Humanitarian mission improves health conditions of schoolchildren in Ethiopia. The case of Adwa

La missione umanitaria migliora le condizioni di salute dei bambini in età scolare in Etiopia. Il caso di Adwa

P. Ferrara,[1] V. Romano,[1] F. del Bufalo,[2] G. Bottaro,[2] O. Caporale,[2] V. Del Volgo,[2] F. Vena,[2] R. Pecoraro,[2] M. Malamisura,[2] M.C. De Angelis,[2] A. Fasano.[3]

Key words: humanitarian mission, schoolchildren, discrimination

Abstract

Objective: The objective of this study is to compare health conditions of schoolchildren receiving aids from the mission Kidane Mehret Integrated Project (KMIP) in the city of Adwa, Ethiopia, with the ones of the general population.

Methods: From September, 2008, to November, 2008, 400 children were randomly selected in the school inside KMIP and in the one of Adi Abetu. In phase 1, a questionnaire was distributed to children's families. In phase 2, children underwent physical examination.

Results: Girls from KMIP started weaning on average at 7.3 ± 3.9 vs 8.3 ± 4.7 months of the control group ($p>0.05$); boys from KMIP started weaning on average at 6.7 ± 4.1 vs 8.7 ± 5.1 months of the control group ($p<0.01$). Centiles for height for age, weight for age and BMI for age were significantly higher in girls attending KMIP compared to the control group.

Conclusions: Merged data suggests the significant impact of KMIP on the schoolchildren of Adwa. Moreover, women and youngest children, usually the most discriminates, were the band of the society that benefited most from the aids coming from the mission.

Riassunto

Obiettivo: Lo scopo dello studio è stato quello di confrontare le condizioni di salute dei bambini in età scolare seguiti presso la missione Kidane Mehret Integrated Project (KMIP) ad Adwa, in Etiopia, con quelle della popolazione generale.

Metodi: Da settembre a novembre 2008, 400 bambini sono stati randomizzati nella scuola all'interno della missione KMIP and in un'altra ad Adi Abetu. Nella fase 1 è stato distribuito un questionario alle famiglie dei bambini. Nella fase 2, i bambini sono stati visitati.

Risultati: Le femmine KMIP avevano cominciato il divezzamento ad una età media di 7.3 ± 3.9 mesi vs 8.3 ± 4.7 mesi del gruppo controllo ($p>0.05$); i maschi KMIP a 6.7 ± 4.1 mesi vs 8.7 ± 5.1 mesi del gruppo controllo ($p<0.01$). I centile per altezza, peso e BMI in relazione all'età erano significativamente più alti nelle femmine del gruppo KMIP vs controlli.

Conclusioni: I dati ottenuti suggeriscono l'importanza della missione KMIP per I bambini di Adwa. Inoltre le donne e i bambini più piccoli, generalmente i più discriminati, hanno beneficiato maggiormente della presenza della missione.

Introduction

In 2008 the United Nations Children's Fund (UNICEF) published, together with the annual report "The State of the World's Children", a new document entitled "The State of African's Children". The need of this separate report highlights the absolute necessity of positioning child survival at the heart of Africa's development and human rights agenda.[1]

Ethiopia remains one of the world's poorest states. About 65% of the 71.1 million population is illiterate and at least 45% lives below the poverty line. In the last two decades, crises, featuring drought, epidemics, displacement and armed conflicts, often combined with each other, have repeatedly affected the country. Food security is generally poor, and even in "normal" years localized crop failures compel many to rely on food aid. About 60% of Ethiopians live

[1] Institute of Pediatrics, A. Gemelli University Hospital, Rome
[2] Campus Bio-Medico University, Rome
[3] Institute of Neurology, A. Gemelli University Hospital, Rome

Indirizzo per la corrispondenza (Corresponding author):
Prof. Pietro Ferrara
Istituto di Clinica Pediatrica
Università Cattolica del S. Cuore
Largo F. Vito, 1 - 00168 Roma
Tel/Fax +39.06.30154290 - +39.06.3383211 - Cell. 3383360840
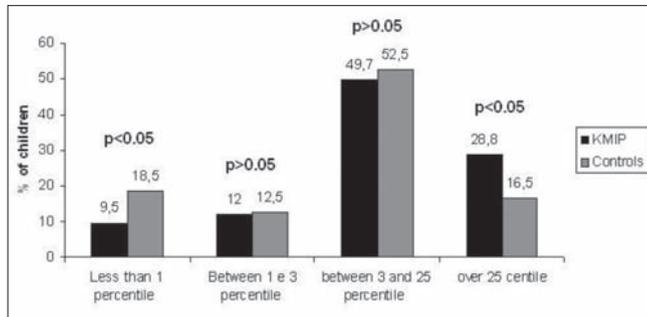Email pferrara@rm.unicatt.it

Figure 1.

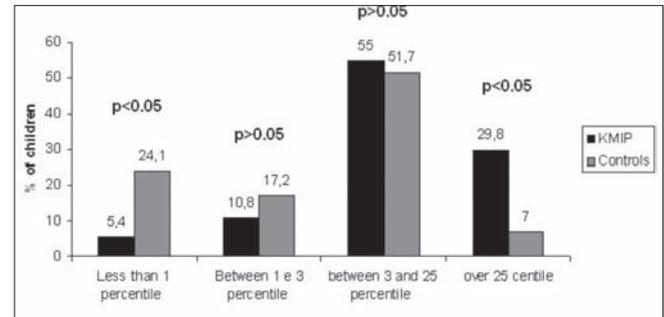Comparison between girls height for age

Figure 2.

Comparison between girls weight for age

within walking distance to a health facility. With assistance by donors, Ethiopia has stepped up recruitment and training of primary healthcare providers and is building more health centers in an effort to make such care available for all by 2010. In 2007, Ethiopia has experienced a rise in natural disasters with severe floods and crop failure in certain areas, as well as political unrest in the Ogaden region where an ongoing humanitarian emergency is gaining international attention. Ethiopia also hosts some 133.000 refugees from neighboring countries.[2]

Humanitarian workers said that the number of people who needed food assistance was increasing noticeably, and their situation is further worsened by health risks, the effect of drought on agricultural production, and the country's weak health system.[3]

The national survey of the schoolchildren in Ethiopia showed that nearly 17% of children were orphans, that the prevalence of stunting was 22.3% and that 23.1% of children were thin for age.[4]

The role of the women is often underestimate, so that Ethiopia has some of the world's lowest sexual and reproductive health indicators. The maternal mortality rate is 671 per 100.000 live births, due to a shortage of emergency obstetric care, rampant unsafe abortions, early marriages, and female genital mutilation.[5] Girls are also more likely to experience food insecurity than boys [6] and undernourished girls are more likely than boys to drop out of school.[4]

From 1994 a humanitarian mission called Kidane Mehret Integrated Project (KMIP) is working in the city of Adwa, to improve schoolchildren quality of life with a special attention to the lowest social class, to women and to the youngest children.

The objective of this study is to compare the health conditions of the schoolchildren receiving aids from the mission with the ones of the general population.

Methods

Study site and population

The city of Adwa is located in the north of Ethiopia, right next to the Eritrean border. Due to its position it was a frequent target of attacks during the Ethiopian civil war, ended only in 1991, and nowadays it still host thousands of refugees coming every day from Eritrea.

KMIP was the first humanitarian mission in the area, and from 1994 it built a school, officially recognized by the Ethiopian government, with classes form day nursery to secondary school. The mission still doesn't have its own hospital, so that its interventions in medical setting is limited to the health counseling and surveillance of all the schoolchildren, made by a professional nurse living inside the mission, together with education.

The general population was composed by the students of the governmental school Adi Abetu, located in Adwa but with no access to the aids provided by KMIP.

Data

From September, 2008, to November, 2008, 200 boys and 200 girls were randomly selected in the school of KMIP and in Adi Abetu, for a total of 400 children. Median age for the students of KMIP was 11 years, 7 months and 13 days (range 6-18 years) and 11 years, 9 months and 27 days in the control group (range 6-20 years)

The director of KMIP and the office of Labour and Social Affairs of the city of Adwa reviewed and approved the design of the data collection and analysis. The study was undertaken in two consecutive phases.

In phase 1, a questionnaire with the informed consent and with the perinatal and physiological anamnesis and alimentary habits was distributed to the children's families.

In phase 2, the children undergo physical examination with attention to the auxological parameters, to the middle upper arm circumference (MUAC).

Statistical analysis

We assessed the auxological data of the two samples at the time of the evaluation visit (weight, height, body mass index, MUAC). Ages were categorized in three groups: 6-10 yrs, 11-14 yrs, and 15-18 yrs. During the evaluation, the following data were also collected from the questionnaire: weight at birth, way of feeding, weaning age, immunization status. Data were analyzed with the use of Statistica software for Windows v. 4.5 (StatSoft, Inc). Results are reported as mean ± SD (range). The comparison of continuous (auxological data, weaning age) and categorical data (weight at birth, way of feeding, immunization status) was conducted separately for male and female participants according to the age group.
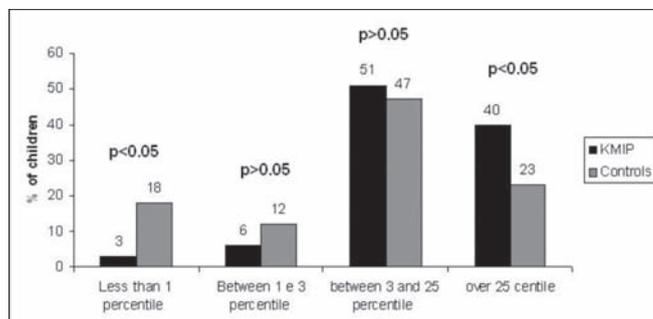
Figure 3.

Comparison between girls BMI for age

Group differences were analysed using one factorial analysis of variance and unpaired t test. Categorical data were compared with the chi-squared test using the Fisher or the Yates corrections as appropriate. Significance level was set at p <0.05.

Results

Weight at birth was less than 2.5 kg in 17 girls from KMIP and in 25 from the control group (p>0.05), between 2.5 and 4 kg in 69 girls from KMIP and in 44 from the control group (p<0.05), more than 4 kg in 12 girls from KMIP and in 21 from the control group (p>0.05). It was less than 2.5 kg in 9 boys from KMIP and in 28 from the control group (p<0.01), between 2.5 and 4 kg in 75 boys from KMIP and in 46 from the control group (p<0.01), more than 4 kg in 14 boys from KMIP and in 19 from the control group (p>0.05).
Four girls from KMIP were artificially fed, vs 2 in the control group (p>0.05). Six girls from both groups were breastfed for less than 6 months (p>0.05). Twenty-two girls from KMIP were breastfed for a period comprised between 6 months and 1 year, vs 10 in the control group (p<0.05). Sixty-eight girls were breastfed for more than 1 year in KMIP, vs 79 in the control group (p<0.01). None of the boys from KMIP were artificially fed, vs 3 in the control group (p>0.05). Six boys were breastfed for less than 6 months in KMIP, vs 7 in the control group (p>0.05). Twenty-one boys from KMIP were breastfed for a period comprised between 6 months and 1 year, vs 14 in the control group (p<0.01). Sixty-one boys were breastfed for more than 1 year in KMIP, vs 74 in the control group (p<0.05). Girls from KMIP started weaning on average at 7.3±3.9 months, while girls from the control group started it on average at 8.3±4.7 months (p>0.05). Boys from KMIP started weaning on average at 6.7±4.1 months, while boys from the control group started it on average at 8.7±5.1 months (p<0.01).
Eighty-two girls from the mission were immunized, vs 73 in the control group (p>0.05). Eighty-six boys of KMIP were immunized, vs 72 from the control group (p<0.05).
Comparison between height for age, weight for age and BMI for age in girls, according to the 2007 WHO international growth standards for school-aged children and adolescents,[7] is shown in figures 1, 2 and 3. No significant differences were found in boys for these parameters.

Average MUAC of girls aged 6 to 10 years was 16.7±1.4 cm between the children of KMIP vs 15.4±1.5 cm of the control group (p<0.001). Average MUAC of girls aged 11 to 14 years was 19.4±2 cm between the children of KMIP vs 17.7±2.1 cm of the control group (p<0.001). Average MUAC of girls aged 15 to 18 years was 21.9±1.8 cm between the children of KMIP vs 21.8±1.6 cm of the control group (p>0.05).
Average MUAC of boys aged 6 to 10 years was 16.7±1.4 cm between the children of KMIP vs 15.6±1.2 cm of the control group (p<0.001). Average MUAC of boys aged 11 to 14 years was 17.7±1.3 cm between the children of KMIP vs 18±1.4 cm of the control group (p>0.05). Average MUAC of boys aged 15 to 18 years was 20.1±2.1 cm between the children of KMIP vs 20.6±2 cm of the control group (p>0.05).

Discussion and Conclusion

Since 1994 KMIP has started in Adwa a very ambitious project: training locally the new generations in order to make them responsible of the future growth of the country. What Ethiopia needs most is the guarantee for its children to grow safely, from both the psychophysical and the behavioral point of view. For this reason the priority of the mission is the instruction, meaning the entire formation of the schoolchildren since the first year of life till adult age. Since KMIP still isn't provided of an hospital, the main intervention in health sector is the monitoring of the auxological parameters of children, offering additional food to those who need it more. A particular regard in this context is given to woman and to the youngest child, the bands of the population that are usually more discriminated.
Our data shows that there is a significant difference between both the girls and the boys from KMIP and those from the control group for what regards weight at birth and way of feeding. More children from KMIP in fact had a weight at birth between 2.5 and 4 kg, meaning they probably had safer pregnancies than those of the control group. Even for what regards the way of feeding we can see that children from the mission, both girls and boys, were usually fed with maternal milk for a period comprise between 6 months and 1 year, while a significant greater number of children from the control group were breastfed for more than 1 year, meaning that their families faced more food insecurity rather than the ones from KMIP. This was evidenced also by the time of weaning, that significantly later in the boys and also in the girls, though not significantly, from the control group (Fig 2). Boys from the mission had significantly more immunizations that boys from the control group, even girls from the mission were more likely to be immunized than girls from the controls, but this difference wasn't significant.
Data from the physical examinations showed that the girls attending were significantly taller than controls. Significant differences were present also in girls for what regards weight for age, BMI for age and average MUAC. The comparisons between the boys of the two groups showed that there was no significant difference for what regards height for age, weight for age and BMI for age, while aver-

age MUAC was significant higher in boys attending KMIP from 6 to 10 years of age.

Merged data suggests that the work made by KMIP had a significant impact on the conditions of the schoolchildren of Adwa. Moreover, women and youngest children, usually the most discriminates, were the band of the society that benefited most from the aids coming from the mission.

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