

Understanding street-exposure and abuse among street-involved children and youth in Kenya: structural intervention insights from routinely collected program data

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ABSTRACT

Background Street-involved children and youth (SICY) face significant challenges, including structural and social exclusion, and multiple forms of abuse. Global estimates indicate there are 10–15 million SICY worldwide, with over 250 000 in Kenya alone. There is limited understanding of the timing of these abuse experiences, which may inform interventional efforts.

Methods This study analysed relationships between the duration of street exposure, sleep location and experiences of abuse among formerly SICY (aged 6–19 years) in Kenya. Data were collected from participants in the Watoto wa Ahadi Rescue Center programme over a 6-year period (2016–2022). Abuse experiences were categorised into physical, emotional, economic and sexual abuse. Statistical analyses, including Lowess-curve plots and piecewise logit regression, were used to explore the relationships between street exposure duration, sleep location and reported abuse experiences.

Results The sample consisted of 228 unique children, predominantly male, with a mean age of 13.2 years. Physical abuse (37%), emotional abuse (36%), economic abuse (28%) and any abuse (69%) were common, while sexual abuse (5.7%) was less frequently reported. The probability of experiencing abuse varied with the duration of street exposure, with significant increases observed for those on the street for 3 weeks or more. Sleeping under verandas was associated with higher odds of economic abuse and any type of abuse. Longer street exposure did not further increase the odds of physical, economic or any abuse beyond 10 months.

Conclusions Children and youth living on the streets experience high levels of abuse, underscoring the need for data-informed, trauma-informed approaches to support their reintegration. The findings highlight the importance of early intervention and tailored strategies that address the specific timing and types of abuse experienced by SICY. Policy and funding should focus on preventing street migration, providing alternative living locations and supporting long-term reintegration efforts to protect and empower SICY.

INTRODUCTION

Global estimates of the number of children living in street situations, separated from adult

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Prior research indicates that street-involved children and youth are at high risk for abuse, but associations between risk and duration of exposure are unclear.

WHAT THIS STUDY ADDS

⇒ The length of street exposure significantly affects risks and types of abuse reported by street-involved children.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ This study underscores the need for early intervention to prevent abuse and facilitate the reintegration of street-involved children and youth, advocating for the development of targeted, trauma-informed interventions.

supervision and care, vary widely.¹ Often cited estimates indicate there are 10–15 million street-involved children and youth (SICY) globally, with more than 250 000 SICY in Kenya alone.^{1 2} Although valid and robust enumerations of this largely hidden population are rare worldwide, even in instances where more reliable capture-recapture techniques have been applied, existing estimates often under-represent the true size of this population.³

Decades of research have established numerous challenges SICY face, including structural exclusion from academic participation, social exclusion from larger community life, multiple forms of abuse and a common reliance on substances to cope with their traumatic experiences.^{4–6} In response to these challenges, the United Nations General Assembly adopted General Comment #21, urging member states to develop long-term strategies for the family-based reintegration and inclusion of SICY, as well as support

and protection for other families and alternative care settings.⁷

Previous research has found that victimisation from various forms of abuse is common among SICY. In western Kenya, one study showed that 78% of SICY reported experiencing some form of abuse, with 68% reporting emotional abuse, 81% reporting physical abuse and 42% reporting sexual abuse.⁸ Similar rates have been observed in higher-income countries like the USA and Canada.^{9,10}

While understanding the lifetime risk of abuse experienced by SICY informs assessments of the threats they face, less information is available about the relationship between duration of time spent on the streets and risk of these abuse experiences. Failure to nuance the forms of abuse by the duration of street exposure may lead to reintegration efforts that are insufficiently tailored to the lived experiences of SICY. Understanding the typologies and timing of abuse can contribute to tiered strategies addressing the traumatic experiences of SICY. Aside from occasional programme reports, systematic efforts to reintegrate street-involved children into the broader community have been sparsely documented—with the first quantitative report from any low- or middle-income country emerging only in 2023.² This study seeks to contribute to a systems-oriented science by providing empirical evidence that allows for greater nuance and responsiveness to the lived experiences of SICY, while also informing categories of risk exposure to support scalable and effective approaches for this population.

Study aim

This study aims to analyse relationships between duration of street exposure, sleep location and experiences of abuse by formerly SICY.

METHODS

Program description

The Kenyan National Council for Children's Services promotes a reintegration-oriented approach for children living in street situations.¹¹ The programme evaluated in this study employs a '4R+P' strategy: rescuing children from street situations, rehabilitating them from substance use and other street-specific behaviours, reintegrating them with their communities of origin, resocialising them within their home contexts and preventing migration to the streets. The Watoto wa Ahadi ('Children of Promise') Rescue Centre, managed by Sodzo Kenya, began its intervention work in April 2016. This intervention uses a 79-acre farm equipped with dormitories, a dining hall, a remedial school and meeting spaces for children and youth transitioning off the streets before reintegration. Baseline data on all programme participants, along with data from family tracing efforts, are collected to inform an exit strategy for each child. The programme operates in Meru County, Kenya, which, according to the Kenyan government's 2018 census, contains 2.8% of all street-living persons.¹² Reflecting gendered patterns

of street-living persons within Meru County and nationally, all but one participant was male, thus preventing a gendered analysis of findings.

Sample selection

The study includes data from all participants in the Watoto wa Ahadi Rescue Center programme, collected over a 6-year period (2016–2022) on their entry into the programme. To avoid duplication, only data from each participant's initial entry are included, resulting in a sample of 228 unique children.

Measures

Child self-reported data

Social workers begin recruitment by establishing rapport with children identified as living on the street. Interested children complete an intake form (read aloud) with the social worker, and these forms are kept on-site. Data for this study were abstracted from the intake forms and entered into Excel.

Abuse experiences on the street

Youths were asked about their experiences of abuse on the street, recorded as notes and categorised into physical, emotional, economic and sexual abuse. Physical abuse involved being beaten, emotional abuse included name-calling and embarrassment, economic abuse involved withheld wages and sexual abuse involved forced sexual acts. Each type of abuse was coded as present or not, and a dichotomous variable was used in multivariable analyses to indicate whether any abuse was reported.

Age, years on street

Youths reported their age and the number of years they had lived on the street. The age range for all respondents was 6–19 years.

Sleep location

Respondents reported where they typically slept, which was categorised into (1) under veranda/just outside shops or (2) other locations—typically a run-down house or a friend's house.

Statistical analysis

To understand the bivariate relationships between the duration of time spent on the street and the probability of reporting various types of abuse, we visually explored the data using Lowess-curve plots. These plots facilitated the identification of appropriate points for segmenting the data based on the duration of time spent on the streets, which were then used as cut-points in piecewise regression. Piecewise regression was chosen to account for potential changes in the relationship between the duration on the streets and the probability of experiencing abuse, providing a more flexible and accurate model compared with standard linear approaches. Given the variability in the probability of experiencing different types of abuse, and the fact that sexual abuse was the least common, we established different cut-points for physical,

Table 1 Descriptive statistics for model variables

	n	Mean (%)	SD
Physical abuse	228	37.2%	0.48
Emotional abuse	228	35.5%	0.48
Economic abuse	228	28.1%	0.45
Sexual abuse	228	5.7%	0.23
Any abuse	228	69.3%	0.46
Combined number of abuse types	228	1.18	1.05
Duration: 0–3 weeks	228	33.3%	0.47
Duration: 3 weeks to 3 months	228	16.7%	0.37
Duration: 3–10 months	228	7.9%	0.27
Duration: 10+ months	228	42.1%	0.49
Sleep under veranda	228	61.3%	0.5
Current age, in years	228	13.2	2.18

Notes: Mean or percentage of response category for model variables.

emotional, economic or any abuse (0–3 weeks; 3 weeks to 10 months; 10+ months) compared with sexual abuse (0–3 months; 3+ months). These cut-points were incorporated into the piecewise regression models, which also included age, categorised duration of time on the streets and sleep location (under a veranda vs other) as exposures, with reported abuse experience of each type and any type as outcomes. We used bootstrap sampling (1000 replicates) to ensure robust estimates.

All statistical analyses were conducted in STATA V.18.¹³

Ethical approval

Court committals or proxy consent were given for all children within programmatic care. All data were collected following a period of rapport building on streets by social

workers. Parental consent was attained whenever possible immediately following rescue from street situations. Child assent was provided in the conduct of programmatic activities.

Patient and public involvement

Our research was driven by the public, who identified the critical question: ‘What interventions are helpful to support children living on the streets of Kenya?’ We shared our findings through various stakeholder meetings to ensure broad dissemination and engagement.

RESULTS

Table 1 shows the study characteristics of our sample of SICY. As shown, physical abuse (37%), emotional abuse (36%), economic abuse (28%) and any abuse (69%) were common experiences among the sample population. Sexual abuse (5.7%) was not frequently reported. One-third of the sample population had been on the street for 3 weeks or less. One-fourth of the sample population had been on the street between 3 weeks and 10 months. Over 40% of the sample population had been on the street for more than 10 months. Nearly two-thirds of the sample population reported sleeping under verandas, in public locations, compared with other locations such as temporary shelters. The mean (SD) age of the sample was 13.2 years (SD: 2.2).

As shown in figure 1, the relationship between abuse type and time on the street was curvilinear, with steeper curves between respondents who just arrived on the streets and an inflection point before 1 year on the street. The inflection point in the Lowess curve between time on the street and reported abuse experience varies by each type of abuse.

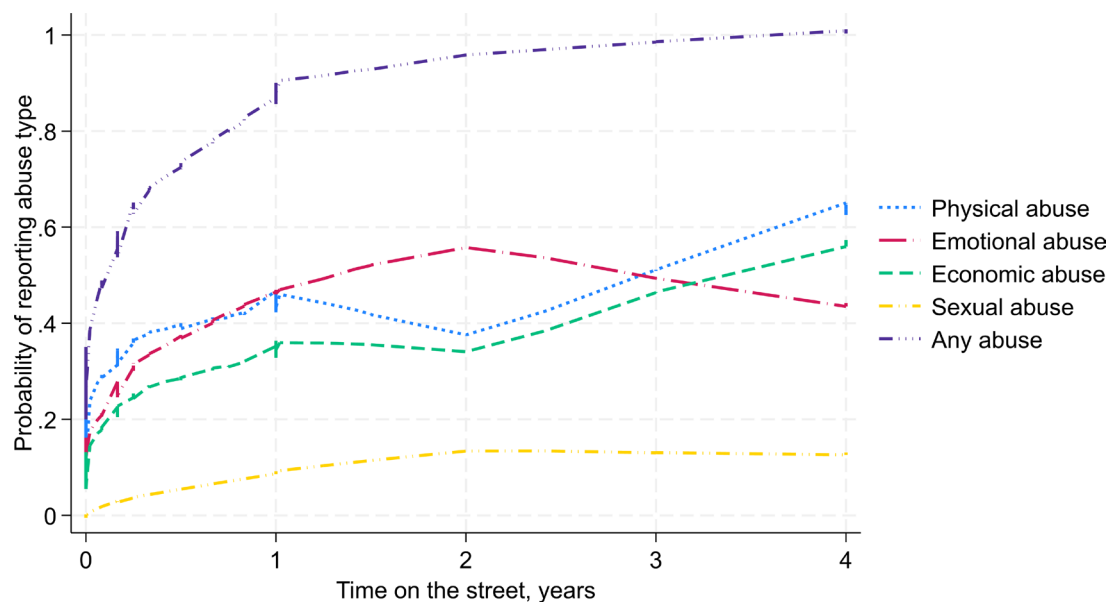


Figure 1 Lowess curves of the probability of reporting abuse by type (physical, emotional, economic and sexual) or any form of abuse and duration of time spent on the street among 228 formerly street-involved children and youth.

Table 2 Piecewise logistic regression results for the association between duration spent on the streets, sleep location, age and experience of physical, emotional, economic or any abuse on the streets

	Physical abuse			Emotional abuse			Economic abuse			Any abuse		
	OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
Duration: 0–3 weeks	REF			REF			REF			REF		
Duration: 3 weeks to 10 months	5.82***	2.33	14.53	2.69*	1.05	6.93	4.12*	1.3	13.08	12.13***	4.42	33.41
Duration: 10+ months	0.7	0.35	1.35	2.43**	1.21	4.88	1.16	0.48	2.05	1.8	0.58	5.6
Sleep under veranda	1.65	0.84	3.22	1.22	0.63	2.37	3.28**	1.83	8.65	4.7***	1.9	11.64
Current age, years	0.99	0.86	1.13	0.94	0.82	1.09	1.11	0.94	1.31	1.03	0.86	1.23

Notes: Time on the streets (categorised), current age, sleep location and odds of reporting emotional, physical, economic and any type of abuse while living on the streets, reported by street-involved children and youth (n=228) during in-take to a structural intervention. All CIs calculated using Bootstrap sampling with 1000 replicates.

*p<0.05; **p<0.01; ***p<0.001.

Table 2 shows the odds of reporting physical, emotional, economic or any abuse by duration of time on the streets, categorised by 0–3 weeks, 3 weeks to 10 months and 10 months or more. The odds of physical abuse (aOR: 5.8; 95% CI: 2.2 to 14.5), emotional abuse (aOR: 2.69; 95% CI: 1.1 to 6.9), economic abuse (aOR: 4.1; 95% CI: 1.3 to 13.1) and any type of abuse (aOR: 12.1; 95% CI: 4.4 to 33.4) were significantly higher among respondents who had lived on the streets for 3 weeks or more; the odds of experiencing emotional abuse increased further among respondents who had been on the street for 10+ months (aOR: 2.4; 95% CI: 1.2 to 4.9). The odds of experiencing physical, economic or any type of abuse did not increase further for respondents who lived on the streets for 10 months or more. The odds of experiencing economic abuse (aOR: 3.3; 95% CI: 1.8 to 8.7) and any type of abuse (aOR: 4.7; 95% CI: 1.9 to 11.6) were significantly higher for respondents who slept under verandas. Age was not significantly associated with reporting any type of abuse.

Table 3 shows that the odds of reporting sexual abuse were 12-fold higher among respondents who had been on the streets for 3 months or more (aOR: 12.8; 95% CI:

2.4 to 21.6). Neither age nor sleep location was associated with the odds of reporting sexual abuse.

DISCUSSION

Children and youth living on the streets experience very high levels of abuse while on the streets, and often prior to migrating to the streets. Approaches to transforming the factors driving abuse risk to these children are desperately needed. We previously showed that it is possible to build structural resilience—helping SICYP to reintegrate with families and communities.² While funding, organisational programming and policy strategies make the slow crawl to challenging these adverse exposures, temporary relief may come from supporting alternative living locations—as sleeping under verandas was associated with significantly higher odds of experiencing economic abuse or any type of abuse.

Data-informed strategies are required to support the Kenyan governmental policy shift reflected in the care reform strategy, which itself reflects global policy shifts towards reintegrating SICYP. Data-informed strategies must respond to the trauma experienced by SICYP, and its psychosocial aftermath. Current practice in reintegration of SICYP with families and communities is split between direct reintegration and indirect reintegration; these data demonstrate a clear association between living on the street and risk of abuse. Direct reintegration approaches may be appropriate for SICYP with very limited street-exposure, and who have not experienced high levels of abuse on the streets.

Children who have been on the street longer are likely to have experienced more types of abuse, and while not measured in the assessed data here, it is likely that longer street exposure results in more experiences of the each type of abuse. Reintegrating SICYP with families and communities without addressing traumatic experiences and the likely post-traumatic stress and potential for revictimisation will likely undermine successful reintegration of SICYP.

Table 3 Piecewise logistic regression results for the association between duration spent on the streets, sleep location, age and sexual abuse experience

	Sexual abuse		
	OR	95% CI	
Duration: 0–3 months	REF		
Duration: 3+ months	12.83***	2.43	21.63
Sleep under veranda	0.77	0.23	2.57
Current age, years	0.98	0.76	1.26

Notes: Time on the streets, categorised and odds of reporting sexual abuse while living on the streets, reported by street-involved children and youth during in-take to a structural intervention. All CIs calculated using Bootstrap sampling with 1000 replicates.

***p<0.001.

Implementing a trauma-informed approach with SICY requires recognising the complex trauma they have often experienced and creating a supportive environment that addresses their unique needs. This approach begins with training staff and service providers to understand trauma and its effects on behaviour and development. Services should focus on building trust and safety, both physical and emotional, by ensuring that interactions are consistent, predictable and respectful. Interventions must be strengths-based, promoting resilience and self-efficacy, and should involve the children in decision-making processes to empower them and validate their experiences. Providing access to mental health services, creating opportunities for positive social connections and offering stable and supportive housing are critical components of a trauma-informed approach. Additionally, staff should be trained to recognise and manage their own stress and secondary trauma to maintain a healthy and effective support system for the children.^{14–16}

A trauma-informed approach also includes the implementation of policies and practices that minimise re-traumatisation. This can be achieved through a comprehensive assessment of organisational practices to ensure they are trauma-sensitive, such as avoiding punitive measures that may trigger past trauma and instead focusing on restorative justice practices. Creating a culturally competent environment that respects and incorporates the diverse backgrounds and experiences of street-involved children is essential for their engagement and healing. Collaboration with community organisations and stakeholders can provide a network of support, enhancing the resources available to these children and fostering a holistic approach to their well-being.¹⁷

Interventional research with SICY is essential to understanding potentially effective approaches to improving their capacity for reintegration with their families of origin or other off-street destinations. One clear implication of this study is that street-exposure is inherently fraught with risk and laden with likely traumatising experiences. Developing early response capacities to support the reintegration of children who recently arrived to streets is essential. For the programme that collected these data, such early response capacities take the form of street walks from trained social workers with local cultural expertise and trauma-informed training.

This intervention has been published about previously.² This prior publication provides greater detail regarding the 4R+P model to work with SICY—establishing the goals of rescue, rehabilitation, reintegration and resocialisation plus preventing street-migration. The programme model further addresses families and communities from which these children migrate, demonstrating effectiveness at supporting the long-term reintegration and resocialisation of former SICY. Socioecological interventions must further develop capacities to support safe harbour for children and youth who recently arrived to live on the streets, in coordination with street-focused social workers.

Study data indicate the protective benefits of temporary housing (vs sleeping outside under store verandas) for SICY. While not an adequate final destination for SICY, immediately available, low-cost or free, safe housing may provide temporary relief from unsafe nighttime conditions.

Further, developing partnerships between law enforcement officers who can offer protection to SICY, SICY and social workers is essential to ensuring the safety of children who have migrated to the streets. Given some reports of abuse perpetrated by law enforcement, sensitivity training and monitoring of police conduct are necessary to securing safety of SICY until they are able to migrate off of street life.

Beyond policy, programming and policing, engagement with communities to shift the norms surrounding street-dwelling children and youth is essential to provide a more supportive, compassionate response. Addressing norms regarding street-dwelling children must be paired with efforts to ensure children are protected and supported within families and communities to prevent street-migration.

Limitations

These data relied on self-reported experiences from children and youth prior to the arrival at a rescue centre intended to provide temporary safety to these children. Staff reported subsequently learning about experiences of sexual abuse that was previously unrecorded, biasing such reports due to shame and embarrassment related to sexual abuse. Data reported the types of abuse experienced by SICY, but not the frequency, severity or intensity of these experiences. There is certain to be a dose-response between the frequency, severity and intensity of each type of abuse experience and post-traumatic distress, though study data flatten these important distinctions to a binary measure. The extent to which the extent of trauma experienced on the streets impacts future reintegration efforts requires further, longitudinal research. The development of reliable survey measures of sleeping options used by SICY could be helpful, insofar as such measures would help researchers and interventionists develop more robust understanding of the lived experiences of SICY for practical application.

CONCLUSIONS

Policy and funding are shifting to reintegration-based approaches for SICY. Refusing to accept a reality in which children sleep on streets without adult protection raises the question of how to triage limited services available to support SICY. Ideally, greater financial resources are channelled to supporting all SICY, and interventional strategies are honed to maximise cost-effective approaches to reintegrating SICY. These study data, collected over years of a programme working to reintegrate SICY, demonstrate that duration of exposure to street life predicts increased experiences of abuse—undermining efforts to

support reintegration of SICY with their families or alternative locations. As the phenomenon of SICY is driven in part by globalisation and commensurate urbanisation, it is the ethical duty of those who benefit from globalisation to alter conditions in which children find themselves moved to street living and experiencing multiple forms of abuse.

Contributors MG provided the overall guidance, conducted the primary analysis and was responsible for writing the initial draft and all subsequent edited versions of the manuscript. KM oversaw the program implementation, data collection and preliminary analysis. NG supervised the interpretation of the data and the application of the findings. SG provided oversight for the entire program and data collection process. All authors contributed to writing and revising the manuscript and approved the final version for submission. MG is responsible for the overall content as guarantor.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Consent obtained directly from patient(s).

Ethics approval This study involves human participants but University of Texas Medical Branch (23-0033) exempted this study. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Study data are available upon reasonable request.

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