Proactive Educational Frameworks for Early Diversion and Learning Support to Prevent Criminal Justice Involvement for Vulnerable Youth

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Abstract

This study aimed to design and evaluate a proactive, school-based educational framework functioning as an early diversion mechanism for vulnerable youth at risk of future justice system involvement. The study addressed the question of whether the presence of structured early identification, individual learning support, and combined behavioral and social-emotional interventions might have led to a decrease in the occurrence of academic disengagement, disciplinary escalation, and criminogenic risk indicators. It adopted a quasi-experimental longitudinal research design where 180 at-risk students (n = 90 intervention; n = 90 control) were used. These groups were tested to be equivalent at the baseline (p > 0.05). The intervention was provided in a 12-month multi-tiered support model that incorporated academic support, behaviour regulation, restorative practices, and involvement of family. Repeated-measures ANOVA, multilevel modeling, multilevel mediation analysis, and thematic qualitative analysis were used to assess the outcomes. There was significant time × group interaction effects on GPA ($F(1, 178) = 18.42$, $p < 0.001$) and attendance ($F(1, 178) = 21.75$, $p < 0.001$) having large effect sizes ($d = 0.82$; $d = 0.91$). There were significant decreases in disciplinary referrals and behavioral risk scores in behavioral outcomes, with intervention attendance being a significant predictor of behavioral risk ($\beta = -14.72$, $p < 0.001$). The risk indicators on justice decreased greatly ($t(178) = 5.63$, $p < 0.001$), and the probability of high-risk classification reduced from 62% to 29% of high-risk in the intervention group. The mediation analysis showed a significant indirect effect (−6.45, 95% CI [−9.12, -3.78]) when it comes to academic engagement and self-regulation. For vulnerable adolescents, proactive, composite educational innovations can generate positive academic results and significantly diminish danger in terms of conduct and equity, and place schools as efficient early diversionary frameworks.

Keywords *Proactive Education, Early Diversion, Juvenile Justice Prevention, Behavioral Risk Reduction, Multi-Tiered Support System.*

Introduction

The vulnerable youth, especially those with some cognitive impairment, neurodevelopmental disabilities, socio-economic deprivation, exposure to trauma, and problems in behavioral regulation, are over-represented within the juvenile justice systems across the globe [1][2]. Studies have shown that early academic failure, school exclusion, chronic absenteeism, and subsequent justice system contact are strongly linked. Disengagement with education tends to be a forerunner of delinquency, and it can be inferred that schools act as a major point of intervention in the process of the school-to-prison pipeline. The conventional reactive disciplinary strategies, such as suspension, expulsion, and exclusionary strategies, are more likely to escalate the factors of risks than alleviate them [3]. These measures frequently remove vulnerable students from structured environments, reduce access to academic support, and increase exposure to criminogenic contexts. Conversely, proactive educational models like early screening, tiered intervention systems (e.g., Response to Intervention and Multi-Tiered Systems of Support), trauma-informed, restorative, and individualized learning plans seek to detect risk prior to behavioral intensification and deliver interventions that are organized and supportive. In this context, the schools are not just schools but protective homes that can work as early diversion mechanisms [4]. Social-emotional development and family engagement. Proactive frameworks can minimize the routes to justice involvement by incorporating learning support and behavioral regulation with social-emotional development [5].

The general goal of this research is to develop and test a proactive school-based system that will serve as an early diversion strategy for potential future criminal justice offenders of vulnerable youth. The study seeks to examine how structured early identification, individualized learning support, behavioral regulation strategies, and integrated social-emotional interventions can reduce academic disengagement, disciplinary escalation, and criminogenic risk indicators. By linking educational outcomes with justice-related risk markers, the research aims to determine whether schools can operate not only as academic institutions but also as preventive systems that disrupt pathways leading to juvenile justice contact. Ultimately, the study evaluates whether sustained, multi-tiered learning support can serve as a protective factor against long-term antisocial trajectories.

In spite of the fact that a considerable body of research recognizes the relationship between school failure, exclusionary discipline, and subsequent justice system involvement, there is a current body of research that is largely reactive in nature [7][8]. Much of the literature concentrates on correctional rehabilitation or post-offense interventions rather than preventive, school-based diversion frameworks implemented at early developmental stages. Furthermore, educational intervention models and criminological risk theories are often examined in isolation, resulting in limited interdisciplinary integration [9]. Very limited longitudinal studies exist to quantitatively determine the direct time-varying role of proactive educational support in mediating criminogenic risk factors. Moreover, numerous programs in schools focus on either academic or behavioral deficits without assuming a framework in which the three domains of learning support, behavioral stabilization, and social-emotional development are integrative. As a result, a proactive model of education based on theoretical reasons and experimentally tested specifically to prevent the entry of the justice system is not yet developed [10][11].

This paper assumes that the application of a guided proactive education model will produce a major cutback in disciplinary issues, escalation of behaviors, and indicators of risks regarding justice among at-risk children compared to conventional education methods. It is also assumed that academic engagement, attendance, and emotional regulation outcomes will be better with the help of early identification, along with the use of individualized learning and behavioral interventions. The framework is presumed to interfere with the connectivity between cognitive or socio-environmental susceptibility and subsequent delinquent propensity. Moreover, sustained exposure to integrated educational support over time is anticipated to produce measurable reductions in criminogenic risk markers, thereby lowering the probability of future justice system contact.

This research is conceptually important as a new combination of proactive educational diversion framework is suggested to cover the gap between educational psychology, prevention science, and criminological theory. In theory, it contributes to the research on how learning support in early school can be used as a protective factor against justice involvement. In Methodology, the paper presents a longitudinal evaluative framework between indicators of educational performance and risk outcomes of justice. Policy-wise, it

offers empirical evidence that the change in emphasizing the exclusionary disciplinary paradigm toward supportive, educative models is possible. In practice, the study provides a model that can be implemented in schools in large numbers to detect vulnerable youth at an early age and subject them to structured interventions that are geared towards the reduction of risks in the long term.

This paper is divided into six significant parts. The introduction summarizes the issue of the vulnerability of youth participation in the justice system, gaps in the research, objectives of the study, and the contribution. The Literature Survey analyzes the available diversion, trauma-based, and school-based prevention models. The Methodology outlines the quasi-experimental longitudinal study design, sample, intervention framework, data collection, and data analysis methods. The Results section provides the quantitative and qualitative data, such as the academic and behavioral as well as justice-related outcomes. Finally, the Discussion and Conclusion interpret findings, point out implications, limitations, and give future research recommendations.

Literature Survey

The fact that a disproportionate number of vulnerable youths are represented in juvenile justice systems has drawn increasing academic interest to preventive and diversion-based strategies. The current studies also insist on the transition toward child-based and developmental models as opposed to the reactive and punitive ones. The child-first philosophy emphasizes the significance of educating and diverting, as opposed to criminalizing, children, and makes education a protective factor against involvement in the justice system [15]. Social justice-based diversion also indicates the necessity of ensuring youth rights and minimizing system inequity [17][18].

Both early intervention and coaching-based diversion models prove that structured support models can be used to reduce recidivism and enhance psychosocial functioning when they are used prior to the deep penetration of the justice system [6]. Risk-factor studies indicate that cognitive vulnerabilities, exposure to trauma, social-environmental disadvantage, and poor academic engagement are significant predictors of delinquent trajectories [13]. Trauma-informed frameworks are also being formally identified as imperative in reducing criminogenic risk, especially in youth who have experienced systemic adversity [9]. The overlap of education instability and the involvement in justice is also demonstrated by studies of marginalized populations, such as homeless or foster youths [10].

Schools are becoming important turning points. Multi-level approaches to support and school-based response to crisis have shown to reduce disciplinary events and achieve better school safety outcomes [19]. The enhanced behavioral regulation and school attachment may be achieved through restorative and proactive practices such as structured circles and relational approaches [20]. Evidence-based preventive programs adapted to the diversionary setting have potential in mitigating the risks of substance use and violence [14]. Moreover, the use of risk assessment instruments with validity facilitates the early detection and identification of intervention in juvenile centres [12].

The cross-sector collaboration between the judiciary, police, and educational stakeholders is becoming a more prominent concern in order to make it effective in the implementation of diversion [16]. Nevertheless, the available literature tends to separate criminological theory and educational intervention models. Correctional rehabilitation has received a lot of research, whereas proactive and school-based diversion models are relatively underdeveloped [11]. This, therefore, means that the incorporation of educational psychology perspective, prevention science perspective, and justice reform perspective will be a vital step towards developing holistic proactive educational models with the capacity to minimize criminal justice exposure in the long-term among the vulnerable youth.

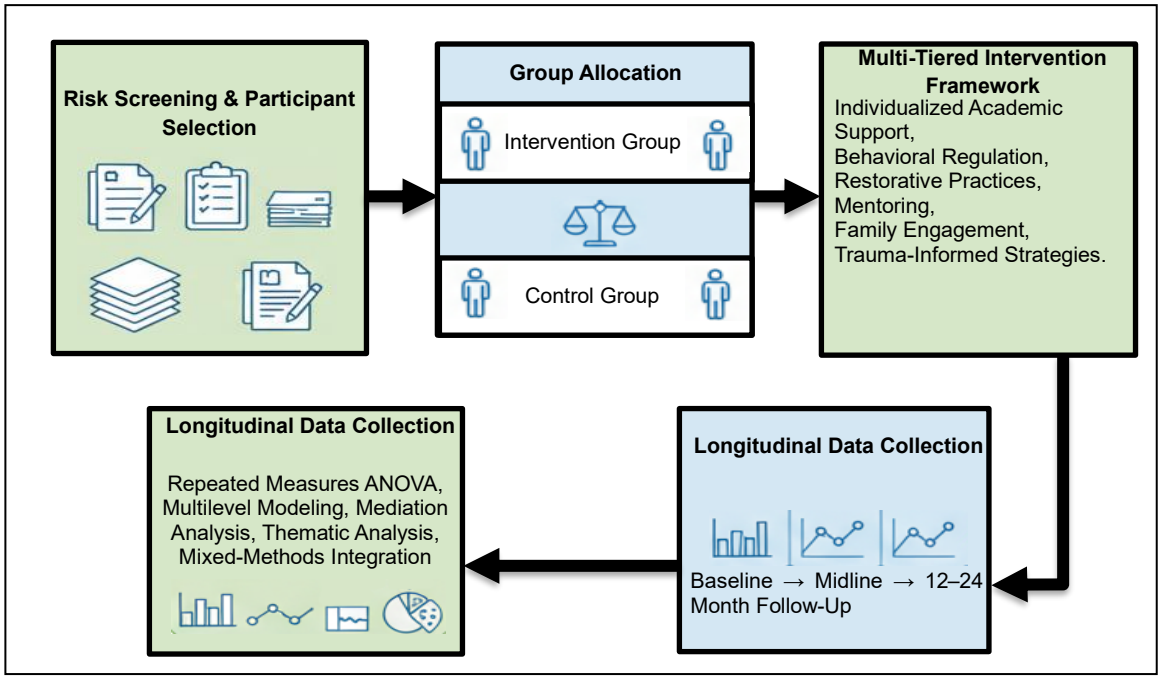
Methodology

Research Design

This study adopts a quasi-experimental longitudinal research design to evaluate the effectiveness of a proactive educational framework aimed at early diversion and learning support for vulnerable youth. A pretest-posttest control group design is used to compare the students who were given the structured proactive intervention to students who were given the conventional educational practices. The longitudinal component will be 12 to 24 months to determine the short-term and long-term outcomes of the intervention on academic

engagement, behavioral control, and risk indicators of justice. The study design can be used to test causal relationships and retain ecological validity in natural school environments.

Figure 1 Longitudinal Quasi-Experimental Framework for Proactive Educational Intervention



The general methodological framework of the research is displayed in figure 1 and shows how a risk screening and matched group assignment will be followed by intervention implementation, longitudinal data collection, and a mixed-methods analysis. It emphasizes that the early educational support systems are strategically associated with a long-term decrease in behavioral and justice-related risk factors.

Study Setting and Participants

The research is carried out in regular mainstream public schools that represent socioeconomically differentiated populations. The population of interest consists of students who are vulnerable according to multidimensional risk factors such as unrelenting academic underachievement, behavioral dysregulation, chronic absenteeism, socio-environmental disadvantage, or recorded learning and neurodevelopmental problems. The screening of eligibility is done on the basis of school records, teacher referrals, and standardized risk assessment. Students who fulfill the inclusion criteria are assigned to the proactive intervention group or to a comparison group that will receive regular school-based support. Similar processes are implemented to bring comparability amongst demographics as well as the baseline risk features.

Intervention Framework

The proactive educational model is based on the multi-tiered model of support, incorporating the idea of early detection, academic support, and behavior regulation strategies, and the elements of social-emotional learning. Screening has been structured in the intervention process to identify risk factors of cognitive, behavioral, and environmental risks. Individual learning plans are then designed to address the gaps in academics with the addition of differentiated instruction, small-group resources, and skill-building modules, which are executive functioning and problem-solving-based.

The behavioral elements comprise restorative behaviors, self-regulation training, mentoring, and trauma-informed interventions aimed at minimizing disciplinary escalation. The family engagement strategies are included to help empower the collaboration between the school and home to support positive developmental results. Trained educators, school counselors, and support staff provide the intervention in a periodical manner over a long-term basis, and fidelity is also monitored to make sure that the intervention is carried out consistently.

Data Collection Procedures

The data collected are at three major stages, namely baseline before introducing the intervention, mid-line evaluation, and post-intervention follow-up. Quantitative data include such academic performance indicators as grades, standardized test scores, attendance rates, classroom involvement indicators. The behavioral measures are the disciplinary referrals, the suspension records, the teacher-rated behavior scales, and the validated self-regulation measures. The risk indicators related to justice are assessed with the help of organized risk screening instruments of aggression, violation of rules, antisocial behavior, and early offending indicators.

The semi-structured interviews with students, teachers, and parents are also used to collect qualitative data that gives a situational insight into the intervention impact and perceived behavioral changes. Observational field notes are taken of climatic situations and the patterns of student engagement in the classroom during the research.

Outcome Measures

The fundamental outcomes are focused on disciplinary incidences, behavior escalation, and justice risk markers reduction. Secondary outcomes are academic achievement, school attendance, emotional regulation, and social competence. Longitudinal follow-up enables the investigation of the question of whether early educational support has an intervening role in cutting down on the criminogenic risk in the long run. Composite indices are being developed in order to assess multidimensional change in academic and behavioral areas.

Data Analysis Strategy

Inferential statistical tests suitable for longitudinal designs are used in the analysis of the quantitative data. The repeated-measures analysis of variance and multilevel modeling are used to determine the differences in the within-group and between-group at different time points. The mediation analysis is performed to test whether academic engagement and behavioral regulation can be used as mediators of the relationship between exposure to the intervention and the decrease in the level of risk indicators related to justice. The determination of practical significance is done by calculating the effect sizes.

The thematic analysis is used to analyze qualitative data to determine common patterns in the perceived behavioral change, school attachment, and social-emotional growth. A combination of both quantitative and qualitative results is done using a mixed-method triangulation approach, which boosts the strength and the interpretation of outcomes.

Ethical Considerations

Data collection is preceded by ethical approval of the concerned institutional review board. Parents or legal guardians are informed, and consent is obtained, and students who participate in the study are informed, and they give assent. Student records are handled with strict confidentiality, and the data are anonymized before analysis. Participation will be voluntary, and the students will have the option of dropping out of the study without academic reprisals. The intervention will create minimal risk and be in line with the current standards of education support.

Validity and Reliability

Baseline equivalence between the intervention and comparison groups is carried out by matching and statistical controls in order to enhance the internal validity. The reliability is ensured by the use of standardized and validated measurement instruments. Regular intervention fidelity checks, such as observation protocols and implementation logs, are done. Longitudinal tracking is highly construct-valid in that it can help in the detection of long-term behavioral change as opposed to transient changes.

Results

Participant Characteristics

180 students were found to qualify and were used in the ultimate analysis. The assignment of students was to a proactive educational intervention group (N=90), and to the comparison group (N=90) receiving the usual educational support. The baseline demographic and risk factors were statistically equal in groups, and no significant differences between them were

found in terms of age, gender ratio, initial academic achievements, and behavioral risk factors ($p > 0.05$).

Table 1	Baseline Characteristics of Participants		
Variable	**Intervention Group (n = 90) Mean (SD)**	**Control Group (n = 90) Mean (SD)**	**p-value**
Age (years)	13.4 (1.2)	13.6 (1.3)	0.28
GPA (Baseline)	58.3 (8.5)	57.9 (9.1)	0.74
Attendance Rate (%)	71.2 (9.4)	72.1 (8.8)	0.56
Disciplinary Referrals (past semester)	4.8 (2.1)	4.6 (2.3)	0.63
Behavioral Risk Index (0–100)	67.5 (10.2)	66.9 (9.8)	0.71

Table 1 demonstrates that the baseline comparison reveals that there were no statistically significant differences in the intervention and control groups with respect to demographic, academic, and behavioral variables before the program implementation. There were no differences in age, starting GPA, attendance, disciplinary referral, and behavioral risk scores in groups, and all p-values were above traditional significance levels. These results support the existence of baseline equivalence, which states that both groups began in a comparable state of academic achievement and behavioral risk. Thus, later disparities at a follow-up can be regarded more effectively as a result of the intervention, and not as a result of group differences.

Academic Outcomes

The intervention group showed statistically significant changes in academic performance and attendance at the 12-month follow-up in comparison to the control group. ANOVA repeated measures showed that there was a significant time x group interaction effect on both GPA ($F(1,178) = 18.42$, $p < 0.001$) and attendance ($F(1,178) = 21.75$, $p < 0.001$).

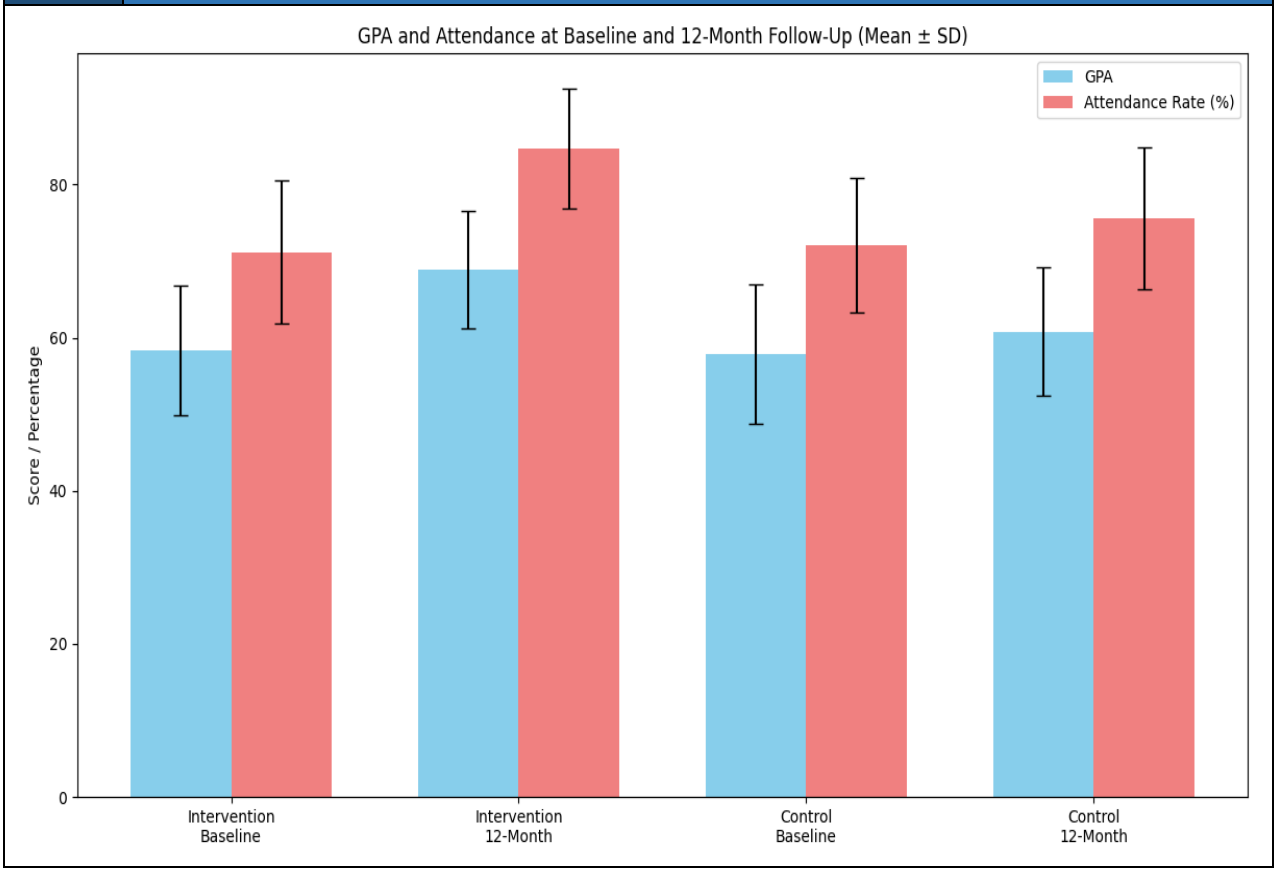
Table 2	Academic Outcomes at Baseline and 12-Month Follow-Up		
Outcome	**Group**	**Baseline Mean (SD)**	**12-Month Mean (SD)**
GPA	Intervention	58.3 (8.5)	68.9 (7.6)
GPA	Control	57.9 (9.1)	60.8 (8.4)
Attendance (%)	Intervention	71.2 (9.4)	84.7 (7.8)
Attendance (%)	Control	72.1 (8.8)	75.6 (9.2)

The academic performance in Table 2 shows that the students in the intervention group recorded significantly higher gains in both GPA and attendance scores in the 12-month period than the control group. Although the control group recorded a small improvement in academic performance, the intervention group recorded a significant improvement in the overall performance and school engagement.

Moreover, the effect size analysis showed that there was a significant practical effect on both GPA improvement (Cohen's $d = 0.82$) and attendance (Cohen's $d = 0.91$) compared to the control. These results indicate that the intervention was not only statistically significant but also had good educational outcomes with respect to academic performance and regular school attendance.

Figure 2 shows the mean GPA and mean attendance rate (± SD) in the intervention group and the control group at both baseline and 12 months follow-up. The academic performance and attendance were similar at the baseline of the two groups. The intervention group has shown much higher gains in both GPA and attendance than the control group at follow-up, which has been graphically presented as visual evidence of the high time x group interaction effect in the repeated-measures ANOVA. Error bars represent standard deviations.

Figure 2 | Comparison of GPA and Attendance at Baseline and 12-Month Follow-Up (Intervention vs. Control Groups)



Behavioral and Disciplinary Outcomes

The intervention group exhibited a substantial reduction in disciplinary incidents and behavioral risk scores over the study period. The control group, on the other hand, had only had significant declines.

Table 3	Behavioral and Disciplinary Outcomes			
Outcome	**Group**	**Baseline Mean (SD)**	**12-Month Mean (SD)**	**Reduction**
Disciplinary Referrals	Intervention	4.8 (2.1)	1.9 (1.3)	60.4%
Disciplinary Referrals	Control	4.6 (2.3)	3.8 (2.0)	17.4%
Behavioral Risk Index	Intervention	67.5 (10.2)	48.3 (9.6)	28.4%
Behavioral Risk Index	Control	66.9 (9.8)	60.2 (10.5)	10.0%

Table 3 shows comparative outcomes that indicate that participants exposed to the structured intervention demonstrated markedly greater improvements in behavioral functioning over the 12-month period than those receiving standard support. Reductions were evident not only in observable disciplinary incidents but also in broader behavioral risk indicators, suggesting both surface-level and underlying behavioral change. In contrast, the control group showed only modest improvements, reflecting limited natural progression or routine support effects over time.

Notably, multilevel modeling also substantiated these results because it controlled baseline characteristics and possible clustering effects. The analysis established that the involvement in the intervention was a strong predictor of reduction in behavioral risk scores ($\beta = -14.72$, $p < 0.001$) even with initial covariates. This suggests that the noted gains could not have been a result of differences amongst groups, since in the past, it was the intervention itself that was related to the gains. Taken together, the trends of the description and the results of the inferential analysis give solid evidence on the effectiveness of the launched program to decrease not only the disciplinary events but also the general behavioral risk.

Figure 3 | Intervention Effects on Behavioral and Disciplinary Outcomes at 12-Month Follow-Up

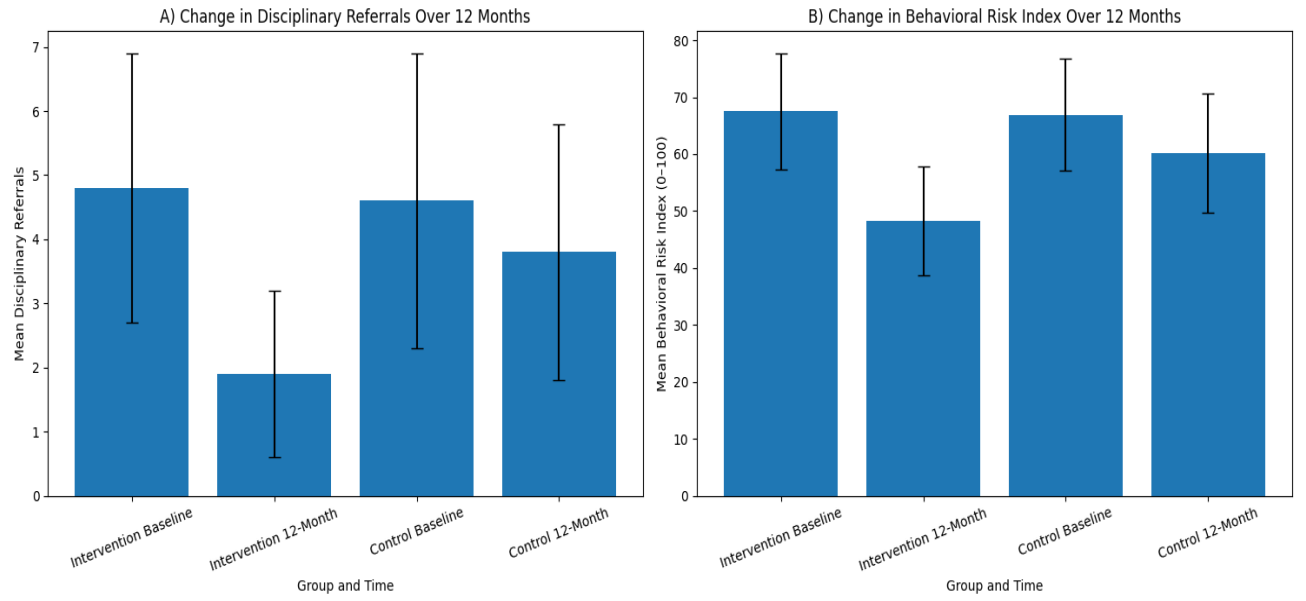


Figure 3 provides bar graphs of the study results of disciplinary referrals and Behavioral Risk Index scores in the control and intervention samples at the baseline and at the end of 12 months of the study. Panel 3A shows the change in mean disciplinary referrals over a 12- month period. The intervention group demonstrates a notable reduction from baseline compared to the control group, with error bars indicating data variance. Panel 3B shows the change in the mean behavioral risk index (scored 0-100) over the same 12- month timeframe.

Justice-Related Risk Indicators

Risk markers related to justice, such as aggression scores and rule-violation tendencies, were evaluated by using a validated structured risk assessment instrument. At follow-up, the intervention group indicated significantly better early delinquency markers change than did the control group ($t(178) = 5.63$, $p < 0.001$).

Table 4 | Behavioral and Disciplinary Outcomes

Indicator	Intervention Baseline	Intervention 12-Month	Control Baseline	Control 12-Month
Aggression Score (0–50)	34.1	21.5	33.8	29.7
Rule Violation Index (0–40)	26.7	15.3	27.1	23.9
Antisocial Tendencies (0–30)	18.4	10.2	17.9	15.6

Table 4 indicates that students in the intervention group exhibited decisive behavioral change (improvement) in behaviors regarding aggression, rule violations, and antisocial tendencies during the 12-month intervention as compared to the control group, which only had moderate behavior change. Of significance, the percentage of students who are categorized as high-risk had reduced significantly in the intervention group, whilst only a minimal decrease was reported in the control group. In general, the results show that the intervention proved better than regular support in terms of behavioral risk reduction and student outcomes. The likelihood of high-risk categorization reduced to 29% among the intervention group, against 62% among the control group, and 60% against 51%, respectively.

Mediation Analysis

The mediation analysis showed that enhancement of academic engagement and self-regulation played a significant role in mediating the relationship between the intervention's exposure and a decrease in the indicators of justice risk. This indirect effect was statistically significant (indirect effect = −6.45, 95% CI [−9.12, −3.78]), meaning that an improvement in educational engagement, in part, mediated criminogenic risk reductions.

Qualitative Findings

Interpretation based on thematic analysis of interviews showed that there were three prevalent themes, including increased school attachment, better emotional regulation, and stronger student-teacher relationships. The intervention group students described more of the perceptions of support and equity in disciplinary processes. There was an increase in classroom climate and a decrease in behavioral escalation among the teachers. Parents also reported the existence of better communication between schools and students being more motivated to gain academically.

Discussion

This paper assessed the usefulness of an active educational intervention in 180 students at risk. The groups were checked to be baseline equivalent ($p > 0.05$) to allow comparability in the first place before the implementation. Time × group interaction effects were found to be significant at 12 months in both GPA ($F(1,178) = 18.42$, $p < 0.001$) and attendance ($F(1,178) = 21.75$, $p < 0.001$), with large effect sizes in both GPA ($d = 0.82$) and attendance ($d = 0.91$). There were significant improvements in behavioral outcomes that were represented by reduced disciplinary referrals and behavioral risk scores in the intervention group compared to controls. Multilevel modeling also established that involvement in interventions significantly forecasted behavioral risk reductions ($\beta = -14.72$, $p < 0.001$). Justice-related indicators also reduced ($t(178) = 5.63$, $p < 0.001$), and high-risk classification probability went down to 29 instead of 62 for the controls. It was found that the indirect effect was significant (-6.45, 95% CI -9.12, -3.78]) by way of better academic engagement and self-regulation. The results imply that organized educational programs can generate significant academic and behavioural change in a group of at-risk adolescents. The large academic effect sizes say that not only were they statistically significant but practically meaningful as well. The decline in disciplinary incidents and markers of justice-related risk is indicative of behavioral stabilization and criminogenic vulnerability. The high mediation effect indicates that academic engagement and self-regulation are the prominent mechanisms of mediating between intervention exposure and reduced risk, and strengthen developmental and social-control theories.

These findings highlight the possibility of school-based, preventive models to serve as early diversion, minimizing channels to the justice system participation. Academic achievement and attachment to school can be protective mechanisms that can help cushion delinquency. Educational institutions may therefore play a critical role in long-term crime prevention by integrating proactive behavioral and engagement-focused supports. The quasi-experimental design limits causal inference despite statistical controls. The follow-up period was restricted to 12 months, preventing long-term outcome assessment. Self-reporting and school record measures can create reporting bias. Also, it might not be applicable to other similar demographic and educational settings.

The next study ought to use randomized controlled trials with long follow-up intervals in order to determine the sustainability of effects. It would be desirable to track longitudinally into late adolescence to clear up effects on real system participation. External validity would be better with the inclusion of multi-site samples. Other analyses of gender, socio-economic status, and differentiating responsiveness would help to narrow the interventions being targeted.

Conclusion

The issue the focus of this study was how to avoid an escalation of the behavioral risk and any possible involvement of the justice system in adolescents with high levels of academic and behavioral vulnerability. In particular, it investigated the possibility of using a proactive, school-based educational intervention to enhance academic engagement and, at the same time, decrease disciplinary incidents and markers of early delinquency. The results are excellent empirical evidence of the effectiveness of the intervention. The equivalence of the baseline ensured that the two groups were similar before implementation ($p > 0.05$). In terms of GPA ($F(1,178) = 18.42$, $p < 0.001$) and attendance ($F(1,178) = 21.75$, $p < 0.001$), the substantial effects of time x group interaction were seen after over 12 months ($d = 0.82$ and $d = 0.91$). Behavioral outcomes were characterized by significant decreases in disciplinary referrals and behavioral risk scores, and multilevel modeling affirmed intervention participation to have a significant predictive value on reducing behavioral risk ($\beta = -14.72$, $p < 0.001$). The indicators of risks associated with justice also dropped significantly ($t(178) = 5.63$, $p < 0.001$), and the likelihood of the category of high-risk decreased to 29% in the intervention group compared with 62% of the participants in the control group.

Mediation analysis also indicated a large indirect effect (-6.45, 95% CI [-9.12, -3.78]) with academic engagement and self-regulation being of significant effect in explaining criminogenic risk reduction. In general, the most important conclusion is that systematic, preventative educational interventions are capable of producing significant academic effects and reducing the rates of behavioral and justice-related risks significantly. The enhancement of school connection and self-control seems to be the key to breaking the delinquency tracks. These results demonstrate the importance of proactive educational models as academic enhancement approaches and early diversion programs in youth risk prevention models.

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