Tackling the urban health divide though enabling intersectoral action on malnutrition in Chile and Kenya

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Abstract

As momentum grows for a sustainable urbanisation Goal in the post 2015 development agenda this paper reports on an action research study that sought to tackle the urban health divide by enabling intersectoral action on social determinants at the local level. The study was located in the cities of Mombasa in Kenya and Valparaíso in Chile and the impact of the intervention on child nutrition was evaluated using a controlled design. The findings showed that an action research process using the social educational process known as PLA could effectively build the capacity of multisectoral teams to take coordinated action which in turn built the capacity of communities to sustain them. The impact on child nutrition was inconclusive and needed to be interpreted within the context of economic collapse in the intervention area. Four factors were found to have been crucial for creating the enabling environment for effective intersectoral action: (i) supportive government policy (ii) broad

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participation and capacity building (iii) involving policy makers as advisors and establishing the credibility of the research and (iii) strengthening community action. If lessons learned from this study can be adapted and applied in other contexts then they could have a significant economic and societal impact on health and nutrition equity in informal urban settlements.

Introduction

Momentum is building for a Sustainable Urbanisation Goal in the post 2015 development agenda to tackle the urban health divide in many cities, especially in the South, and there have been calls to anchor the new agenda at the local level.[1, 2] This agenda is urgently needed to address inequitable levels of ill-health and malnutrition in informal settlements and slums caused by social determinants such as lack access to safe water, waste disposal and food security.[3] These determinants underpin child stunting which is a serious public health problem in sub-Saharan Africa jeopardizing children's physical and mental development. [4] They also underpin spiralling rates of child overweight and obesity in South America associated with increased risk of morbidity and mortality from chronic diseases such as diabetes mellitus and coronary heart disease.[4]

Intersectoral, 'nutrition-sensitive' programming is needed to tackle social determinants and achieve sustainable nutritional improvement,[5] but it continues to be a persistent challenge in which context is all important.[6] Ruel has recently renewed her earlier calls for increased efforts to tackle this challenge and evaluate the impact of such programming on nutritional outcomes. [5, 7]

This paper reports on the three-year NICK[2] study (2010-2013) which responds to these calls by seeking to enable intersectoral action on social determinants at the local level to help reduce the urban health divide. This study used an action research design to intervene and a controlled design to evaluate the impact of the intervention on the nutritional status of

[2] Nutritional Improvement for children in urban Chile and Kenya (NICK). This study was funded by a three year grant from the UK Department for international Development (DFID) and the Economic and Social Research council (ESRC).

children living in informal settlements in the cities of Mombasa in Kenya, and Valparaíso in Chile.

Mombasa was chosen because child stunting was endemic amongst the urban poor. The MICS 2009 Mombasa Informal Settlement Survey found that in the poorest household quintile, severe stunting was about 22% for boys and 20% for girls, and moderate stunting was about 47% for boys and 43% for girls. Valparaíso was chosen because it was experiencing spiralling rates of overweight and obesity especially amongst the urban poor. In 2009, 9% of pre-school children attending primary health clinics in Valparaíso were over-weight, and school children in grade 1 showed higher prevalence of obesity rates (20.6%) than the national prevalence (19.4%).[8]

Methods

The study was conducted in three phases: (i) Situational analysis - selection of study-areas, sampling, randomisation and baseline data collection (ii) Action research to develop and implement small-scale intersectoral actions (iii) Follow up data collection and analysis to evaluate impact.

Phase 1

Situational analysis: Structured literature reviews were carried out to identify social determinants of child malnutrition and any existing policies, initiatives and networks to address them. The findings were supplemented with data from semi-structured interviews and

focus group discussions with professionals and parents in each study city, to illuminate the local policy environment and any current actions.

Selection of study-areas, sampling, randomisation and baseline data collection: Within Mombasa, the informal settlements known as Chaani and Kongowea were selected to be the matched intervention and control areas respectively. The study worked with a block of five villages in Chaani and with a block of six villages in Kongowea. Although both areas were informal settlements, with hindsight, they were not well matched. The intervention area had small industry on the outskirts of Mombasa whilst the control area hosted the central market with implications for how each would fare during an economic recession. For the baseline child anthropometric and linked household surveys every n^{th} household with a child between 24-49 months old was selected depending on the number of households in the village. (Intervention n=849; Control n=960.)

Within Valparaíso, the informal settlements known as Playa Ancha y Cordillera and Rodelillo y Placeres were selected to be the matched intervention and control areas respectively. These two areas were on different hills accessed by a steep climb up from the sea. Families lived in tightly packed low-cost housing with no safe outdoor play areas for children; some families living on very steep hillsides did not have land rights or access to water and sanitation. Drug cartels operated in both study areas. Four government nurseries in each study area were recruited to participate in the study because most children came from the poorest families and the literature review showed that school-based interventions could be a good starting point for reaching out to the wider community in these areas. Baseline data from household and child anthropometric surveys were collected from all 24 to 59 month old

children attending these nursery schools and their families. (Intervention n=297; Control n=226).

In the child anthropometric surveys measurements of child height and weight were made by a trained health professional using a Leicester height measure attached to an electronic Marsden weight machine (model MS4202L). Height of children was taken when barefoot, standing upright with back straight, with heels touching and looking straight forward. Each child's age was also recorded.

Phase 2: Action research

In each city, the two in-country researchers initiated and established a multisectoral, urban nutrition working group[3] at the municipal level. In Mombasa, members came from the government ministries (Public Health and Sanitation, Medical Services, Education, Water, Agriculture and Social Development), the Mombasa Water and Sewerage Company, Mombasa-based NGOs (ICRH; APHIAplus and Coast Development Authority), Mombasa Municipal Council nutrition officers and the Chief of the intervention informal settlement. The group elected the District Nutrition Officer to convene their meetings. In Valparaíso, group members were nutritionists from the Regional Secretariat of Health, the selected nursery schools, Municipal Council, local Primary Health Centres, Regional JUNJI (National Board of Nurseries), the University of Valparaíso and the Association of Street Markets of Valparaíso.

[3] In Valparaiso this group was known locally as the Participatory Action Research Learning Group

The in-country researchers then facilitated group members through three, bi-annual cycles of review, planning, action and reflection using the social educational process commonly known as PLA (Participatory Learning and Action) to build capacity for intersectoral planning. This approach, tried and tested by the WHO Healthy Urbanisation Project in Chile and the follow-on Chile Healthy Urbanisation Project, was adapted to the needs of the NICK study.

The PLA process was used to challenge existing knowledge and ways of tackling child malnutrition and enable each group to make the crucial mind-shift from understanding child malnutrition as an individual health problem towards understanding it as a complex social, political and environmental problem linked to failures of governance. This shift in mindset stimulated broad coalition-building within each group and between group members and other colleagues to enable coordinate, intersectoral actions and introduce new ways of working into their institutions.

Each cycle of action research started with a workshop to critically reflect on actions taken; challenges encountered; evaluate progress; agree on new ways of working together; plan small-scale, coordinated intersectoral actions; identify further opportunities for improving the next cycle; and refine the action plan for the next six months. Workshop reports were shared among group members and their organizations.

In the first workshop, group members critically analysed data from Phase 1 of the study to broaden their understanding of causation and possible actions.. In subsequent workshops data from monitoring the groups' activities were used to stimulate reflection and inform re-planning. Each workshop was followed up with short monthly meetings to maintain

motivation, review progress in implementing the groups' action plans, and plan any remedial action needed.

Monitoring and evaluation of actions undertaken by the working groups and of group learning

Monitoring activities in the groups' intersectoral action plans was carried out in the community by designated members of each group. For example, in Mombasa, the Agricultural Officer monitored action on food security, the nutrition officers on nutrition, the member from the Ministry of Water on water and sanitation and so forth. In Valparaíso, monitoring activities in nursery schools was carried out by nursery school teachers and JUNJI members. Efforts to improve governance were tasked to members from the Regional Secretariat of Health, the Primary Health Centres and the University of Valparaíso. Monitoring of the groups' activities was also carried out during the follow-up meetings.

During each workshop, group members also reflected on individual and group growth and on changes in the mindset of group members and their line managers about how best to tackle social determinants of child malnutrition. The Mombasa working group used a 'Learning Histories' tool to support their reflection which involved generating and sharing data from individual and group interviews on perceived changes in mindset.

Phase 3: Impact evaluation

In Mombasa, the impact of the intervention was evaluated using a before-after, case-control study design with the first wave of data from the child anthropometric survey and linked household survey in July 2011 and the second in June 2013. Stunting rates were calculated using software for the 2006 WHO standards.

The classic way to assess impact of the intervention is to say: If the areas are well-matched then any changes – independent of the intervention - should be similar in the control and intervention areas; If there is a positive impact of the intervention, then the situation should have improved more in the intervention area, and vice versa if there is a negative impact. We compared the change in severe and moderate child stunting in the intervention area against the change in the control area. This procedure is known as difference-in-difference and is now recognised as one of the most robust. However, we also checked to see if there were any significant changes in the study areas in intermediate factors, especially social determinants of child nutrition that might change quickly (i.e. between July 2011 and July 2013) and, crucially, differentially between the two intervention and control study areas such as employment, food security, income and population change.

In Valparaíso, it was not possible to collect follow-up survey data due to withdrawal of the partner institution following the resignation on health grounds of the in-country researcher who had collected the baseline data. The impact of the intervention cannot, therefore, be assessed quantitatively.

Results

From the situational analysis

In Mombasa, the key determinant of child stunting was poverty. Social determinants were poor child care practices linked to mothers doing casual day-work; violent unrest leading to displacement; pre-2010 lack of integrated policies, strategies and frameworks to tackle social determinants; weak social capital; poor child feeding practices; and domestic violence. In Valparaíso, the key social determinant was the 'obesogenic environment' characterised by low availability of healthy foods and beverages, unsafe streets with little access to recreational opportunities, increased availability of fast food and advertising, development of new forms of sedentary entertainment such as video games and the cultural view that 'plump' children were healthy.

In Kenya, there has been rapid development of government strategies, policies and action plans to improve child health and nutrition since 2010. These include the 2011 National food and Nutrition security Policy (2011), the Kenya Health Policy 2012-2030, the National Nutrition Action Plan 2012-2017, draft Urban and Peri-urban Policy (2010) and Urban Nutrition Strategy (2012-2017). In Mombasa the persistent challenge was how to translate these documents into effective intersectoral, actions for the urban poor. In Valparaíso, there are well developed national policies relating to nutrition education, improving physical activity in schools, reducing consumption of unhealthy food during school hours and community-based promotional activities. The challenge has also been implementation due to lack of cross-sectoral coordination and continuity of initiatives, other budgetary priorities and private sector vested interest.

Findings from the baseline surveys showed that factors associated with child obesity in Valparaíso and with undernutrition in Mombasa are different suggesting that the recent Lancet proposal to include them in the same model is not fruitful.[4]

From the action research

After identifying local social determinants of child malnutrition and critically reflecting on pathways to improved nutrition each group developed action plans and implemented and monitored small-scale, coordinated, intersectoral actions in their intervention areas.

In Mombasa the working group conducted training sessions to build the capacity of three community-based women's groups to improve child under-nutrition and reduce high levels of domestic violence. Each community group supported at least one other group and continued to mentor new groups after the study ended. By the end of the action research phase intervention communities, compared to control communities, were found to be better organised within themselves and in relation to available government and NGO services. They had increased supplies of fresh vegetables from balcony farming and increased income from selling surplus produce and an improved level of sanitation and waste disposal.

In Valparaíso the working group developed and started to implement an action plan to help modify the obesogenic environment for children 2-4yrs olds. The aim was to (i) strengthen the commitment of regional and local municipal government and local food providers to improve availability of healthy foods (ii) strengthen intersectoral networking and (ii) work

[4] See: Carr-Hill, R. et al (forthcoming) Can the Determinants of Undernutrition and of Obesity be Captured in the Same Model: Evidence from Mombasa, Kenya and Valparaiso, Chile? Article submitted to the Lancet.

with teachers in the selected nursery schools to generate new learning on child obesity, monitor child food consumption and implement small scale initiatives to develop healthier neighbourhoods.

In both study areas the action research enabled working group members to develop a new form of working together which challenged silo-based mentalities and bonded the members so that their capacity to work together and call on support from other sectors was strengthened. Both groups have continued to work together after the end of the study.

From the Impact Evaluation

In 2011, severe stunting (<-3SD) in the two study areas in Mombasa was about 18% for boys and 13% for girls with both rates slightly higher in Chaani. Moderate stunting (<-2SD) was about 40% for boys and 35% for girls with the rates for boys higher and the rates for girls lower in the intervention area. Two years later in 2013, severe stunting was about 12% for boys and 10% for girls with both rates higher in the intervention area. Moderate stunting was about 33% for boys and 30% for girls with the both rates higher in the intervention area. So, in the intervention area, for males there had been a 5.1% drop in severe stunting and a 6.1% drop in moderate stunting; for females, a 1.9% drop in severe stunting and a 1.5% rise in moderate stunting. In the control area, for males there had been a 7.0% drop in severe stunting and a 7.2% drop in moderate stunting; for females, a 2.8% drop in severe stunting and a 11.4% drop in moderate stunting.

Insert Table 1

For severe stunting, the difference-in-difference is a 1.9% drop in the control sit for males and a 0.9% drop for females relative to the intervention area; the changes are similar and not statistically significant. For moderate stunting, the difference-in-difference is a 1.1% larger drop in the control area for males and a 12.9% larger drop for females; the latter is much larger than the comparative drops in severe stunting, and is statistically significant at the 0.1 level. Overall, the changes in severe stunting are the same, but there have been larger drops in moderate stunting in the control area although the difference is only statistically significant for females.

The findings from household surveys showed that negative changes in employment, food security, income and population change, with the intervention area suffering more than the control area, had contributed to this unexpected result. In the intervention area, economic collapse followed closure of the Export Processing Zones which had provided vital employment. Residents became petty traders and despite increased access to fresh vegetables from their urban farming and income from selling surplus produce they had to resort to coping mechanisms including skipping meals and consuming less preferred diets. The control area was closer to the city centre and tourist hotels which provided ongoing employment.

Discussion

When intersectoral planning has been such a persistent challenge we have to ask how it was possible for these multisectoral nutrition working groups to be established, plan and implement small-scale intersectoral actions, influence policy decisions and be sustained beyond the life of the study.

Four factors were found to have been crucial for creating the enabling environment for effective intersectoral action: (i) supportive government policy (ii) broad participation and capacity building (iii) involving policy makers as advisors and establishing the credibility of the research and (iii) strengthening community action.

Supportive government policy. Although both study countries had a supportive national policy environment for intersectoral actions there was initially little motivation for it on the ground. In Kenya, however, a call from the Government of Kenya in 2011 for urban nutrition working groups to be established provided a mandate for the study. Working group members used this mandate to negotiate with their line managers to participate in the action research, to implement their activities as part of their agreed workloads and to ensure that group membership remained relatively stable. In Chile, the policy environment was also supportive and Charnes, who had led the two Healthy Urbanisation Projects mentioned above, used her experience and networks to establish the group.

Broad participation and capacity building At the outset of the study intersectoral planning was relatively new to members of both working groups. It was therefore crucial to build their capacity using the PLA process to guide the action research. This process challenged members to think and act differently; to reflect and agree on their individual and collective actions and personal growth; to manage competing demands and expectations and ensure that the evidence base was used to support decisions.

Involving policy makers as advisors and establishing the credibility of the research. In each country, members of the study advisory group were involved in policy development at the international, national or local level. Additional members were recruited locally during the

study in response to the fast changing political environment and movement of key personnel. Members of the research team were able to establish the credibility of the study because they were experienced development practitioners in the study countries with a track record of good quality research and practice. These two factors have enabled the study findings to influence policy in Kenya. In 2012, two working group members participated in drafting the Kenya National Nutrition Action Plan drawing on evidence from the study and in 2013 the new Mombasa County Government used the findings to inform the design of programmes and policies on nutrition and childcare. At the end of the study, in 2012, the Ministry of Public Health and Sanitation Health in Mombasa accepted responsibility for the working group as it prepared to transform and transition into the County Urban Nutrition Working Group.

Strengthening community action. In both study areas community groups were identified, trained and supported to help implement the working groups' action plans and they became part of the planning meetings to engender ownership. For example, in Kenya, the self-help group leaders participated in the circles of review, reflection and action planning and were thereby informed of the thinking behind the decisions made at the working group level. In this way linkages to tackle poor child nutrition were created, household relationships were positively impacted and community members decided to take further the balcony farming and waste management actions to improve their families lives and themselves proposed and took action to tackle domestic violence. Some of the growth witnessed within the intervention community was unexpected, since the NICK study's main intervention was to facilitate intersectoral collaboration.

In conclusion, this study has demonstrated that a sensitively facilitated and supported action research process can help to tackle the urban health divide by overcoming the challenges facing intersectoral planning teams. Furthermore, this process can, in turn, help to build the capacities of poor urban communities to tackle social determinants of child malnutrition. These findings are important because the manner in which we shape and steer change in the city will have a major bearing in determining our destiny in the post-2015 period. If lessons learned from this study can be adapted and applied in other contexts then they could have a significant economic and societal impact on health and nutrition equity in informal urban settlements.

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Table 1 Severe and Moderate Stunting in the study areas in 2011 and 2013: children between 24 and 59 months inclusive only

	N	< -3	< -2	Mean	SD
Intervention area – Chaani					
2013 Male	220	13.2%	34.5%	-1.33	1.42
2011 Male	197	18.3%	40.6%	-1.69	1.45
2013 Female	256	11.7%	32.8%	-1.41	1.29
2011 Female	176	13.6%	31.3%	-1.46	1.37
Control area - Kongowea					
2013 Male	268	10.8%	31.3%	-1.27	1.47
2011 Male	208	17.8%	38.5%	-1.65	1.40
2013 Female	255	9.0%	27.5%	-1.28	1.31
2011 Female	229	11.8%	38.9%	-1.49	1.39