Unconditional Seasonal Cash Transfer Increases Intake of High-Nutritional-Value Foods in Young Burkinabe Children: Results of 24-Hour Dietary Recall Surveys within the Moderate Acute Malnutrition Out (MAM' Out) Trial

Tonguet-Papucci A, Houngbe F, Huybregts L, Ait-Aissa M, Altare C, Kolsteren P, Huneau JF. J Nutr. 2017 Jul; 147(7) 1418-1425. doi: 10.3945/jn.116.244517. Epub 2017 May 31.

Introduction

Various forms of suboptimal nutrition or infant feeding practices, including fetal growth restriction, suboptimal or poor breastfeeding practices, stunting, wasting, and deficiencies of vitamin A and zinc together are estimated to cause 45% of all deaths among children less than 5 years or 3.1 million deaths annually [1]. In 2015 in Burkina Faso, 32.9% of all children less than 5 years of age were stunted, 10.9% were wasted and, 14% were born with low birth weight [2]. Diverse nutrition-specific and nutrition-sensitive intervention strategies have been implemented to address direct and underlying causes of children's malnutrition. Cash transfer programs can be an example of a nutrition-sensitive activity, and such programs were shown to have positive effects on food security [3-5] and household expenditures on food [6, 7]. However, little is known about the effect of cash transfer programs on children's dietary intake.

The current Nutrition News for Africa summarizes a paper recently published in the *Journal of Nutrition*. The objectives of this study were to assess the impact of an unconditional cash transfer program on energy, macro- and micronutrient intakes among children between 14 and 27 months of age.

Methods

The present study was designed as a cross-sectional substudy nested within the Moderate Acute Malnutrition Out (MAM'Out) study, a cluster-randomized controlled trial conducted in rural villages of Tapoa province in the Eastern region of Burkina Faso. The MAM'Out study aimed to evaluate the effect of a multiannual seasonal unconditional cash transfer program on the prevention of acute malnutrition among children. Briefly, sixteen villages were randomly assigned to monthly cash payments from July to November in both 2013 and 2014, and 16 other villages to the control group. The amount of 10,000 West African CFA franc (XOF; approximatively US$ 17) was donated monthly to mothers via mobile phones, with no conditions or restriction on use. Children <1 year of age living in poor and very poor households based on the Household Economic Approach [8] were enrolled (n=1278) and followed for 2 years.

For the present sub-study, 26 of 32 villages were selected for their year around accessibility. All children previously enrolled in the MAM'Out study were eligible, and 166 children per study arm were randomly chosen to participate in the 24-h dietary recall study. The cross-sectional substudy was conducted during the lean season of the cash transfer intervention period (i.e July and August 2014).

Two interactive 24-h dietary recalls of all foods consumed by the children were implemented and questionnaires on breastfeeding practices were collected on two nonconsecutive days following guidelines for assessing the adequacy of iron and zinc intakes in low income countries [9]. In addition,

information on children's date of birth and nutrition status, level of caregiver's education, and the household's socioeconomic status were imported from the MAM'Out database for the purpose of analysis.

Based on the 2 dietary recalls collected per child, the usual intake distributions of nutrients and energy were generated by using the Multiple Source Method [10]. To assess infant feeding practices, the foods were categorized into 7 groups of foods: 1) grains, roots, and tubers; 2) legumes and nuts; 3) dairy products; 4) flesh foods; 5) eggs; 6) vitamin A–rich fruit and vegetables; and 7) other fruit and vegetables. A dietary diversity score (DDS) was calculated and the minimum acceptable diet was defined according to the World Health Organization as having a DDS ≥4 and a sufficient meal frequency (e.g., 2 or 3 meals/24 h for breastfed and 4 meals for non-breastfed children, respectively) [11].

Results

In total, 1278 children were enrolled and randomized to be in the intervention and the control groups; and 322 children ages 14-27 months completed both dietary recalls. A few children (n=6 in the intervention and n=4 in the control group) were excluded from the dietary analyses due implausible reporting. Children had a mean age of 20.5±0.2 months and 72% were still partially breastfed. Baseline characteristics were comparable between both intervention group and control groups except for weight-for-height z-score which was slightly lower in the control group than in the intervention group (-0.89±0.07 compared with -0.77±0.07); and socioeconomic status, with more intervention households being classified as having a medium socioeconomic status (40.9% compared with 32.9%).

Unconditional cash transfers during the lean season improved children's diets with a higher proportion of children in the intervention group reportedly consuming dairy products (25.0% vs 7.4% [OR: 4.14; 95% CI: 1.48, 11.6; P =0.007]), flesh foods (26.3% vs 14.8% [OR: 2.09; 95% CI:1.18, 3.70; P = 0.01]), and eggs (31.3% vs 11.1%, [OR: 3.61; 95%CI: 1.56, 8.37]), although the amount of these foods consumed was only significantly different between the two study groups for eggs (11.3±1.55 vs 3.25±0.79 g; P < 0.001). There was no difference in energy intake between the 2 groups. However, children in the intervention group tended to consume more fat (p<0.01) and more protein (p=0.06) than children in the control group. The intake of most micronutrients did not differ between the two groups, except for the intakes of vitamin B_{12}, riboflavin and vitamin E, which was significantly higher in the intervention group compared to the control group.

Almost all children met the minimum meal frequency in both groups. The minimum dietary diversity was adequate in two-thirds of the children who benefited from cash transfers compared with only one-third in the control group (P < 0.001). More children of mothers enrolled in the cash transfer intervention also reportedly consumed iron-rich or iron-fortified foods compared to the control group (58% vs 33%, [OR: 2.23; 95% CI: 1.20, 4.13; P < 0.05]).

Conclusions and policy implications

Results of the present study showed that an unconditional seasonal cash transfer program during the lean season did not lead to a higher energy intake of young Burkinabe children aged 14–27 months living in rural areas. However, more children of mothers who benefited from the cash transfer program consumed animal-source foods, such as eggs, dairy products and flesh foods. Consequently, a larger proportion of children who benefited from cash transfers met the adequate minimum DDS than children in the control group and increased reported consumption of micronutrients like vitamin B_{12} and

riboflavin, which are typically provided from these foods. Similar results were found in two others studies conducted in Malawi and Kenya where in households benefiting from unconditional cash transfer more individuals consumed protein rich foods such meat, fish and dairy products than in the control group [12, 13].

Although the results are promising, it is uncertain whether the reported improvements in dietary practices may result in a positive effect on children's health. Nevertheless, considering the high rate of malnutrition among children in Burkina Faso and the limited availability of food during lean season, these results suggests that unconditional seasonal cash transfer program may be a promising strategy to improve young children's dietary practices.

NNA Editor's Comments *

The strengths of this study include the fact that it was nested in a randomized controlled study (the MAM'Out study) and consisted of two 24-h dietary recalls. However, the study excluded some inaccessible villages, where the rate of malnutrition was also high and access to markets were likely limited. Thus, the impact in more remote areas remains uncertain.

It is encouraging that unconditional cash transfer resulted in improved feeding practices of young children. It will be interesting to find out whether the program had an impact on the prevalence of moderate acute malnutrition, which was the primary objective of the study. If future cash transfer programs are implemented, programs may want to consider implementing behavior change communication activities aiming to improve infant and young child feeding practices concurrently.

References

1. Black RE, Victora CG, Walker SP, Bhutta ZA, Christian P, de Onis M, Ezzati M, Grantham-McGregor S, Katz J, Martorell R, Uauy R, Maternal, Child Nutrition Study G. Maternal and child undernutrition and overweight in low-income and middle-income countries. Lancet 2013;382:427-51.
2. United Nations Children's Fund. The state of the world's children 2015 country statistical tables-Burkina Faso. 2015.
3. Fiszbein A, Schady NR, FH F. Conditional cash transfers: reducing present and future poverty. World Bank Publications Washington (DC): World Bank Publications, 2009.
4. Vincent K, Cull T. Impacts of social cash transfers: case study evidence from across southern Africa. Instituto de Estudos Sociais e Economicos Maputo (Mozambique): Instituto de Estudos Sociais e Economicos, 2009.
5. Fenn B, Noura G, Sibson V, Dolan C, J. S. The role of unconditional cash transfers during a nutritional emergency in Maradi region, Niger: a pre-post intervention observational study. Public Health 2015:343–51.
6. Kenya CT-OVC Evaluation Team. The impact of the Kenya cash transfer program for orphans and vulnerable children on household spending. J Dev Effect 2012:9-37.
7. Alderman H. Can transfer programs be made more nutrition sensitive? International Food Policy Research Institute Washington (DC): International Food Policy Research Institute, 2014.

8. Boudreau T, Lawrence M, Holzmann P, O'Donnell M, Adams L, Holt J, Hammond L, Duffield L. The Practicioners' Guide to the Household Economy Approach. Economy Group Johannesburg (South Africa): Economy Group, 2008.
9. Gibson RS, Ferguson EL. An interactive 24-hour recall for assessing the adequacy of iron and zinc intakes in developing countries. International Food Policy Research Institute and International Center for Tropical Agriculture Washington (DC) and Kigali (Rwanda): International Food Policy Research Institute and International Center for Tropical Agriculture, 2008.
10. Harttig U, Haubrock J, Knuppel S, Boeing H, Consortium E. The MSM program: web-based statistics package for estimating usual dietary intake using the Multiple Source Method. Eur J Clin Nutr 2011;65 Suppl 1:S87-91.
11. World Health Organization, Food and Nutrition Technical Assistance project (FANTA), Macro International, University of California D, Institute IFPR. Indicators for assessing infant and young child feeding practices: part 1: definitions: conclusions of a consensus meeting held 6–8 November 2007 in Washington DC, USA Geneva (Switzerland), 2008.
12. Miller CM, Tsoka M, Reichert K. The impact of the social cash transfer scheme on food security in Malawi. Food Policy 2011:230–8.
13. Haushofer J, Shapiro J. Policy brief: impacts of unconditional cash transfers. Massachusetts Institute of Technology Cambridge (MA): Massachusetts Institute of Technology, 2013.

Helen Keller INTERNATIONAL

Nutrition News for Africa is a monthly electronic newsletter whose aim is to disseminate state-of-the-art research and policy papers to scientists, program planners, policy makers, and opinion leaders working in the field of public health nutrition in Africa. The newsletter is prepared as a collaborative effort of Helen Keller International (HKI) and the Program in International and Community Nutrition (PICN) of the University of California, Davis. HKI regional staff members and students and faculty members of the PICN identify and summarize relevant articles and policy statements from the scientific literature and international agency publications. We also encourage members of this network to suggest possible documents of interest and to provide feedback on the articles selected.

UCDAVIS UNIVERSITY OF CALIFORNIA