



KINSHASA SCHOOL OF PUBLIC HEALTH
MASTER PROGRAM
IN NUTRITION EPIDEMIOLOGY



BOOK OF ABSTRACTS

Scientific evidence of five
cohorts student's theses





The power of statistics and the clean lines of quantitative research appealed to me,
but I fell in love with the richness and depth of qualitative research.”
- Brené Brown

NORTH-SOUTH-SOUTH PARTNERSHIP



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ABOUT

CONTEXT OF THE PROGRAM

Malnutrition remains a major public concern and a leading cause of ill health globally. In 2023, the UNICEF-WHO-World Bank Group joint committee estimated that stunting prevalence has been declining since the year 2000, more than one in five – 148.1 million children under 5 –were stunted in 2022, and at least 45.0 million suffered from wasting at any given point of time in the world. Undernutrition places children at higher risk of dying from common infections, and increases the frequency and severity of such infections, as well as recovery time. Nearly half of all deaths in children under five are attributable to undernutrition. Addressing malnutrition is then crucial for achieving Sustainable Development Goal (SDG) 2, which aims for zero hunger and is thus a top priority in many low-income countries.

Nutritional epidemiology is a relatively new field of public health and concerns the patterns, causes and solutions to nutrition problems. It focuses on the relationship between diet and disease. Nutrition interventions are highly context-specific, making it a field of study that necessitates local research expertise to evaluate affordable, acceptable, evidence-based interventions to inform policy. In this respect, skills development in nutritional epidemiology is very important because it increases capacities to address the burden of nutrition problems, including food insecurity, malnutrition, and micronutrient deficiencies across the lifespan. Building such research capacity in low- and Middle-income countries (LMIC) to develop evidence-based health policies should be a high priority. Such program has been implemented in DRC through The ‘Growing Partnership for Higher Education and Research in Nutritional Epidemiology in DRC’ (GROWNUT) project.

GROWNUT project is a partnership between the Centre for International Health (CIH) of the University of Bergen (Norway), the Centre for Rural Health (CRH) of the University of KwaZulu-Natal (South Africa), the School of Public Health (KSPH) of the University of Kinshasa (DRC) and the Muhimbili university (Tanzania). GROWNUT was established first in 2014, in partnership with the DRC National Nutrition Program (PRONANUT) at the DRC Ministry of Health, to establish a master’s program in nutritional epidemiology at KSPH. The vision of the partnership was to develop a cadre of skilled researchers in DRC with competencies to undertake quality nutrition research to inform evidence-based policies and practices. The partnership is funded by the Norwegian Agency for Development Cooperation through the Norwegian Program for Capacity Development in Higher Education and Research for Development (NORHED).

In the Democratic Republic of Congo (DRC), Malnutrition is endemic. The prevalence of chronic and acute malnutrition was estimated at 42% and 7%, respectively (MICS 2018). Recognizing the severity of this issue, the DRC joined a number of global initiatives, including the “Scaling Up Nutrition (SUN) Movement” which was established in 2010.

The SUN Movement emphasized the need for evidence-based decision-making in nutrition. In alignment with this principle, in 2012, the Kinshasa School of Public Health

(KSPH) at Kinshasa University (UNIKIN), Kwazulu Natal University (UKZN), National Program of Nutrition (PRONANUT) and CDI (Centre de Développement Intégré) Bwamanda representatives, in collaboration with Bergen University (CIH), applied to and obtained funding from the Norwegian Agency for Development. This marked the establishment of consortium GROWNUT.

The contribution of PRONANUT as a normative body in the program was crucial to translate research findings into policy and action. The initial research demonstration site, CDI Bwamanda was shifted to Popokabaka because of accessibility reasons. The integration of this research demonstration site in the project was crucial, as effective nutrition policy requires to be applied at operational level in the form of routine services.

The program was officially launched on November 15, 2014, for five years, with a clear commitment to inclusivity (nobody should be discriminated against, be it an agronomist, a veterinarian, an anthropologist, a medical doctor). Notably, the program actively encouraged women to apply, even accommodating pregnant applications within the first cohort.

In contrast to other programs at KSPH, GROWNUT adopted English as the medium of instruction. Most students of the five cohorts stated that studying in English created opportunities to access relevant literature, improve interactions with the scientific community and advance their careers. Furthermore, this allowed for the CIH and UKZN partners to participate in teaching the first two cohorts and to co-supervising students – the main supervisor being from KSPH.

Moreover, the program enhanced visibility by enabling select students to present their research findings at international conferences in English. In 2018, nine of the GROWNUT graduates attended the African Nutritional Epidemiology Conference in Addis Ababa, contributing five oral presentations and five posters. Additionally, a mini conference was held in Popokabaka in February 2019 to disseminate research findings to local stakeholders. It was attended by 70 participants, including key international agencies working in the region.

VISION OF THE PROGRAM

The Malnutrition is rare in DRC through an improved, sustainable, advanced education and research capacity at Master and PhD level in the field of nutritional epidemiology.

MISSION STATEMENT

The mission of the program is to equip future nutrition epidemiologist professionals with the capacity to participate in nutrition-related diseases prevention and health promotion programs and shape food and nutrition policies that improve the health of individuals, households, and communities.

CAPACITES ACQUIRED

Capacities are important in the following three areas, and accordingly the teachings and research in this project will mainly concern:

- Assessment and Surveillance of nutritional status of the population. This involves gaining a better understanding of the distribution of various forms of malnutrition within different segments of the population.
- Causes of malnutrition and nutritional contributors to illnesses. It encompasses acquiring a better knowledge of complex interactions between food production, diet, malnutrition and illness. This understanding should be derived through rigorous research conducted within specific
- Experimental nutritional epidemiology. This involves understanding how to conduct intervention research and assessing the impact of promoting healthy individual dietary patterns and community-based interventions on health outcomes.

TEACHING OBJECTIVES

Teaching objectives of the program are:

- To build detailed knowledge regarding the biological basis of nutrition and the mechanisms by which diet can influence health.
- To develop quantitative and qualitative skills required for the evaluation of diet and disease relationships in epidemiologic studies.
- To attain skills in developing research proposals for the study of diet and disease.
- To equip with skills in translating research findings into nutrition policy
- To develop skills in the oral and written communication of scientific information.

GROWNUT MASTER STUDENT COHORTS

Cohort 1- 2014 Cohort : The first cohort, composed of 10 students (5 males and 5 females) started in November 2014). They completed the MPH program in January 2017.

These students spent four months in Popokabaka for internship and data collection. This hands-on practice strengthened their theoretical knowledge and provide them the opportunity to learn and acquire practical skills in nutrition and research. The students’s feedback on the program was very informative. They recommended including more dialogues on nutrition topics in the Scientific English class, addressing more DRC-specific nutrition problems in the Nutrition Problem class, organizing field visits and laboratory practice (biochemical analysis) for the “Nutrition Assessment” course, and adding modules on monitoring and evaluation as well as project writing to the Management class.

Cohort 2- 2015 Cohort : The second cohort was enrolled in December 2015 and comprised of 12 students (5 females, 7 males). They began their internship in Kinshasa at an urban health center, where they familiarized themselves with acute malnutrition case management for two weeks. Afterward, they were deployed to Popokabaka, the research site, following a week of practice in growth monitoring.

Cohort 3- 2016 Cohort : The third cohort was enrolled in December 2016 and included 12 students (4 females, 8 males). Unfortunately, the 13th student, a man, had to abandon due to financial constraints.

Eleven participants, including some from the first cohort, attended the 8th African Nutrition Epidemiology Conference in Addis Ababa, Ethiopia, on 1-5 October 2018.

Cohort 4- 2017 Cohort : The fourth cohort began in December 2017. This was the first cohort without full financial support from GROWNUT.

A Conference with 70 participants was held in Popokabaka in February 2019. A proposal-writing workshop was arranged for the 4th cohort in Durban, South Africa, in March 2019. In June 2019, the annual meeting held in Kinshasa was followed by a field visit to Popokabaka. In December, a five-day article writing workshop was organized in Kinshasa.

Cohort 5-2018 cohort:

The fifth cohort, given the Covid 19 pandemic, benefited from the e-learning and a virtual library system introduced at KSPH in 2020. This included the installation of materials and equipment such as web-cam video, mounted retro projector, projector screen, USB ports, internet 6 mega, E-learning package and training of staff.

THE FISRT GROWNUT MASTER STUDENT COHORT



The first GROWNUT Cohort Stutents with Supervisors during Training for Konzo assessment and management in Imbela village, Popokabaka DRC

From left to right

- Professeur Thorkild tyllskar Grownut principal Investigator
- Jules Mpula, Grownut gaduate
- Izzia Mukkar, Grownut graduate
- Eunice Kenge, Grownut graduate
- Bokundabi Banea, Grownut graduate
- Moza Diakiese, Grownut graduate
- Johnny Mpoyi, Grownut graduate
- Monique Mishika, Grownut graduate
- Etienne Longe, Grownut graduate
- Professor Ingunn Engebresten, Grownut Supervisor and teacher
- Branly Mbunga, Grownut graduate
- Professor Mapatano Mala Ali, Grownut I DRC Coordinator

THE SECOND GROWNUT MASTER STUDENT COHORT



The Second Cohort GROWNUT Students with Supervisors After Climate change class at School of Public Health of the University of Kinshasa, Kinshasa

From left to right

- Professeur Thorkild tyllleskar Grownut principal Investigator
- Alex baloji, Grownut graduate
- Lydia Bahati, Grownut graduate
- Marie Jose konshi, Grownut graduate
- John Kabongo, Grownut graduate
- Professor Heinz Beckedahl, Teacher of Climate change from UKZN
- Ngoy bulaya, Grownut graduate
- Professor Pierre Akilimali, Grownut Supervisor and Teacher
- Chretienne Mandombi, Grownut graduate
- Danny Badila, Grownut graduate
- Peter Anderson, Teacher of Climate change Module from CIH/UiB
- Pierrot, Grownut graduate
- Zarine Lutonamo, Grownut graduate
- Sunday Francoise Iyongi, Grownut graduate
- Marc Bosonkie, Grownut graduate
- Mapatano Mala Ali, Grownut I DRC Coordinator

THIRD GROWNUT MASTER STUDENT COHORT



The third Cohort Grownut Students with Supervisor at GROWNUT student home during internship in Popokabaka , Kwango, DRC

From left to right

- Jehu Moleko, Grownut graduate
- Joel Ndembe, DRC GROWNUT Accountant
- Bernadette Bonane, Grownut graduate
- Joseph luboya, Grownut graduate
- Kisulu Basile, Grownut graduate
- Marceline Matshingi, Grownut graduate
- Professeur Pierre Akilimali, Grownut supervisor and Teacher
- Richard Mupapa, Grownut graduate
- Kukia Rachel, Grownut graduate
- Narcisse Mantete, Grownut graduate
- Kazenza Benito, Grownut graduate
- Maximillien Yuma, Grownut graduate

FOURTH GROWNUT MASTER STUDENT COHORT



The fourth Cohort Grownut Students with Supervisor at GROWNUT student home during internship in Popokabaka, Kwango, DRC

From left to right

- Elvis Kateba, Grownut graduate
- Francis Iyese, Grownut graduate
- Guylain Nkosi, Grownut graduate
- Louissette Kilemba, Grownut graduate
- Patrick Mukengeshayi, Grownut graduate
- Barth Ilunga, Grownut graduate
- Clement Mukendi, Grownut graduate

FIFTH GROWNUT MASTER STUDENT COHORT



The Fifth Cohort Grownut Students with Supervisor After Scientific written and oral communication course at School of Public Health of the University of Kinshasa, Kinshasa DRC

From left to right

- Guelor Bipele, Grownut graduate
- Nickson Poka, Grownut graduate
- Cris Kyamusoke, Grownut graduate
- Bel-Ange Birhaheka, Grownut graduate
- Professeur Pierre Akilimali, Grownut Supervisor and Teacher
- Timothee Dimandja, Grownut graduate
- Christelle Apick, Grownut graduate
- Rose Kaj, Grownut graduate
- Yannick Bingi, Grownut graduate
- Christian Kumbu, Grownut graduate
- Francis Kabasubabo, Grownut graduate

GROWNUT CROSS COHORT EVENTS



PHD students and GROWNUT Professors attending the World Public Health Nutrition Congress in 2016 in Cape town, South Africa



Proposals Writing Workshop in 2019 at the Centre for Rural Health CRH, in Durban, KwaZulu Natal, South Africa. The GROWNUT third Cohort Master students and supervisors travelled from Kinshasa to Durban for two weeks workshop, students were exposed to English and performed well

GROWNUT CROSS COHORT EVENTS



Students from the first, second and third cohort attending the 8th African nutrition and epidemiology conference ANEC in Addis Ababa, Ethiopia. Students made their presentation as oral communications and posters in English



Feedback conference in Popokabaka, in 2019 with the participation of other Organisation like JICA, ENABEL, WFP, PRONANUT and PROYAKA.

GROWNUT CROSS COHORT EVENTS



GROWNUT Steering Meeting in Bergen 2018



GROWNUT Annual Meeting in 2023 in Kinshasa with the participation of the ambassador of Norway in DRC

ABSTRACTS OF STUDENTS MASTER THESIS 2016-2022

THEME I. DIETARY AND FOOD PRACTICES

THEME II. ACUTE AND CHRONIC MALNUTRITION

THEME III. ANEMIA

THEME IV. KONZO

THEME V. FOOD SECURITY

THEME VI. NUTRITION RELATED NON-COMMUNI-
CANLE DISEASES

Theme I.

DIETARY AND FOOD PRACTICES



Dietary Knowledge, Practices and Beliefs of Pregnant Woman in Popokabaka Health Zone, Kwango Province, DRC: A Qualitative Case Study

By Benito Kazenza Maykondo, Grownut Cohort III, 2018

Under supervision of Professors
Paulin Mutombo (KSPH) and Christiane Horwood (UKZN)

Background

A nutritious and healthy diet during pregnancy is essential for the health of both mother and baby. Inadequate dietary intake during pregnancy contributes to maternal malnutrition and can have lifelong effects on the health of the child. Maternal malnutrition is common in many low-income countries, including the Democratic Republic of Congo (DRC). Kwango province, DRC, has a high prevalence of malnutrition among all population groups, including macro and micronutrient deficiencies among pregnant women. The study aimed to explore the dietary knowledge and practices of a pregnant woman in this area.

Methods

This study adopted a qualitative case study approach using in-depth interviews (IDIs) with pregnant women and key informants and focus group discussions (FGDs) with fathers and grandmothers in the community, to explore women's knowledge and practice about diet during pregnancy. Data were collected between January and April 2018. IDIs were conducted with pregnant women who were recruited at antenatal clinics during their second and third trimesters. IDIs were undertaken with selected key informants, who were health workers providing care to pregnant women, and included doctors, nurses, nutritionists, and community health workers. All IDIs and FGDs were audio-recorded, transcribed verbatim, and translated to English. The triangulation method and thematic analyses were used.

Findings

Overall, women showed good general knowledge about nutrition and the need for increased and varied foods during pregnancy, but little technical knowledge about nutrients and sources of nutrition. Healthcare facilities, media, NGOs, and family members were the main sources of nutritional information. However, women were unable to put this knowledge into practice, primarily due to poverty and poor access to a variety of foods. The Popokabaka community accessed food from farming, fishing, and the market, although purchasing food was frequently unaffordable. Cassava flour was the most common daily food. Food taboos, traditional practices, and late ANC attendance were identified as factors that influenced dietary practices.

Conclusion

Various social, economic, and environmental factors within the local community influenced dietary practices among pregnant women in rural DRC. A comprehensive approach is required to improve nutrition, and address food insecurity, cultural practices and improve the health outcomes of both mother and child.



Factors Associated with Adequate Dietary Habits of Pregnant Women in the Kikimi Health Zone, Kinshasa Province, DRC: A Cross Sectional Study

By Chris Kyamusoke Kakule, Grownut Cohort V, 2022

Under supervision of Professor
Akilimali Zalagile Pierre (KSPH)

Background

A nutritious and healthy diet during pregnancy is essential for the health of both mother and baby. Inadequate dietary intake during pregnancy contributes to maternal malnutrition and can have lifelong effects on the health of the child. Maternal malnutrition is common in many low-income countries, including the Democratic Republic of Congo (DRC). Kwango province, DRC, has a high prevalence of malnutrition among all population groups, including macro and micronutrient deficiencies among pregnant women. The study aimed to explore the dietary knowledge and practices of a pregnant woman in this area.

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Conclusion

Various social, economic, and environmental factors within the local community influenced dietary practices among pregnant women in rural DRC. A comprehensive approach is required to improve nutrition, and address food insecurity, cultural practices and improve the health outcomes of both mother and child.



**Dietary Practices of Pregnant Women living Kingabwa's Health Zone, Kinshasa, DR Congo:
A Cross-Sectional Study**

By Moza Diakiese, Grownut Cohort I, 2016

Under supervision of Professors
Paulin Mutombo (KSPH)

Background

A healthy and balanced diet during pregnancy is among the factors enabling successful pregnancy and healthy offspring. Little is known about nutrition practices among pregnant women from the DRC. The present study aimed to assess the dietary practices of pregnant women in the Kingabwa health zone.

Methods

A hospital-based cross-sectional study was conducted in the the Kingabwa health zone, Kinshasa, DRC. A total of two hundred and eighty-five pregnant women attending antenatal consultations (ANC) services in three different health facilities were selected through a two-stage probability sampling. A semi-structured questionnaire was used by trained interviewers to collect data. bivariate and multivariate regression analysis were performed at a 5% significance level. The dependent variable was created on a basis of score of dietary practice modalities.

Findings

Women with good food practices score were estimated 73.0%. factors associated with good dietary practices were the number of pregnancies, the knowledge of protective and construction foods are) and level of education.

Conclusion

Although good practices are quite common in this urban-rural health zone. they are still sub optimal of coverage. Nutrition education for pregnant women needs to be reinforced in ANCs at hospital level, as well as at churches, schools, even at community involvement.



Relationship between women's education level and infant feeding practices in Popokabaka, DRC: A Cross Sectional Study

By Mupata Kyabu Richard, Grownut Cohort III, 2018

Under supervision of Professor
Therese Mambu (KSPH) and and Christiane Horwood (UKZN)

Background

The World organisation (WHO) recommends optimal infant-feeding practices to prevent malnutrition in under five children. The present study aimed at assessing the relationship between women's education level and infant-feeding practices.

Methods

A cross-sectional study was conducted in Popokabaka Health zone. We used multistage sampling and 408 women, who had children less than 24 months for age, were interviewed in five Health Areas. We measured infant and young child feeding (IYCF) practices using the UNICEF framework and questioned factors that limited barriers to women's education. Descriptive statistical techniques were used with 5% significance.

Findings

Mothers who reported breastfeeding initiation in hour After birth was 42%; children currently exclusively breastfed in six first months of life was 6% and those who continued to be breastfed at the time of the interview were 93%. Around 57% of children aged from six to 23 months received the minimum acceptable diet the day before our visit. The level of women's education was not significance with IYCF ($p>0,05$). The main perceived barriers to women's education were pregnancy: 32,6%; lack of money: 31,4%; death of parents: 11,8% and marriage: 9,6%

Conclusion

Based on data collected, the level of women's education was not associated with infant feeding practices in Popokabaka. Perceived barriers to women's education were pregnancy, lack of money and death of parents. Keywords: Infant, feeding practices, women's education, barriers to women's education.



Knowledge and Feeding Practices during Pregnancy Among Mothers who delivered a Low-Birth-Weight Infant in the Popokabaka Health Zone in 2019: A Qualitative Case Study

By Guylain Nkosi wa Nkosi, Grownut Cohort IV, 2019

Under supervision of Professors
Paulin Mutombo (KSPH) and Christiane Horwood (UKZN)

Background

Mothers' nutrition is crucial for good pregnancy outcomes and in improving children's nutritional status. Low birth weight is one of the major public health problems in low- and middle-income countries particularly in DRC. The present study aimed to examine the knowledge of nutrition and feeding practices during pregnancy among mothers who delivered low birth weight infant in rural Health Zone of Popokabaka.

Methods

A qualitative case study was conducted among mothers of low-birth-weight infant in hospital or Health centre and keys informant in Popokabaka Health zone. Sixteen in-depth interviews were conducted. Thematic analyses were performed.

Findings

Mothers who delivered LBW infant in Popokabaka HZ were limited knowledge and practices about diet during pregnancy. The majority consume one or two meal per day (sometimes also spent a whole day on an empty stomach). The usual meals consisted of cassava flour with an added vegetable and rarely with a food containing animal protein. However, some mothers reported that they are reducing their food intake during pregnancy at a risk of prevent to giving birth with a large child and avoiding a caesarean. Prenatal consultation, community sensitization and environmental influence were the main source of food knowledge. Community awareness of diet, education level of mothers and environmental influence, food taboo, lack of means and lack of products in the market may play a role to prevent those mothers from having good knowledge and dietary practices in Popokabaka HZ.

Conclusion

Based on the findings of the present study, we can be concluded that mothers who delivered LBW infant had low-level of nutritional knowledge and feeding practices in the study area, this is due to the environmental and cultural factors that play a determining role. Hence, nutrition intervention such as nutrition education in different villages, health centres and women organizations should be given for the community particularly for the pregnant mothers concerning nutrition during pregnancy to increase the nutritional



Factors Associated with the Low Prevalence of the Minimum Acceptable Diet (MAD) among Children Aged 6 to 23 Months in The N'sele Health Zone, 2022

By Bel-Ange Birhaheka Biringanine, Grownut Cohort V, 2022

Under Supervision of Professor
Marie-Claire Muyer Telo (KSPH)

Background

The period from 6 to 23 months is a crucial period in the first 1000 days of a child's life, during which breast milk alone is no longer sufficient to cover all nutritional needs. It is therefore imperative to provide a minimum acceptable diet (MAD) to prevent malnutrition in all its forms. This study aimed therefore to determine the prevalence of children aged between 6 and 23 months in the N'Sele health zone who were on MAD, and to identify associated factors.

Methods

A cross-sectional study was carried out in 260 households containing at least one child aged 6 to 23 months. For the RAMA indicators, the data collection tools were adapted from the standardized World Health Organization questionnaire developed in 2010. Multivariate logistic regression was used to measure association, and statistical significance was declared at a p-value < 0.05.

Findings

the prevalence of MAD was 10.4% (CI95%: 7.20-14.75). The factors associated with MAD were age range 12-23 months [AOR (CI95%) = 0.36 (0.13-0.88)], no symptoms [AOR (CI95%) = 4.96 (1.81-13.59)], good knowledge of mothers/caregivers about infant and young child feeding practices [AOR (CI95%) = 2.65 (1.05-6.66)] and food-secure households [AOR (CI95%) = 2.64 (1.04 - 6.66)], were significantly associated with RAMA.

Conclusion

To optimize the proportion of MAD among children aged 6 to 23 months, it is therefore imperative to implement a multi-sectoral intervention promoting the benefits of continuous breastfeeding up to 24 months and beyond, 4-star feeding, minimum meal frequency, home gardening and regular follow-up of preschool consultations.



**Barriers and Facilitators to Infant and Young Children Feeding (IYCF) Practices in Popokabaka, DRC:
A Qualitative Case Study**

By Branly Mbunga Kilola, Grownut Cohort I, 2016

Under supervision of Professors
Paulin Mutombo (KSPH) and Fredercik Veldman (UKZN)

Background

Infant and young child feeding (IYCF) is a key area in the improvement of child nutrition and survival and the promotion of healthy growth and development. In the Democratic Republic of Congo (DRC), IYCF remains a concern, as IYCF practices are not up to standard despite all current interventions. This study aimed to assess the knowledge and practices of IYCF recommendations and explore potential barriers and facilitators to adequate IYCF delivery in the Popokabaka health zone (HZ).

Methods

A qualitative case study was conducted using 7 focus group discussions (FGDs) and 10 in-depth interviews (IDIs) in two rural settings, namely, Imbaluma Village and Popo City. Different participants were purposively selected: mothers, grandmothers, fathers, and nurses for FGD and key community leaders for IDI. Knowledge and practice statements were assessed and presented using the WHO recommendations as a reference. We used inductive thematic analysis to report qualitative themes related to barriers and facilitators.

Findings

Participant narratives revealed a poor awareness of principles of complementary feeding but better knowledge of breastfeeding recommendations. The main barriers to IYCF included family influence, lack of knowledge, customary beliefs and misconceptions, perception of insufficient breast milk, mother's farming work, poverty or food insecurity, and unplanned pregnancies. Themes that promoted good practices included access to healthcare facilities, awareness and strong authority of the husband, and their own previous experience.

Conclusion

The results from this study provide directions towards the future development of a framework for IYCF practices in Popokabaka.



Barriers and Enabling Factors to Optimal Complementary Feeding Practices of Children Under Two Years Old in Popokabaka A Qualitative Case Study

By Patrick Twende Mukengeshay, Grownut Cohort IV, 2019

Under supervision of Professors
Mapatano Mala Ali (KSPH) and Anne Hatloy (UiB)

Background

According to the World Health Organization, from the age of 6 months, breastfeeding must be supplemented with appropriate foods to allow normal growth. Estimates of complementary feeding indicate rather low rates for children aged 6 months to 2 years. This put children in risk of developing malnutrition and even death. To cope with this disaster, the first 1,000 days of life need to be adequately supported. This study aimed to explore the barriers and enabling factors to optimal complementary feeding practices of children aged 6 to 23 months in the Cite-Popokabaka.

Methods

A qualitative case study, using focus group and key informant interview techniques and thematic analysis with a deductive approach. Six discussions with mothers and grandmothers of children aged 6 to 23 months and five interviews with health workers and community health workers were conducted in Cite-Popokabaka.

Findings

Lack of knowledge and financial resources, parental illness, the large size of the household, lack of means and space to cultivate the fields, food insecurity, drunkenness, and workload of the person feeding the child, ancestral beliefs and poor road conditions are obstacles to good child feeding practices. Training of health workers and community health workers, awareness raising, cooking demonstrations, empowerment of women are the elements that can facilitate best feeding practices for children.

Conclusion

Any effort to prevent malnutrition in Popokabaka should focus on complementary feeding considering all these barriers that need to be removed and enabling conditions that need to be strengthened or created.



Determinants of Non-Optimal Breastfeeding Practices among Mothers in Health Area of Popokabaka City, DRC: A Cross Sectional Study

By Kabongo Ntambwe John, Grownut Cohort II, 2018

Under supervision of Professors
Pélagie Babakazo (KSPH) and Christiane Horwood (UKZN)

Background

Optimal nutrition in **children** under 24 months of age is defined as exclusive breastfeeding starting from the first hour of birth to six months of age, followed by introduction of appropriate complementary feeding in parallel with continued breastfeeding up to two years of age or beyond. Inadequate nutritional practices, such as the lack or inadequacy of breastfeeding, remain the greatest threat to the survival and health of the child in the world, particularly in resource-constrained settings. The purpose of our study was to determine the factors associated with the practice of non-optimal breastfeeding among mothers of children less than two years of age in AS cited Popokabaka in 2017.

Methods

This was a cross-sectional study aimed at analytically, with mothers of children aged less than 24 months, for a period from March 23 to May 8, 2017 in the Health Area (HA) of Popokabaka city. A three-stage survey was used to interview the targets using a questionnaire. Logistic regression on Stata 12.1 was used to analyze the data.

Findings

The study involved 419 mothers. The median age of the mothers was 30 (IQR 24.5 to 35.5 years). About 83% of mothers lived with a spouse, 6.4% had optimal breastfeeding, 48.3% had started breastfeeding within one hour of delivery, 15.5% (only 65) had practiced exclusive breastfeeding in the first six months. And continuous breastfeeding was practiced by 298 (88.7%) mothers. However, we observed an association by logistic regression between non-optimal breastfeeding and maternal low knowledge of optimal breastfeeding practices AOR = 9.09 [2.22 -33.32], flexible working hours of mothers AOR = 4,11 [1,53 - 11,04] as well as lack of support of the spouse to breastfeeding AOR = 4,43 [1,64 - 11,97].

Conclusion

We identified modifiable factors to improve optimal breastfeeding practice in HA of Popokabaka city.



Factors Associated with Low Dietary Diversity in Lactating Women Living in The Kikimi Health Zone, Kinshasa, DRC: A Cross Sectional Study

By Kumbu Mbungu Christian, Grownut Cohort V, 2022

Under supervision of Professors
Marie-Claire Muyer Telo (KSPH)

Background

Low dietary diversity is among the established underlying causes of undernutrition for any individual. In the Kikimi Health Zone in Kinshasa DRC, one out of three breastfeeding women are reportedly undernourished. Breastfeeding is a period of high-quality nutrition demand for both mothers to produce breastmilk the child. This study aimed to measure dietary diversity and identify the factors associated with low dietary diversity in lactating women in this area.

Methods

A cross-sectional study was conducted with 428 lactating women of the Kikimi health zone from September to October 2022. A three-stage sampling was done, and four health centres, two in rural areas and two in urban, were selected. Data was collected through interview using a structured questionnaire on a tablet with the KoboCollect application (version 2022.2.3). A standardized 24H recall was used to collect food group eaten the day before data collection. Logistic regression analysis was performed to identify associated factors of low dietary diversity.

Findings

Low dietary diversity was prevalent among 54.9% (95% CI (50.1 - 59.5)) lactating women in Kikimi health zone. Factors associated with low dietary diversity were the lack of a vegetable garden (aOR: 1.96; 95% CI: 1.28 - 3.02), living in a household with poor (aOR: 2.76; 95% CI: 1.53 - 4.99) or medium (aOR: 1.86; 95% CI: 1.03 - 3.35) wealth index.

Conclusion: More than one in two lactating women had low dietary diversity in Kikimi health zone, DRC. The low dietary diversity is influenced by the non-possession of a vegetable garden, living in a household with poor or medium index. The low index of wealth often reflects a low economic socio level.

Conclusion

Hence the need to put in place policies encouraging and funding any entrepreneurial project in households, to combat poverty



Factors Associated with Non-Continuation of Exclusive Breast-feeding Among Adolescent Mothers from Biyela Health Zone, DRC:

A Cross-Sectional Study

By Monique Mishika, Grownut Cohort I, 2016

Under supervision of Professors
Mapatano Mala Ali (KSPH) and Thorkild Tylleskar (UiB)

Background

Around 1.5 million deaths among children under five are attributed to the failure to continue exclusive breastfeeding in low-income countries. Adolescent mothers record the lowest breastfeeding rates overall. The present study aimed to describe breastfeeding practices during the first six months of life and to determine the factors associated with non-continuation of breastfeeding for up to six months among adolescent mothers.

Method

Methods

We conducted a cross-sectional study among adolescent mothers in the Biyela health zone from August 8 to 23, 2016. Our sample was 400 mothers each with at least one child aged 6 to 24 months. A pre-established questionnaire was used for data collection. Descriptive, bi-variate and multivariate logistic regression analyses were performed to meet the study objectives.

Findings

The proportion of mothers who exclusively breastfed up to 6 months was 7.5%. The following variables were found to be associated with non-continuation of EBF up to 6 months in adolescent mothers: non-attendance at ANC education sessions (aOR=38; IC95%12-118), not living with parents (aOR= 8.5; IC95%2.50 - 29), discomfort with breastfeeding in public (aOR=3.66; IC95%1.02-3.07), low level of education (aOR= 0.30; IC95%0.10 -0.88%) and being primiparous(aOR=0.28; IC95%0.10-0.79).

Conclusion

The proportion of teenage mothers who breastfed exclusively up to 6 months is very low. Special programs are needed to promote AME and target this special group.



Determinants of Continued Breastfeeding at four months after birth in Maluku, Democratic Republic of Congo

A case-control study

By Kabasubabo Kabengele Francis, Grownut Cohort V, 2022

Under supervision of Professors
Akilimali Zalagile Pierre (KSPH)

Background

Exclusive breastfeeding during the first six months of life yields enormous health outcomes for children, mothers and their families. With only 35% exclusive breastfeeding (EBF) under six months, women in Kinshasa lag behind national and international goals. The drop in EBF is sharpest between three and four months postnatal. This exploratory study aimed at identifying and understanding the determinants of EBF at four months after birth.

Methods

This case-control study involved 80 EBF women and 320 non-EBF women and applied bivariate and multivariate analysis to determine the association between the independent variables and EBF.

Findings

In multivariate analysis, the following maternal predictors were associated with EBF at four months postnatal: being in a union (aOR 4.55; 95% CI: 1.30-11.27), early initiation of breastfeeding (aOR=3.15; 95% CI: 1.29-7.70), breastfeeding information, education and counseling during antenatal care, after delivery, and at discharge (aOR=2.96 95% CI: 1.35-6.51), having planned for at least five months of EBF (aOR 16.87; 95% CI: 7.11-40.03), favorable attitude to breastfeeding in public (aOR 2.45; 95% CI: 1.12-5.37) and the absence of depression (aOR = 2.55; 95% CI: 1.17-5.54). Also significant was being the firstborn child (aOR: 4.53; 25% CI: 1.20-17.02).

Conclusion

Policies and interventions aimed at improving the provision of EBF information, education and counseling during antenatal care and after childbirth, supporting mothers in planning for EBF, encouraging early initiation of breastfeeding right after birth, and identifying mental health issues, such as depression, could be beneficial in improving exclusive breastfeeding among mothers in Kinshasa and other provinces and communities lagging behind national and international breastfeeding goals.



Factors Associated with Appropriate Complementary Feeding Practices by Mothers of Children Under 2 Years in Popokabaka City, 2019 (Cross-Sectional Study)

By Clement Mukendi, Grownut Cohort IV, 2020

Under supervision of Professors
Mapatano Mala Ali (KSPH) and Hatloy Anne (UiB)

Background

The first 2 years of life are a critical period, during which the child is exposed to several health problems that can compromise irreversibly his future life. This study aims to determine factors associated with appropriate complementary feeding practices among mothers of children 6-23 months of age in Popokabaka city

Methods

Community based cross-sectional study design was adopted on 400 mothers who, were randomly selected from six quarters of the Popokabaka city based on population proportion. The data collection used a pretested structured questionnaire for face-to-face interview in June 2019. Data were entered and analyzed with SPSS windows version 25. Bivariate analysis and multivariable logistic regression analysis were performed.

Findings

Exactly 52.5% of the children aged 6-23 month, received complementary feeding at the recommended time (6-8 months), 35.5% met the minimum meal frequency (two times a day for breastfed infants 6–8 months; three times a day for breastfed children 9–23 months; and four a day times for non-breastfed children 6–23 months; in the previous day), and 46.5% received minimum dietary diversity (≥ 4 food groups), 17.3% had received acceptable minimum diet, and only 8.0% received appropriate complementary feeding. Formal education of mothers (AOR=4.09), antenatal care visits frequency (AOR=3.84), low adherence to food taboos (AOR=3.63), were found to be significantly associated with appropriate complementary feeding.

Conclusion

the overall prevalence of appropriate complementary feeding practices was very low (8.0%) among children aged 6–23 months in Popokabaka city. Local Health services must promote women's education. Maternal and infant health services need to be improved and included caregivers to provide them with nutrition information.



The role of Complementary Feeding and Hygiene Practices in the Occurrence of Moderate Acute Malnutrition in Children Aged 6 to 9 Months in the Kikimi Health Zone, October 2022

By Guelord Bipele , Grownut Cohort V, 2022

Under supervision of Professors
Mapatano Mala Ali (KSPH) and Thorkild Tylleskar (UiB)

Background

Acute Malnutrition is a major public health problem worldwide, underlying half of death by infectious diseases. Feeding practices and Hygiene are known as underlying causes of acute malnutrition, but their roles have not extensively examined. We aimed at examining the association between complementary feeding, mothers' hygiene practices and Moderate acute nutrition in 6- and 9-month-old children in KIKIMI, in October 2022. Method

Methods

An unpaired case-control study of 86 cases and 180 controls was conducted. A case was defined as any child attending a health facility whose (PB) was between 115 and 124 mm and whose PB was ≥ 125 mm. Logistic regression was used to identify factors favoring the occurrence of MAM in his children.

Findings

Children with at least one symptom two weeks prior to the survey [ORa (CI95%) = 2.10 (1.04 - 4.27)], those sharing a meal with another child [ORa (CI95%) = 8.56 (3.92 - 18.65)], those whose mothers were in disunion [ORa (CI95%) = 2, 18 (0.99 - 4.81)], and those whose mothers had no disunited professional occupation [ORa (IC95%) =5.55 (1.16 - 26.47)], were 2 , 8, 2 and 5 times more exposed to MAM than other children. On the other hand, children who had received adequate AC the day before the survey [ORa (CI95%) = 0.40 (0.17 - 0.93)] and those whose mothers had good hygiene practices [ORa (CI95%) = 0.17 (0.01- 0.34)], were protected.

Conclusion

The study demonstrated the role of adequate AC and good hygiene practices by mothers in preventing MAM in children aged 6 to 9 months. We recommend that mothers/caretakers be made aware of the need to provide their children with adequate, diversified and hi



Positive Deviance Approach, a Tool for Exploring Infant and Young Children Feeding In Rural Popokabaka in Popokabaka, DRC:

A mixed method Case Study

By Marie Jose Konshi Elameji, Grownut Cohort II, 2017

Under supervision of Professors
Paulin Mutombo (KSPH) and Christiane Horwood (UKZN)

Background

Popokabaka is a health zone among the most affected by malnutrition in the Democratic Republic of Congo. The present study explored mothers' positive behaviors and practices regarding infant and young child feeding (IYCF), in relation to food hygiene, cooking and composition, children's health, food consumption habits as well as childhood stimulation.

Methods

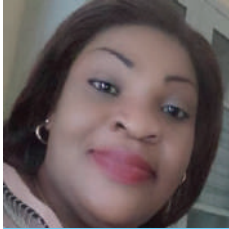
this was a case study using a mixed method approach conducted from April 4 to 30, 2017 in –Popokabaka-city- health area. Eighteen in-depth interviews, ten observations and ten food weighings were conducted with ten positive-deviant and eight non-positive-deviant mothers. Positive deviant mothers were those with well-nourished children according to the WHO and the FANTA's indicators. Inductive techniques and non-parametric tests analyses were used for qualitative and quantitative data, respectively.

Findings

the positive-deviant mothers had a good level of knowledge on IYCF and their attitude towards IYCF was positive. Thanks to the social support received from their family members, they were successful in practicing recommended IYCF practices, providing an adequate and balanced diet to their children, and in remaining close to them. They also gave safe drinking water to their children, and corn-flour soft porridge or a mixture of corn and cassava flours as a staple food to eat. Nevertheless, they were alike the non-positive deviant mothers, in terms of poor knowledge on hand washing and optimal complementary feeding.

Conclusion

this study has brought into light some local and affordable solutions such as the importance of social support, food habit and hygiene that, if implemented, could help, prevent malnutrition and improve nutritional status of children in Popokabaka health zone.



Mothers' Knowledge, Complementary Feeding Practices and Nutritional Status of Children 6-23 Months Old in Mbanza-Lemba Health Area, Kinshasa, DRC: a Cross Sectional Study

By Izzia Mukar Sylvie, Grownut Cohort I, 2016

Under supervision of
Professor Lusamba Dikassa (KSPH) and Anne Hatloy (UiB)

Background

Lack of mothers' knowledge and proper feeding practices contribute to increase the prevalence of malnutrition. Malnutrition occurring early in life can cause irreversible damage to children's cognitive development and physical growth, leading to a reduced capacity to learn, poorer performance in school, higher susceptibility to infection and disease and a lifetime of lost earning potential. The aim of this study was to examine mothers' knowledge and practices on complementary feeding and their relationship with the nutritional status of their children aged 6-23 months.

Methods

A community-based cross-sectional study was conducted in Mbanza-Lemba, in Kinshasa between March 2016 to April 2016 using a two stage clusters sampling to collect data among 300 mothers and child pairs. Structured questionnaires were administered to mothers gathering information about their knowledge and practices on complementary feeding; children' lengths and weights were assessed. Anthropometric data were analyzed using WHO Anthro software and SPSS version 23 was used to analyze categorical variables. Chi-square test and logistic regression were used to establish relationship between variables.

Findings

Majority of mothers were married (73 percent), housewives (56percent) with a secondary level of education (50percent). All children aged 6-8 months had been introduced to complementary foods as recommended but the time of introduction was early for 71 percent (median age of 4 months); all WHO indicators for complementary feeding (CF) were low. In general, only 31 percent of children met the minimum meal frequency but within the age group, the majority of young children 6-8 months reached the minimum meal frequency (79 percent); 16 percent of children consumed the minimum dietary diversity; minimum acceptable diet was attained by 8 percent of children; iron-rich foods were consumed by slightly more than half children (55percent); the majority of mothers (69percent) had average knowledge on CFP with a mean score of 13.3 ± 2.4 out to 20; the prevalence of stunting, underweight and wasting were 25 percent, 14 percent and 10 percent respectively; mother's knowledge to continue breast feeding till 2 years and beyond were significantly associated with underweight (chi-square, $p=0.034$); minimum meal frequency was a predictor of underweight (OR=0.42; $p=0.013$); age of child (OR=0.43, $p=0.023$); gender (OR=1.85, $p=0.03$) and father's occupation (OR=2.42, $p=0.01$) were predictors of stunting.

Conclusion

Mothers know the recommended WHO guidelines on infant and young child feeding practices, but they do not translate their average knowledge into practices and malnutrition was common among their children. Longitudinal studies are needed to track complementary feeding practices throughout the period from 6 to 23 months of age and link effectively feeding practices, nutrients and energy intake with individual growth patterns.



Exploring the Perception on the Choice of Drinking Water Sources in Popokabaka DRC A Qualitative Case Study

By Kisulu Samyonga Basile, Grownut Cohort III, 2018

Under supervision of Professors
Kiyombo Mbela (KSPH) and Ingunn Engebretsen (UiB)

Background

Access to safe and clean water is a human right and an important pillar in the survival of living beings. The health and development level of a community is improved through their access to safe drinking water. A good choice of drinking water source will lead to healthy conditions in rural zones like Popokabaka-City Health Area. This study aimed to explore the perceptions influencing the choice of drinking water sources, the knowledge of the population concerning the drinking water use and to identify practices concerning the safety of drinking water among the population of Popokabaka-City Health Area.

Methods

This study was undertaken in Popokabaka City Health Area. It was an qualitative case study, using focus group discussions (FGDs), in-depth interviews and key informant interviews as techniques of data collection, with adult participants who agreed to participate in the study. Emerging themes were coded for a deductive analysis. Data were collected from April till May 2018, from seven FGDs, seven in-depth interviews and four key informants.

Findings

Householder influences, closeness to water points, Yaka customer, political influences and the poverty situation are leading the choice of drinking water sources in Popokabaka. The population has good enough knowledge about drinking water quality, but equivocal knowledge prevail upon standard norms of quantity to use per person per day; average distance and time for obtaining drinking water. The knowledge on waterborne diseases is poor. Good practices were also recognized: rinsing and covering containers of drinking water storage. However, many unsafe practices were reported: defecation in water, open defecation for riverine people; throwing waste in water; treating incurable wounds in rivers; duck and pig riverine livestock and retting (fermentation) cassava in rivers and, drinking no treated water were recognized by the majority of participants.

Conclusion

Water is present in the area, but then its quality ought to be improved and the quantity increased for the health benefit of the Popokabaka population.city.



The Relationship Between Breakfast Consumption and School Performance Among School Age Children in Lemba Township A Cross Sectional Study

By Kilemba Meloom Louissette, Grownut Cohort IV, 2019

Under supervision of Professors
Paulin Mutombo (KSPH) and Christiane Horwood (UKZN)

Background

School performance influences future educational attainment and income, which in turn, affect lifestyle and health. Research provided the evidence that regular BF consumption are positively associated with school performance in children school age and adolescents. The present study aims to determine the relationship between regular breakfast consumption and school performance in primary school children.

Methods

An analytical cross-sectional study was conducted in 8 primary schools in LEMBA's township. The total sample size was 403 school age pupils aged 7- 15 years old. Descriptive statistics were used to describe the characteristics of participants. Mean and standard deviation (SD) have been used for continuous variables and frequency and percentage for categorical variables. Multiple logistic regression was used to determine the relationship between breakfast consumption and school performance after adjusting co-variates and confounder. A p-value of less than 0.05 was considered statistically significant.

Findings

The prevalence of breakfast consumption was 50.4% and breakfast consumption increase with school type ($p=0.022$). After adjusting of confounder, a high statistical association between regular breakfast consumption and high school performance was found (AOR: 1.712; 95%CI: 1.111- 2.638): children who took breakfast regularly performed around twice than who eaten less regularly. In addition, consumption of foods source of protein is associated to school performance (AOR: 1.746; 95%CI: 1.033- 2.952).

Conclusion

Regarding these findings, it is imperious to improve breakfast habit in children school age and initiate the school breakfast programmes in primary schools.

Theme II.

ACUTE AND CHRONIC MALNUTRITION



**Assessment of Nutritional status of Adolescents in Popokabaka Health Zone, Kwango, DRC:
A school-based Cross-sectional study**

By Mpula Mbel Jules, Grownut Cohort I, 2016

Under supervision of
Professors Paulin Mutombo (KSPH) and Esperance Kashala (UiB)

Background

Adolescence is the second period of growth that can serve as a window of opportunity to compensate for failed growth in early childhood. Achieving optimal growth during this period is of the utmost importance for maintaining good health later in adult life. In the DRC, as elsewhere in the world, there is very little information on the diet and nutritional status of adolescents. This study aimed to assess the nutritional status of adolescents in the rural Popokabaka health zone context

Methods

We conducted a cross-sectional study with a sample of 406 adolescents recruited using a two-stage probability sampling technique in the schools of Popokabaka health area. Data were collected through structured interviews, based on anthropometric measurements and food consumption. Descriptive statistics were used to describe the distribution of all variables. Potential factors associated with nutritional status were investigated using bivariate analysis for comparison of categorical variables, using the chi-square test.

Findings

This study revealed that in the Popokabaka school district, the prevalence of wasting was 43.3% (95% CI: [38.5-48.1]), that of overweight was 2.7% (95% CI: [1.1-4.3]) and that of obesity was 0.3% (95% CI: [-0.2-0.8]). More than three-quarters of these adolescents had a poor dietary intake.

Conclusion

This study showed that the predominant nutritional status in this school environment was wasting. These adolescents had a poor dietary intake, as dietary diversity was average and food consumption frequency was limited



Effectiveness of plumpy sup compared to corn soya blend in the management of acute moderate malnutrition among 6 59 months children in Pweto, Haut Katanga province, DR Congo

By Etienne Longe Omasumbu, Grownut Cohort I, 2016

Under supervision of
Professors Jean Pierre Banea (KSPH) and Anne Hatloy (UiB)

Background

Acute malnutrition remains a real disease burden background and a big public health issue worldwide and in DRC. We designed a study to compare the effectiveness in recovery rate, weight gain, length of stay in the program of children with moderate acute malnutrition in supplementary feeding program by using Plumpy Sup and the more conventional ration of Corn-soya blend (CSB+) in Pweto in haut Katanga province.

Methods

A total of 1233 children aged 6-59 months with moderate acute malnutrition received 8 weeks of CSB+ or Plumpy Sup. Children were randomly assigned to receive one type of food. The daily ration was purposely based on the conventional treatment rations distributed at the time of study in Pweto : 250 g CSB+ and 32 g vegetable oil (1017 kcal) and 92 g Plumpy Sup (500 kcal). A higher ration size of CSB+ was provided because of expected food sharing.

Findings

Among the recovered children, weight gain was higher in the Plumpy Sup group (1.99 ± 0.96 g. Kg-1. d-1) than CSB+ (1.35 ± 0.56 g. Kg-1. d-1) ($P < 0.001$). The time at recovery in the program was shorter in the Plumpy Sup group (5.72 ± 1.67 weeks) than CSB+ (6.52 ± 1.93 weeks) ($P < 0.001$). Recovery rate was higher in Plumpy Sup group (98.7%), than in CSB+ group (89%) ($P < 0.001$). The bivariate analysis of factors associates to recovery showed that the odds ratio in the Plumpy Sup group compared to CSB+ was Crude OR = 6.38 (95% CI: 4.47-19.70) and significant difference was find ($P < 0.001$). After doing a multivariate analysis of factors associate to recovery and controlling for presume confounders (illnesses), the adjusted OR is 5.83 (95%CI:2.33-14.56).

The Kaplan-Meier survival curves showed the significant difference of time recovery between the two groups (Log-rank $P = 149.7$ $P < 0.0001$).

Conclusion: In comparison with CSB+, Plumpy Sup result is higher in recovery rate for the treatment of moderate acute malnutrition in children, despite the higher energy content and the large ration size of CSB+.



Seeking Behaviours of Mothers About Acute Malnutrition in Under Five Years Old Children In The Popokabaka Health Zone, Kwango Province In 2019: A Qualitative case Study

By Ilunga Kabeya Barthelemy, Grownut Cohort II, 2017

Under supervision of Professors
Mutombo Pulinn (KSPH) and Lyn Haskins (UKZN)

Background

Malnutrition is a heavy and permanent burden for individuals, families, communities and countries. Malnutrition can therefore be variously perceived and thus dictate a certain type of behavior to the patient, his family or the community. Despite the highest prevalence of acute malnutrition in Popokabaka health zone, the modern health services utilization was low. This study was conducted in order to understand what happens in at a household level in terms of care-seeking for under five children with acute malnutrition.

Methods

A qualitative case study approach was used to explore care-seeking behaviors of mothers of acutely malnourished under five children. Mothers who resorted to the formal health system and those who did not during the data collect period were interviewed using a semi-structured in-depth interview questionnaire. Community leaders and care providers were interviewed as key informants using same technique. All interviews were audio recorded. Audiotapes of interviews were transcribed verbatim and translated into English. A thematic analysis was used to analyse the data. Results: In-depth interviews were conducted at the General hospital and three health centers from June 17th to July 5, 2019.

Findings

Our findings demonstrate the impact of local perceptions on the care seeking behaviors. In its early stages, malnutrition is equated with some local diseases (Kissu, Mawa). It is often recognized as such in its late phase (Imbengi). In most cases, mothers use multiple sources of care at the same time or successively (modern medicine, traditional medicine, spiritual healers, drug sellers, etc.). The use of modern care is often late. Lack of money, local perceptions, decision-making etc. were cited among factors of low modern health services utilization.

Conclusion

The mothers' care seeking behaviors in under five children severe malnutrition in Popokabaka remains largely inappropriate. There is a need to increase awareness of behaviour change.



Reasons for Discontinuing Participation in Growth Monitoring and Promotion for 12 - 59 Months in the N'sele Health Zone in 2022.:

A Qualitative Case Study

By Bingi Mvuezolo Yannick, Grownut Cohort V, 2022

Under supervision of Professors
Mutombo Pulinn (KSPH) and Lyn Haskins (UKZN)

Background

According to the WHO, Growth Monitoring and Promotion are now a component of Primary Health Care, integrating preventive and promotional care offered to children from birth to 59 months (5 years) of age, with a view to ensuring their harmonious growth and development. However, for more than a decade, and despite their revitalization 5 years ago, statistics both nationally and in the city-province of Kinshasa, and especially in the N'SELE Health Zone, remain low, at around 30%. This study explored the reasons why children aged 12 to 59 months in the N'SELE Health Zone dropped out of Growth Monitoring Program in 2022.

Methods

We conducted a qualitative case study with 38 mothers, two health partners, and four health providers purposively selected in two health areas of the N'sele health zone: urban (Mpassa 1) and rural (Buma). Data were gathered through in-depth interviews and focus groups, processed and reduced inductively using Atlas-ti. Mothers whose children were aged between 12 and 59 months and had been absent from at least three successive CPS appointments were included in the study. Thematic analysis was performed to find emergent themes.

Findings

Participant narratives on obstacles to the continuous and full use of Growth monitoring and promotion services in both areas failed to following emergent themes: Low socio-economic level of households, the negative influences of the mother's social environment, insufficient knowledge and misperceptions, the inadequacy or poor infrastructure of the health care offer, access to care that is financially conditioned, geographically arduous and time-consuming, as well as particular situations such as the mother's fatigue and neglect; in addition to household difficulties such as difficult access to drinking water, the burden of household chores and the large size of the siblings were cited.

Conclusion

The expected uptake of the Growth monitoring and promotion is still a major challenge in these study settings, as it is in most of the rest of the country. Hence, certain aspects identified, linked on the one hand to the provision of care and on the other to the mothers themselves, as well as to their social environment, are in one way or another to blame for poor compliance with the preschool care follow-up schedule by mothers, and this calls for the implementation of appropriate strategies to meet the challenge.



Prevalence and Predictors of Wasting Among Antiretroviral Treated Children Aged 12 To 59 Months in Kalembe lembe, Kimbondo and Kingasani Hospitals: A Cross sectional study

By Kenge Ndala Eunice, Grownut Cohort I, 2016

Under supervision of
Professors Mutombo Paulin (KSPH) and Frederick Veldman (UKZN)

Background

Under-nutrition and human immunodeficiency virus are closely linked and represent a public health concern. We examined the association between ART uses with wasting status among HIV-positive children in Kinshasa.

Methods

This cross-sectional study was conducted from May-July 2016. The target population was 113 ART-treated, children carried by their guardian. We used questionnaires to measure socio-economic, nutritional and related HIV treatment factors. Our outcome variable was wasting status.

Findings

Of the 113 ART-treated HIV-positive children, the percentages of stunting underweight and wasting were 38.9%, 31% and 17.7%, respectively. A multivariate analysis showed that Children without their mother were five times more likely to be wasted (OR=4.88, 95% CI 1.03-23.22 P = 0.046) and Children whom guardian had no partner were four times more likely to be wasted (OR = 4.20, 95% CI 1.21-14.53 P=0.023). Children receiving less than three meals by day were five time more likely to be wasted (OR = 4.54, 95% CI 1.021-20.000, P = 0.047). children on ART for less than 6 months were nine times more likely to be wasted compared to those on ART for a duration more than 6 months (OR=9.02, 95% CI 1.43-58.85 P = 0.019). Children on ART regimen Containing efavirenz or Nevirapine were four times less likely to be wasted compared to whom had an ART regimen Containing Ritonavir boosted lopinavir.

Conclusion

Wasting is a risk factor among ART-treated children, an improvement in their feeding practices, an appropriate health care for infected children and the RUTF integration may decrease their morbidity and improve their nutritional status.



Exploration of nutritional counselling for people living with HIV in follow-up at Popokabaka Hospital, Kwango, DR Congo

By Mantete Sedu Narcisse, Grownut Cohort III, 2018

Under supervision of
Professors Jean Pierre Banea (KSPH) and Anne Hatloy (UiB)

Background

Malnutrition and the human immunodeficiency virus (HIV) are major public health challenges in low- and middle-income countries. In 2016 in the Democratic Republic of Congo (DRC), the national program of nutrition (PRONANUT) and the national program of HIV (PNLS) developed a joint national protocol for management of malnutrition among people living with HIV (PLHIV). This protocol recommends a nutrition assessment, counseling and support (NACS) approach which is undertaken in health facilities and in the community. However, it is unknown whether these recommended strategies are followed in the field and so there is a need for further exploration. The aim of this study was to explore the quality of nutrition counseling provided to PLHIV in Popokabaka Hospital and to identify dietary practices of PLHIV.

Methods

We conducted a qualitative study among health care providers and PLHIV in follow-up at Popokabaka Hospital. Fifteen in-depth interviews were undertaken with PLHIV, and three key informant interviews were undertaken with health workers. A thematic analysis of data was performed.

Findings

Six themes emerged in the current study for each group of participants. The nutrition counseling content which was acceptable and was mainly around improving dietary practices; the nutrition counseling process which respected several aspects but appropriate nutrition counseling tools were lacking; nutrition knowledge, in which they knew several things about nutrition related to HIV; dietary practices of PLHIV, in which there were several changes with improved health (adequate diet in general, with a wider dietary diversity, increased quality and amount of food and increased food frequency; only 20% of PLHIV were wasted); barriers and enablers to apply nutrition counseling.

Conclusion:

Counseling messages were well received and accepted by participants, and some participants reported major improvements in their dietary practices and their nutritional status. There is therefore a need for building capacity of health care providers on the NACS approach, and for the popularization and effective implementation of the national NACS protocol.



**Double Burden of Malnutrition Among Children Under Five in Popokabaka Health Area, Kwango, DRC:
A Cross Sectional Study**

By Kihala Lonyembo Pierrot, Grownut Cohort II, 2017

Under supervision of
Professor Mapatano Mala Ali (KSPH) and Christiane Horwood (UKZN)

Background

the problem of undernutrition and overweight affects all countries of the world, especially the low and middle-income countries, where the world health organization (who) refers to their simultaneous presence as the double burden of malnutrition (DBM). the Democratic Republic of Congo (DRC) is not exempt from this phenomenon, particularly the Popokabaka health area (ha) where the prevalence of malnutrition is high. this study aimed to assess DBM among children under five in Popokabaka Health Area and its associated factors.

Methods

This was a cross-sectional analytical study, which collected anthropometric indicators, dietary intake, and physical activity data. anthropometric indices were classified according to the 2006 who criteria. children were classified as having DBM was defined as the presence of short height and obesity or overweight in the same individual when they had height-for-age z scores of $<-2sd$ co-existing with weight-for-height z scores of $>+2sd$.

Findings

A total of 385 children under five were surveyed in Popokabaka. the prevalence of DBM was estimated at 1%. the nutritional status was as high as 40.3% for stunting, 24.7% for underweight, 5.2% for wasting, and 1.6% for overweight/obesity. the dietary diversity score was medium for most of their households. this medium score ranks most of these households in the food insecurity category at the 'hidden hunger' level.

Conclusion

DBM was rare but high levels of stunting and poor dietary diversity were identified in children under five in Popokabaka Health Area. interventions to improve and promote dietary diversity such as the positive deviance approach, participatory nutrition education, community-based interventions, women's literacy, and social protection interventions are recommended to improve the nutritional status of children under five in Popokabaka ha.



**Double Burden of Malnutrition Among Adolescent in Popokabaka Health Area, Kwango, DRC:
A Cross Sectional Study**

By Iyongi Byoke Sunday-Francoise, Grownut Cohort II, 2017

Under supervision of
Christiane Horwood (UKZN) and Lyn Haskins (UKZN)

Background

While the prevalence of underweight has been well documented in Democratic Republic of Congo (DRC) and in Popokabaka, the combination of stunting and obesity is not well understood. The objective of the study was to determine the prevalence of Double Burden of Malnutrition (DBM) in adolescents of Popokabaka.

Methods

A cross-sectional survey was conducted in April 2017 targeting 399 adolescents 11 to 19 years old from randomly selected schools. The response rate was 99%. DBM was defined as the presence of short height and obesity or overweight in the same individual and was assessed using the Body Mass Index (BMI), according to the International Obesity Task Force (IOTF) protocol. Logistic regression test was performed to assess potential risk factors of DBM. Alpha of 0.05 and 95% confidence interval indicated the level of significance.

Findings

Out of 395 adolescents who responded, 257 (65.1%) were underweight, 13 (3.5%) overweight and 1 (0.3%) obese; the prevalence of DBM was 3.8%. The significant predictor of DBM in adolescents of selected schools of Popokabaka were physical activity (OR=0.04, $p=0.001$ and CI= {0.005-0.27-535.4}).and diet transition referring to the change of diet composition (high calorie food intake) with OR= 69.4, 1df, $p=0.00$, CI= {9.01-535.4}

Conclusion

The results demonstrated the existence of DBM among adolescents in Popokabaka. Although physical activity and diet transition were significantly predictor of DBM; exploring other potential risk factors for DBM in this life period, such as local customs and socio-economic status is important.



**Eating Habits and Nutritional Status of Adolescents Attending Secondary Schools in Popokabaka In 2018:
A Cross sectional study**

By Yumba Kasongo Maximilien, Grownut Cohort III, 2018

Under supervision of
Akilimali Zalagile Pierre (KSPH)

Background

Malnutrition is a public health problem worldwide. Its prevalence is especially high in developing countries. In D.R. Congo, nutrition and malnutrition in children under five are well documented; those in adolescent girls remain unknown. we aimed to assess the link between their Adolescents girls eating habits and nutritional status.

Methods

An analytical cross-sectional study was conducted in April 2018 among 434 adolescent girls aged 12 to 17 attending schools in the Popo Cité Health Area. Anthropometric measurements, biochemical assays, clinical signs as well as dietary and socio-demographic data from adolescent girls and their mothers were collected through a structured interview using 24-hour recall and weekly food frequency techniques. SPSS 21.0, Stata 13 and WHO Anthro Plus software were used to analyze the data.

Findings

Anemia, stunted growth and abdominal obesity are the most worrying types of malnutrition, at 25.8%, 14.5% and 11.3% respectively. Poor eating habits affected 78.3% of the adolescent girls surveyed. Abdominal obesity increases with the age of the adolescent girls (1.55; 1.21-1.98, $p=0.000$), decreases among those with mothers without husbands (0.16; 0.05-0.56, $p= 0.004$) and those living in households of less than six people (0.34; 0.15-0.78; $p=0.012$). Iron-deficiency anemia was less prevalent among adolescent girls whose mothers had no occupation (0.51; 0.29-0.90, $p=0.020$).

Comclusion

No link was found between the eating habits score and the nutritional status of the teenage girls surveyed on the basis of data collected.

Theme III.

ANEMIA



**Prevalence and Associated Factors of Anemia among Adolescent Schoolgirls in Popokabaka City, Kwango, DRC:
A Cross sectional Study**

By Lydia Bahati Mangala, Grownut Cohort II, 2017

Under supervision of Professors
Lusamba Dikassa Paul (KSPH) and Anne Hatloy (UiB)

Background

The aim of this study was to measure anaemia and describing its relationship with his predictors among adolescent schoolgirls in the Popokabaka Health District.

Methods

A cross-sectional survey of 394 adolescent schoolgirls randomly selected in six schools of Popokabaka City (Province of Kwango) was conducted during April 2017. Hemoglobin level determination was obtained with HemoCue R_ Hb 301 System. We recorded a detailed history including socio-demographic characteristics, Knowledge on iron rich-foods and anemia, Attitude regarding dietary habits involving the consumption of iron-rich foods, Practices related to the consumption of iron-rich foods and dietary diversification, Nutritional status and Health-related conditions were assessed using a structured questionnaire. Regression logistic was used for determining factors associated with anemia.

Findings

The overall prevalence of anemia was 37.3% (95% CI: 32.5- 42.1). Around half 53% (95% CI: 64.9-73.9) and 36.6% (95% CI: 31.9-41.4) of participants were respectively in the median dietary diversity score and high dietary diversity score while, around nine out of ten 88.9% (95% CI: 85.8-92) were in a range of acceptable food consumption score. More than two out of three [70% (95% CI: 65.4-74.5)] had poor knowledge about anemia. Around nine out of ten had inadequate attitude on iron-rich foods 86% (95% CI: 83-89.7). Around 32.1% (95% CI: 27.9-37.2) and 10.9% (95% CI: 7.8-14) were respectively underweight and stunted. There were no statistically factor associated with anemia

Conclusion

Anemia among adolescent schoolgirls is found to be a moderate public health problem in the Popokabaka City. Micronutrients studies measuring iron, zinc serum, folate, and vit- B12 level and parasitic infections are recommended for assessing the major causes of anemia and qualitative studies to understand barriers to their attitude in the iron-rich food consumption.



Prevalence and associated factors of anaemia in women of childbearing age in Popokabaka city, in Popokabaka, Kwango, DRC:

A Cross sectional Study

By Marc Bosonkie Mokbanisa, Grownut Cohort II, 2017

Under supervision of Professors
Pelagie Babakazo (KSPH) and Anne Hatloy (UiB)

Background

Anaemia or low concentrations of haemoglobin continue to be a major barrier to women's health, social development and economic growth, especially in the developing settings. Popokabaka is one of the parts of Bandundu province which is in the context of low bioavailability iron rich food, ignorance of mother, monotonous diets. This study aimed to determine the prevalence and associated factors of anaemia in women of childbearing age in Popokabaka city.

Methods

A cross-sectional study was conducted in randomly selected households in Popokabaka city in April 2017. The anaemia status was determined by measuring their haemoglobin levels. Possible determinant factors including socio-demographic, gynaecologic and clinical characteristics, knowledge about anaemia, nutritional status and frequency of taking iron rich food were assessed using a structured questionnaire. All analyses were performed using STATA statistical software package version 12.1.

Findings

A total of 393 respondents were included. The overall prevalence rate of anemia was 50.6% (95% CI: 45.7- 55.6). Around two third of participants 253 (64.3%) were with middle dietary diversity score. More than half 58.5% (95% CI 53.6-63.4) had low knowledge about anemia. Around nine out of ten didn't take iron supplement tablets (89.7%). Around 38.1 % and 6.1% ate iron rich food (respectively red meat and offal) twice per week. Having two or three children [Adjusted Odds Ratio (AOR) =2.06, 95 % CI: 1.07–3.97] and consumption of vitamin c rich fruit more than twice a week (AOR = 0.47, 95 % CI: 0.25–0.85) were independent factors associated with anaemia.

Conclusion

Anaemia is found to be a severe public health problem in the study area. Awareness creation on nutritional counselling on consumption of fruit and Iron/folate supplementation are recommended to prevent anaemia in Popokabaka city.



**Prevalence and Associated Factors of Anemia among children
6-59 months in Popokabaka City, Kwango, DRC:
A Cross sectional Study**

By Baloji Nkashama Alex, Grownut Cohort II, 2017

Under supervision of Professors
Lusamba Dikassa Paul (KSPH) and Ingunn Engebretsen (UiB)

Background

More than 71% of children aged between six and 59 months in the DRC are anemic. According to World Health Organization (WHO) standards, anemia is a serious public health problem. However, little is known about the factors associated with anemia. The aim of this study was to identify factors associated with anemia in children aged six to 59 months in the Cité de Popokabaka health area.

Methods

We conducted a cross-sectional study among children aged 6-59 months in the Cité de Popokabaka. Variables collected at baseline were: (i) demographic data (sex, age, weight, height, dietary intake), (ii) mothers' socioeconomic status (education level, income, employment, family size, age), (iii) and household characteristics. Blood samples were collected for haemoglobin (Hb) testing using HemoCue. The household dietary diversity score, food consumption score and household hunger score were constructed based on food consumption. Logistic regression modelling was applied to determine factors associated with anemia.

Findings

Anemia (hemoglobin level <11.0 g / dl) was detected in 65.6% of the 427 children enrolled in the study. Anemia was associated with religion (revival church), mother's occupation (farmer) and nutritional status. Only being in good nutritional status (AOR: 0.4; 95% CI: 0.1 - 0.9, $p = 0.04$) and belonging to a revival church (AOR: 1.6; 95% CI: 1.1 - 2.6 $p = 0.05$) explained the occurrence of anemia.

Conclusion

Hemoglobin level was associated with nutritional status, mother's occupation and religious church membership, but only church membership and mother's nutritional status explained anemia among children in Cité de Popokabaka.

Theme IV.

KONZO



**Barriers to recommended cassava processing in resource constrained Kwango, Democratic Republic of Congo :
A Qualitative Case Study**

By Gisele Bokundabi Banea , Grownut Cohort I, 2016

Under supervision of Professors
Paulin Mutombo (KSPH) and Fredercik Veldman (UKZN)

Background

Despite interventions to provide knowledge and improve bitter cassava processing in the Democratic Republic of Congo (DRC), cassava processing is sub-optimal. Consumption of insufficiently processed bitter cassava is associated with konzo, a neurological paralytic disease. Objective. This study aimed to explore barriers to appropriate cassava processing carried out by women in one deep rural, economically deprived area of DRC.

Methods.

A qualitative design used focus group discussions (FGDs) and participant observation to collect data among purposively selected women aged 15-61 years in Kwango, DRC. Data were analyzed using thematic analysis.

Findings

15 FGDs with 131 women and 12 observations of cassava processing were undertaken. Observations indicated women did not follow recommended cassava processing methods. Although women were knowledgeable about cassava processing, two main barriers emerged: access to water and lack of money. Accessing water from the river to process cassava was burdensome, and the cassava was at risk of being stolen by soaking it in the river; therefore, women shortened the processing time. Cassava was not only used as a staple food but also as a cash crop, which led to households shortening the processing time to reach the market quickly.

Conclusion.

Knowledge about the risks of insufficient cassava processing and about safe processing methods alone is insufficient to change practices in a context of severe resource constraints. When planning nutrition interventions, it is critical to view the intervention in light of the socio-economic context in which the intervention will take place to improve its outcomes.



**Konzo Patients and Their Household Food Security in Boko Health Zone, Kwango Province, D. R. Congo,
A Mixed method**

By Lutonamo Zamoko Zarine, Grownut Cohort II, 2017

Under supervision of Professors
Jean Pierre Banea (KSPH) and Christianne Horwood (UKZN)

Background

Although konzo disease affects about only one percent of the population of six provinces in the Democratic Republic of Congo, its socio-economic consequences are devastating. Konzo causes an irreversible physical disability to the individual and leads to significant additional dependence and burden for the household and community with impacts. See like this, Konzo disabilities may threaten food security of the household. The present study explored food security of households with konzo patients in Boko HZ.

Methods

Mixed methods approach (survey+ qualitative case study) was undertaken in April 2017 in five selected villages of Boko health zone. Structured interviews were first conducted in 42 konzo patients' households. Then 32 patients from these surveyed households participated in 4 focus groups (FGD). Lastly in-depth interviews were conducted with 15 patients from the same households. Household food security status was quantitatively calculated using the Household Dietary Diversity Score tool. Qualitative Data were analysed using an inductive thematic approach

Findings

All konzo households surveyed were food insecure. They had lowest (47.6%) and medium (52.4%) dietary diversity scores. Most of them suffered from poverty, and low literacy. Most respondents (85.7 %) contributed to household daily incomes with less than 1.90 \$. From FGD and in-depth interviews, we found that participants in this study had inadequate knowledge about konzo, they were not stigmatised, and they participated in community activities. They contributed to household daily incomes.

Conclusion

Households with a konzo patient experience food insecurity and poverty. Konzo patients suffer from low literacy, and they are not stigmatized but they contribute well to Household income. Special awareness is needed to improve the socio-economic status of konzo patient that will improve their household daily incomes' contribution.



Household Food Security in Konzo's post intervention area of Boko health zone, Kwango, Democratic Republic of Congo : A Cross Sectional Study

By Chrétienne MANDOMBI, Grownut Cohort II, 2017

Under supervision of Professors
Jean Pierre Banea (KSPH) and Thorkild Tylleskar (UiB)

Background

Despite interventions to provide knowledge and improve bitter cassava processing in the Democratic Republic of Congo (DRC), cassava processing is sub-optimal. Consumption of insufficiently processed bitter cassava is associated with konzo, a neurological paralytic disease. Objective. This study aimed to explore barriers to appropriate cassava processing carried out by women in one deep rural, economically deprived area of DRC.

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Knowledge about the risks of insufficient cassava processing and about safe processing methods alone is insufficient to change practices in a context of severe resource constraints. When planning nutrition interventions, it is critical to view the intervention in light of the socio-economic context in which the intervention will take place to improve its outcomes.

Theme IV.

FOOD SECURITY



**Determinants Of Household Food Insecurity in Popokabaka,
D.R Congo:
A Cross Sectional Study**

By Johnny Mpoyi Lukasu, Grownut Cohort I, 2016

Under supervision of Professors
Mapatano Mala Ali (KSPH) and Fredercik Veldman (UKZN)

Background

The Democratic Republic of Congo (DRC) is among the countries most affected by food insecurity with the worst global hunger index. Yet the national demographic survey reported 54% of food insecurity in rural areas of the DRC, the situation could be severe and specific in some region that need specific and adapted actions. In order to develop locally-based sensitive nutrition interventions, we aimed to assess the extent of food insecurity (access) in Popokabaka and identify its determinants.

Methods

A cross sectional study was carried out in Popokabaka in 2017 with 495 household selected by using multistage clustered sampling technique. This region is almost inaccessible by road with limited food importation and availability. We collected socio demographic variables, household characteristics and food consumption pattern. Household Food insecurity was assessed by using Household Food Insecurity Access questionnaire and scale (HFIAS) of FANTA. Multivariate Logistic regression analysis was performed to determine the factors associated with food insecurity and adjusted Odds ratios were reported

Findings

Results from this study showed a high prevalence (81.6%) of severe food insecurity in Popokabaka Zone. FCS score was significantly greater in food secure subgroup than food insecure group (Pvalue < 0.01). Household determinants of food inaccessibility were the possession of agriculture farm 0.35 [0.11-0.52], source of agriculture materials (recycling) 0.19 [0.05-0.90] and employment status of mother 0.25 [0.78 - 0.90].

Conclusion

The promotion of agriculture may significantly reduce food insecurity in Popokabaka. Actions should focus on creating an open, viable and dynamic rural agriculture by focusing on ownership, gender and the role of woman for a sustainable empowerment of families in Popokabaka.



Knowledge, practices and attitudes of food production in Popokabaka smallholder farmers, Kwango Province, DRC
A Qualitative Case Study

By Jehu Moleko Mokita, Grownut Cohort III, 2018

Under supervision of Professors
Paulin Mutombo (KSPH) and Christiane Horwood (UKZN)

Background

Food production is one of four pillars of food security. The prevalence of household food insecurity in the Democratic Republic of the Congo (DRC) is 54% in rural areas and particularly severe (97.8%) in Popokabaka, one of the poorest health zones in the DR Congo. Food production is fundamental in food insecurity coping strategies. This study explored the knowledge, attitude and practices of food production amongst smallholder farmers.

Methods

For one month, a qualitative study has been holding in Popokabaka, located 400 km east from Kinshasa. The capital of the DR Congo. The target population included smallholder farmers (SHFs) and key informants (KI). Participants were selected purposively, and the focus group discussion (FGD) number was based on the principle of saturation of the responses⁴⁵ participants including six KI for the in-depth interview and 39 participants for the FGD. Three themes emerged from the inductive approach of thematic data analysis

Findings

Three themes agriculture knowledge and practices, food scarcity, and agricultural sector support. Subsistence agriculture is practiced with basic tillage equipment on small portions of farmland. SHFs have limited agricultural production knowledge to cope with food insecurity. Farming is essentially for self-sufficiency and lacks funding

Conclusion

SHFs practice traditional subsistence farming. Poor Agri-investment hampers local farm development in terms of adequate agricultural productivity. Definitely SHFs lack required knowledge and practices of food production to face the food scarcity. Ministry of Agriculture is to foster the capacity building both in terms of knowledge and equipment.



Nutrition and Food Security among Adult Inmates in Prison Facilities Case of Makala And N'dolo Military Prisons, Kinshasa, DRC : A Cross Sectional Study

By Danny Badila, Grownut Cohort II, 2017

Under supervision of Professors
Patrick Kayembe (KSPH) and Christiane Horwood (UKZN)

Background

Prisoners are reportedly food insecure and malnourished in Kinshasa prisons. The aim of this study was to determine the prevalence of malnutrition among inmates, to identify its associated factors and to explore inmates' coping strategies.

Methods

To achieve this purpose, a mixed study was conducted. For the quantitative approach, a cross-sectional survey for analytical purposes has been used to assess the nutritional status and its associated factors among inmates. The Body Mass Index has been calculated. A semi-structured questionnaire focused on coping strategies has been used to gather data. The thematic analysis was utilized in data analysis.

Findings

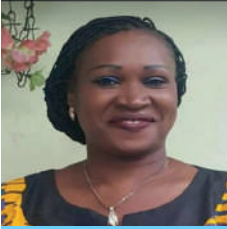
The occupancy rate was 376% and 309% respectively for Makala central Prison and the Military prison of N'dolo in the period of November 2017. In total, 526 prisoners were recruited and 514 (98%) were men and 12 (2%) were women. The median age was 31 (15) years old. Fifty-two percent were single, 46% had an incomplete secondary education, 82% were unemployed, 12% were in jail less or equal 1 month and 93% were Christians. Eleven percent of inmates had a Body Mass Index (BMI) ≤ 18.49 Kg/m². After performing a multivariate analysis, malnutrition was associated with respectively unemployed status ($p=0.034$; Adjusted OR (AOR) = 3.22 [0.11-0.92]) and time in jail ≤ 1 month ($p=0.016$; AOR = 2.38 [1.17-4.83]). The food related coping strategies (i.e. eating in solidarity, etc.) were divided into four themes in occurrence the food seeking, food stretching, food rationing, and food anxiety. The non-food related coping strategies (i.e. doing job, etc.) were divided into three themes i.e. increasing cash, integrating prison service or changing behavior. Most of prisoners displayed these methods at least once a week and a half of them reported using that every day.

Conclusion

The prevalence of malnutrition was 11%. Profession and time in jail were associated with malnutrition. Inmates used multiple coping strategies when they experienced food insecurity that could explain the low prevalence to expectations.

Theme VI.

NON COMMUNICABLES DISEASES AND NUTRITION



Exploration of Knowledge and Practice of Nutrition Education on Diabetes Among Type 2 Diabetics Patients in Popokabaka Hospital, Kwango, DRC : A Cross Sectional Study

By Rachel Kukia Dinazolele, Grownut Cohort III, 2018

Under supervision of Professors
Paulin Mutombo (KSPH) and Anne Hatloy (UiB)

Background

Nutrition therapy constitutes a cornerstone in the management of T2DM. The objective of this study was to evaluate knowledge of good practices of diabetes nutrition education among adult diabetic patients in Popokabaka hospital.

Methods

A qualitative case study was conducted, using qualitative approach, among adult diabetic patients in Popokabaka General Hospital, from April 7th through 28th, 2018. We conducted 20 semi structured interviews with diabetic patients and three key informant interviews with healthcare professionals assigned to diabetics care, using a semi-structured questionnaire interview guide, elaborated from the Diabetes Nutrition Education guideline. Discussions were recorded and transcribed. A thematic analysis technique was done using a deductive approach.

Findings

The majority of respondents were male, married, with the median age of 56 years and an interquartile space of 10.6 years. Half of them were already at the stage of visible complications of diabetes. The majority had a good knowledge of nutrition education on diabetes. Patients with low level of education presented poor knowledge about diabetes as well as in the understanding of the dietary recommendations. The practice of recommended advices remain poor for the majority, mainly given to the financial constraints; but also due to food unavailability and the lack of technical support to the management structure for diabetics in implementation in Popokabaka hospital.

Conclusion

Patients need more education and financial support while health caregivers need skill building in order to improve nutrition among diabetes. Key words: Knowledge, Practice, Nutrition education, Adult Diabetes, Popokabaka.



**Barriers And Facilitators to Type 2 Diabetes Self-Management
In Popokabaka (Kwango Province In 2019).
A Qualitative Case Study**

By FrancisIyese Bolangala, Grownut Cohort IV, 2019

By FrancisIyese Bolangala, Grownut Cohort IV, 2019

Background

In Sub-Saharan Africa, Diabetes self-management (DSM) is poor. In the DRC, there is no study published on this. This study was to explore barriers and facilitators for optimal DSM in a rural setting.

Methods

A qualitative case study using five semi structured interviews with health providers and four focus group discussions with diabetic patients and two with their family members was carried out in Popokabaka. The study was performed during one month. We use audio recorded. Thematic analysis and triangulation of sources were used.

Results

Diabetic's patients and health provider had a good knowledge on DSM, but it was not the same for the family members. The practices on DSM were not optimal. The barriers for a good DSM were lack of financials resources, the unavailability of drugs, the high cost of insulin, lack of materials such as personal glucometers, difficulty to have strips, the distance to come to the hospital. The facilitators were a project for diabetic patients and the creation of diabetic centers well equipped. The possibility to have a job for family members.

Conclusion

The DSM practices in area are suboptimal, although the knowledge of diabetic patients and health providers about it. The factors identified as barriers were materials, financials and geographic.



Factors Associated with Hypertension Among Congolese Young Adult Living In Two Different District of Kinshasa City: A Cross Sectional Study

By Kitwanda Fatuma Francoise, Grownut Cohort III, 2018

Under supervision of Professors
Paulin Mutombo (KSPH) and Anne Hatloy (UiB)

Background

Hypertension is the most important cardiovascular risk factors in sub-Saharan Africa. Young adult is more and more affected. the aim of the study was to determine the influence of living areas on the onset of hypertension.

Methods

A cross sectional study was conducted in two different settings, rich and poor areas in Kinshasa from October to December 2018. Five hundred sixty one participants were randomly selected, 293 in Bumbu and 263 in Binza Meteo health zones. we used the standard stepwise questionnaire to assess hypertension risk factors. We include Food Frequency Questionnaire and Wash approach in order to determine their dietary habit and impact of wash factors in the onset of hypertension. Anthropometric and blood pressure measurements were performed following standard procedure. Logistic regression was performed for analysis to identify risk factors associated with hypertension in this population.

Findings

The prevalence of hypertension our 561 participants was 21.6% (18.2-25.0) with 19.1% in Bumbu and 24.3% in Binza Mateo. Only 9.1% of participants with hypertension were aware of their status. Factors found to be associated with hypertension were age, education level, employment status, marital status, waist circumference and alcohol consumption.

Conclusion

Hypertension is really an emerging Public Health Problem in Kinshasa. Young people are not spared. We found that HBP is associated with age, education level, marital status, alcohol consumption and being overweight.



**Assessment of the management of acute malnutrition in the nutritional units of Kinshasa in 2022:
A Cross Sectional Study**

By Poka Kingolo Nickson, Grownut Cohort V, 2022

Under supervision of Professor
Marie-Claire Muyer (KSPH)

Background

Malnutrition represents a considerable challenge for human health, particularly in developing countries. In the Democratic Republic of Congo (DRC), despite the launch of Integrated Management of Acute Malnutrition in 2011, the prevalence of acute malnutrition remains unchanged (9% vs. 8%) [2, 3]. Since its launch in 2011, the country is far from achieving Sustainable Development Goal number 2 (SDG 2.2.2), by 2030, end all forms of malnutrition, including reaching internationally agreed targets for stunting and wasting in children under 5 by 2025.

Methods

The survey was carried out in nutritional units treating acute malnutrition in Kinshasa in 2022. We used two data collection techniques: non-participatory observation (infrastructure and materials) and interviews using a standardized data collection form. Analyses were performed using SPSS version 26. The data were presented in the form of frequency measurements, and the interview data were compared with the standards set out in the national protocol for the Integrated Management of Acute Malnutrition, then with each other and summarized in the form of tables. We described the infrastructures, human resources, financial resources, material resources and key activities of these Nutritional Units, and identified their strengths and weaknesses.

Findings

The results of this study showed that these Nutritional Units still lacked the necessary inputs to manage cases of acute malnutrition. However, in the face of this situation, these Nutritional Units used recipes based on local products, in accordance with the national protocol for the Integrated Management of Acute Malnutrition.

Conclusion:

This study is the first in the DRC to take stock of the management of acute malnutrition in the Nutritional Units of Kinshasa.

CONCLUSION AND PERSPECTIVES

As major achievement, the GROWNUT master's programme succeeded to renew a national commitment to enforce nutrition health research capacity in DRC, through the development of highly qualified academics and researchers to fight against malnutrition. By exposing students to scientific writing and speaking English and immersing them in rural context for their internship, GROWNUT shaped their skills to professionally work with any international institutions. All graduates are well positioned in Nutrition organizations and are helping with the acceleration of SDG2 within the country.

Only two studies were published at the time of this report writing. Writing articles for publication requires writing skills, dedicated efforts, time and on-going mentoring of young researchers. Future skills development programmes should provide enhanced and continued support for writing for graduates and junior academic staff. The project is seeing how to have additional support to support GROWNUT project to continue get students work published in high ranked journals. In addition, the project wants to see how data generated from studies can lead to changes in nutrition policies in DRC. A continued training in translating research to policies is crucial to ensure a complete education for all graduates

Nutrition challenges remain an ongoing concern in the DRC, and it is unclear whether the support from NORAD will continue. Creating capacity takes time and long-term funding is needed to build on early success and ensure sustainability of partnerships in higher education. For sustainability and durability of the program, other partnerships with the local government and other international agencies needs to be contracted to continue obtaining a mass of experts. A provision of scholarships for academic fees and grants for internships are crucial for the program to continue. The School of Public Health continues advocating for the role of this training for the country and the resource needed.

The program is also targeting, for next applications, frontline community workers. These staff oversee early detection malnourished individuals and close health and nutrition promotion. Rising the nutrition knowledge and improving practice at this level may contribute a lot in malnutrition fighting process. Mass Blended learning approaches may provide more cost-effective teaching. The project has started thinking to reach the most peripheral level of good nutrition provision in the DRC.





