

Impact of a cash-for-work programme on food consumption and nutrition among women and children facing food insecurity in rural Bangladesh

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Objective To determine whether a cash-for-work programme during the annual food insecurity period in Bangladesh improved nutritional status in poor rural women and children.

Methods The panel study involved a random sample of 895 households from over 50 000 enrolled in a cash-for-work programme between September and December 2007 and 921 similar control households. The height, weight and mid-upper arm circumference of one woman and child aged less than 5 years from each household were measured at baseline and at the end of the study (mean time: 10 weeks). Women reported 7-day household food expenditure and consumption on both occasions. Changes in parameters were compared between the two groups.

Findings At baseline, no significant difference existed between the groups. By the study end, the difference in mean mid-upper arm circumference between women in the intervention and control groups had widened by 2.29 mm and the difference in mean weight, by 0.88 kg. Among children, the difference in means between the two groups had also widened in favour of the intervention group for: height (0.08 cm; $P < 0.05$), weight (0.22 kg; $P < 0.001$), mid-upper arm circumference (1.41 mm; $P < 0.001$) and z-scores for height-for-age (0.02; $P < 0.001$), weight-for-age (0.17; $P < 0.001$), weight-for-height (0.23; $P < 0.001$) and mid-upper arm circumference (0.12; $P < 0.001$). Intervention households spent more on food and consumed more protein-rich food at the end of the study.

Conclusion The cash-for-work programme led to greater household food expenditure and consumption and women's and children's nutritional status improved.

Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

Introduction

Cash-for-work programmes are usually associated with disasters and emergencies and have been implemented in Afghanistan, Bangladesh, Haiti, Indonesia, Pakistan and Uganda.¹ Many organisations employed cash interventions after the Asian tsunami of 2004 and cash-for-work programmes were widespread in Aceh, Indonesia, and in Sri Lanka.² However, when implemented incorrectly, these programmes can disrupt the local economy, artificially inflate wages and result in unsustainable shifts in the labour force.³

In north-western Bangladesh there is an annual period of food insecurity (the *monga*) that generally occurs between mid-September and mid-November and is primarily caused by unemployment and a lack of income before the large *aman* rice harvest.⁴ People who live on *chars*, which are large flat islands in the main river channels, are particularly affected by the *monga* as flooding occurs during the preceding months almost every year. When flooding is severe, there can be household damage, a loss of assets, disruption of agricultural activities and obstacles to rearing livestock. *Chars* dwellers may be confronted with river bank erosion, which can take away their homestead and any land they possess. The scarcity of work also has severe repercussions for the income of poor *chars* households and many are obliged to reduce their food intake during this period.⁵

The Chars Livelihood Programme (<http://www.clp-bangladesh.org>), funded by the United Kingdom Department for International Development, aims to lift over 55 000 extremely

poor households out of poverty by providing income-generating assets. Households are provided with a raised earthen plinth on which their homes are reconstructed and homestead gardens can be established. In part, these plinths are created by a labour-intensive earthmoving process that involves members of poor *chars* households.⁶

In August and September 2007, widespread severe flooding across northern Bangladesh intensified and prolonged the impact of the *monga* for *chars* dwellers.⁶ In some households participating in the Chars Livelihood Programme, the cash-for-work intervention was implemented between September and December 2007 to coincide with the *monga*. The programme provided approximately 2.6 million person-days of paid work during which both men and women received 36 taka (about US\$ 0.50) for each cubic metre of soil moved in the construction of the earthen plinths.

No previous research has been conducted into the impact of cash-for-work programmes on nutritional status. In Bangladesh there was concern among some nongovernmental organisations that the physical labour required by the local cash-for-work programme would cause women to lose weight and to neglect their children because the mothers needed to work quite long hours. If this occurred, the programme would be counterproductive and would probably be detrimental to the health of the people it was intended to help. The present panel study was designed to determine whether women and children aged less than 5 years from landless households who were living on *chars* and who participated in a *monga* season cash-for-work programme

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were able to maintain a better nutritional status than similar women and children living in the same geographical area who belonged to households not taking part in the programme.

Methods

Study design

Over 100 000 households were enrolled in the Chars Livelihood Programme and the subsidiary cash-for-work programme was open to all members of the community. The wage rate was specified in advance. The panel study involved 1009 households containing a child aged less than 5 years and an adult female (usually the mother) which were randomly selected from more than 50 000 taking part in the cash-for-work programme and 1051 similarly selected control households that were not taking part in the programme. The two groups were comparable in household size, the adults' occupations and the age of the adult female family member. Several households were not included in the final analysis because the observed z -scores for some anthropometric measurements were outside of the acceptable ranges, which were -6 to $+6$ for the height-for-age z -score, -6 to $+5$ for the weight-for-age z -score, and -5 to $+5$ for the weight-for-height and mid-upper arm circumference z -scores.⁸ The final analysis included 1816 households (895 intervention and 921 control households). Tests of statistical power, carried out using SPSS Sample Power version 2 (SPSS Inc., Chicago, United States of America), showed that these numbers were sufficient to demonstrate significant differences at $P < 0.01$ and to provide a power of 90%, which was chosen to reduce errors. Of the 1816 households, 1800 (99%) had access to safe drinking water but had no cultivable or homestead land. Each intervention household contained either an adult female family member who actively worked in the cash-for-work programme (i.e. an "active" woman) or an adult female family member who did not work for the programme (i.e. a "non-active" woman) though a male household member did. There were 426 active women and 469 non-active women. In addition, all 895 intervention households contained one or more children aged less than 5 years. If there was more than one child aged less than 5 years in the household, one was selected randomly for assessment in the study.

Data collection

The study was carried out for the Chars Livelihood Programme by trained staff working for Helen Keller International, Dhaka, Bangladesh. Both intervention and control households were recruited between mid-September and early October 2007 from the Gaibandha and Kurigram districts of north-western Bangladesh. A structured interview was completed by the same adult female at baseline and at the end of the study in all households. The study teams used standard interviewing techniques, including reverse chronological description of consumption. The questionnaire used contained items on the number of days on which specific foods were consumed in the 7 days before the interview, the household's dietary habits, morbidity, socioeconomic factors and the household's contingency plans and coping strategies for the *monga*. Information on food consumption and the cost of food was collected verbally. Food costs were verified independently by research staff who visited local markets to determine the costs of the different food types mentioned in the questionnaire.

The women's height, weight and mid-upper arm circumference were measured at both baseline and at the end of the study, which was typically in mid-December 2007 since the mean duration on the panel was 10 weeks (range: 8–12). In addition, the height, weight and mid-upper arm circumference of each woman's child less than 5 years or of another child aged less than 5 years from the same household were also measured. All measurements were made using standard anthropometric techniques.⁷ Although no particular provision was made for caring for children aged less than 5 years, all workers in the cash-for-work programme were assigned to a specific site in their respective villages and were given a 2-hour break during the day. Height-for-age, weight-for-age, weight-for-height and mid-upper arm circumference z -scores were determined for the children using international standards,⁸ and a child was classified as stunted, underweight, wasted or of low mid-upper arm circumference, respectively, if the z -score was < -2.0 . Each woman's body mass index (BMI) was calculated and women were categorized according to their BMI as having either grade III chronic energy deficiency (BMI: < 16.0), grade II chronic energy deficiency (BMI: 16.0–16.9) or grade I chronic energy deficiency (BMI: 17.0–18.49) or a

normal nutritional status (BMI: ≥ 18.5).⁹ Data were verified by supervisors from Helen Keller International who revisited a random selection of 5% of households.

Statistical analysis

As this was a panel study, the analysis investigated within-woman and within-child changes between baseline and the end of the study. Sequential multiple regression analysis was used to test for changes in the mean differences in anthropometric and nutritional variables between intervention and control groups; corrections were made for the linear and quadratic effects of age in women and for the linear and quadratic effects of age and sex in children. For categorical data, χ^2 tests were used to examine differences between the groups and McNemar's test was applied to paired samples.

Results

Baseline characteristics

Households

The baseline demographic characteristics of households participating in the study are presented in Table 1. There was no significant difference between intervention and control households in the mean age of the women or child in the household or in the proportion of children who were male, which was just over 50%. Illiteracy levels were very high in both genders, and higher in females than males. The significantly higher illiteracy rate found in intervention households was therefore partially attributable to the fact that significantly more intervention households had a female head. The main wage earner in most households was a labourer, who was usually employed on a daily basis.

Women

There was no significant difference in mean baseline height, weight, BMI or mid-upper arm circumference between women in intervention and control households. Overall, their mean height was 150.5 cm, their mean weight was 42.2 kg, their mean mid-upper arm circumference was 234.1 mm and their mean BMI was 18.6. Overall, 51.6% (937/1816) of all women had a BMI < 18.5 . The percentages of women with different grades of chronic energy deficiency were very similar in the two groups: 30.4% and 34.6% of those in intervention and control households, respectively, had grade I chronic energy deficiency; 13.6%

and 11.8%, respectively, had grade II chronic energy deficiency; and 7.2% and 5.7% respectively, had grade III chronic energy deficiency. In intervention households, there was no significant difference between non-active women and active women in mean baseline height, weight, BMI or mid-upper arm circumference or in the percentage with different grades of chronic energy deficiency.

Children

No significant difference in mean baseline height, weight or mid-upper arm circumference was observed between children from intervention and control households. Overall, their mean height was 82.8 cm, their mean weight was 10.1 kg and their mean mid-upper arm circumference was 141.7 mm. Their mean height-for-age z-score was -1.98 , their mean weight-for-age z-score was -1.94 , their mean weight-for-height z-score was -1.17 and their mean mid-upper arm circumference z-score was -0.98 . Overall, 51.3% (932/1816) of the children were stunted, 47.6% (864/1816) were underweight, 18.6% (379/1816) were wasted and 9.4% (171/1816) had a mid-upper arm circumference z-score < -2.0 .

Household food

There was no significant difference between intervention and control households in the mean quantity of pulses, eggs, fish, green leafy vegetables, meat, cereal, rice or fruit reported as being consumed in the 7 days before the baseline survey was carried out, nor was there any significant difference in mean expenditure on these food items.

Changes during the study

Women and children in the intervention group showed significantly greater improvements in all anthropometric and nutritional measures than the control group. Changes in anthropometric measurements between baseline and the end of the study are illustrated in Fig. 1.

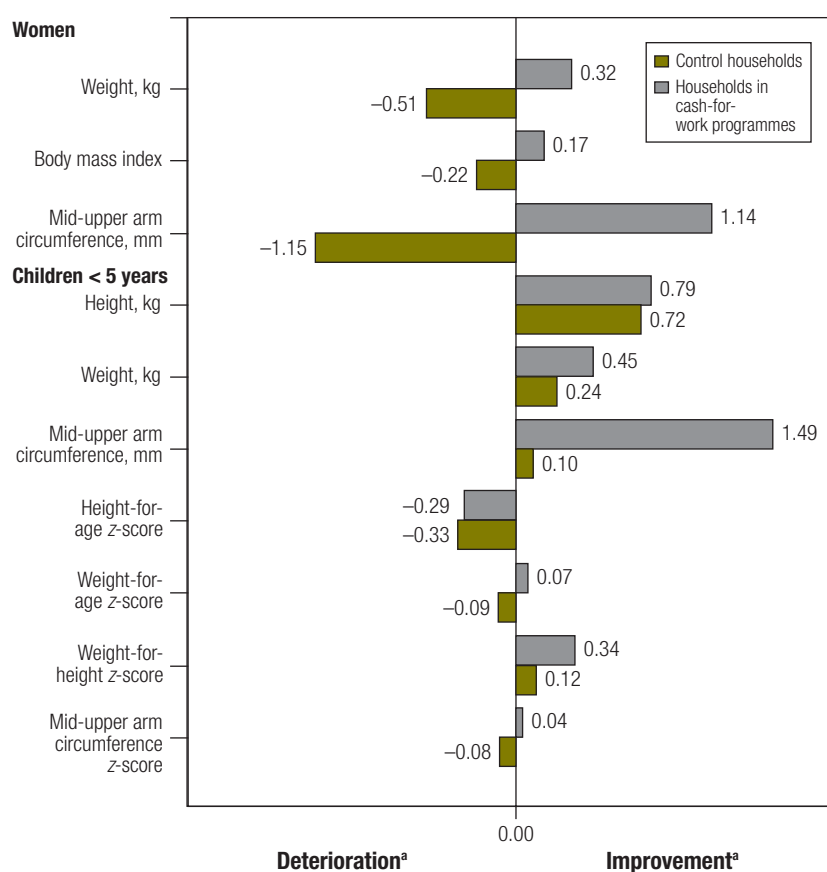
Women

On average, women in the intervention group increased in weight and mid-upper arm circumference during the study, whereas those in the control group experienced decreases: the mean increase in weight in women in the intervention group relative to those in the control group was 880 g and the mean relative increase in mid-upper arm circumfer-

Table 1. Baseline demographic characteristics of households participating in a cash-for-work programme and control households, Bangladesh, 2007

Characteristic	Households		P
	In programme (n= 895)	Control (n= 921)	
Age of adult female family member in years, mean	25.0	25.0	0.966
Age of child in months, mean	30.2	29.4	0.295
Households with a male child, %	50.9	50.4	0.632
Households with a female head, %	8.5	5.1	0.004
Illiteracy of main earner, %	85.6	77.2	< 0.001
Usual occupation of main earner			
Day labourer, %	82.1	86.8	0.005
Other, %	17.9	13.2	

Fig. 1. Change between baseline and the end of a panel study in anthropometric measurements^a of women and children aged less than 5 years from households in a cash-for-work programme and control households, Bangladesh, 2007



^a Anthropometric measurements were corrected for the effects of age in women and for the effects of age and sex in children.

ence was 2.29 mm. Significantly fewer women in the intervention group had a BMI < 18.5 at the end of the study: the percentages were 48.4% and 56.6% in intervention and control groups, respectively ($\chi^2 = 11.7$; $P < 0.001$). Correspondingly, the percentages of women with grade I, grade II or grade III chronic energy deficiency were all lower in the in-

tervention than in the control group (data not shown). In the intervention group, BMI improved in 9.7% of women while it worsened in 0.9%; the corresponding figures in the control group were 2.4% and 9.3% for improved and worsened BMI, respectively. Overall, 3.4% of women in the intervention group improved from having chronic energy deficiency to a

normal BMI, compared with no women in the control group. Conversely, 4.3% of women in the control group changed from having a normal BMI to having chronic energy deficiency, compared with 0.7% in the intervention group. There was no significant difference in weight gain between non-active women and active women in intervention households: the mean gains in these two subgroups were 0.95 kg and 0.80 kg, respectively. Nor was there a significant difference in the increase in mid-upper arm circumference (2.74 mm and 1.74 mm in the two subgroups, respectively) or in the increase in BMI (0.42 and 0.36, respectively).

Children

During the study, children from intervention households gained, on average, 0.7 mm in height, 210 g in weight and 1.39 mm in mid-upper arm circumference more than those from control households, after adjustments for age and sex (Fig. 1). Among children from intervention households, but not those from control households, there were also significant reductions in the percentages who were underweight or wasted or who had a low mid-upper arm circumference. For example, 7.3% of the children from intervention households improved from being underweight to having a normal weight, compared with only 3.3% of those from control households. Conversely, only 2.1% of children from intervention households became underweight, compared with 7.7% of those from control households ($\chi^2 = 43.7$; $P < 0.001$). In these two groups, respectively, 9.1% and 6.9% improved from being wasted to having a normal weight-for-height, while 1.3% and 5.4% became wasted (overall $\chi^2 = 25.6$; $P < 0.001$). There was no significant difference between children from intervention households with active or non-active women.

Household food

Overall, 99.7% of intervention households reported spending some of the money earned in the cash-for-work programme on food and nearly three-quarters stated that a family member had paid for medical treatment. Intervention households spent significantly more on food than control households (Table 2), with marked percentage increases in the consumption of eggs, meat, fish, milk, pulses and green leafy vegetables (Fig. 2).

Table 2. Reported food expenditure^a by households participating in a cash-for-work programme and control households in the 7 days before the end of a panel study, Bangladesh, 2007

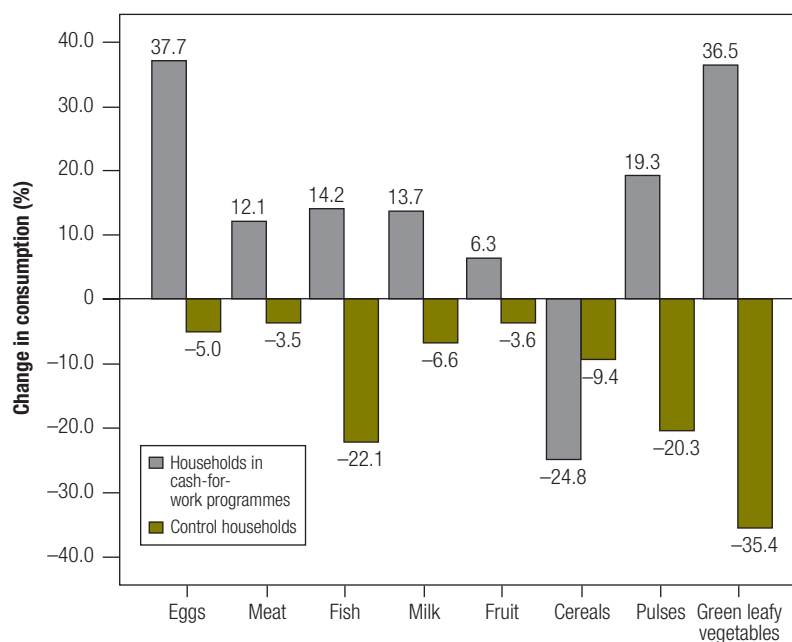
Food type ^b	Households				P
	In programme (n=895)		Control (n=921)		
	Mean (US\$)	SD (US\$)	Mean (US\$)	SD (US\$)	
Cereals	4.11	2.60	1.60	1.10	<0.001
Pulses	0.12	0.16	0.03	0.08	<0.001
Green leafy vegetables	0.36	0.23	0.15	0.15	<0.001
Eggs	0.05	0.10	0.01	0.04	<0.001
Fish	0.50	0.35	0.12	0.17	<0.001
Meat	0.06	0.27	0.01	0.09	<0.001
Oil	0.23	0.16	0.14	0.10	<0.001

SD, standard deviation.

^a Expenditure was recorded in Bangladeshi taka and converted to United States dollars.

^b Details of expenditure on milk and fruit were not available.

Fig. 2. Change between baseline and the end of a panel study in food consumption^a by households in a cash-for-work programme and control households, Bangladesh, 2007



^a The change in consumption is the numerical difference between the percentage of households that had at least one day of consumption of the designated food in the 7 days before the interview at the study end and the percentage that had at least one day of consumption in the 7 days before the baseline interview.

At the end of the study, the reported consumption of eggs, meat, fish, pulses, green leafy vegetables, milk and fruit was significantly greater and cereal consumption was lower among children from intervention households than among those from control households (Table 3). The differences in egg, meat and fish consumption were particularly marked. For example, 74.6% of children from

intervention households had eaten fish on three days or more in the 7 days before the end of the study, compared with 2.7% of those from control households.

As shown in Fig. 2, food consumption reported by intervention households increased between baseline and the end of the study for seven of the eight food types examined (i.e. all except cereals), while consumption by children from

control households decreased for all eight food types. Moreover, these changes were all significant (McNemar's paired test: $P < 0.001$ for all food types).

Discussion

The cash-for-work programme reported here may be viewed in the wider context of the longer-term conditional cash transfer programmes that have been increasingly used to transfer money to poor households on the condition that they comply with certain requirements: for example, attending health-care sessions, using food and nutritional supplements or enrolling children in school. The few conditional cash transfer programmes that have focused on nutritional status have produced conflicting results. One Brazilian study found a small negative impact,¹⁰ while a Mexican study showed that children in programmes involving both cash transfer and multi-micronutrient supplementation grew about 1 cm more than those who received neither intervention.¹¹ However, it was not possible to differentiate the effect of cash transfer from that of multi-micronutrient supplementation. Recent analyses of Mexican data have shown that doubling the quantity of cash transferred was associated with, for example, a better height-for-age ratio and a lower prevalence of childhood stunting.¹²

The results of the Bangladeshi study reported here indicate that implementing a cash-for-work programme at a crucial time of the year led to significant gains in the nutritional status of both children aged less than 5 years and women. These improvements also occurred in women who took part in the physically demanding cash-for-work programme. Although this was a short-term intervention, it could have longer-term benefits: selling household assets may become unnecessary and individuals may not have to agree in advance to work for less money in the future. In addition, the earthen plinths constructed in the programme, which have a life expectancy of 25–30 years, improve household security.

Although the improvements observed in child nutritional status are encouraging, with the main gain being less wasting due to acute malnutrition in intervention households (Fig. 1), many individuals in both intervention and control households continued to suffer from malnutrition. In a recent nationwide survey,¹³ 39.2% of children aged less than 5 years in Bangladesh were

Table 3. Reported number of days of food consumption by children from households participating in a cash-for-work programme and from control households in the 7 days before the end of a panel study, Bangladesh, 2007

Food type and no. of days consumed	Households		P^a
	In programme ($n=895$)	Control ($n=921$)	
	%	%	
Eggs			<0.001
0	45.5	89.3	
1	28.2	7.7	
2	18.4	2.2	
3	4.5	0.5	
4 or more	3.5	0.3	
Meat			<0.001
0	80.8	96.7	
1	15.0	3.1	
2	4.2	0.1	
Fish			<0.001
0	7.4	44.8	
1	3.9	35.3	
2	14.1	17.2	
3	21.9	1.6	
4	23.9	0.9	
5	13.7	0.2	
6	7.4	0	
7	7.7	0	
Cereals			<0.001
0	91.8	76.7	
1	2.0	2.4	
2	1.6	5.4	
3	1.6	3.8	
4 or more	3.0	11.7	
Pulses			<0.001
0	25.7	62.3	
1	23.2	23.2	
2	27.3	11.3	
3	12.5	1.8	
4 or more	11.3	1.3	
Green leafy vegetables			<0.001
0	4.9	7.7	
1	2.7	7.8	
2	13.2	22.6	
3	12.7	24.2	
4	19.1	19.8	
5	11.6	9.6	
6	10.8	2.7	
7	24.9	5.6	
Milk			<0.001
0	70.4	92.0	
1	12.1	4.9	
2	5.9	1.7	
3	2.7	0.5	
4 or more	8.9	0.9	
Fruit			<0.001
0	87.3	97.2	
1	5.6	1.4	
2	3.2	0.7	
3 or more	3.9	0.8	

^a The P -values were obtained by comparing the number of days each food type was consumed by children from households participating in a cash-for-work programme and by children from control households using the chi-squared test.

found to be stunted, while 45.7% were underweight and 11.9% were wasted. At the end of the study, the prevalence of underweight and wasting in intervention households resembled the national prevalences: 43.7% and 11.4%, respectively. However, the corresponding figures in control households were worse, at 50.8% and 16.5%, respectively. Notably, the prevalence of stunting at the end of the study was much higher than the national average in both groups: it was 60.6% in children from intervention households and 64.5% in those from control households. Moreover, it had increased during the study: by 10.7% in the intervention group and by 11.9% in the control group. The higher rates of chronic malnutrition may have been partly due to the seasonal changes in nutritional status that have been documented in Bangladesh¹³ or to increased levels of infection and morbidity

occurring at the time of the year when the study took place.¹⁴

Although no specific nutritional education was provided, households taking part in the cash-for-work programme spent more, in particular, on protein-rich foods such as fish, meat, eggs and milk, as well as on fruit, which is rich in folate, potassium and vitamin C. Detailed information on the actual quantity of food consumed by women and their children was not available, as that would have necessitated collecting data about portion sizes or weighing the food consumed.¹⁵ However, the level of food consumption reported is plausible. The resulting more diverse diet should lead to increased intake of vitamins important for growth, development and general health.

In conclusion, our findings indicate that the cash-for-work programme led to a greater quantity and variety of food,

particularly animal protein, being consumed during the annual period of food insecurity in Bangladesh and resulted in a significant improvement in the short term nutritional status of women and children living on *chars*. Even women who actively took part in the physically demanding work associated with the programme experienced an improvement in nutritional status. Over the longer term, the significant reduction of both acute and chronic malnutrition among *chars* dwellers will depend on lifting them out of poverty. ■

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Competing interests: None declared.

ملخص

تأثير برنامج النقد مقابل العمل على استهلاك الغذاء وعلى التغذية بين النساء والأطفال الذين يواجهون انعدام الأمن الغذائي في المناطق الريفية من بنغلاديش

من الذراع بين النساء في مجموعة المدخلة ومجموعة الشواهد، وبلغ 2.29 ملي متر، وكان الاختلاف في متوسط الوزن 0.88 كيلوغراماً. أما في الأطفال، فكان الاختلاف بين متوسط المجموعتين قد ازداد أيضاً لصالح مجموعة المدخلة. فبالنسبة للطول (بلغ 0.08 سنتي متر؛ قوة الاحتمال أقل من 0.05)، وبالنسبة للوزن (بلغ 0.22 كيلوغرام؛ قوة الاحتمال أقل من 0.001)، ومحيط النصف العلوي من الذراع كان (1.41 ملي متر، قوة الاحتمال أقل من 0.001)، وبلغ حرز Z للطول-مقابل-العمر (0.02؛ قوة الاحتمال أقل من 0.001)، والوزن-مقابل-العمر كان (0.17؛ قوة الاحتمال أقل من 0.001)، والوزن-مقابل-الطول كان (0.23؛ قوة الاحتمال أقل من 0.001)، وفي النصف العلوي من الذراع كان (0.12؛ قوة الاحتمال أقل من 0.001). وفي نهاية الدراسة كانت عينة العائلات التابعة للمدخلة هي التي تنفق أكثر على الغذاء وتستهلك غذاءً أغنى بالبروتينات.

الاستنتاج أدى برنامج النقد مقابل العمل إلى زيادة نفقات العائلات على الغذاء واستهلاكه، وتحسن الوضع التغذوي للنساء والأطفال.

الغرض تحديد ما إذا كان برنامج النقد مقابل العمل أثناء الفترة السنوية لانعدام الأمن الغذائي في بنغلاديش يحسن من الوضع التغذوي للنساء والأطفال في المناطق الريفية.

الطريقة اشتملت دراسة المجموعة على عينات عشوائية لعدد من العائلات بلغ 895 من بين أكثر من 50000 عائلة مشتركة في برنامج النقد مقابل العمل في الفترة من أيلول/سبتمبر إلى كانون الأول/ديسمبر من عام 2007، مع 921 عائلة مماثلة من الشواهد. ولقد قيس الطول والوزن ومحيط النصف العلوي للذراع لسيدة واحدة وطفل واحد يقل عمره عن خمسة أعوام من كل عائلة وذلك على مستوى الخط القاعدي وفي نهاية الدراسة (متوسط الوقت / 10 أسابيع). وكانت النساء في الحالتين يبلغن عن ما يُنفق على الغذاء واستهلاك الغذاء طوال السبعة أيام من الأسبوع. وقد تمت مقارنة المتثابرات بين المجموعتين.

الموجودات على المستوى القاعدي، لم يكن هناك اختلاف يعتد به إحصائياً بين المجموعتين. وبنهاية الدراسة، ازداد الفرق بين متوسط محيط النصف العلوي

Resumé

Impact d'un programme de rémunération en espèces du travail sur la nutrition et la consommation de nourriture chez les femmes et les enfants soumis à l'insécurité alimentaire dans les zones rurales du Bangladesh

Objectif Déterminer si un programme de rémunération en espèces du travail lors de la période d'insécurité alimentaire annuelle au Bangladesh a amélioré l'état nutritionnel des femmes et des enfants pauvres vivant dans les zones rurales.

Méthodes Le panel d'étude a concerné un échantillon aléatoire de 895 ménages sur plus de 50 000 ménages engagés dans un programme de rémunération en espèces du travail entre septembre et décembre 2007, mais aussi 921 ménages de contrôle semblables. La taille, le poids et la circonférence du bras à mi-hauteur de la femme et d'un enfant de moins de 5 ans de chaque ménage ont été mesurés

au début et à la fin de l'enquête (durée moyenne: 10 semaines). Dans les deux groupes, les femmes ont indiqué des dépenses et une consommation alimentaire pour 7 jours pour le ménage. Les modifications des paramètres ont été comparées entre les deux groupes.

Résultats Au départ, les deux groupes ne présentaient aucune différence significative. À la fin de l'étude, la différence dans la circonférence du bras à mi-hauteur entre les femmes du groupe d'intervention et le groupe de contrôle avait augmenté de 2,29 mm et la différence dans le poids moyen de 0,88 kg. Chez les enfants, la différence dans les moyennes entre les deux groupes avaient également augmenté en faveur du

groupe d'intervention comme suit: taille (0,08 cm; $P < 0,05$), poids (0,22 kg; $P < 0,001$), circonférence du bras à mi-hauteur (1,41 mm; $P < 0,001$) et scores z pour rapport taille-âge (0,02; $P < 0,001$), rapport poids-âge (0,17; $P < 0,001$), rapport poids-taille (0,23; $P < 0,001$) et circonférence du bras à mi-hauteur (0,12; $P < 0,001$). Les ménages du groupe d'intervention avaient dépensé plus d'argent pour acheter

de la nourriture et avaient consommé davantage d'aliments riches en protéines à la fin de l'enquête.

Conclusion Le programme de rémunération en espèces du travail a entraîné une augmentation des dépenses et de la consommation alimentaires des ménages. De plus, l'état nutritionnel des femmes et des enfants s'est amélioré.

Resumen

Influencia del programa Dinero por Trabajo en el consumo de alimentos y en la nutrición entre las mujeres y los niños que sufren una situación de inseguridad alimentaria en las zonas rurales de Bangladesh

Objetivo Determinar si el programa Dinero por Trabajo mejoró el estado nutricional de las mujeres y los niños más desfavorecidos de las zonas rurales de Bangladesh durante un periodo de un año de inseguridad alimentaria.

Métodos El estudio de cohortes comprendió una muestra aleatoria de 895 hogares, de entre los más de 50 000 inscritos en el programa Dinero por Trabajo, entre septiembre y diciembre de 2007, y 921 hogares de características similares como grupo de control. En cada hogar se midieron la altura, el peso y la circunferencia braquial de una mujer y de un niño menor de 5 años al inicio y al final del estudio (duración media: 10 semanas). En ambas ocasiones, las mujeres informaron sobre los gastos y el consumo alimentarios semanales de sus hogares. Se compararon los cambios paramétricos existentes en los dos grupos.

Resultados Al inicio del estudio no se observó ninguna diferencia significativa entre los grupos. Al final del estudio, la diferencia en la

circunferencia media braquial entre las mujeres del grupo de intervención y el de control había aumentado 2,29 mm y la diferencia en el peso medio era de 0,88 kg. Entre los niños, la diferencia de las medias entre los dos grupos también había aumentado a favor del grupo de intervención: altura (0,08 cm, $p < 0,05$), peso (0,22 kg, $p < 0,001$), circunferencia braquial (1,41 mm, $p < 0,001$) y las puntuaciones z de la altura/edad (0,02; $p < 0,001$), peso/edad (0,17, $p < 0,001$), peso/altura (0,23, $p < 0,001$) y circunferencia braquial (0,12, $p < 0,001$). Al final del estudio, los hogares del grupo de intervención gastaban más en alimentos y consumían más alimentos ricos en proteínas.

Conclusión El programa Dinero por Trabajo tuvo como resultado un mayor gasto en y consumo de alimentos en los hogares y una mejora del estado nutricional de mujeres y niños.

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