

Impact of “Kids’ Court” on traffic infraction recidivism in Dar es Salaam: A novel approach to a troublesome problem

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ARTICLE INFO

Keywords:

Road Traffic Injury Prevention
Trauma Recidivism
Sub-saharan Africa Injury Prevention

ABSTRACT

Road Traffic Injuries are a major problem in Sub-Saharan Africa. Recidivism after road traffic infraction has not previously been studied in this setting. This study evaluated a novel elementary school based program to reduce repeat minor traffic offenses near schools by having children serve as “judges” to rhetorically interrogate offenders. Offenders were randomly allocated into standard penalties or participation in Kids’ Court (412 total) and followed via quarterly interrogation of a traffic police database for 1 year. While the number of repeat offenders was similar in both groups (88 vs. 85, $p = 0.84$), the total number of offenses was improved in the Kids’ Court group and approached significance but did not achieve it (344 vs. 404, $p = 0.065$). The average time to first repeat offense was significantly decreased in the Kids’ Court group (127 vs. 154 days, $p = 0.0019$). This program reduces the number of repeat offenses and lengthens the time to repeat offense. It likely has a yet unquantifiable long-term effect on the children that participate as “judges” in the program.

1 Introduction

Globally road traffic injuries (RTIs) cause nearly 1.2 million deaths annually and are the leading cause of death among children and young adults aged 5–29. Although RTIs are a global epidemic, 92% of road traffic deaths occur in low- and middle-income countries (LMICs). Despite representing only ~15% of the global population and possessing ~3% of the world’s motorized vehicles, Africa recorded over 225,000 road traffic deaths in 2021, accounting for more than a fifth of global RTIs [1–3]. According to the WHO report on traffic safety in Africa, RTIs on the continent increased by 17% between 2010 and 2021, despite a 5% decrease worldwide [4].

Key factors driving this burden include rapid urbanization, a rise in motorized two- and three-wheelers, insufficient funding, and limited compliance with and enforcement of safety regulations [5]. In response, the Sub-Saharan Africa Transport Policy Program launched the African Road Safety Action Plan 2021–2030, which focuses on road safety management, safer roads and mobility, vehicle safety, safe road users, and post-crash response, with the goal of halving road traffic deaths in Africa by 2030 [6]. Several studies and initiatives in Sub-Saharan Africa

have sought to reduce RTIs through helmet and seatbelt laws, driver licensing reforms, improved visibility for pedestrians and cyclists, enhanced traffic monitoring, and traffic-calming measures such as speed bumps [7–13].

Recidivism in trauma care has been extensively studied, most often in the context of intentional injury [14–17]. Although reported recurrence rates vary across studies, trauma recidivism is consistently recognized as a pervasive challenge that necessitates targeted interventions [18–25]. Several strategies have been implemented to reduce re-injury, ranging from structural interventions to patient-centered approaches. Of particular interest are programs designed to increase trauma patient engagement. In developed countries with mature Trauma Systems, Trauma Recovery Services (TRS), including counseling, educational materials, peer mentorship, and related support, have been shown to reduce the risk of subsequent injury [26].

One high-risk group remains largely unstudied in Sub-Saharan Africa: repeat traffic violation offenders. Goldenbeld et al., using Dutch traffic offense and crash data, demonstrated that an increasing number of traffic violations correlates with a higher likelihood of a crash and RTI

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<https://doi.org/10.1016/j.injury.2026.113399>

Received 30 October 2025; Received in revised form 18 March 2026; Accepted 28 May 2026

Available online 1 June 2026

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[27]. Similarly, a 24-year follow-up study by Summala et al. found that, in Finland, individuals stopped by law enforcement for risky driving continued to exhibit more offenses and unsafe driving behaviors compared with matched peers [28]. Furthermore, A 2012 study from Massachusetts demonstrated a significant reduction in traffic violation recidivism in teenagers aged 13–17 who were enrolled in a day-long intensive program at Trauma centers seeing first-hand the effects of reckless driving [29]. These findings highlight the critical need for targeted interventions for this high-risk population to improve road safety outcomes [30].

Amend's initiative, Kids' Court, which was piloted in one school in Dar es Salaam Tanzania, aims to combat recidivistic unsafe driving practices and foster safe driving habits among future drivers by bringing traffic offenders face to face with a mock "tribunal" of children. (Fig. 1) This program was conceptualized by the authors based on 15 years experience doing pediatric RTI prevention programs in Sub-Saharan Africa. The key aspect of Kids' Court is that drivers who commit minor traffic offenses near primary schools are escorted into the school by traffic police officers. There, a panel of five children, aged 8–13, rhetorically "interrogates" the offender. The goal is to highlight the importance of safe driving habits and discourage repeat offenses. At the conclusion of the "trial", the offender is required to write a statement committing to safe driving practices and is photographed with the children. Until now, this novel approach had yet to be compared to the standard method of dealing with these traffic violations. This study sought to evaluate the impact of Kids' Court over a 1 year period and compare it to monetary penalty and traffic court summons in a similar population. Ethical approval for this study was obtained from the National Institutes of Medical Research of Tanzania (Ref. NIMR/HQ/R.8a/Vol. IX/4278). Due to the low risk of this intervention, informed consent from individual participants was obtained verbally in accordance with protocol and traffic police requirements.

2. Materials and methods

2.1. Study design

This study employed a randomized controlled design to evaluate the effect of a juvenile-led mock "judicial intervention" on repeat traffic offenses. Individuals with prior ticketed driving offenses in proximity to a participating school in Dar es Salaam, Tanzania were randomly allocated into two groups: [1] an intervention group, which was referred to

as "Kids' Court," (KC) where children served as "judges" and formally reprimanded drivers for their offenses and [2] a control group, which continued to receive standard monetary penalties and traffic court summons. The random allocation was performed using a random number generator after the offender was stopped by the traffic police.

Follow-up data were collected from national traffic police records in 3 month intervals to assess whether participants incurred additional traffic violations during a 12 month observation period.

2.2. Subjects / samples / data sources

The study population consisted of 412 drivers who had been identified by law enforcement officers as having minor traffic violations such as, distracted driving, speeding and not using a seatbelt in proximity to participating schools during the study period. Participants were randomized in equal numbers into two groups after consenting to participate in the study ($n = 206$ per group). Repeat offense data was collected from official traffic police records. Driver's license numbers were collected and used as unique identifiers. No other demographic data was collected.

No explicit inclusion or exclusion criteria were applied beyond the requirement of having a relevant documented traffic offense during the enrollment period with the exception of having a valid Tanzanian drivers' license.

Before conducting the study, based on testimonial feedback for incidence and recidivism from local authorities, a power analysis was performed based on detecting a difference in incidence between groups of 34% versus 17% using a two-sided test of independent proportions, with $\alpha = 0.05\%$ and 80% power. This required 102 participants per group (204 total). To account for the unknown actual incidence, 206 participants per group (412 total) were enrolled, exceeding the minimum requirement.

2.3. Materials

Follow-up traffic violation data were obtained from municipal traffic police administrative records in Dar es Salaam. The data were transferred into Microsoft Excel (Microsoft Corporation, Redmond, WA, USA) for initial cleaning and organization. Statistical analyses were conducted using RStudio (Posit Software, Boston, MA, USA), version 5.1.



Fig. 1. Photo of a traffic offender in Kids' Court.

2.4. Data analysis

Analyses were performed to compare the effect of the Kids' Court group versus the control group, additionally referred to as the Non-Kids' Court group (NKC), on the incidence and timing of repeat traffic violations.

First, descriptive statistics were generated to summarize the number of repeat offenses and the proportion of individuals who reoffended in each group. Group differences in the number of participants with a repeat offense (yes/no) were evaluated using chi-square tests of independence. Non-parametric testing (Wilcoxon Rank Sum) was used to compare the distribution of occurrences between the two groups. Time-to-event outcomes were examined using a Welch *t* test to compare the mean time to first recurrence.

3. Results

A total of 412 drivers with prior ticketed offenses were enrolled, with 206 randomized to the Kids' Court intervention group and 206 to the control group.

3.1. Overall relapse rates

Across the 12-month follow-up period, 88 participants (42.7%) in the Kids' Court group and 85 participants (41.3%) in the control group had at least one repeat violation. (Fig. 2) However, when considering the total number of recurrent violations, the Kids' Court group accumulated 344 violations, compared to 404 in the control group. This corresponded to an average of 1.67 violations per person in the Kids' Court group and 1.96 in the control group, representing a 17% lower recurrence rate in the intervention group. (Fig. 3).

Repeat occurrence was first evaluated by a chi square test with Yates' continuity correction. The proportion of participants experiencing at least one recurrent traffic incident during follow-up was compared. There was no statistically significant difference between groups: 42.7% of participants in the Kids' Court (KC) group and 41.3% in the comparison group experienced at least one relapse ($\chi^2 = 0.04$, $p = 0.84$). Next, because there were many people who did not recur and also multiple high outliers or recurrences we used non-parametric tests to compare the two groups. Wilcoxon rank-sum was used to compare the distribution of relapses for an individual. When all participants were included, the median number of relapses was zero in both groups, and there was no statistically significant difference in the distribution of relapse counts ($W = 20,931$; $p = 0.79$). Mean relapse counts were 1.67 in the KC group and 1.96 in the comparison group, with higher means driven by a small number of participants with frequent relapses. Among participants who experienced at least one relapse, the median number of relapses was 2 in the KC group and 3 in the comparison group; this analysis showed a non-significant trend toward higher relapse counts in the comparison group ($W = 3144$; $p = 0.065$).

Time to first recurrence was analyzed using a Welch's *t* test to compare means. Average days to first recurrence in the KC groups was 154.1 days (SD 54.7), and 127.3 days (SD 47.2) in the NKC group ($p = 0.002$). 95% Confidence intervals for the difference in means are 10.1–43.6 days.

4. Discussion

The mission of Amend, the non-profit responsible for Kids' Court, is to develop, implement and evaluate evidence-based interventions to reduce incidence of road traffic injury among the most vulnerable road users in Sub-Saharan Africa. For 20 years, since the organization's

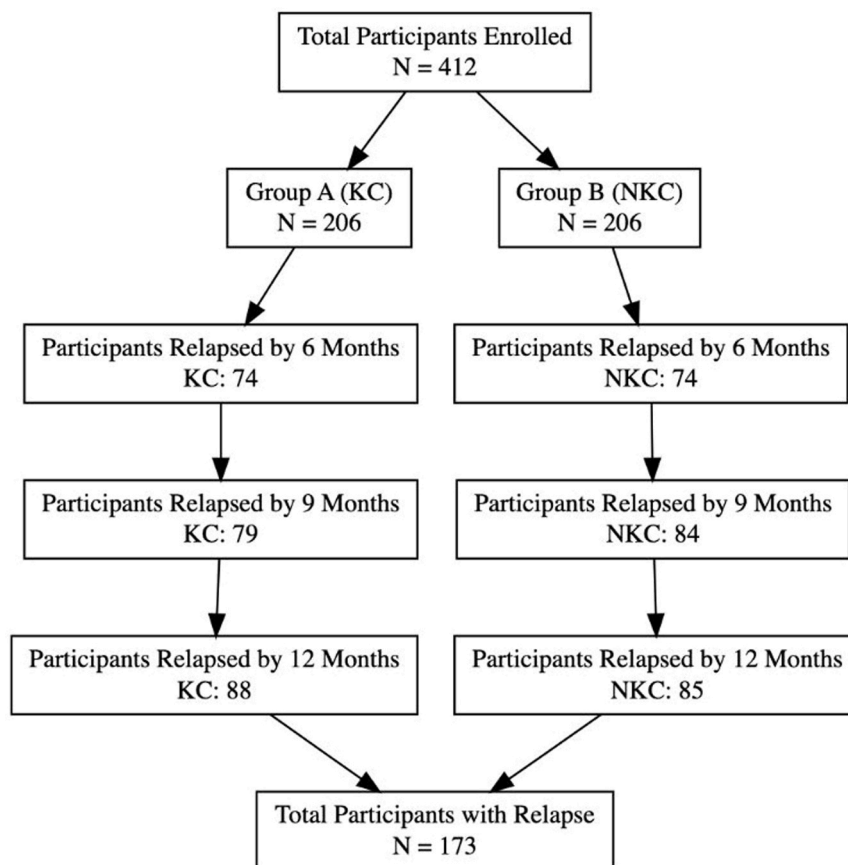


Fig. 2. Study participant characteristics.

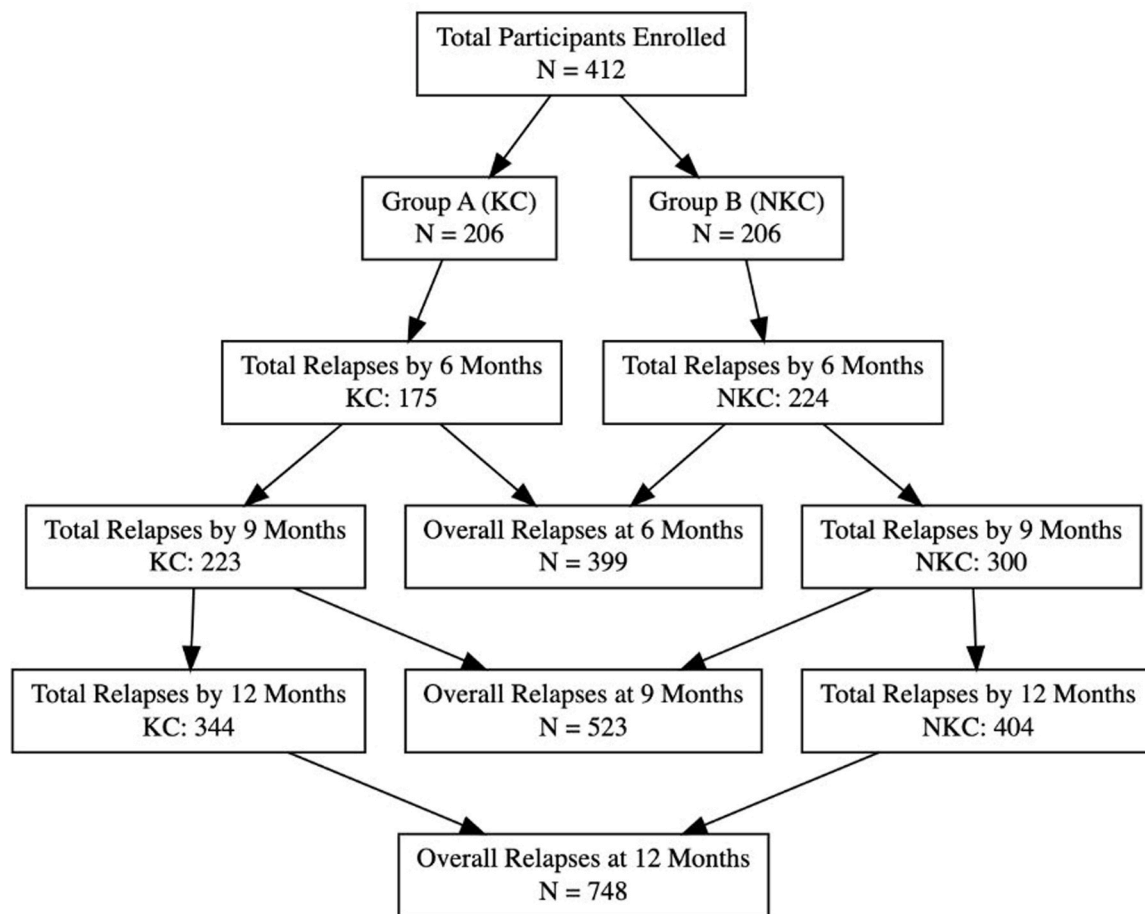


Fig. 3. Number of repeat offenses by group and time from intervention.

founding, the success of using this scientific approach and advocacy to ensure safe and healthy journeys has resulted in a statistically significant reduction in pediatric RTIs [12]. In 2019, Amend won the inaugural WRI Ross Center Prize for Cities for the School Area Road Safety Assessments and improvements (SARSAI) program, giving a big boost to essential school-area infrastructure enhancements [12]. In August 2025, Amend along with the FIA Foundation and the Agence Française de Développement hosted the Safe Schools Africa Regional Forum in Dar es Salaam, Tanzania. Delegates made bold new commitments to child road safety across Africa. Also in August 2025, Amend signed a strategic partnership with Mozambique's National Road Transport Institute, the government body responsible for regulating road transport. Other examples of work include installing lifesaving infrastructure at two schools in Thiès, Senegal, where children are at high risk of road traffic injury.

This study in particular looked at a novel way to decrease road traffic injuries by focusing on traffic infraction recidivism. There are no examples in the literature that we are aware of similar RTI prevention programs. In 2023, Kaur et al. published a review of 25 articles demonstrating the significant risk of recidivism in perpetrators of traffic violations [30]. Also, although the risk of a subsequent and fatal crash is up to 11 times higher in people that have received multiple traffic violations, the majority of fatal and serious crashes is from drivers that receive on average one infraction per year, highlighting that even one episode of recidivism may have serious consequences [31].

Beyond looking at ways to decrease recidivism, this study has another important impact in that it instills principles of road safety in the children that participate as “judges”. Drivers themselves underestimate risk of road traffic injuries by as much as 69% [32], but exposing children to both information on road traffic injuries as well as making

them part of the solution as stakeholders has significant impact by educating them on the dangers of road traffic injuries and helping them take ownership of the issue. Children frequently have a different understanding of causes and factors associated with injury [33] and involvement in Kids' Court is a novel approach to understanding RTI early in their development, potentially with a positive lifelong impact.

Study limitations include that the data was obtained from a traffic police database. Therefore, demographics that may have been controlled for, such as age and gender were not obtained. That being said, random allocation could have overcome this, though in retrospect this data would have provided interesting information on the characteristics of those involved in traffic violations near school. Additionally, the accuracy of the traffic police database was not able to be ascertained. We did not note how many individuals refused consent, though testimonially, none of the research associates could recall anyone refusing consent. It would have been ideal to note this prospectively. Also, as in any observation study, there may be investigator bias.

Specific to the statistical analysis, we began our analytic approach by conducting a simple chi-square comparison to confirm that the two groups did not differ based on the number of repeat offenders in each group. However, since the number of recurrent violations is count data and because individuals could experience multiple events, simpler mean-comparison tests would not be appropriate for evaluating differences between groups. Since count outcomes are usually skewed, this violates the assumptions required for standard tests of mean differences. Therefore, we used Wilcoxon rank sum testing to directly compare the distribution of recidivism between the two groups, which we felt is the appropriate method for evaluating rates of recurrent events in this scenario.

The novel approach of Kids' Court highlights a low cost and efficient potential solution to reduce road traffic injuries both in the short term and in the long term through culture change. It is likely that exploring other novel approaches and measuring their effectiveness through rigorous program evaluation can lead to the discovery of resource efficient solutions to the RTI problem in developing countries.

5. Conclusion

The Kids' Court program is a novel approach which decreased the total number of repeat traffic offenses in the year following the intervention program participation and increased the time to first repeat offense, even though the total number of repeat offenders was similar in both groups.

The benefits of the program likely have the added benefit of instilling the importance of road traffic safety in children and also raising awareness in the community due to its unique and engaging approach. More analysis should be performed to adjust the program to optimize the quantifiable benefits.

CRediT authorship contribution statement

Alejandro Guerrero: Writing – original draft, Conceptualization. **Alexander Stoffan:** Writing – original draft, Conceptualization. **Rweyendela Amani G:** Conceptualization. **Jacob Reich:** Writing – original draft. **Margaret Hopkins:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation. **Neema Swai:** Project administration, Conceptualization. **Simon Kalolo:** Project administration, Conceptualization.

Ethics statement

Ethical approval for this study was obtained from the National Institutes of Medical Research of Tanzania (Ref. NIMR/HQ/R.8a/Vol. IX/4278).

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Alejandro Guerrero and Alexander Stoffan report a relationship with Amend (non-profit) that includes: board membership. Dr. Guerrero and Dr. Stoffan are on the board of the non-profit Amend. This research is essentially a programme evaluation of the "Kids' Court" programme run by Amend. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

This study was funded by a generous grant from the Cotswold Foundation (Grant ID: Amend_Cotswold_2022-25). Special acknowledgement to the Tanzania Traffic Police for their commitment to this project and approval of the interrogation of the drivers' license database in accordance with the National Institutes of Medical Research of Tanzania.

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