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A Study of Childhood Digital Exposure and its Association with Risk Factors for Future offending Behaviour among School Students

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Abstract: *The widespread use of digital technology has transformed children's learning, communication, and social interactions. While digital platforms offer several benefits, excessive exposure to smartphones, social media, online gaming, and violent content may influence behavioural development and increase risk factors associated with future offending.*

Objective: *This study aims to: Assess pattern of childhood digital exposure among adolescentsexamine its relationship with behavioural risk factors such as aggression, self-control, delinquent behaviour, cyberbullying, and violent content exposure evaluate the role of parental supervision.*

I. INTRODUCTION

Today, children find themselves raised in a digital world of smartphones, social media, and online platforms. Though the availability of the digital world provides children with educational and communication opportunities, it also exposes them to information that they are too immature to understand. The current research focuses on one particular issue whether the level and type of exposure to digital technologies among youth correlates with certain psychological and behavioural risk factors related to criminology and connected with offending behaviours in adulthood. By no means does the research try to prove that digital technology produces offenders. Digital exposure is just one of many risk domains which need empirical investigation from a criminological point of view. As criminology states, adult criminal behaviour in most cases occurs after an accumulation of risk factors during childhood such as aggression, impulsivity, poor parental monitoring, and emotion dysregulation which can help prevent such behaviour by early identification of these problems. Recent studies show that heavy screen use, violent video games, problematic social media usage, and cyberbullying are correlated with these exact psychological issues.

This study will be conducted on school-going children in India where there is widespread use of smartphones, which have greatly increased children's exposure to digital content without any increase in parental awareness or regulation. These schools can provide both a conducive research environment and suitable developmental stages since the school age group is important for developing self-regulation, peer relationships, and moral understanding. There are three main goals of the current study. These include identifying the types and level of digital exposure of school-going children, identifying the relationship between digital exposure and certain behaviour risk factors like aggression and impulsiveness, and finding out the protective factors including parental mediation and digital citizenship education.

II. REVIEW OF LITERATURE

For this literature review, I would like to investigate research within the sphere of developmental psychology, media effects, and criminology in regard to the question about the relationships between the digital experience of the child and known risk factors of offending behaviour. Excessive screen exposure is connected with the mentioned developmental issues, inability to concentrate, sleep problems, and emotional well-being (Muppalla et al., 2023; Madigan et al., 2019). However, this problem still causes controversies because Przybylski and Weinstein (2017) provide the theory of the "digital Goldilocks," proving the curvilinear relationships between excessive screen time and developmental issues rather than linear ones, and only very high exposure causes negative outcomes. High social media usage was proved to be connected with the increased risk of depression, anxiety, and psychological discomfort, especially in adolescence (Keles et al., 2020; Kelly et al., 2018). It should be noted that Valkenburg et al. (2022) prove biased results in this case: negative consequences were observed only in the group of vulnerable people.

The literature on violent media provides the most powerful theoretical link between media content and aggression, a major criminogenic risk factor.

The General Aggression Model (Bushman & Anderson, 2002) describes how violent content triggers aggressive thoughts and affects, remapping knowledge structures over time. Empirical meta-analytic support for effects of exposure to violent games on aggression and pro-sociality is strong: according to Anderson et al. (2010), exposure to violent games is positively associated with increased aggressive behaviour and thoughts and lower levels of empathy. However, Ferguson (2015) suggests that effects are small and inconsistent and have no practical meaning in the real world. Cyberbullying is particularly forensic because it deals with antisocial behaviour and not dispositional aggression. Perpetration is related to moral disengagement, lower empathy and previous behaviour problems, reliable markers of offending risk (Kowalski et al., 2014). Online setting lowers perception of detection risk and decreases inhibition due to the observation of victim distress, enabling antisocial behaviour to be expressed.

The developmental-criminology literature on offending risk factors reveals that aggression, impulsivity, lack of empathy, conduct problems and poor parental supervision are the real offending risk factors (Moffitt, 1993; Farrington, 2005; Hawkins et al., 2000). Importantly, it is these very constructs which are being implicated in the digital exposure literature, and hence providing the conceptual basis for connecting digital exposure with offending risk. Risk connections are not static. Parental monitoring plays an important role in protecting against anti-social development (Dishion & McMahon, 1998), while various types of parental mediation strategies – restrictive, evaluative, and co-use – mediate digital risks differently (Livingstone & Helsper, 2008). Cyberbullying prevention programs and digital citizenship education at schools act as structural safeguards (UNESCO, 2023).

III. SCOPE

This study will investigate the relationship between exposure to digital technology and proven risk factors that contribute to future offending behaviour in adolescent students. This study takes a forensic and developmental criminology approach, viewing exposure to digital technologies as a potential risk factor, rather than an agent of crime. The scope of the investigation includes the nature and extent of exposure to digital technology among children, which includes screen time, social media usage, online gaming and exposure to violent digital media, and looks at their relation to known behavioural and psychological risk factors that precede crime – these being aggressive tendencies, emotional dysregulation, impulsivity, lack of empathy, and involvement in antisocial activities like cyber bullying. Protective factors like parental monitoring, digital mediation techniques and digital citizenship education, which can serve to mitigate any potential risk that exposure might pose, are also part of this study. The study is set in the Indian education environment, where increased access to smartphones has made children more exposed to digital technology, in the absence of any regulation, as well as different patterns of supervision and family norms than the Western societies where much of the foundational research has taken place.

IV. METHODOLOGY

A. Research Design

The study employed a quantitative, cross-sectional survey research design to examine the relationship between childhood digital exposure and behavioural risk factors associated with future offending among adolescents. A survey method was selected to obtain standardized data from a large sample and to evaluate associations between patterns of digital exposure and behavioural outcomes.

The study was guided by theories from criminology: Social Learning Theory, the General Aggression Model (GAM) and the General Theory of Crime (Self-Control Theory). These theories suggest that repeated exposure to influences, including digital media, may contribute to behavioural patterns associated with aggression, impulsivity and delinquency. The research sought to examine these relationships within the context of increasing engagement among adolescents.

The study was conducted among 300 school students aged 10–17 years from selected schools using a convenience sampling technique. Data were collected using a self-structured questionnaire consisting of 60 items developed to test eight research hypotheses.

B. Research Instrument

The questionnaire covered the following domains:

- Digital Habits
- Digital Exposure
- Emotional Reactions
- Self-Control

- DelinquentBehaviour
- ViolentContentExposure
- Cyberbullying
- ParentalSupervision

C. Variables of the Study

TheindependentvariablesincludedDigitalHabits,DigitalExposure,ViolentContentExposure,Cyberbullying Experiences and Parental Supervision.

The dependentvariablescomprisedAggressiveReactions,Self-Control,DelinquentBehaviouralTendenciesandRisk Factors Associated with Future Offending Behaviour.

D. Data Collection Procedure

Priortodatacollectionapprovalwasobtainedfromtheschoolauthoritiesandtheinstitutionalethicscommittee. Parents or guardians provided consent where required while students provided assent before participation.

Thequestionnaireswereadministeredinclassroomsettingsunderthesupervisionoftheresearcher.

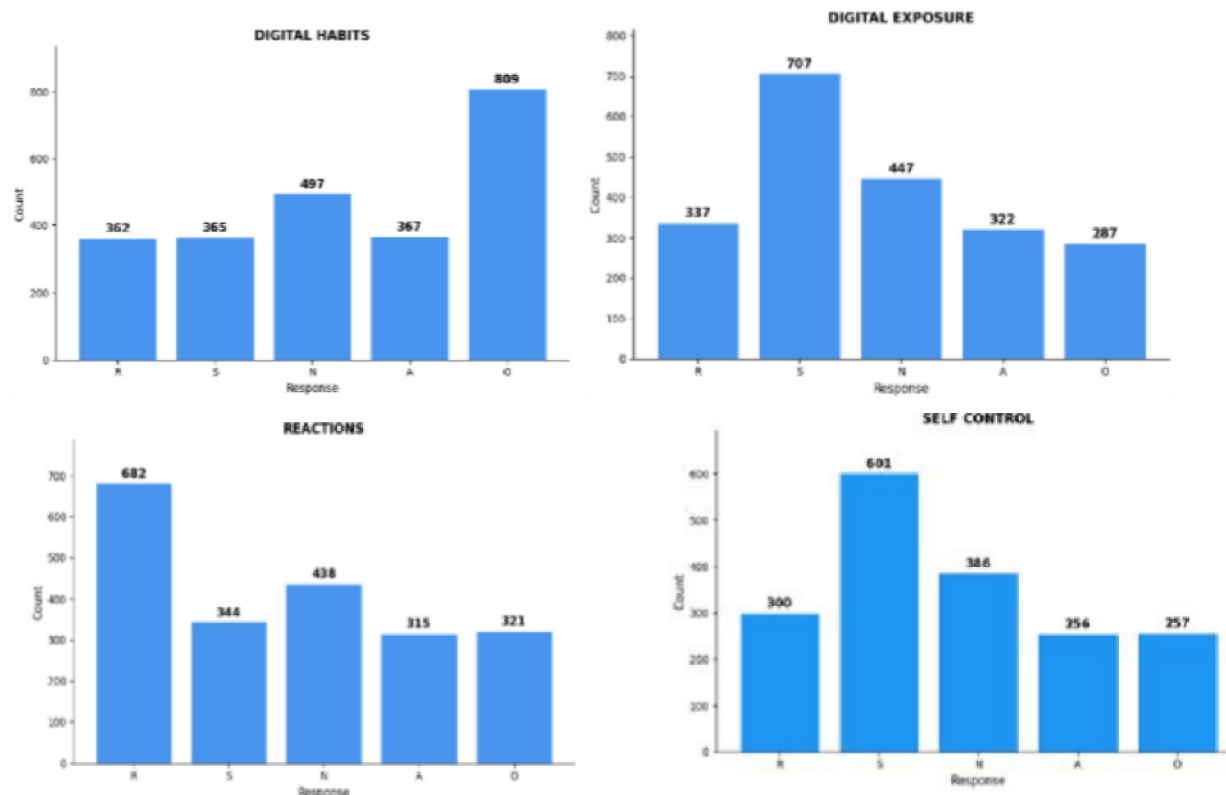
E. Statistical Analysis

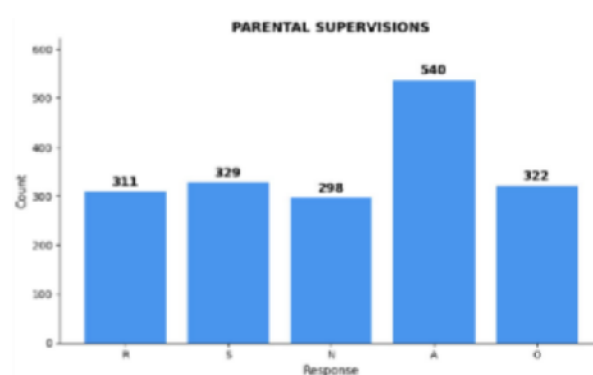
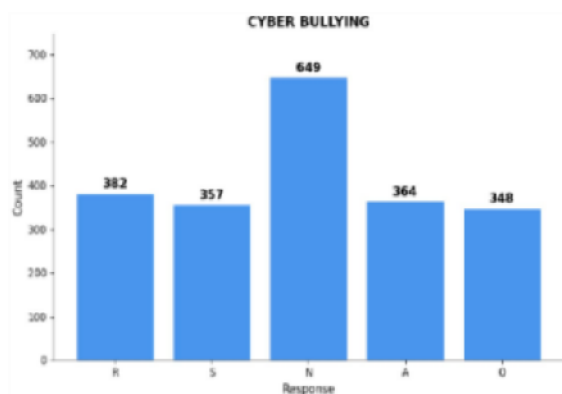
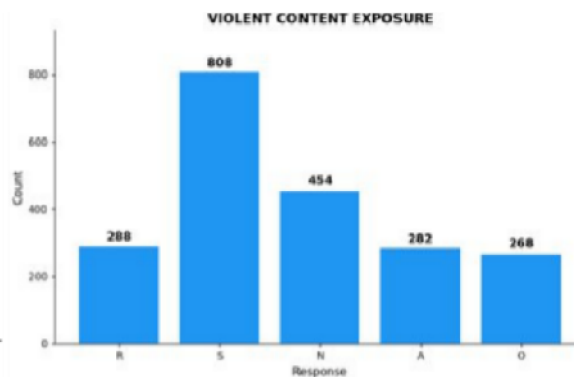
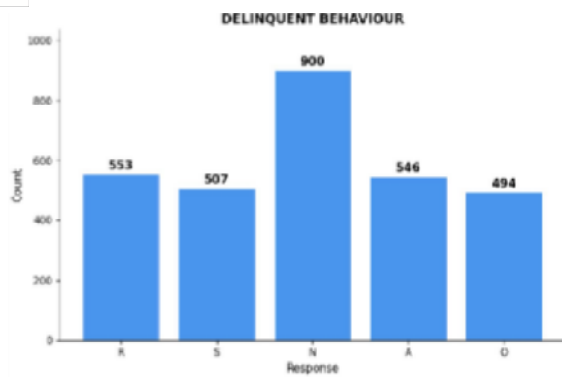
Responses were recorded using a 5-point Likert scale ranging from Never to Always. After data collection, responses were entered into Microsoft Excel for coding and organization. Data visualization and interactive dashboards were developed using Tableau Public.

F. Ethical Considerations

Participationwasvoluntary,andinformedconsentwasobtained.

Participantconfidentialityandanonymityweremaintainedthroughoutthestudy.





V. STATISTIC ALANALYSIS

TABLEII:STATISTICALTESTRESULTSFORMSURVEYHYPOTHESES

Sl.no	Hypothesis	N	Dominant Response	Mode%	χ^2	Cramér'sV	p-value
1	DigitalHabits	2400	O	33.7	309.27	0.179	p <0.001
2	Digital Exposure	2100	S	33.7	279.24	0.182	p <0.001
3	Emotional Reactions	2100	R	32.5	227.55	0.165	p <0.001
4	Self-Control	1800	S	33.4	232.73	0.180	p <0.001
5	Delinquent Behaviour	3000	N	30.0	191.68	0.126	p <0.001
6	Violent Content Exposure	2100	S	38.5	503.03	0.245	p <0.001
7	Cyberbullying	2100	N	30.9	157.56	0.137	p <0.001
8	Parental Supervision	1800	A	30.0	114.03	0.126	p <0.001

VI. RESULT DISCUSSION

To investigate the digital landscape of middle schoolers, a quantitative assessment was performed on 300 students between 10 and 17 years old. This survey utilized 58 distinct items to evaluate eight research hypotheses regarding self-regulation, emotional responses, and safety in online environments. The statistical evaluation encompassed 17,400 data points across five frequency categories. Utilizing Chi-square goodness-of-fit tests, researchers determined that response patterns deviated significantly from a uniform distribution across every hypothesis, with χ^2 values spanning from 114.03 to 503.03 ($p < 0.001$). Further analysis using Cramér's V indicated that effect sizes varied from small to medium. Specifically, Hypothesis 6—focused on Violent Content Exposure—exhibited the most pronounced concentration ($V = 0.245$), with 38.5% of students indicating the "S" response. Conversely, Hypothesis 5 regarding Delinquent Behaviour presented the most dispersed data ($V = 0.126$), where 30.0% selected "N". The mean effect size ($V = 0.168$) suggests a moderate overall impact across the study domains. Strong consensus was particularly evident in Digital Habits (H1), Digital Exposure (H2), and exposure to violence (H6), where modal responses converged around 33.7% to 38.5%. These statistically significant outcomes provide empirical support for the proposed hypotheses, highlighting measurable trends in adolescent digital engagement and problematic content awareness. Such findings suggest that specialized intervention strategies targeting delinquency, violent media, and cyberbullying (H5, H6, and H7) could prove highly effective given the high levels of student consensus identified in these particular areas.

VII. CONCLUSION

The current study discusses the connection between digital exposure during childhood and behavioural traits which predispose children to crime in their future life. According to the results obtained, the overexposure to digital technologies may be associated with aggression, impulsivity, emotional regulation issues, cyberbullying and delinquency, whereas the adequate supervision from parents can act as a protective factor.

Even though the digital technologies have various positive impacts for education and communication, the effects of them depend on the type of usage, supervision and context of child's development. It should be noted that the researchers do not prove that the digital exposure leads to criminal behaviour directly; they state that it is one of many factors influencing the development of the behaviour.

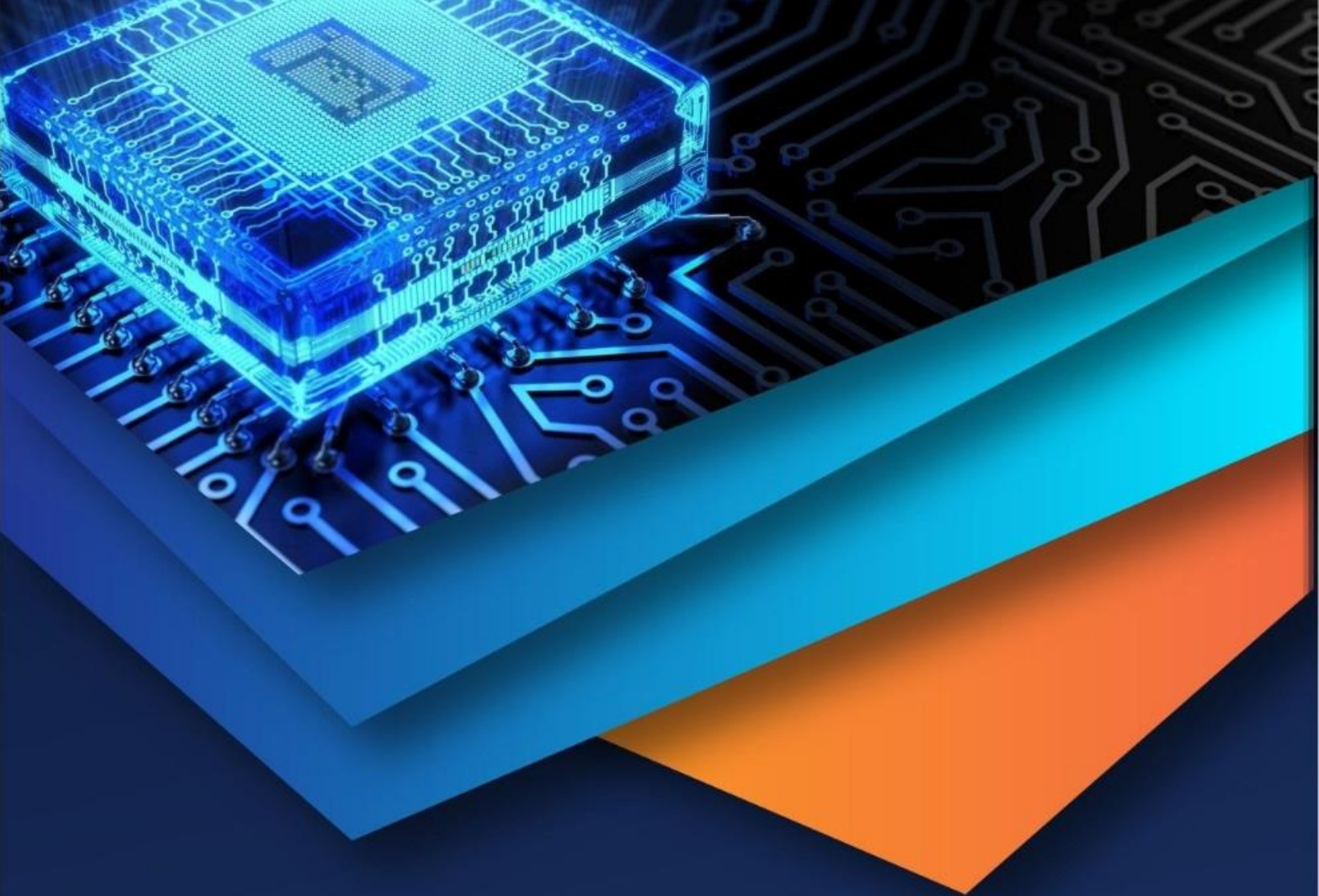
The results of the study can be applied in forensic science, developmental criminology, and cyberpsychology since they provide evidence useful for educators, parents, mental health practitioners and policymakers in order to develop prevention programs and ensure the safe usage of the technologies.

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