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Artificial Intelligence for Mitigation of Conflict in Young Offenders with Reference to Recidivism

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Abstract: ***Recent innovations include a variety of AI - powered tools, such as virtual therapists, social robots for dementia and autism care, and robots addressing sexual disorders. These AI - driven virtual and robotic entities are increasingly assuming complex therapeutic roles that were previously the exclusive domain of highly trained healthcare professionals. Comprehension of large amounts of continually collected data can be hectic and could require continual diagnostics using acquired knowledge of theories of offending. AI can help in using minimal time to diagnose vast data from multiple sources without interference of human bias and more effectively. The recommendations by probation officers are considered crucial for determining the treatment to be meted; there is a strong argument to at least consider the use of Artificial Intelligence Risk Assessment and Predictive tools; to ensure that their individualised recommendations are as accurate as possible. It is seen that higher risk individuals require intensive and targeted intervention to disrupt the negative cycle of offending. Even though traditional methods and techniques are not to be replaced; it is suggested that AI tools could be considered in complementary to assist probation officers and others to reach tailored treatment plans within the mandatory time frame. The integration of AI for treating recidivism demonstrates potential; though additional research is inevitable to safeguard rights of children. If policymakers can navigate these challenges, an improved system can be considered for the future.***

Keywords: Artificial Intelligence, Recidivism, Risk Predictive Tools, Young Offenders, Juvenile Justice System

1. Introduction

Artificial Intelligence (AI) has been incorporated into the criminal justice system. Administrators in this field utilise AI to estimate the risk of recidivism, which is the probability that a convicted person will commit another offense. This estimation relies on various personal factors, including the individual's educational and employment history. Known as risk assessment tools, these AI systems play a crucial role in predicting and reducing incarceration rates and racial inequalities (Farayola et al., 2023) . Artificial Intelligence (AI), big data, and mobile health (mHealth) strategies are being explored for their potential to prevent violence, aligning with the World Health Organization's seven INSPIRE strategies. Caution is crucial. Standardised, reliable, and valid data at population and individual/family levels are needed to identify violence predictors. These parameters can be assimilated into existing medical or other data systems, providing a basis for artificial intelligence algorithms designed to prevent and address aggression. Data on specific aid - seeking behaviours, precipitating factors for child abuse, and other relevant information are essential for understanding the causes and responses to violence (Hunt et al., 2020) .

2. Recidivism Predictive Tools

a) COMPAS *(Correctional Offender Management and Profiling Alternative Sanctions algorithm*

The COMPAS, extensively employed by various courts in the United States for recidivism prediction, effectively evaluates criminogenic needs and forecasts the probability of reoffending. The creators of COMPAS view crime prediction techniques as advancing, with COMPAS being one of the most sophisticated tools available. They claim it is based on solid theoretical foundations, particularly the psychology of criminal conduct (PCC), unlike earlier models, which were more empirical and static, often lacking a theoretical basis (Peet, 2023) . In 2007, the California Department of Corrections and Rehabilitation introduced (COMPAS) system, an automated risk and needs assessment tool, within its prison facilities. By the next year, all institutions had incorporated COMPAS into their prerelease planning processes, including field supervision and correctional treatment referrals. Subsequently, COMPAS was enlarged to prison reception centers, where it was used to classify incoming inmates and assign them to institutions based on evaluated risk levels and needs (Zhang et al., 2014) . COMPAS has been subject to considerable criticism, with public and scholarly discourse focusing on issues of covert racial discrimination and bias against defendants. Critics have highlighted hat the precision of COMPAS projections is as low as 68%. Nevertheless, ostensibly, COMPAS assigns possibly controversial normative judgments to its legal users. The manual specifies that users are responsible for determining which level of predicted recidivism risk is deemed problematic, thereby justifying the denial of bail release (Engel et al., 2024) .

b) SAVRY *(Structured Assessment of Violence Risk in Youth)*

SAVRY, is crucial for evaluating recidivism risk, especially when ACLs (Adolescents in Conflict with the Law) are at high risk of violence. Unlike other tools, SAVRY includes protective factors that aid in predicting recidivism during ACLs' educational interventions, not just diagnosing based on risk factors. SAVRY includes dynamic factors and protective variables, allowing treatment goals to be modified and the educational process to adapt to real - time risks and socialization needs. SAVRY creates individualized protocols for juvenile courts, establishes criminal activity typologies, and supports psychosocial and educational programs in detention centers. It is also used for granting permits or conditionally discharging offenders (Kleeven et al., 2022). The SAVRY effectively differentiates between young offenders who reoffend and those who do not. Young

offenders showed notably higher scores in the instrument's risk areas, whereas non - recidivists had higher scores in the protective area (Ortega - Campos et al., 2020) .

c) SAPROF - YV *(Structured Assessment of Protective Factors for Violence Risk—Youth Version)*
SAPROF - YV, is analogous to the SAPROF, providing a checklist to assess protective factors in adolescents aged 12 to 18. The SAPROF - YV offers a dynamic, protection - focused evaluation of youth for the subsequent six months, though also beneficial for long - term assessments. The SAPROF evaluates individual variables and considers contextual and environmental dynamic factors deemed protective. The SAPROF - YV is not intended to replace existing risk - focused assessment tools but to complement prevailing risk - oriented assessment methods in youth rehabilitation (Chu et al., 2020) . It is intended to be used alongside a risk - focused tool, like SAVRY, to offer a more thorough and balanced evaluation of the risk of violence in juveniles (Christiansen et al., 2021) .

d) Y - ARAT (*Youth Actuarial Risk Assessment Tool)* Y - ARAT - FO (*Youth Actuarial Risk Assessment Tool for First Time Offenders)*
It was created for young offenders, using only law enforcement records. Its main aim is to allow police officers, without clinical expertise, to estimate broad recidivism risk among considerable number of juvenile offenders**.** When police officers encounter a juvenile who is involved in an incident but not as an offender or suspect, they may utilise the Y - ARAT - FO test results to assist in determining whether the juvenile should be referred for further evaluation. It is essential to underscore that the Y - ARAT - FO is intended to complement, rather than supplant, the officers' judgment, as this tool is not capable of accurately predicting future delinquent behaviour (Assink et al., 2016) .

e) (PCL - YV) *Psychopathy Checklist: Youth Version*
The PCL: YV was developed from the PCL - R to extend psychopathy assessment from adults to adolescents. This adaptation is based on the premise that psychopathic traits manifest early in life, not abruptly in adulthood. The instrument evaluates interpersonal, affective, and behavioural dimensions of psychopathy. Research has demonstrated that individuals who score higher on the PCL: YV psychopathy scale are more likely to commit additional offenses following their release (Parsons, 2005). Further the total scores on the PCL: YV were found to be significant predictors of both violent reoffending and reoffending in any form (Shaffer et al., 2022).

f) PREVI - A (*Risk Prediction and Assessment of Intervention)*
PREVI - A was developed to address the need for a dependable tool to appraise and mitigate the risk of recidivism among inmates and juvenile offenders in open - regime settings at juvenile correctional facilities. PREVI - A is for professionals specialising in juvenile delinquency. It uses information from consultations with adolescent offenders, their caregivers, and other practitioners, supported by information from court records, scholastic records, and evaluations of the youth's actions (Graña Gómez et al., 2022).

g) MAYSI - 2 (Massachusetts Youth Screening Instrument - Second Version)
MAYSI - 2, is a tool for identifying potential mental health challenges in individuals entering detention facilities. Widely used in juvenile justice settings, it screens offenders for suicidal ideation, anger, irritability, depression, anxiety, substance use, thought disturbances, trauma, and physical complaints. Designed for youths aged 12 to 17 with at least fifth - grade reading proficiency, it takes about 15 minutes to complete. The MAYSI - 2 is not for diagnosing mental health disorders but alerts custody staff to mental health or safety concerns during intake (McGinnis, 2017) .

h) AFST (*Allegheny Family Screening Tool)*
The Allegheny Family Screening Tool (AFST) generates a risk score that assists call screeners in determining whether a call necessitates a visit and if there is sufficient justification for investigating the child (Dare & Gambrill, 2017) .

3. Challenges in Using AI Predictive Tools

While the need for a standardised tool is evident and politically imperative for justice agency leaders, static factors in current official records appear to effect COMPAS in risk assessment (Zhang et al., 2014) . Though SAVRY is a widely used Structured Professional Judgment (SPJ) tool and the leading instrument for evaluating protective factors in juvenile offenders; research on its protective factors' predictive and additional predictive validity regarding desistance from offending has yielded inconsistent results[1]. The External subscale of the SAPROF - YV is noted for its inadequate performance in forecasting the lack of recidivism and institutional misconduct (Burghart et al., 2023) . The Y - ARAT - FO instrument yields false positive and false negative test results at each cutoff score, indicating its results should not be considered definitive. A plausible explanation for these inaccuracies is that the Y - ARAT - FO is limited by data available from the Dutch police system. Consequently, other variables that significantly influence delinquency risk, such as mental health and cognitive functioning, are not incorporated into the risk assessment for delinquent behaviour onset (Assink et al., 2016) .

Predictive risk modelling often faces challenges in obtaining meaningful consent from individuals whose data is used and for whom risk assessments are conducted. Data is typically aggregated in ways that complicate establishing direct links between providers and users. Additionally, data initially collected for one purpose is often repurposed for others. In these contexts, devising effective informed consent processes becomes challenging, if not unfeasible. These difficulties are compounded when individuals have no real choice but to provide their information. This is legally mandated for criminal justice and birth records, and may effectively be the case when individuals cannot access essential services or

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support without submitting their data (Dare & Gambrill, 2017) . Given the intricate interplay among risk factors, environmental influences, and systemic contexts in child protection systems, it is unlikely that simply modifying statistical algorithms will effectively address bias in decision - making, even if a Predictive Risk Model (PRM) is deemed conditionally fair. (Krakouer et al., 2021) .

4. Conclusion

Employing adaptable models to process extensive datasets, which can account for complex interactions among variables, enables governmental agencies to allocate resources efficiently to areas of greatest need. Furthermore, these methodologies can facilitate decision - making in intricate scenarios by rapidly processing information. Nevertheless, while Predictive Risk Models (PRMs) offer substantial advantages, realising these benefits is contingent upon the availability of high - quality data that permits an objective and unbiased assessment of risks for children involved in child protection systems.

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