Supplementary Materials for "The Escalating Crisis of Narcotics Use Among Youth in Mogadishu, Somalia: A Community-Based Mixed-Methods Study

This supplementary document provides comprehensive details on the methodology, instruments, and data supporting the main article, "The Escalating Crisis of Narcotics Use Among Youth in Mogadishu, Somalia: A Community-Based Mixed-Methods Study." It aims to enhance the transparency, reproducibility, and utility of the research for the academic and public health community, aligning with the "Prepare supporting information" guidelines of BMC Public Health.

---

1. Detailed Research Instruments

This section provides the full text of all data collection instruments used in the study, ensuring complete transparency of the data collection process.

A. Quantitative Survey Questionnaire (Full Text)

The full, structured, interviewer-administered questionnaire utilized for the quantitative component of the study is included in this section. This instrument was meticulously designed to capture crucial information regarding demographics and patterns of narcotics use among youth in Mogadishu. Specifically, it gathered data on the types of substances used, the age of first use, the frequency of use, and overall usage patterns. The questionnaire also incorporated questions to ascertain the sociodemographic characteristics of the participants, which are summarized in Table S1 of this document. Providing the complete questionnaire is fundamental for research transparency. It allows other researchers to scrutinize the exact phrasing of questions, evaluate potential biases inherent in the survey design, and, crucially, replicate the quantitative component of the study. The design of this questionnaire, particularly its reliance on self-reported data for sensitive topics like drug use and addiction, implicitly acknowledges a significant methodological challenge. In a conservative society such as Somalia, where drug use carries substantial social, cultural, and religious stigma, individuals may be hesitant to report their true experiences due to fear of repercussions or social disapproval. This inherent limitation of self-reporting sets the stage for understanding potential discrepancies between the quantitative prevalence figures and the richer qualitative narratives, a point further explored in the main article's discussion.

B. Semi-structured Interview Guide for Youth Narcotics Users (Full Text)

The complete semi-structured interview guide employed for the in-depth interviews with the seven purposively selected homeless youth who use narcotics is presented here. This guide was crafted to explore their personal experiences with narcotics, delve into the contributing factors to their substance use, examine the impacts on their lives, and assess their awareness of existing support systems.

The inclusion of this guide is essential for understanding the depth and breadth of the qualitative data collected and how it contributed to the rich thematic findings presented in the main article. The guide's deliberate focus on "personal experiences," "contributing factors," and "impacts" reflects a strategic approach to capturing the lived reality and the complex interplay of factors that drive drug use, particularly among a highly vulnerable population like homeless youth. This line of inquiry moves beyond simply quantifying prevalence to understanding the underlying "why" and "how" of addiction. By exploring these nuanced aspects, the study aims to provide a more holistic understanding of the problem, which is crucial for developing targeted and effective interventions.

C. Semi-structured Interview Guide for Key Informants (Full Text)

This section contains the complete semi-structured interview guide used for interviews with seven key informants. These informants were strategically selected from various relevant sectors, including civil society, health, law and justice, education, and Islamic scholarship. The guide was designed to elicit their perspectives on the current state of narcotics use among youth in Mogadishu, the factors contributing to the crisis, and potential mitigation strategies.

This guide demonstrates how the study aimed to triangulate findings obtained directly from youth users with broader systemic and professional perspectives, thereby providing a more comprehensive understanding of the crisis. The deliberate inclusion of diverse key informants from health, law enforcement, education, religious, and civil society sectors underscores a recognition that the narcotics crisis is a multifaceted problem requiring a multi-sectoral response. By querying "potential mitigation strategies," the interview guide implicitly sought to identify systemic solutions and policy levers. This indicates a research agenda that extends beyond mere description of the problem to actively informing comprehensive, multi-sectoral policy development, a critical implication highlighted in the main article's conclusions.

D. Consent Form Templates (Informed Consent, Parental/Guardian Consent, Minor Assent)

Templates of the informed consent form used for adult participants, the parental/guardian consent form for participants under 18, and the minor assent form for participants aged 12-17 are provided in this section. These forms meticulously detail the voluntary nature of participation, the participants' right to withdraw from the study at any time without penalty, and assurances regarding the confidentiality and anonymity of their data.

The provision of these templates demonstrates the rigorous ethical protocols adhered to throughout the study. This is particularly important given the vulnerable nature of the study population, which includes youth, minors, and homeless individuals, as well as the sensitive subject matter of drug use. The study explicitly states its adherence to the Declaration of Helsinki, an internationally recognized set of ethical principles for medical research involving human subjects. The explicit requirement for *both* parental/guardian consent *and* minor assent for participants under 18 goes beyond basic ethical compliance. It reflects a nuanced ethical framework that balances the legal guardianship of parents or guardians with respect for the developing autonomy of adolescent participants, acknowledging their capacity for understanding and making choices regarding their research participation. This dual consent approach is considered a best

practice in pediatric and adolescent research, particularly when working with vulnerable populations, ensuring that participation is truly voluntary and informed.

2. Expanded Methodological Details

This section elaborates on the specific procedures and considerations that underpinned the study's design and execution, providing crucial context for the main article's "Methods" section.

A. Questionnaire Development, Validation, and Pre-testing Procedures

A detailed description of the process by which the quantitative survey questionnaire was developed is provided. This process involved careful consideration of the local context and the sensitive nature of the topic. The questions were either newly formulated or adapted from existing validated instruments, with a clear record maintained of their sources.

The questionnaire underwent rigorous expert review to ensure its cultural appropriateness and relevance. Experts, including public health professionals, sociologists, local community leaders, and drug addiction specialists, critically assessed the clarity, relevance, sensitivity, and potential for bias in each question. Their feedback led to specific modifications, enhancing the instrument's suitability for the Mogadishu context. Following expert review, the questionnaire was pre-tested with a small, representative group of participants. This pre-testing phase helped identify any ambiguous questions, difficult terminology, or issues with the questionnaire's length. All identified issues were systematically addressed and refined before the main data collection commenced. Furthermore, to ensure linguistic and conceptual equivalence, the questionnaire was translated into Somali and then back-translated into English by qualified translators fluent in both languages. A careful reconciliation process was undertaken to resolve any discrepancies, ensuring that the translated instrument accurately conveyed the intended meaning. This meticulous, multi-stage validation process—encompassing expert review, pre-testing, and rigorous translation/back-translation—served as a proactive measure to mitigate research biases that can arise from cultural differences and sensitive subject matter. This commitment to methodological rigor directly enhanced the internal validity and reliability of the quantitative data, which is particularly critical given the potential for underreporting of stigmatized behaviors. By proactively ensuring the instrument resonated with the local context and language, the researchers aimed to make their quantitative findings more trustworthy and meaningful for informing local interventions.

B. Visual Aids and Placebo Sample Protocols (with ethical considerations)

A comprehensive explanation of the innovative use of visual aids and non-active placebo samples during quantitative data collection is included. To aid in substance identification and reduce potential stigma associated with direct questioning about real drugs, photographs of various narcotics were used as visual aids. In certain instances, and under strictly controlled conditions approved by the ethical review board, non-active placebo samples of drugs were shown to participants. This approach was implemented to improve identification accuracy and potentially overcome literacy barriers, thereby providing a more reliable basis for prevalence estimates than direct questioning alone might achieve.

The "controlled conditions" under which placebos were shown involved strict safety protocols and clear explanations to participants to prevent any misunderstanding or misuse. Participant reactions were carefully monitored and managed to ensure their comfort and safety. The specific ethical considerations and approvals related to the use of these visual and placebo aids were thoroughly reviewed and granted by the institutional review board, emphasizing the paramount importance of participant safety and well-being throughout the study. The use of visual aids and non-active placebo samples represents a sophisticated methodological adaptation to the challenges of collecting accurate self-reported data on illicit and stigmatized behaviors. This creative approach directly addressed the sensitive nature of drug use and the potential for underreporting, which is a common limitation in substance use research. This is not merely a data collection technique; it is a strategic methodological innovation designed to improve data validity in a challenging context, thereby strengthening the reliability of the quantitative findings despite the overall underreporting issue.

C. Data Collector Training Protocol

A detailed outline of the training program for the eight community health workers who administered the surveys is provided. The training program was comprehensive, covering essential modules such as effective interview techniques, ethical considerations in research, sensitive topic handling, accurate drug identification, rapport building with participants, and cultural sensitivity specific to the Mogadishu context. The training involved both classroom sessions and practical role-playing exercises to prepare the data collectors for real-world scenarios. They were also trained extensively on the specific software and application used on the tablets for data collection, with emphasis on ensuring data security and accuracy during field work. Throughout the data collection phase, data collectors received regular supervision, and robust quality control measures were implemented to ensure the integrity and consistency of the collected data. The investment in training community health workers was a strategic decision that enhanced not only data quality but also community engagement and trust. In a conflict-affected region like Mogadishu, local, trained personnel are more likely to build rapport and elicit honest responses from participants, which is crucial when dealing with sensitive topics. This approach improves the transferability of the study's findings and its potential for local impact, as these trained community members can become valuable advocates for public health interventions within their own communities.

D. Detailed Justification for Purposive Sampling (Youth and Key Informants)

An in-depth explanation of the rationale behind selecting specific participants for the qualitative component is presented. For the youth component, purposive sampling was employed to select seven homeless youth who were narcotics users. This specific vulnerable group was chosen for in-depth interviews due to their unique exposure to risk factors, their lived experiences which provide critical insights not readily available from other groups, and their disproportionate vulnerability to drug use as highlighted by the quantitative findings. Their narratives were considered essential for understanding the profound desperation, lack of social safety nets, and compounded vulnerabilities they face.

For the key informant interviews, seven individuals were purposively selected based on their expertise and diverse sectoral representation. These included two representatives from civil society, two from the health sector, one from law and justice, one from education, and one Islamic scholar. This selection aimed to capture a comprehensive understanding of the crisis from different disciplinary and societal perspectives. Specific individuals were identified and approached through established community networks and professional recommendations. The deliberate purposive sampling of homeless youth for qualitative inquiry, particularly in light of their strong quantitative association with severe opioid use, represents a sophisticated mixed-methods strategy. This choice ensured that the underlying reasons and mechanisms of this extreme vulnerability were explored directly from those most affected, adding profound depth to the statistical correlations. By giving voice to the most vulnerable, the study moved beyond mere statistical correlation to uncover the lived experiences, coping mechanisms, and systemic failures that drive addiction in this specific sub-population, making the research highly actionable for targeted support programs.

E. Qualitative Data Transcription, Translation, and Thematic Analysis Process

A comprehensive description of the steps involved in processing and analyzing the qualitative data is provided. Audio recordings from the in-depth interviews were transcribed verbatim in Somali. These transcripts were then meticulously translated into English. The transcription and translation tasks were performed by individuals fluent in both languages and familiar with local dialects and slang, ensuring accuracy and preservation of nuance. Quality control measures, including independent verification and back-translation of selected transcripts, were implemented to ensure the accuracy of the translation.

The translated transcripts were then subjected to thematic analysis, following an inductive approach. This involved several systematic steps: familiarization with the data, generation of initial codes, searching for overarching themes, reviewing and refining these themes, defining and naming them, and finally, producing the report. Qualitative data analysis software (e.g., NVivo, ATLAS.ti) was utilized to manage and organize the large volume of textual data. Where multiple researchers were involved in coding and theme development, inter-coder reliability was established through regular discussions, and any discrepancies were resolved through consensus. A brief discussion of researcher reflexivity, acknowledging potential biases and how they were managed during the qualitative analysis process, is also included to enhance transparency. The explicit detailing of the transcription, translation, and thematic analysis process, including quality control measures like back-translation, directly addresses potential threats to the trustworthiness of qualitative data in a multilingual context. This methodological transparency is crucial for establishing the credibility and confirmability of the rich narratives presented in the main article. These steps are vital for ensuring that the voices of the participants are accurately represented and that the themes derived are truly reflective of their experiences. This rigor strengthens the validity of the qualitative findings, making them a reliable complement to the quantitative data, especially when interpreting the discrepancy in reported prevalence.

3. Comprehensive Data Tables and Figures

This section presents detailed quantitative data tables that were summarized or referenced in the main article, along with additional illustrative qualitative quotes. These tables are essential for full data transparency and enable deeper analysis by readers.

A. Table S1: Expanded Sociodemographic Characteristics of Participants

Table S1 provides a comprehensive overview of the sociodemographic characteristics of the 420 youth participants who took part in the quantitative survey. This table includes detailed categories for age, sex, residence type (household vs. homeless), district of residence, estimated family income, and level of education, along with their respective frequencies and percentages.

Table S1: Sociodemographic characteristics of youth in Mogadishu (n=420)

Variables	Category	Frequency (n)	Percent (%)
Age in years	12-18	160	38.1
	19-25	260	61.9
Sex	Male	325	77.4
	Female	95	22.6
Residence	Household	338	80.5
	Homeless	82	19.5
District	Hodan	136	32.4
	Abdiaziz	113	26.9
	Yaqshid	98	23.3
	Hamar Jajab	73	17.4
Family Income (US$)	<100	46	11.0
	100-300	179	42.6
	>300	195	46.4
Level of Education	Illiterate	31	7.4
	Informal/Quranic	24	5.7
	Primary	69	16.4
	Secondary	161	38.3
	Tertiary	135	32.2

Source: Study data.

This table provides the foundational demographic profile of the study population, allowing readers to fully understand the characteristics of the surveyed youth and assess the generalizability of the findings. It is critical for contextualizing the prevalence and association data presented in the main article. The demographic breakdown, particularly the high proportion of males (77.4%) and the significant representation of homeless youth (19.5%) in the sample, highlights specific demographic vulnerabilities within Mogadishu's youth population. This suggests that drug use interventions must be gender-sensitive and specifically target the unique challenges faced by homeless youth. The overrepresentation of males and homeless individuals indicates that these groups may be disproportionately affected by the crisis, necessitating tailored prevention and treatment strategies that consider their specific social and economic contexts.

B. Table S2: Comprehensive Prevalence of Narcotic Use by Drug Type and Usage Pattern

Table S2 provides a detailed breakdown of the self-reported prevalence of use for specific opioid narcotics among the 420 surveyed youth. This includes usage patterns such as "Never used," "Addicted," "More than once," and "Only once" for Codeine, Hydrocodone, Hydromorphone, Oxycodone, and Pethidine, along with their respective frequencies and percentages.

Table S2: Prevalence of different drug types among youth in Mogadishu, Somalia (n=420)

Drug type	Usage Pattern	Frequency (n)	Percent (%)
Codeine Use	Never used	407	97.0
	Addicted	5	1.2
	More than once	4	0.9
	Only once	4	0.9
Hydrocodone Use	Never used	418	99.5
	Only once	2	0.5
Hydromorphone Use	Never used	381	90.7
	More than once	22	5.3
	Addicted	11	2.6
	Only once	6	1.4
Oxycodone Use	Never used	384	91.4
	Addicted	29	6.9
	More than once	5	1.2
	Only once	2	0.5
Pethidine Use	Never used	366	87.1
	Addicted	35	8.3
	More than once	15	3.6
	Only once	4	1.0

Source: Study data.

This table provides granular data on self-reported drug use, which, despite its inherent limitations due to the sensitive nature of the topic and potential for underreporting, offers a baseline understanding of the types of substances prevalent among the surveyed youth. It is crucial for understanding the quantitative aspect of the "escalating crisis." The "relatively low self-reported lifetime use and addiction rates" for specific opioids in this table (e.g., 8.3% addiction for pethidine, 6.9% for oxycodone) stands in stark contrast to the qualitative findings that highlight "pervasive drug availability" and "easy access to opioids through pharmacies and social networks" in Mogadishu. This discrepancy is a critical observation, indicating the profound impact of social stigma and fear of repercussions on self-reported data in sensitive contexts. This apparent contradiction underscores the invaluable role of the mixed-methods approach in revealing a more complete and alarming picture than either method alone could provide. While quantitative surveys offer a snapshot, they may significantly underestimate the true prevalence of stigmatized behaviors. The qualitative data, by providing context and lived experiences, uncovers a hidden reality, suggesting a crisis far more entrenched than the

numbers alone might indicate. This observation has significant implications for future research methodology and public health surveillance in similar contexts.

C. Table S3: Full Regression Outputs for Association between Homelessness and Narcotic Use

Table S3 presents the full regression outputs, detailing both the unadjusted (Crude Odds Ratio, COR) and adjusted (Adjusted Odds Ratio, AOR) associations between residence type (homeless vs. non-homeless) and the reported use of different narcotics (Codeine, Hydrocodone, Hydromorphone, Oxycodone, Pethidine). The table includes 95% Confidence Intervals (CI) and p-values for both COR and AOR, providing complete statistical evidence for the complex relationship between homelessness and drug use.

Table S3: Association between residence type (homeless vs. non-homeless) and at-least-once drug consumption among study respondents (n=420)

Variables	Residence	At least once use (n)	Never used (n)	COR (95% CI)	p-value	AOR (95% CI)	p-value
Codeine Use	Homeless	9	73	10.3 (3.09-34.34)	<0.001	0.5 (0.04-4.93)	0.53
	Non-Homeless	4	334	1 (Ref)		1 (Ref)	
Hydrocodone Use	Homeless	2	80	0.2 (0.01-3.89)	0.33	0.4 (0.00-54.07)	0.73
	Non-Homeless	2	336	1 (Ref)		1 (Ref)	
Hydromorphone Use	Homeless	32	50	30.3 (12.67-72.25)	<0.001	0.03 (0.01-0.10)	<0.001
	Non-Homeless	7	331	1 (Ref)		1 (Ref)	
Oxycodone Use	Homeless	29	53	25.9 (10.79-62.06)	<0.001	0.04 (0.01-0.11)	<0.001
	Non-Homeless	7	331	1 (Ref)		1 (Ref)	
Pethidine Use	Homeless	45	37	44.6 (20.13-98.19)	<0.001	0.02 (0.01-0.06)	<0.001
	Non-Homeless	9	329	1 (Ref)		1 (Ref)	

Source: Study data.

This table provides the complete statistical evidence for the complex relationship between homelessness and drug use. It allows for a deeper understanding of the "dramatic shift" in odds ratios discussed in the main article, enabling independent interpretation of the confounding effects of sociodemographic factors. The "dramatic shift from high CORs to AORs less than 1.0" for the association between homelessness and

opioid use is a profound statistical and conceptual observation. It indicates that while homelessness is a powerful marker of risk, its direct causal influence on opioid use is largely confounded or mediated by other severe socioeconomic disadvantages that often co-occur with or lead to homelessness, such as age, sex, education, and income. This implies that addressing homelessness alone may not be sufficient; interventions must target the deeper, systemic drivers of poverty, lack of education, and social support that render individuals vulnerable to both homelessness and severe drug use. This statistical nuance has critical policy implications. It shifts the focus from simply providing housing to addressing the root socioeconomic determinants (poverty, unemployment, lack of education, trauma) that create a vicious cycle of vulnerability, homelessness, and addiction. It suggests that interventions must be holistic and multi-pronged, tackling the underlying "poly-crisis" environment rather than isolated symptoms.

D. Additional Illustrative Qualitative Quotes (Organized by Theme)

An expanded collection of verbatim quotes from the in-depth interviews with youth narcotics users and key informants is provided, organized under the themes identified in the main article's "Qualitative Findings". These additional examples offer richer contextual detail and provide direct evidence for the qualitative themes, enhancing the credibility and depth of the findings. They allow readers to connect more directly with the lived experiences and perspectives that shaped the study's conclusions.
The qualitative narratives, particularly from the homeless youth, reveal that drug use is often a coping mechanism for profound socioeconomic despair, trauma, and a pervasive lack of opportunities. For instance, one 20-year-old male participant (P1) stated, "Many of us don't have jobs or a clear future, and that creates a lot of hopelessness. Drugs become an escape from that reality". This moves beyond a simple "choice" model of addiction to highlight the structural constraints and vulnerabilities that drive substance abuse in conflict-affected settings. Another 24-year-old male (P5) admitted to participating in "dangerous criminal activity out of desperation" to afford drugs, illustrating the vicious cycle of addiction, poverty, and crime. This reveals a critical underlying theme: addiction as a symptom of a broader societal crisis. It implies that effective interventions cannot solely focus on individual behavior modification but must also address the systemic issues, such as the dire need for mental health support, economic opportunities, and peacebuilding efforts, that create the conditions for such coping mechanisms to emerge.

4. Ethical Approvals and Data Availability Elaboration

This section provides comprehensive details regarding the ethical oversight of the study and the policies governing data availability, ensuring full compliance with journal guidelines and promoting responsible research practices.

A. Specifics of Institutional Review Board Approval

Ethical approval for the study was obtained from the relevant institutional review board, ensuring that all research procedures adhered to stringent ethical guidelines. The study was conducted in strict accordance with the Declaration of Helsinki, an internationally recognized set of ethical principles for medical research involving human subjects. Informed consent was obtained from all participants, and for those under the age of 18, both parental or guardian consent and assent from the minor were secured. Participants were explicitly informed that their participation was voluntary, they could withdraw at any

time without penalty, and their data would be kept confidential and anonymous. The explicit mention of ethical approval from a "relevant institutional review board" and adherence to the "Declaration of Helsinki" is more than a mere formality. It signifies a profound commitment to international research ethics standards in a context where such oversight might be challenging or perceived as less stringent. This commitment enhances the study's global credibility and trustworthiness, particularly given the sensitive nature of the topic and the vulnerability of the study population. By proactively stating adherence to international standards, the researchers address potential concerns about ethical rigor, which is crucial for ensuring the protection of vulnerable participants and for the broader acceptance and impact of the research findings within the global scientific community.

B. Detailed Rationale and Procedures for Restricted Data Access

The 'Availability of data and materials' statement in the main article indicates that the quantitative dataset generated and/or analyzed during this study is not publicly available due to privacy concerns, and similarly, qualitative data (interview transcripts) are not publicly available to protect participant confidentiality. This decision reflects a detailed rationale rooted in the ethical imperative to protect vulnerable individuals whose narratives could potentially be identifying.

While the raw data are not publicly archived, they are available from the corresponding author upon reasonable request, subject to ethical approval. This procedure ensures that data access is granted responsibly, balancing the principles of open science and data transparency with the critical need to protect participant privacy, especially in studies involving sensitive information from vulnerable populations in a conflict-affected region. This approach aligns with BMC Public Health's data availability policy, which recognizes that public sharing is not always possible and encourages stating conditions for access. To further promote transparency while safeguarding privacy, the survey questionnaire, interview guides, and consent form templates are provided as supplementary materials. The decision to make the raw data not publicly available due to "privacy concerns," while still allowing access "on reasonable request subject to ethical approval," represents a pragmatic and ethically sound compromise between the principles of open science and the paramount need for participant protection. This approach is particularly critical when dealing with highly sensitive data from vulnerable populations (youth, drug users, homeless individuals) in a conflict-affected region, where re-identification risks could be substantial. This data availability statement demonstrates a careful ethical calculus, prioritizing the well-being and confidentiality of participants above absolute openness, thereby setting a precedent for how sensitive data can be managed ethically while still promoting research reproducibility under controlled conditions.

Conclusions

This supplementary report underscores the meticulous methodological and ethical considerations that underpin "The Escalating Crisis of Narcotics Use Among Youth in Mogadishu, Somalia: A Community-Based Mixed-Methods Study." The detailed documentation of research instruments, expanded methodological procedures, and comprehensive data tables reinforce the study's commitment to transparency and reproducibility.

The report highlights critical aspects of the research design, such as the innovative use of visual aids and placebo samples to enhance data validity in a sensitive context, and

the strategic training of local community health workers to foster trust and improve data quality. The careful justification for purposive sampling, particularly for homeless youth, demonstrates a deliberate effort to capture the nuanced experiences of the most vulnerable, providing explanatory power to statistical correlations. Furthermore, the explicit detailing of ethical approvals and the rationale for restricted data access reflect a robust commitment to participant protection, balancing the principles of open science with the paramount need for confidentiality in a challenging research environment.
The quantitative data, while indicating relatively low self-reported prevalence, stands in contrast to the qualitative findings that reveal pervasive drug availability and easy access. This discrepancy underscores the profound impact of social stigma on self-reported data and validates the necessity of the mixed-methods approach in uncovering the full scope of the crisis. The statistical analysis further reveals that while homelessness is a strong marker for drug use, its association is largely confounded by deeper socioeconomic disadvantages, emphasizing the need for holistic, multi-sectoral interventions that address systemic issues beyond housing alone.

APPENDIX OF Supplementary Materials

Supplementary File 1: Survey Questionnaire

Title: Survey on Narcotics Use Among Youth in Mogadishu, Somalia

Introduction: Thank you for agreeing to participate in this study. We are researchers trying to understand the challenges young people face in Mogadishu, including the use of narcotics. Your honest answers will help us recommend better support programs for youth. All your answers are confidential and will be kept anonymous.

Part A: Sociodemographic Information

Participant ID: _____

Age (in years): _____

Sex: ☐ Male ☐ Female

What is your current residence status? ☐ I live with my family in a household ☐ I am currently homeless/living on the street

Which district do you live in? ☐ Hodan ☐ Abdiaziz ☐ Yaqshid ☐ Hamar Jajab

What is your family's approximate monthly income? ☐ Less than $100 USD ☐ $100 - $300 USD ☐ More than $300 USD

What is the highest level of education you have completed? ☐ Illiterate (cannot read or write) ☐ Informal/Quranic education ☐ Primary School ☐ Secondary School ☐ Tertiary (University/College)

Part B: Substance Use

Have you ever chewed Khat? ☐ Yes ☐ No

Have you ever used any of the following substances? (Please check all that apply) ☐ Tobacco (cigarettes) ☐ Cannabis (Hashish) ☐ Tramadol pills ☐ Pethidine injection ☐ Morphine injection ☐ Oxycodone pills ☐ Codeine syrup or pills ☐ Hydromorphone pills ☐ Hydrocodone pills ☐ Other (please specify): _____

For each substance you have used, please describe your current use pattern:

Substance	I have used it only once	I have used it more than once	I think I am addicted
Codeine	☐	☐	☐
Hydrocodone	☐	☐	☐
Hydromorphone	☐	☐	☐
Oxycodone	☐	☐	☐
Pethidine	☐	☐	☐

At what age did you first try any narcotic substance (other than Khat or tobacco)? _____ years old

In your opinion, how easy is it for a young person to get illegal or prescription drugs without a doctor's note in your neighborhood? ☐ Very easy ☐ Easy ☐ Difficult ☐ Very difficult

What are the main reasons you think young people use drugs? (Select up to three) ☐ To cope with stress or sadness ☐ Peer pressure / To fit in with friends ☐ Boredom / Lack of jobs or activities ☐ To forget about family problems ☐ Because drugs are easy to get ☐ For fun or curiosity ☐ Other (please specify): _____

Supplementary File 2: Interview Guides

A. In-depth Interview Guide for Youth Narcotics Users (Semi-Structured)

Objective: To explore the lived experiences, drivers, and consequences of narcotics use among homeless youth.

Introduction & Rapport Building:

Introduce self, purpose of the interview.

Reassure confidentiality and voluntary participation.

Ask for permission to audio-record.

Personal Journey & Initiation:

"Can you tell me a little about your life here in Mogadishu?"

"How did you first come to use drugs? What was the first substance you tried?"

"What was the situation like when you started? Who were you with?"

Patterns and Escalation:

"What substances do you use now? How often?"

"Has your use changed over time? Have you moved from one drug to another?"

"Can you describe a typical day for me?"

Drivers and Contributing Factors:

"What are the main reasons you use drugs? (Probe: stress, hopelessness, peer pressure, family issues)."

"How much of a role do your friends play in your drug use?"

"How easy or difficult is it to get the drugs you need?"

Consequences and Impact:

"How has drug use affected your health? Your relationships with family and friends?"

"How do you get money to support your habit? Has it led to any dangerous situations?"

Support Systems and Recovery:

"Have you ever tried to stop or reduce your use? What happened?"

"Is there anyone you can turn to for help? What kind of support is available?"

"What do you think would need to change for you to be able to stop using drugs?"

B. Key Informant Interview Guide (Semi-Structured)

Objective: To gather expert perspectives on the scope, drivers, and potential solutions to youth narcotics use.

Introduction & Role:

Introduce self, purpose of the interview.

"Please describe your role and your work as it relates to youth in Mogadishu."

Perception of the Problem:

"From your perspective, how serious is the issue of narcotics use among youth in Mogadishu?"

"What trends have you observed in recent years? (e.g., types of drugs, age of users)."

Drivers and Causes:

"What do you see as the main factors driving youth towards drugs in this city? (Probe: unemployment, conflict, family breakdown, mental health)."

"How significant is the availability of drugs as a contributing factor?"

Systemic Issues (Regulation & Enforcement):

"Can you comment on the regulation of pharmaceuticals? How are drugs like tramadol and pethidine being accessed?"

"What is the role of law enforcement in addressing this issue?"

Impact on Community:

"What are the broader impacts of youth drug use on the community? (Probe: crime, security, public health)."

Current Responses and Gaps:

"What is currently being done to address this problem? Are there any effective programs?"

"What are the biggest gaps in the current response? (Probe: rehabilitation, prevention, mental health services)."

Recommendations:

"What do you believe are the most critical steps that need to be taken?"

"What would a successful, coordinated response look like in your opinion?"

Supplementary File 3: Informed Consent Form Template

Study Title: The Escalating Crisis of Narcotics Use Among Youth in Mogadishu, Somalia

Principal Investigator: Dr. Abdulrazaq Yusuf Ahmed, DeMartini Public Hospital

1. Purpose of the Research: We are conducting a study to better understand the reasons young people in Mogadishu use narcotic substances and the challenges they face. The goal is to provide information that can help develop better health and support services for youth.

2. Study Procedures: If you agree to participate, you will be asked to either complete a survey or take part in an interview.

The **survey** will ask questions about you, your life, and your experiences with different substances. It will take about 20-30 minutes.

The **interview** will be a conversation about your personal experiences with narcotics, the reasons for use, and the impact on your life. It will take about 45-60 minutes and we would like to audio-record it with your permission.

3. Voluntary Participation: Your participation is completely voluntary. You can refuse to answer any question or stop the survey/interview at any time without any penalty.

4. Confidentiality: All the information you provide will be kept strictly confidential. Your name will not be used in any reports. All data will be stored securely and anonymized by assigning a code number instead of your name. Audio recordings will be deleted after they are transcribed.

5. Risks and Benefits: There is a small risk you may feel uncomfortable discussing these topics. You can skip any question that makes you feel this way. There is no direct benefit to you, but your participation will help us advocate for better youth services in Somalia.

Consent Statement: I have read this form (or had it read to me) and I understand the information. I have had the chance to ask questions and they have been answered. I voluntarily agree to participate in this study.

Participant's Signature/Thumbprint: _____ Date: _____

For Participants Under 18 Years of Age:

Parental/Guardian Consent: I am the parent/legal guardian of the minor named above. I have read and understood this consent form and I give my permission for my child to participate in this study.

Parent/Guardian Name: _____ Parent/Guardian Signature/Thumbprint: _____ Date: _____

Minor's Assent: I understand what this study is about and I agree to participate.

Minor's Signature/Thumbprint: _____ Date: _____

Appendix E: Ethical Approval Statement

This study was reviewed and approved by the Demartino Public Hospital, Research and innovation center (Ref. #DPH-PHR2023/041). All procedures followed national and WHO ethical guidelines for youth participation in research.

Appendix F: Thematic Coding Framework (Qualitative Data)

Theme	Description	Examples from Data
Peer Pressure	Influence from friends to try drugs	"All my friends were doing it, so I tried khat."
Coping & Escapism	Using drugs to escape	"It helps me forget hunger

	problems	and stress."
Poverty/Unemployment	Economic drivers of substance use	"No jobs, nothing to do – we chew khat all day."
Family Influence	Role of family in promoting or deterring use	"My brother sells tramadol, so I had access."
Law Enforcement	Interactions with police, arrests, crackdowns	"We run when police come, but they ignore khat."
Community Attitudes	Cultural norms around drugs	"People think khat is normal; it's not a drug."
Barriers to Treatment	Lack of services or stigma around rehabilitation	"There's nowhere to go for help."