

Neuro-Cognitive Interventions for Juveniles

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Juvenile crimes are becoming more heinous which raise the mental health concerns of children and adolescents. The juvenile justice system acknowledges the need of intervention and correctional measures. Some interventions and programme approach have been conducted, however they are scattered because the core causal factor has not been targeted yet. This paper summarizes the existing evidence on the prevalence of mental health problems, neuropsychological issues and interventions to address the same. It also aimed at identifying promising practices, technology based interventions, research gaps, and policy implications. Studies on prevalence and interventions to address mental health are limited. Translational studies with vigorous study design that can guide practitioners, sensitize implementers to adapt promising practices, and inform decision-makers for necessary policy changes need to be prioritized. Creating digital consortia of evidence on best-practices, research targeted to Juvenile Justice System would be valuable.

Keywords: Children, mental health, Crime, Neuro-cognitive Interventions

The ambiguity in defining juvenile delinquency has been an academic and practical problem in most countries (Lingamneni, 1979). In the United States even, many states have their own separate definitions of what constitutes juvenile delinquency. India's definition of a juvenile delinquent, as per the Children's Act of 1960, is a child who has been found to have committed a criminal offense. The Indian definition of a child offender is virtually the same as adult criminal standards. The Act maintains that boys under the age of sixteen and girls below the age of eighteen, neglected or delinquent, must be provided with care, protection, maintenance, welfare, training, education and rehabilitation. However, the cases like Nirbhaya and many other heinous crimes force to change the definition and related laws pertaining to juveniles.

The attention of counsellors, forensic psychologists and clinical psychologists are needed to look into the matter of causes, diagnosis and the intervention of Juveniles at large to deal with the issues of crimes committed by children. The paper focuses on the developing intervention programs that would lower juvenile recidivism rates is very important for policy-making (Bradshaw, Rosenborough & Umbreit, 2006). A shift towards a more restorative approach to juvenile delinquency has, with good reason, been made (Braithwaite, 2007).

In the past thirty years, the use of restorative justice programs has been increasing in many countries, especially the United States of America (Okada, 2011; Bazemore & Umbreit, 2001; Bradshaw et al., 2006). Restorative justice programs are based on non-adversarial interaction between victims, offenders, and other individuals involved in a criminal act to repair the damage caused by the crime and to encourage accountability (Bergseth & Bouffard, 2007). These programs have shown higher positive outcomes as compared to traditional procedures followed by the courts on many variables such as perceptions of fairness, satisfaction, opportunity to tell one's story, and perceptions that one's opinions were satisfactorily taken into consideration (Poulson, 2003). Restorative justice programs includes greater involvement of the community and of the victim in the process and produces greater satisfaction with the outcome of a case, improves offender compliance and improves perceptions of procedural fairness (Latimer, Dowden & Muise, 2005; Leonard & Kenny, 2011). Each type of restorative justice intervention, even those that include minimal involvement, reduce the risk of recidivism for juveniles (Bouffard, Cooper & Bergseth, 2016).

Hartinger-Saunders and Rine (2011) presented a critical analysis and proposed synthesis of two major theories- the social learning theory and the social disorganization theory- to design a collaborative intervention model to address juvenile crime. Social process theories inspect the interaction between individuals and their environments. Burgess and Akers (1966), early pioneers of the social learning theory, developed a more precise interpersonal theory of juvenile delinquency from Sutherland's differential association theory (Simons, Simons & Wallace, 2004; Shoemaker, 2000). They incorporated the concepts of reinforcement and punishment and relabelled Sutherland's theory as the differential association-reinforcement theory. According to Akers et al. (1979), social learning theory explains how interrelationships among different variables could lead to juvenile crime. Criminal behaviour could be perpetuated when rewards are greater than the punishments, or when punishments are inconsistent or delayed, as social learning theory dictates. The social disorganization theory asserts that rapid ecological growth and change leads to an increase in crime and delinquency (Vold, Bernard & Snipes, 1998). Shaw and McKay (1969), the developers of the social disorganization theory, concluded that juvenile delinquency is a result of social disorganization and transmission of antisocial norms and values. Social learning theorists would support this notion. However, their focus would be on how the antisocial norms and values were transmitted through social interactions, which social disorganization theorists would focus on the structural elements responsible for the social disorganization. The Juvenile Counselling and Assessment model designed by Calhoun, Glaser and Bartolomucci (2001) too combines characteristics of the delinquent and the ecological context in which the delinquent lives, and the interaction among these variables as a collaborative approach including university counselling faculty, educators, graduate students and juvenile court system personnel, aiming to reduce delinquency.

Social learning theory contributes to a greater understanding of peer influence on juvenile crime, however there is not enough research done on macro-level structural factors affecting juvenile criminal behaviour. This is also why most formal interventions are linked to social learning theory (Ovaert, Cashel & Sewell, 2003).

Social learning principles, such as behaviour modification programs, have been used to deal with adult and juvenile criminals for decades. However, they place an immense amount of responsibility on the individuals as compared to the social disorganization theory. Interventions that target youth crime should take both into account. Programs removing youths from dangerous neighbourhoods would not do much unless intervention on family and neighbourhood levels is done (Henggeler & Schoenwald, 1994). They would naturally return to old habits as they are once again exposed to the same associations and structures that contributed to criminal behaviour in the first place. Hence, the collaborative model of intervention proposed by Hartinger-Saunders and Rine (2011) uses community intervention as a primary, not secondary, focus of practice. Caregivers often do not understand the role they play in their youth's criminal behaviour, and practitioners should be required to facilitate conversations among those in close proximity with the delinquent and deal with the issue of youth crime at a community level. Fagan (2013) also discusses various family-focused interventions to tackle juvenile delinquency. Findings from well-conducted evaluation trials which control all other variables that could potentially weigh in on delinquency offer the best evidence that parenting practices do influence juvenile delinquency. Furthermore, it provides specific information that could help parents in socializing their children in a more positive way, and advocate for more family-focused interventions that would be effective.

Another intervention tactic that has been delved into is by understanding peer association of juvenile delinquents (Leve & Chamberlain, 2005). Research suggests that aggregating at-risk peers together can produce added negative effects (Dishion, McCord & Poulin, 1999). Dishion and colleagues (1999), upon examining two peer-group intervention studies, found that the delinquents in the experimental group had increased issues, whereas those in the control group displayed no such effects. They also found that high-risk youth were more susceptible to negative outcomes of peer aggregation. To target these issues, a Multidimensional Treatment Foster Care (MTFC) model was developed as a community-based alternative to incarceration for delinquent boys (Chamberlain, 2003). The major aim of MTFC was twofold- to allow delinquents to have a successful community living experience and to equip their caregivers to use the skills the adolescents have learnt in MTFC when they return. Four key elements were targeted as part of the MTFC model:

1. Providing the youth with a consistent reinforcing environment where he or she is mentored and encouraged.
2. Providing a clear structure and limits with well-specified consequences that can be delivered in a teaching-oriented way.
3. Providing close supervision of the youth's whereabouts.
4. Avoiding associations between youth in MTFC and peers with problems and helping MTFC youth develop skills for having relationships with positive peers (Chamberlain, 2003, p. 304). The MTFC model is a complex, intricate structure that requires key roles to be smoothly coordinated. However, if well-implemented, it could prove to be quite effective. Neurological rehabilitation has also, rather recently, been viewed as a treatment method in forensic psychotherapy and intervention.

Advanced Brain-Train Based Intervention Modules:

Neurofeedback (NFB): It is one such method that is, at this point in time, used quite rarely for this purpose, but it does report high success rates (Kwan, 2002; Quinn, Bodenhamer-Davis & Koch, 2004). It is based on the feedback given by the brain that uses electroencephalography (EEG) to receive feedback about the person's cortical brain activity with the goal of controlling this activity and thus, reducing symptoms and/or enhancing mental capabilities (Outsem, 2010). Measurements are displayed using audio and/or video, which act as forms of classical and/or operant conditioning by giving "reward" feedback to the individual for intended change, and different feedback or inhibition of "reward" feedback for change in the opposite direction. Outsem (2010) reviews literature investigating the possibilities of neurofeedback in several areas of forensic psychotherapy, including attention deficit hyperactivity disorder (ADHD), attention deficit disorder (ADD), autism spectrum disorders, substance abuse, posttraumatic stress disorder (PTSD), mood disorders and venturing into enhancing cognitive abilities and treatment of obsessive compulsive disorder (OCD) and enhancing abilities to cope with stress. Based on this literature review, possibilities of neurofeedback in terms of forensic psychotherapy have been suggested in areas of aggression and anti-social behaviour caused by or catalysed by substance abuse or ADHD, ADD, autism spectrum disorders or PTSD, domestic violence, sexually abusive behaviour and kleptomania.

Brain Function Therapy (BFT): It is a computer-based program developed by Prof. C.R. Mukundan in 1996, has been useful in cognitive restraining and cognitive enhancement. It is an easy substitute for an individual to practice encoding and transcoding of information in cognitive tasks (Mukundan, 2013). An important benefit of BFT is that the exposure time of the stimuli can be adjusted based on requirements, as well as the mechanism of adjusting complexity by designing tasks and stimuli accordingly (Christiana, Rajah & Mukundan, 2009). The parameters and performance of the patient can be stored as a record on the system, accessible at any time for monitoring of progress of impaired functions (Menezes, Kacker & Mukundan, 2015). Its current usage in clinical areas can be extended to forensic applications, especially with juvenile delinquents, to enhance functioning.

Brain Electrical Oscillations Signature (BEOS): The BEOS system has been developed over the last two decades as an alternative to the traditional lie detection test, the polygraph (Mukundan, Sumit & Chetan, 2017). BEOS essentially differentiates the concepts of recognition and remembrance and detects deception by studying the presence of Experiential Knowledge (EKs) in the individual. Presence of EKs indicates presence of autobiographical memory, which is different from knowledge of an event. While BEOS has been more useful for measuring presence of memory, its applications could be expanded to the study of areas of the brain which are more deeply involved in criminal activity, and could be used as an indicator of areas that require more attention while dealing with juvenile delinquency. It could also act as a measure for tracking progress, and delve into clinical applications and intervention when dealing with juvenile delinquents. The technique can be used for the diagnosis of the predictability of the crime and with combination of NFB and BFT can be used as an intervention module. However, an extended research work is required to use the system as a module for regular use.

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