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Health needs assessment of urban areas and the key interventions: A case study of Nairobi City County

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Urbanization has led to complex challenges in healthcare in many cities globally. This study involved a health needs assessment of Nairobi City County to elucidate the health dynamics among the diverse Nairobi City population. The health needs assessment encompassed profiling the Nairobi City County population, identifying the prevailing health priorities, and recommending strategic interventions. The findings show high mortality rates caused by preventable diseases, the youthful population, and behavioural risk factors. In essence, priority health risks include violence, respiratory diseases, accidents, tuberculosis, and preterm birth. Strategies recommended should be evidence-based, including social protection, preventive services, rehabilitation of substance abuse, and housing improvements to combat the health needs identified. This health needs assessment research serves as a significant framework for health planning in urban areas, facilitating interventions that are evidence-based, and tailored to the given needs of the urban population.

Key words: Health needs assessment, urban health, Nairobi City County.

INTRODUCTION

The health needs assessment process is a key basis for addressing and articulating the healthcare needs of a given population in a country. The health needs assessment procedure is pivotal and helps in deciphering the current health status, highlighting the predisposing factors for diseases. WHO (2010) defines health needs assessment as a continuous process that empowers health providers and professionals to meticulously determine risk factors and their root causes in the studied population. This process enables the development of solutions to ameliorate the health risks identified and their effect on the health of the community (WHO, 2001).

Vitally, the health needs assessment embodies an iterative, on-going strategy for understanding evolving health status and responding to the health dynamics within the population. By revisiting periodically, the health needs assessment process remains relevant and attuned to epidemiological trends, thereby ensuring that effective and relevant interventions are provided.

The essence of health needs assessment is the ability to generate invaluable information that has multifaceted uses in different fields. In the first place, information from the health needs assessment can be the basis for crafting future programs and policies for healthcare and public health, respectively. Practitioners can create targeted interventions by deciphering the interplay among

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determinants of health and, hence, cater holistically to the wellbeing of target populations.

Moreover, the findings from the health needs assessment exert more influence over decision-making at different levels, equipping the key players in the health sector with increased awareness of the interconnection between health outcomes and their deliberations on policies.

In addition, health needs assessment ramifications include maximizing resource utilization and allocation within health priorities. In an environment with resource constraints, health needs assessment ensures limited resources are deployed efficiently, effectively ensuring resources are aligned with priority health concerns. In turn, the judicious allocation increases the intervention impacts, resulting in a positive outcome loop between population wellness, intervention effectiveness, and resource allocation.

Developing a robust health needs assessment for Nairobi City County entails multifarious aspects. Crafting a robust assessment in this urban area necessitates many key facets to be amalgamated. These entail a detailed evaluation of population health status, engaging collaboratively with experts from diverse professions, and having intricate partnership networks that influence population health collectively.

One of the indispensable steps of this health needs assessment process includes promoting active collaboration with diverse experts in domains relevant to health. The multifaceted partnership fosters holistic comprehension of determinants of health, including medical, environmental, social, and economic perspectives. The health needs assessment process is enriched with multiple expertise, integrating it with a holistic outlook that includes the relationships between factors influencing health outcomes.

METHODOLOGY

Study design

The Health Needs Assessment of Nairobi City County was a systematic process involving steps that were interconnected. The steps included profiling the population, health priority identification, and outcome evaluation.

Population profiling

In the health needs assessment process, the first step was to comprehensively profile the population to generate key contextual and sociodemographic data to explore the population under study. This encompassed gathering information about inhabitants in Nairobi City County, their health status, and predisposing factors affecting health outcomes.

Geographical context

In Kenya, the capital city is Nairobi, which is located in the south-central region. Nairobi City County is 695 km^2 in area, neighboring Kajiado, Kiambu, and Machakos counties. There are 17 different sub-counties in Nairobi, with 85 wards characterized by an intricately diverse population living in this urban landscape (Figure 1).

Population dynamics

Nairobi City County population has exhibits sustained growth over the years, fueled by the fact that this county is the administrative and economic hub of Kenya. The Kenya National Bureau of Statistics (KNBS) reports that from 2009 to 2020, the population of Nairobi City County increased from 3,138,369 to 4,735,051 people. This increase, coupled with the arrival of new visitors, presents a huge challenge in the provision of healthcare and the prevention of infectious diseases.

Gender and age

The distribution of gender and age depicts a nuanced image of the Nairobi City County population. In essence, the youthful population is prevalent in the county, accounting for about 68%, while those who are elderly are only 1 %, which denotes the importance of targeted interventions to meet the needs of different populations (Table 1).

Ethnic and religious diversity

The ethnic and religious diversity is evident in Nairobi City County, with Christianity being the most dominant religion. Communication and language are also diverse and multifaceted since there are people of multiple ethnicities. The presence of this diversity in languages makes it imperative to address challenges in accessing healthcare attributable to language barriers (Jayasinghe et al., 2016). Table 2 shows the ethnicity and religion distribution in Nairobi City County, 2019.

Identification of health priorities

The health needs assessment process uses population profiling to identify urgent health priorities that need immediate intervention. Identification is attained through a combination of qualitative insights and the analysis of quantitative data derived from expert consultations and community engagement.

Outcome evaluation

The culmination of the health needs assessment process includes evaluating the implemented interventions rigorously and assessing the positive impact of the interventions through quantitative assessment metrics like changes in healthcare utilization and disease prevalence as well as qualitative assessment to determine the level of community satisfaction and community perceptions.

RESULTS

Health status of the population in Nairobi City County

Assessment of the health status of the population in Nairobi City County is vital for making informed decisions,
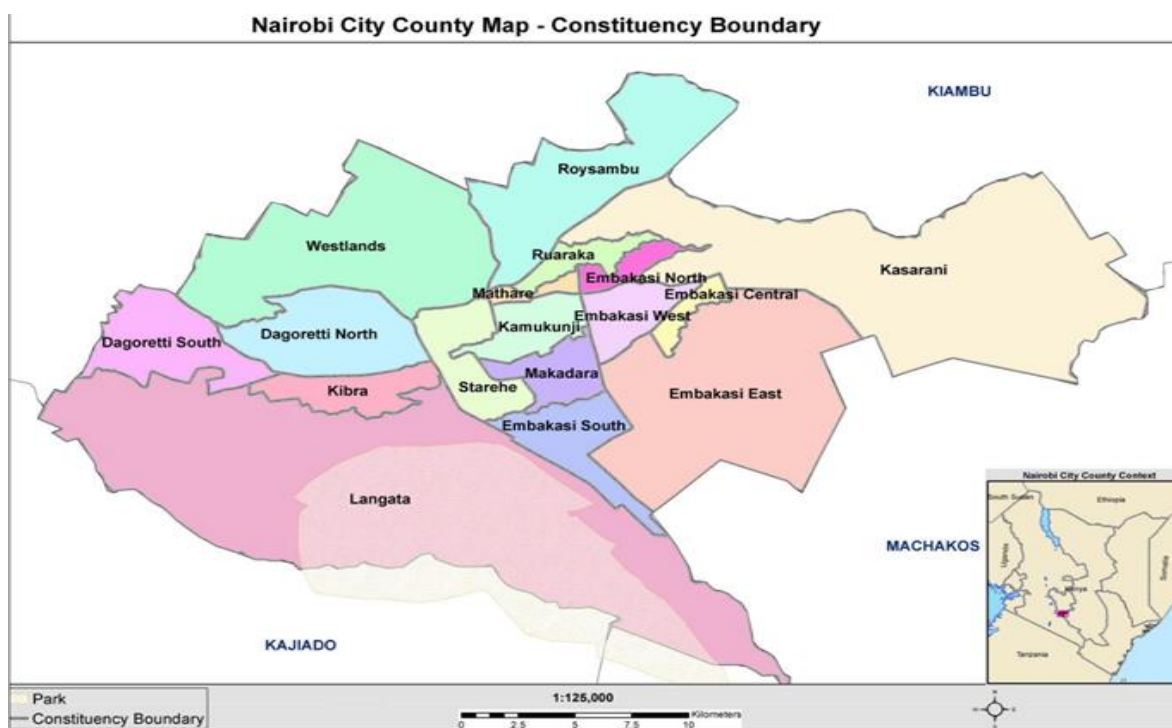
Figure 1. The geographical location of the Nairobi City County.
Source: The Nairobi City County Health Sector Strategic and Investment Plan 2013/2014 - 2018/2019 (Revised 2017)

Table 1. Age and gender distribution of the Nairobi City County population, 2019.

Age group in years	Males	Female	Total
Pre-school children			
0-4	243.935	244.914	488.849
5-9	233.956	234.894	468.850
School age children and young people			
10-14	182.235	182.967	365.202
15-19	182.235	182966	365.201
Adults			
20-24	291.058	292.226	583.284
25-29	281.078	282.205	563.283
30-34	214.884	215.746	430.630
35-39	204.907	205.729	410.636
40-44	109.803	110.243	220.046
45-49	101.796	102.205	204.001
50-54	50.059	50.261	100.320
55-59	45.024	45.206	90.230
60-64	19.042	19.119	38.161
Elderly people			
65-69	16.070	16.136	32.206
70-74	6268	6.395	12.763
75-79	5503	5.525	11.028
80+	3.966	3.982	7.948
Total	2.192.452	2.204.376	4.396.928

Source: Kenya National Bureau of Statistics (KNBS, 2019); The KPHC (2019).

Table 2. Ethnicity and religion distribution in Nairobi City County, 2019.

Population group	Number
Catholics	1.041.619
Protestants	1.358.985
Evangelicals	897.741
Other Christian groups	555.182
Islam	326.809
Hindu	38.141
Traditional African religions	7.029
Other religions	46.401
No religion	54.841
Total	4.397.073
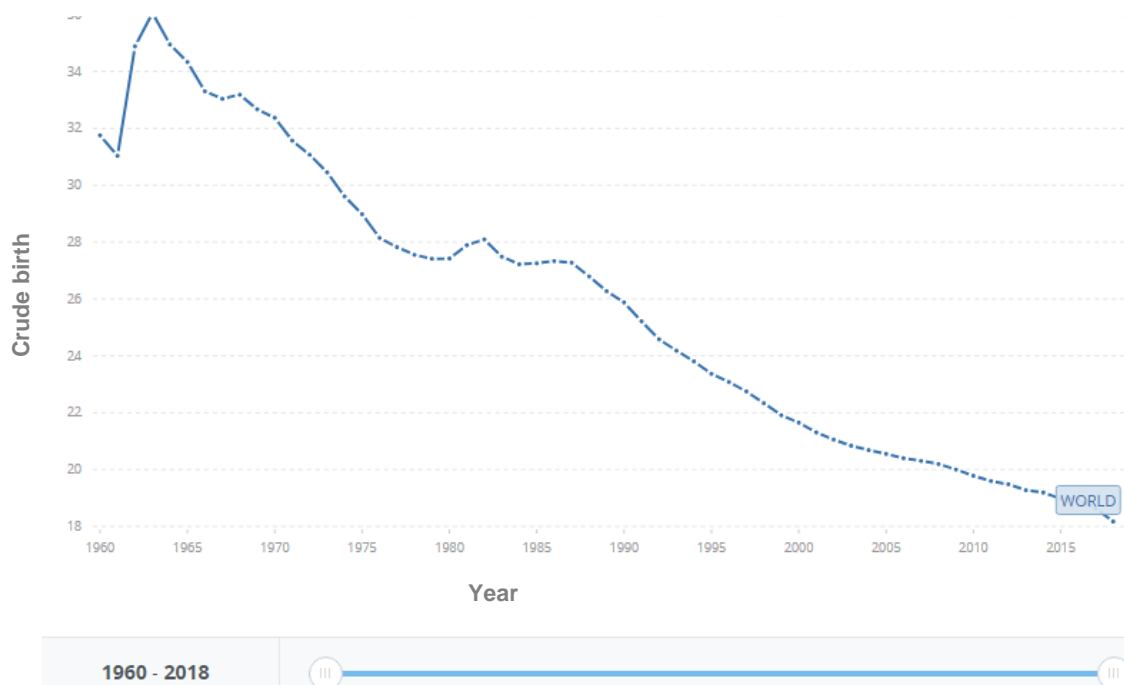
Figure 2. Crude birth from 1960 to 2018.
Source: https://www.indexmundi.com/facts/kenya/indicator/SP.DYN.CDRT.IN.

developing effective health policies, and optimally allocating resources. This assessment includes behavioral indicators, morbidity, and mortality rates, depicting the multidimensional picture of the wellbeing of the Nairobi City County population (World Health Organization, 2010). The evaluation of health status draws from different sources of data, including death registries, birth registries, death certificates, hospital admissions, and records of outpatient attendances, patterns of health service utilization, screening, and vaccinations.

The mortality trends, depicted through the death rate and crude birth rates, underscore the elaborate interplay of health outcomes and demographic variables. Figure 1 depicts the crude birth rate, which exhibits a trend of fluctuations in the period given, showing population growth and reproductive behavior changes in the same period. Correspondingly, it is revealed by the crude birth rate, which highlights the general health conditions, that there have been variations over the years (IndexMundi, n.d). Figure 2 shows the crude birth from 1960 to 2018.

Morbidity trend and predisposing factors

The disease prevalence and predisposing factors further shape the morbidity and highlight the Nairobi City County

Table 3. Major risk factors of morbidity and mortality in the county.

| Disease/variable	Factors
Diseases of the respiratory system	Congested and poorly ventilated households
Pneumonia	Congested and poorly ventilated households
Prematurity	Pre-eclampsia, smoking and alcohol use in pregnancy
Tuberculosis	Congested and poorly ventilated households
Other Accidents	Drug and substance abuse;
Cardiovascular diseases	Unhealthy lifestyle
Asphyxia	Prolonged labour
Sepsis	Prematurity, early labour, low birth weight, poor delivery practices
Cancers	Unhealthy lifestyle, genetics
Traffic accidents	Non-adherence to traffic rules, careless driving or road use
Malaria	Travel to malarial zone without chemoprophylaxis
Diarrheal diseases	Poor environmental sanitation
HIV/AIDS	Unsafe sexual practices
Meningitis	Poor environmental sanitation
Dental disorders	Poor oral hygiene
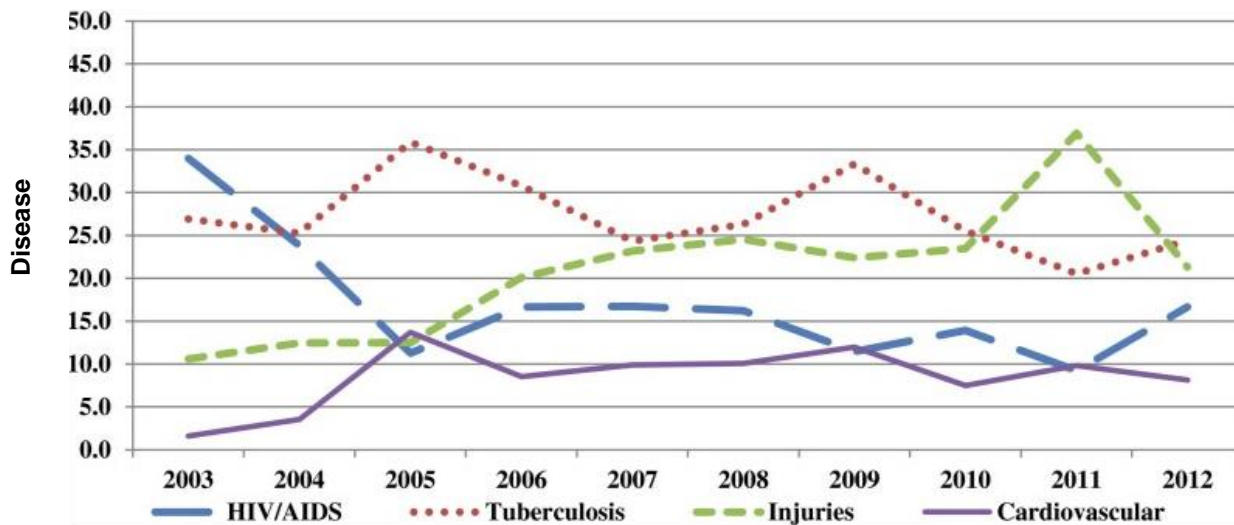
Figure 3. Major disease causes morbidity among the Nairobi population.
Source: Mberu et al. (2015).

health landscape. In essence, the leading causes of disease among the under-five population include skin ailments, diarrheal diseases, and respiratory diseases, with the latter accounting for more than 60% of all outpatient visits. A similar trend also prevails among other populations older than five years, although UTI infections are appearing in the limelight (Nairobi City County Strategic Health Analysis, 2019).

Risk factors such as morbidity and mortality in the county are intertwined inherently with behavioral, environmental, and socioeconomic determinants. The salient predisposing factors that are attributable to respiratory system diseases, cardiovascular diseases,

and TB are exemplified in Table 3. Figure 3 shows the major disease causes morbidity among the Nairobi population.

Risk factors that emerge as the main contributors to disease burden include congested households, poor ventilation, an unhealthy lifestyle, and pre-eclampsia and eclampsia among expectant mothers (Mberu et al., 2015; WHO, 2008).

Health risks and behavioral factors
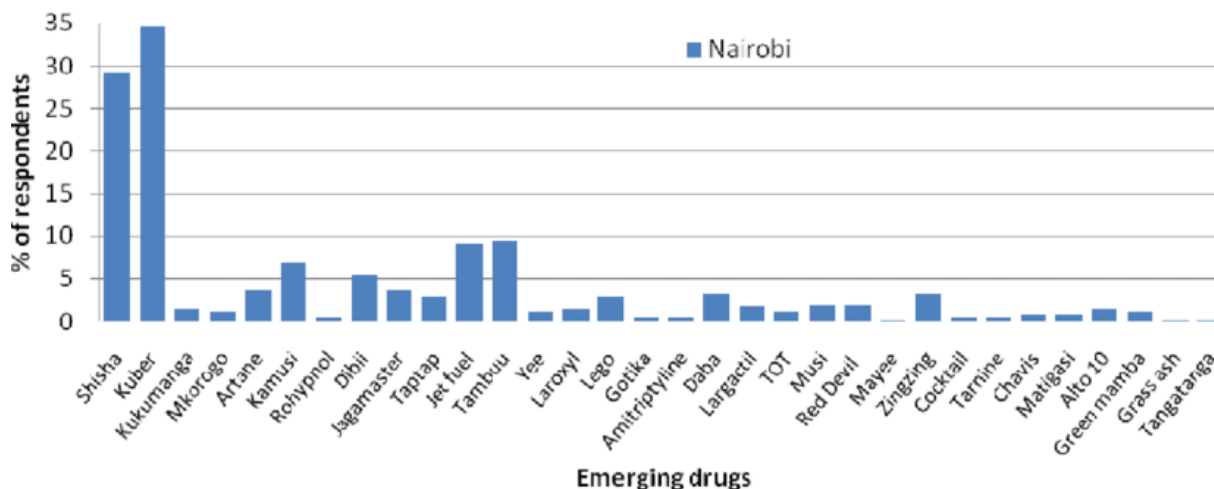
Behavioral factors, including hygiene practices, substance

Figure 4. Trends and emerging drugs in Kenya: A case study in Mombasa and Nairobi City County.
Source: Kahuthia-Gathu et al. (2013).

Table 4. Specific strategies for the intervention.

Priority risk factor/disease	Main cause factors	Rank
Respiratory disease and pneumonia	Congestion and poor ventilation	1
Tuberculosis	Congestion and poor ventilation and poor hygiene	1
Pre-mature birth	Smoking, alcohol and drug use in pregnancy	2
Accident and violence	Drugs and substance abuse	3

abuse, and lifestyle choices, exert a significant impact on general health needs among the population. The unique urban context of Nairobi City County results in distinctive behavioral factors such as drug abuse and alcohol consumption, which are the most prominent predisposing factors. An alarming trend in disorders attributed to alcohol consumption was observed in the productive age group, which calls for targeted health interventions (NACADA, 2020).

Figure 4 provides insights into the changing pattern of drug abuse, highlighting a burgeoning challenge for the healthcare system. Drug abuse among the population complicates decision-making in healthcare, rendering populations susceptible to accidents and diseases (Kahuthia-Gathu et al., 2013).

Socio-economic and environmental determinants

Health challenges in Nairobi City County are linked intrinsically to the urban landscape, characterized by socioeconomic disparities, sanitation issues, overcrowding, pollution, and inadequate infrastructure.

The nexus existing between health risks and these factors is well documented (Zulu et al., 2011). Moreover, local factors like poverty, poor sanitation, alcohol intake,

environmental pollution, lack of exercise, unprotected sex, and multiple sexual partners exacerbate the health inequalities further (Eboreime-Oikeh and Omua, 2014).

Priority health risks

Priority health determinants were discerned, informed by the level of impact, the environment, and socioeconomic implications. Respiratory disease, violence, pneumonia, accidents, preterm birth, and tuberculosis emerged as significant risk factors that require immediate intervention. These priorities, in addition to scarce resources, are amenable to combined interventions based on shared determinants. In this regard, specific strategies for the intervention are devised to effectively combat the main priorities (Table 4).

Planning action

The planning phase tends to be vital in translating the priorities identified into effective and tangible health interventions. Using the SMART objective framework, the formulation of the targeted objectives is feasible. For example, the objective of minimizing transmission of

communicable diseases from 75 to 80% by the end of 2022 is in line with the strategies for enhancing quality and accessible health services, fostering child health, maternal health, and environmental health through infrastructure development, capacity building, and regulatory enhancements (World Health Organization, 2008).

DISCUSSION

The Health Needs Assessment of Nairobi City County highlights the intricate tapestry of health status in this urban area. Results underscore the interplay of behavioral determinants, risk factors, health status indicators, and demographic patterns. By synthesizing morbidity and mortality data and using behavioral insights, the Health Needs Assessment provided a robust basis for initiating informed health decisions and policy formulation, as well as resource allocation.

Morbidity patterns and health status

Assessment of health status through morbidity and mortality patterns provides a nuanced comprehension of the wellbeing of the population of Nairobi City County. Diarrheal diseases, pneumonia, and respiratory diseases were prominent among under-fives, which imply that young children are more vulnerable to preventable diseases, with a large proportion of outpatient visits being attributable to respiratory conditions. In addition, the occurrence of risk factors like poor hygiene and congested households warrants immediate intervention. Morbidity patterns include a number of health challenges, encompassing accidents and cardiovascular diseases, which necessitate multifaceted interventions.

Health risks and behavioral factors

Behavioral factors were found to be the pivotal contributors to the health status in the urban landscape. The prevalence of drug abuse and alcohol-related disorders underscores the importance of targeted interventions to combat substance use and the health risks associated with it. The assessment further highlighted the challenges associated with poor sanitation, overcrowding, and environmental pollution, intertwining with socioeconomic disparities to aggravate the health inequalities. These environmental and behavioral determinants warrant effective strategies that integrate community engagement, education, and healthcare.

Action planning and priority health risks

Health risk prioritization presents a strategic framework for interventions that are focused. Violence, respiratory diseases, accidents, tuberculosis, and preterm birth emerge as significant risk factors that need immediate attention by the county government. By aligning strategies and resources to address these main priority areas, a synergistic approach will be harnessed to ensure optimum impact. SMART objectives should be adopted, guided by best practices internationally; they will set a clear roadmap for attaining measureable improvement in the population with specific timeframes.

Conclusion

The health needs assessment accentuates the health dynamics' complexity in Nairobi City County. The findings emphasize the importance of having multipronged interventions that encompass socioeconomic empowerment, health services, environmental improvements, and behavior change. The rich tapestry of challenges in health mandates collaborative efforts in various sectors, encompassing Nairobi residents, healthcare professionals, community leaders, and policymakers.

Recommendations

Recommendations from the findings of the study have been put forth to help address the health needs identified:

(1) Access enhancement and preventive services prioritize preventive services in Nairobi City County to manage the various communicable diseases, increase immunization coverage, and provide equitable access to healthcare, especially among vulnerable groups.
(2) Environmental and housing improvement implement projects on housing improvement to decongest residential estates in slum areas and promote environmental health initiatives through campaigns to line up clean air and clean-ups in estates.
(3) Antimicrobial stewardship: There is a need for rational antimicrobial use to be promoted among tuberculosis patients to prevent drug resistance.
(4) Social protection and community engagement: There is a need to involve community members in implementing health interventions to achieve high impact and advocate for measures enhancing social protection among vulnerable groups.
(5) Enhancement of health information systems: Disease surveillance should be strengthened and integrated with the health information system to enable effective reporting of diseases and enable evidence-based decision-making.
(6) Food safety and hygiene promotion: Hygiene and sanitation activities should be scaled up, as should the promotion of water and food safety, to minimize the preventable disease burden.

(7) Rehabilitation for substance abuse: Comprehensive strategies should be implemented for rehabilitation, integration, and counseling drug users, with an emphasis on both psychological and medical aspects.

(8) Economic empowerment: Training programs should be created for micro-enterprises and small businesses to address unemployment among the youth and facilitate the development of loan facilities and soft credit.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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