hollowing <input type="checkbox"/> Triangular <input type="checkbox"/> Long Midface <input type="checkbox"/> Short Midface
Eyes	<input type="checkbox"/> Normal Eyebrows: <input type="checkbox"/> Arched <input type="checkbox"/> Medial flare Eyelids: <input type="checkbox"/> Ptosis <input type="checkbox"/> -- Eye fissures <input type="checkbox"/> Narrow <input type="checkbox"/> Wide Eye slant <input type="checkbox"/> ↑ <input type="checkbox"/> ↓ <input type="checkbox"/> -- Sclerae <input type="checkbox"/> Blue <input type="checkbox"/> -- Iris: <input type="checkbox"/> Pupils:	<input type="checkbox"/> Upslanting <input type="checkbox"/> Downslanting <input type="checkbox"/> Epicanthal Folds <input type="checkbox"/> Brushfield Spots <input type="checkbox"/> Telecanthus <input type="checkbox"/> Hypertelorism <input type="checkbox"/> Hypotelorism
	<input type="checkbox"/> R ear cm (___%)* <input type="checkbox"/> Large <input type="checkbox"/> Small <input type="checkbox"/> L ear cm (___%)* <input type="checkbox"/> Large <input type="checkbox"/> Small Pinnae <input type="checkbox"/> R: <input type="checkbox"/> L: Lobes <input type="checkbox"/> R: <input type="checkbox"/> L: <input type="checkbox"/> R-- <input type="checkbox"/> L--	<input type="checkbox"/> Intercanthal distance cm (___%)* <input type="checkbox"/> Interpupillary distance cm (___%)*
Ears	<input type="checkbox"/> Normal <input type="checkbox"/> Absent/cleft <input type="checkbox"/> Proboscis <input type="checkbox"/> -- <input type="checkbox"/> Long <input type="checkbox"/> Short <input type="checkbox"/> Shallow bridge <input type="checkbox"/> High bridge <input type="checkbox"/> Short columella <input type="checkbox"/> Alae above tip <input type="checkbox"/> Deep nasal creases <input type="checkbox"/> Nasal tip: <input type="checkbox"/> Nares: <input type="checkbox"/> --	<input type="checkbox"/> Anteverted Nares <input type="checkbox"/> Small, Pinched <input type="checkbox"/> Bulbous <input type="checkbox"/> Broad Nasal Root
	<input type="checkbox"/> Normal <input type="checkbox"/> Cupid's bow <input type="checkbox"/> ↓ Corners <input type="checkbox"/> Open <input type="checkbox"/> Locked <input type="checkbox"/> Smile: <input type="checkbox"/> -- <input type="checkbox"/> -- Tongue: <input type="checkbox"/> Large <input type="checkbox"/> Small <input type="checkbox"/> : Teeth <input type="checkbox"/> Too few <input type="checkbox"/> Small <input type="checkbox"/> Conical/peg <input type="checkbox"/> Spacing: <input type="checkbox"/> -- Lips: <input type="checkbox"/> Thin: <input type="checkbox"/> Thick:	<input type="checkbox"/> Large <input type="checkbox"/> Small <input type="checkbox"/> Long Philtrum <input type="checkbox"/> Short Philtrum <input type="checkbox"/> High-Arched Palate <input type="checkbox"/> Broad Alveolar Ridges <input type="checkbox"/> Bifid Uvula
Neck Jaw	<input type="checkbox"/> Normal neck <input type="checkbox"/> Redundant skin <input type="checkbox"/> Torticollis: <input type="checkbox"/> Pits/sinuses: <input type="checkbox"/> Masses: <input type="checkbox"/> --	<input type="checkbox"/> Mouth: <input type="checkbox"/> Palate: <input type="checkbox"/> Normal jaw <input type="checkbox"/> Retrognathia <input type="checkbox"/> Pointed chin <input type="checkbox"/> Cleft chin: <input type="checkbox"/> -- <input type="checkbox"/> Prognathism <input type="checkbox"/> Micrognathia
	<input type="checkbox"/> Webbed <input type="checkbox"/> Short	

*score as abnormal if divergent from head circumference centiles

Crime Committed by Juveniles (IPC+SLL) - 2014-2016

S. No.	State/UT	2014	2015	2016	Percentage State Share To All-India (2016)	Rank Based on Incidence/ % share (2016)	Mid-Year Projected Children Population (in Lakhs)## (2014)	Rate of Total Cognizable Crimes (2016)++	Rank Based on Crime Rate (2016)
1	2	3	4	5	6	7	8	9	10
STATES:									
1	Andhra Pradesh	883	1015	809	2.3	14	156.7	5.2	22
2	Arunachal Pradesh	81	66	57	0.2	27	4.7	12.1	10
3	Assam	487	624	436	1.2	17	118.9	3.7	25
4	Bihar *	4371	1658	2335	6.5	5	447.8	5.2	21
5	Chhattisgarh	1691	1914	1953	5.4	7	100.5	19.4	4
6	Goa	64	28	21	0.1	30	5.2	4.0	24
7	Gujarat *	4380	1577	1681	4.7	8	206.8	8.1	16
8	Haryana	1041	1098	1186	3.3	11	92.8	12.8	9
9	Himachal Pradesh	272	195	204	0.6	18	21.6	9.4	12
10	Jammu & Kashmir	102	181	198	0.6	19	45.0	4.4	23
11	Jharkhand	150	124	140	0.4	20	131.5	1.1	33
12	Karnataka	412	446	453	1.3	16	195.9	2.3	29
13	Kerala	1203	1398	628	1.8	13	93.4	6.7	20
14	Madhya Pradesh	6512	6583	7369	20.6	1	300.8	24.5	2
15	Maharashtra	5407	5693	6606	18.4	2	378.5	17.5	5
16	Manipur	23	17	10	0.0	33	9.6	1.0	34
17	Meghalaya	125	111	84	0.2	24	10.0	8.4	15
18	Mizoram	44	41	53	0.1	26	3.7	14.3	7
19	Nagaland	10	17	18	0.1	31	6.7	2.7	27
20	Odisha	838	934	994	2.8	12	140.4	7.1	19
21	Punjab	277	111	117	0.3	21	87.7	1.3	32
22	Rajasthan	2309	2203	2273	6.3	4	285.4	8.0	17
23	Sikkim	19	41	27	0.1	28	2.0	13.5	8
24	Tamil Nadu	1549	1814	2217	6.2	6	202.0	11.0	11
25	Telangana	931	1252	998	2.8	10	111.7	8.9	13
26	Tripura	64	37	25	0.1	29	12.4	2.0	30
27	Uttar Pradesh	1397	1006	1438	4.0	9	885.8	1.6	31
28	Uttarakhand	123	127	124	0.3	22	38.5	3.2	26
29	West Bengal *	1566	562	709	2.0	15	293.7	2.4	28
TOTAL STATE(S)		36331	30873	33163	92.5		4389.6	7.6	
UNION TERRITORIES:									
30	A & N Islands	14	13	12	0.0	32	1.4	8.6	14
31	Chandigarh	116	100	96	0.3	23	4.0	24.0	3
32	D&N Haveli	6	17	0	0.0	-	1.3	0.0	-
33	Daman & Diu	2	3	7	0.0	34	0.9	7.8	18
34	Delhi UT	1969	2366	2499	7.0	3	56.0	44.6	1
35	Lakshadweep	1	0	0	0.0	-	0.2	0.0	-
36	Puducherry	16	61	72	0.2	25	4.7	15.3	6
TOTAL UT(S)		2124	2560	2686	7.5		68.4	39.3	
TOTAL ALL INDIA		38455	33433	35849	100.0		4458.0	8.0	

Source : NCRB

செயல்திறனுக்கும் செயலின்மைக்குமான கேள்விக் கொத்து

கீழ் குறிப்பிட்டுள்ள ஒவ்வொரு வினாவிற்குமுரிய விடைகளை அவை உண்மையல்ல, ஓரளவு உண்மை, நிச்சயமாக உண்மை என்பதற்குரிய உங்கள் அறிவுபூர்வமான விடைகளை பொருத்தமான சதுரப்பெட்டிகளில் புள்ளியிடவும். நிச்சயமற்ற பதில்கள் எனக் கருதும் கேள்விக் கொத்து பதில்களை முடிந்தளவு உங்கள் அறிவுக்கெட்டிய பொருத்தமானதும், உங்கள் பிள்ளையின் கடந்த ஆறு மாதம் அல்லது ஒரு வருட கால நடத்தையைக் கருத்தில் கொண்டதுமான பதில்களைப் பொருத்தமான பிரிவில் புள்ளியிட்டு இவ் நலஆய்வுக்கு தயவுசெய்து உதவி செய்யவும்.

பிள்ளையின் பெயர் _____

பிறந்த திகதி _____

ஆண்/பெண்

	உண்மையல்ல	ஓரளவு உண்மை	நிச்சயமாக உண்மை
பிறர் நலத்தைக் கருத்தில் கொள்ளும் தன்மை	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ஒய்வினமை, மிகையான கறுகறுப்பு, நீண்டநேரம் ஓரடத்தில் நிற்கமுடியாமல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
அடிக்கடி தலையிடி, வயிற்றுக்குத்து, வரந்தியென முறையிடுதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
பிறபிள்ளைகளுடன் பகிர்ந்துகொள்ளும் தன்மை (உபசரிப்பு, விளையாட்டுப் பொருட்கள், பென்சில் போன்றவற்றை)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
அடிக்கடி கோபமடைதல் அல்லது அழிதீவிர கோபமடைதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
தனித்திருத்தல், தனித்து விளையாடுதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
பொதுவாக கீழ்ப்படியும் தன்மை, பெரியவர் சொற்படி கீழ்ப்படிந்து நடத்தல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
அதிக கவலை, அடிக்கடி கவலைப்படல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
பிறர் புண்படுப்போது, குழப்பம் அடையும்போது, துன்பமடையும்போது உதலிசெய்தல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
தொடர்ச்சியாக அமைதியற்ற நிலை அல்லது தன்னடக்கமற்ற நிலை	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
குறைந்தது ஒருவருடனாவது நல்ல சிந்திதமாக இருத்தல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
அடிக்கடி சக பிள்ளைகளுடன் சண்டையிடுதல் அல்லது கேலி செய்தல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
அடிக்கடி சந்தேகமீன்மை, மனச்சோர்வு, கண்ணீர்விடுதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
பொதுவாக சக பிள்ளைகளால் விரும்பப்படுதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
கலபமாக கவனம், புலன் திசைதிரும்பும் தன்மையிருத்தல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
புதிய இடமாற்றத்தின்போது பதட்டமடைதல் அல்லது பிறரைப் பற்றிக்கொள்ளும் தன்மை, கலபமாக மனஉறுதியை இழத்தல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
சிறு வயதிலிருந்து அன்பு காட்டுதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
அடிக்கடி பெயர் சொல்லுதல் அல்லது மறந்துதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
மற்றபிள்ளைகளினால் கேலிசெய்யப்படுதல், சண்டைக்குத் தேர்ந்தெடுக்கப்படுதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
அடிக்கடி தன்னலம் கருதாது உதலிசெய்தல் (பெற்றோர், ஆசிரியர், பிற பிள்ளைகள்)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
செயற்படுபவன் ஆய்வு செய்யும் திறன்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
லிட்டிலோ அல்லது பாடசாலைமீலோ அல்லது வேறு இடத்திலோ களவு எடுக்கும் இயல்பு	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
அனுசரித்துப் பழகும் தன்மையை சகபிள்ளைகளைவிட பெரியவர்களிடம் காட்டுதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
அதிக அச்சம் கொள்ளுதல், விரைவில் பயப்படுதல்	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
கொடுக்கப்பட்ட வேலையில் இறுதிவரை சிறப்பாகக் கவனம் செலுத்தும் தன்மை	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

கையொப்பம் _____

திகதி _____

பெற்றோர்/ஆசிரியர்/பிறர் (தயவுசெய்து குறிப்பிடவும்)

உங்கள் உதவிக்கு மிக்க நன்றி

MASTER CHART

s.no	age	sex	education	drop out	occupation	religion	ses	residence	current crime	IPC	no. of times	previous crime	age at first crime	father edu	father occu	mother edu	mother occu
1	16	M	higher secondary	yes	unskilled	hindu	L	urban	1	379	2	2	15	primary	semiskilled	uneducated	unskilled
2	15	M	middle	yes	unskilled	muslim	L	urban	2	3,25,326	3	1	14	uneducated	unskilled	primary	unemployed
3	17	M	high	yes	unskilled	hindu	L	urban	1	378	2	1	15	middle	semiskilled	middle	unskilled
4	16	M	middle	yes	unskilled	muslim	L	urban	1	378	3	1	14	uneducated	semiskilled	uneducated	unemployed
5	17	M	middle	yes	unskilled		L	urban	2	3,25,326	1	0	17	primary	unskilled	uneducated	unemployed
6	17	M	high		semiskilled	hindu	L	urban	3	1,47,14,83,41,302	1	0	17	high	skilled	primary	unskilled
7	16	M	higher secondary	yes	unemployed	hindu	L	urban	1	379	1	0	16	high	skilled	middle	unemployed
8	17	M	middle	no	semiskilled	hindu	L	urban	2	341,294b,323,397,33	1	0	17	primary	unskilled	primary	unemployed
9	16	M	middle	no	unskilled	christian	L	urban	6	454, 380	1	0	16	primary	unskilled	primary	unskilled
10	14	M	primary	yes	unemployed	hindu	L	urban	1	379	3	1	12	uneducated	unskilled	uneducated	unskilled
11	14	M	middle	yes	unemployed	hindu	L	urban	1	379	1	0	14	uneducated	unskilled	uneducated	unskilled
12	17	M	primary	no	unskilled	hindu	L	semi urban	1	379	1	0	17	primary	skilled	uneducated	unskilled
13	17	M	middle	yes	unskilled	christian	L	urban	2	324,506(4)	1	0	17	primary	semiskilled	primary	semiskilled
14	16	M	middle	no	unemployed	hindu	L	urban	6	454, 380	1	0	16	high	skilled	higher secondary	unemployed
15	17	M	middle	yes	semiskilled	hindu	L	urban	6	454, 380	1	0	17	middle	unskilled	primary	unskilled
16	17	M	higher secondary	no	semiskilled	hindu	L	urban	1	3,78,379	2	1	16	primary	semiskilled	uneducated	unemployed
17	16	M	higher secondary	yes	unskilled	hindu	L	urban	3	302	2	2	15	primary	semiskilled	primary	unskilled
18	16	M	middle	yes	unemployed	hindu	L	urban	1	379	1	0	16	uneducated	unskilled	primary	unemployed
19	17	M	middle	yes	unskilled	christian	L	urban	7	3,41,392	3	1	15	primary	semiskilled	primary	unskilled
20	17	M	high	no	semiskilled	hindu	L	urban	1	380	2	3	17	high	skilled	middle	shop owner
21	16	M	middle	yes	unskilled	hindu	L	urban	1	378	3	1,2	14	middle	semiskilled	primary	unskilled
22	14	M	middle	yes	unskilled	muslim	L	urban	1	378	2	2	14	middle	semiskilled	primary	unemployed
23	17	M	high	no	semiskilled	hindu	L	urban	1	3,79,380	2	1	16	primary	unskilled	higher secondary	skilled
24	16	M	higher secondary	yes	semiskilled	hindu	L	urban	6	4,57,380	2	6	15	primary	semiskilled	primary	unskilled
25	15	M	high	yes	unskilled	hindu	L	urban	6	4,57,380	1	0	15	middle	unskilled	primary	unemployed
26	16	M	diploma	no	student	christian	L	urban	6	147, 148, 448,	1	0	16	high	shop owner	primary	unemployed
27	16	M	high	no	semiskilled	hindu	L	urban	4	448,294,323,324,307	1	0	16	middle	mechanic	middle	unemployed
28	17	M	high	no	unskilled	christian	L	urban	6	4,54,380	3	1	14	primary	semiskilled	primary	unemployed
29	14	M	primary	no	unemployed	hindu	L	urban	1	378	1	0	14	middle	security	primary	unskilled
30	17	M	middle	yes	unskilled	hindu	L	urban	6	4,57,380	2	1	15	high	semiskilled	middle	unskilled
31	15	M	middle	yes	unemployed	hindu	L	urban	1	3,79,380	1	0	15	primary	unskilled	middle	unemployed
32	17	M	higher secondary	yes	semiskilled	christian	L	urban	2	324	2	1	15	middle	unskilled	primary	unemployed
33	16	M	high	no	semiskilled	hindu	L	urban	1	379	1	0	16	middle	semiskilled	primary	unemployed
34	13	M	primary	no	unemployed	hindu	L	urban	1	379	1	0	13	middle	shop owner	primary	unskilled
35	17	M	higher secondary	yes	semiskilled	christian	L	urban	4	pocso 12	1	0	17	primary	unskilled	uneducated	unemployed
35	15	M	middle	yes	unskilled	hindu	L	urban	6	32,44,57,380	3	2	15	primary	unskilled	primary	unskilled
37	14	M	primary	yes	unemployed	muslim	L	urban	1	378	1	0	14	middle	semiskilled	primary	unemployed
38	16	M	high	yes	semiskilled	hindu	L	urban	6	324	1	0	16	uneducated	unskilled	primary	unskilled
39	17	M	high	yes	semiskilled	hindu	L	urban	3	302	3	2	14	high	semiskilled	middle	unemployed
40	13	M	middle	no	unemployed	hindu	L	urban	1	378	1	0	13	high	semiskilled	primary	unskilled
41	14	M	primary	no	unemployed	hindu	L	urban	1	379	1	0	14	primary	unskilled	primary	unskilled
42	16	M	high	yes	unskilled	hindu	L	urban	1	3,78,379	1	0	16	primary	unskilled	uneducated	unemployed
43	17	M	high	no	semiskilled	christian	L	urban	6	4,54,380	2	1	16	high	semiskilled	middle	skilled
44	13	M	primary	yes	unemployed	hindu	L	urban	1	379	1	0	13	higher secondary	skilled	primary	unemployed
45	14	M	middle	no	unemployed	hindu	L	urban	1	378	2	1	13	high	semiskilled	middle	shop owner
46	15	M	middle	yes	unemployed	hindu	L	urban	2	324	1	1	14	primary	unskilled	high	unemployed
47	17	M	diploma	yes	semiskilled	hindu	L	urban	6	32,44,57,380	3	1,2	15	primary	unskilled	middle	unskilled
48	15	M	primary	no	unemployed	hindu	L	urban	1	379	1	0	15	primary	semiskilled	primary	unemployed
49	15	M	middle	yes	unemployed	hindu	L	urban	1	3,78,379	1	0	15	middle	semiskilled	middle	unemployed
50	16	M	high	no	unskilled	hindu	L	urban	7	392	2	2	15	middle	semiskilled	high	unemployed

order of birth	facial dysm	HC	relatives jail	family h/o	family h/o	no substance dep	mental illness exc	WASI IQ	inference	social	social-family	social- environmer	social- both	emotional	inference	conduct	inference
1	nil	52	0	1B	yes	yes	no	88	borderline	1	yes	no	no	2	close to average	8	very high
1	nil	54	0	5B	yes	no	yes	76	borderline	1	yes	no	no	3	close to average	8	very high
2	nil	54	0	1A	yes	yes	no	90	normal	5	yes	no	no	10	very high	6	very high
2	nil	53	0	0	no	no	no	73	borderline	0	no	no	no	1	close to average	1	close to average
1	nil	51	0	0	no	no	no	72	borderline	0	no	no	no	0	close to average	2	close to average
2	nil	52	0	0	no	no	no	94	normal	0	no	no	no	0	close to average	1	close to average
2	nil	50	0	1A	yes	yes	no	86	borderline	0	no	no	no	5	slightly raised	4	slightly raised
1	nil	54	0	1A, 5A	yes	yes	yes	71	borderline	3,7	no	no	yes	4	close to average	3	close to average
2	nil	53	0	1A	yes	yes	no	68	intellectual disab	10	no	yes	no	5	close to average	1	close to average
2	nil	53	0	8	yes	no	yes	72	borderline	1	yes	no	no	8	very high	1	close to average
3	nil	51	0	8	yes	no	yes	70	borderline	3,8	no	no	yes	0	close to average	2	close to average
1	nil	50	0	0	no	no	no	92	normal	7	no	no	yes	2	close to average	3	close to average
3	nil	54	0	1a,1B	yes	yes	no	90	normal	6,7,5,6	no	no	yes	8	very high	4	slightly raised
1	nil	52	0	8	yes	no	yes	82	borderline	6,7	no	yes	no	0	close to average	3	close to average
1	nil	54	1	3,5A	yes	no	yes	90	normal	7	no	yes	no	2	close to average	4	slightly raised
1	nil	53	0	1A	yes	yes	no	96	normal	5,6,7	no	no	yes	3	close to average	7	very high
1	nil	51	0	0	no	no	no	94	normal	0	no	no	no	0	close to average	3	close to average
2	nil	52	0	1A	yes	yes	no	76	borderline	7,8,9	no	no	yes	2	close to average	6	very high
1	nil	53	0	1A	yes	yes	no	80	borderline	3,5	yes	no	no	3	close to average	8	very high
2	nil	53	0	1A	yes	yes	no	94	normal	3,7,5,6	no	no	yes	4	close to average	6	very high
2	nil	50	0	1A	yes	yes	no	68	intellectual disability		no	no	no	4	close to average	3	close to average
1	nil	54	0	0	no	no	no	94	normal	7,9	no	no	yes	8	very high	4	slightly raised
2	nil	51	0	1A	yes	yes	no	96	normal	1A,7,8	no	no	yes	5	slightly raised	8	very high
1	nil	52	0	1A	yes	yes	no	100	normal	1A,7,	no	no	yes	0	close to average	4	slightly raised
3	nil	52	0	1aa,1ab	yes	yes	no	75	borderline	1A	yes	no	no	0	close to average	1	close to average
1	nil	54	0	0	no	no	no	98	normal	5,6,7	no	no	yes	0	close to average	3	close to average
2	nil	50	2	1aa,1ab	yes	yes	no	90	normal	4b,9	yes	no	no	0	close to average	2	close to average
2	nil	53	3	1A	yes	yes	no	100	normal	1A,5,7	no	no	yes	6	high	8	very high
1	simian crease	50	0	0	no	no	no	64		3,7	no	no	yes	1	close to average	2	close to average
2	nil	52	1	1A	yes	yes	no	90	normal	5,6,7	no	no	yes	0	close to average	6	very high
1	nil	51	0	0	no	no	no	92	normal	4,8,10	no	no	yes	9	very high	2	close to average
3	nil	51	0	1A,5B	yes	yes	yes	98	normal	5,6,7	no	no	yes	2	close to average	2	close to average
2	nil	54	0	0	no	no	no	90	normal	7	no	yes	no	0	close to average	2	close to average
3	nil	50	0	1A	yes	yes	no	72	borderline	7,1A,9	no	no	yes	0	close to average	3	close to average
1	nil	52	0	0	no	no	no	98	normal	4b	yes	no	no	0	close to average	2	close to average
1	nil	51	1	1A,5A	yes	yes	yes	90	normal	1A,7,6	no	no	yes	2	close to average	4	slightly raised
2	nil	53	0	1A	yes	yes	no	90	normal	7,10	no	yes	no	0	close to average	2	close to average
2	nil	54	0	1A	yes	yes	no	92	normal	5,6,7	no	no	yes	0	close to average	4	slightly raised
1	nil	50	1,3	1A, 5A	yes	yes	yes	94	normal	3,6,7	no	no	yes	5	slightly raised	8	very high
1	nil	52	1	1A,5A	yes	yes	yes	92	normal	3,9	yes	no	no	2	close to average	4	slightly raised
2	nil	51	0	0	no	no	no	94	normal	1A,10	no	no	yes	0	close to average	2	close to average
1	nil	50	0	0	no	no	no	98	normal	7,6	no	yes	no	0	close to average	4	slightly raised
1	nil	54	0	5B	yes	no	yes	100	normal	7,6,5	no	no	yes	0	close to average	1	close to average
3	nil	52	0	0	no	no	no	80	borderline	2,9	yes	no	no	0	close to average	2	close to average
1	nil	53	0	0	no	no	no	94	normal	5	yes	no	no	0	close to average	4	slightly raised
1	nil	51	0	0	no	no	no	102	normal	7,5,6,3	no	no	yes	0	close to average	2	close to average
2	nil	52	3	1aa,1ab,1b	yes	yes	no	94	normal	5,6,7	no	no	yes	2	close to average	8	very high
2	nil	52	0	0	no	no	no	92	normal	10,7	no	yes	no	9	very high	4	slightly raised
1	nil	54	0	0	no	no	no	90	normal	1B	yes	no	no	0	close to average	3	close to average
1	nil	51	1	1A	yes	yes	no	100	normal	7,6	no	yes	no	0	close to average	8	very high

hyperactivity	inference	peer problems	inference	total	inference	Substance use	polysubstance	stance dependent	psychopathology	ology excluding	psycho	DSH
6	slightly raised	0	close to average	16	slightly raised	1,2	yes	no	yes	no	1	0
8	very high	0	close to average	19	high	1,2,5,7	yes	yes	yes	no	1,2c	DSH
0	close to average	2	close to average	18	high	0	no	no	yes	yes	5	0
0	close to average	0	close to average	2	close to average	3	no	no	no	no	0	DSH
0	close to average	0	close to average	2	close to average	0	no	no	no	no	0	0
1	close to average	1	close to average	3	close to average	0	no	no	no	no	0	0
3	close to average	2	close to average	14	close to average	1,2	yes	yes	yes	no	2b	0
1	close to average	0	close to average	8	close to average	1,2	yes	yes	yes	no	2b	DSH
2	close to average	4	close to average	12	close to average	0	no	no	yes	yes	9	0
0	close to average	2	close to average	11	close to average	1	no	no	yes	yes	5	0
0	close to average	0	close to average	2	close to average	0	no	no	no	no	0	0
4	close to average	0	close to average	9	close to average	1,2	yes	yes	yes	no	2b	0
3	close to average	0	close to average	15	slightly raised	1,2,3	yes	yes	yes	yes	2C,6	0
1	close to average	0	close to average	4	close to average	0	no	no	no	no	0	0
4	close to average	0	close to average	10	close to average	1,2,3,5	yes	no	no	no	0	0
4	close to average	1	close to average	15	slightly raised	1,2,3	yes	yes	yes	no	1,2C	DSH
2	close to average	0	close to average	5	close to average	0	no	no	no	no	0	0
7	high	0	close to average	15	slightly raised	1,2,3	yes	yes	yes	no	1,2C	dsh
4	close to average	0	close to average	15	slightly raised	1,2,3	yes	yes	yes	no	1,2B	0
7	high	0	close to average	17	slightly raised	1,2,3	yes	yes	yes	no	1,2C	dsh
4	close to average	5	very high	16	slightly raised	1	no	no	yes	yes	9	dsh
2	close to average	3	slightly raised	17	slightly raised	0	no	no	yes	yes	6	0
6	slightly raised	0	close to average	19	high	1,2,3,4,6	yes	yes	yes	no	1,2c	0
0	close to average	0	close to average	4	close to average	1,2	yes	no	no	no	0	dsh
0	close to average	0	close to average	1	close to average	0	no	no	no	no	0	0
2	close to average	0	close to average	5	close to average	1	no	no	no	no	0	0
3	close to average	3	slightly raised	8	close to average	0	no	no	yes	no	0	0
2	close to average	0	close to average	16	slightly raised	1,2,3,5	yes	yes	yes	yes	2c,3	dsh
4	close to average	6	very high	13	close to average	0	no	no	yes	yes	9	0
8	very high	0	close to average	14	close to average	1,2,3,5,6,7	yes	yes	yes	yes	2c,4	dsh
3	close to average	4	high	18	high	1	no	no	yes	yes	10	0
3	close to average	0	close to average	7	close to average	1,2,3	yes	yes	yes	no	2c	dsh
1	close to average	0	close to average	3	close to average	1	no	no	no	no	0	0
4	close to average	3	slightly raised	10	close to average	0	no	no	yes	no	0	0
0	close to average	0	close to average	2	close to average	1,3	yes	no	no	no	0	0
6	slightly raised	0	close to average	12	close to average	1,2,3,5	yes	yes	yes	no	2b	dsh
0	close to average	0	close to average	2	close to average	0	no	no	yes	no	0	0
0	close to average	0	close to average	4	close to average	1,3,7	yes	no	no	no	0	0
6	slightly raised	0	close to average	19	high	1,2,3,4,5,7	yes	yes	yes	no	1,2A	dsh
5	close to average	4	high	15	slightly raised	0	no	no	yes	no	0	0
0	close to average	0	close to average	2	close to average	1,2,3	yes	no	no	no	0	0
0	close to average	0	close to average	4	close to average	1	no	no	no	no	0	0
0	close to average	0	close to average	1	close to average	1	no	no	no	no	0	0
0	close to average	0	close to average	2	close to average	0	no	no	no	no	0	0
2	close to average	0	close to average	6	close to average	0	no	no	no	no	0	0
3	close to average	0	close to average	5	close to average	1,3,7	yes	no	no	no	0	dsh
6	slightly raised	0	close to average	16	slightly raised	1,2,3,7	yes	yes	yes	no	1,2c	0
2	close to average	2	close to average	17	slightly raised	0	no	no	no	yes	6	0
0	close to average	0	close to average	3	close to average	1,3	yes	no	no	no	0	0
5	close to average	0	close to average	13	close to average	1,7	yes	no	yes	no	1	0