Helping northern Ethiopian communities reduce childhood mortality: population-based intervention trial

Mohammed Ali,[1] Teklehaimanot Asefaw,[1] Peter Byass,[2] Hagos Beyene,[3] & F. Karup Pedersen[4]

Objective More than 10 million children die each year mostly from preventable causes and particularly in developing countries. WHO guidelines for the Integrated Management of Childhood Illness (IMCI) are intended to reduce childhood mortality and are being implemented in Ethiopia. As well as specific clinical interventions, the role of the community in understanding and acting on childhood sickness is an important factor in improving survival. This trial sought to assess the effect on survival of community-based health promotion activities.

Methods Two districts in northern Ethiopia were studied, each with a random sample of more than 4000 children less than 5 years old. Regular six-monthly visits were made to document deaths among children. After the first year, communities in one district were educated about issues of good childcare and caring for sick children while the other district received this information only after the trial ended.

Findings Although overall mortality was higher in the post-intervention period, most of the increase was seen in the control area. A Cox proportional hazards model gave an adjusted hazard ratio of 0.66 (95% confidence interval = 0.46–0.95) for the intervention area compared with the control area in the post-intervention period, with no significant pre-intervention difference. Significant survival advantages were found for females, children of younger fathers, those with married parents, those living in larger households, and those whose nearest health facility was a health centre. For all of the children who died, only 44% of parents or caregivers had sought health care before the child's death.

Conclusion This non-specific community-based public health intervention, as an addition to IMCI strategies in local health facilities, appears to have significantly reduced childhood mortality in these communities. The possibility that such interventions may not effectively reach certain social groups (for example single parents) is an important consideration for implementation of similar strategies in future. The synergy between community awareness and the availability of effective peripheral health services is also an issue that needs further exploration.

Keywords Child mortality; Health education; Child care; Delivery of health care, Integrated; Survival analysis; Risk factors; Randomized controlled trials; Ethiopia (*source: MeSH, NLM*).

Mots clés Mortalité de l'enfant; Education sanitaire; Puériculture; Distribution intégrée soins; Analyse survie; Facteur risque; Essai clinique randomisé; Ethiopie (*source: MeSH, INSERM*).

Palabras clave Mortalidad en la niñez; Educación en salud; Cuidados del niño; Entrega integrada de atención de salud; Análisis de supervivencia; Factores de riesgo; Ensayos controlados aleatorios; Etiopía (*fuente: DeCS, BIREME*).

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Voir page 32 le résumé en français. En la página 32 figura un resumen en español. يمكن الاطلاع على الملخص بالعربية في صفحة **33**.

Introduction

A recent analysis of global child survival pointed out that more than 10 million children die each year, most from preventable causes and almost all in developing countries (*1*). Ethiopia has one of the highest mortality rates in the world among infants in their first year of life (97/1000 live births) and children less than 5 years old (166/1000 live births) (*2*). These child health indicators are slightly worse in Tigrai Regional State, northern Ethiopia, at 104/1000 live births for infants and 169/1000 live births for children less than 5 years old (*3*).

The major causes of mortality and morbidity in Ethiopian children less than 5 years old are diarrhoeal diseases, acute respiratory infections (mainly pneumonia), malaria, malnutrition and vaccine-preventable diseases (*4*). Until recently the Ministry of Health in Ethiopia focused on disease-specific control programmes to address major causes of mortality among children who were less than 5 years old. These, however, were not as effective in decreasing mortality as had been hoped, and the ministry subsequently adopted the WHO Integrated Management of Childhood Illness (IMCI) strategy to enable

[1] Consultant Paediatrician, TDA IMCI Project, P.O. Box 756, Mekelle, Tigrai, Ethiopia.

[2] Visiting Professor, Umeå International School of Public Health, Umeå University, S-90185 Umeå, Sweden (email: peter.byass@epiph.umu.se). Correspondence should be sent to this author.

[3] Dean, Defence College of Health Sciences, Addis Ababa, Ethiopia.

[4] Head, University Clinic of Paediatrics II, Copenhagen, Denmark.

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front-line health workers to treat major childhood illnesses in a more effective and efficient way, with a view to decreasing mortality (*5*).

The IMCI approach seeks to reduce mortality among children less than 5 years old and the sequelae of five major childhood illnesses (malaria, pneumonia, diarrhoea, measles and malnutrition) by improving the case management skills of health workers, promoting appropriate care-seeking behaviour and improving preventive practices at the household and community levels. Programmes that target a small number of diseases can give reliable information about changes in causes of death and demonstrate causal relationships between programme inputs and mortality reduction (*6*). However, while many specific clinical interventions and strategies have been evaluated (*1*), the more general add-on effect on mortality reduction that accrues from enhancing a community's understanding of and behaviour towards children's illnesses is less clear. Thus the question of whether public health can sustainably reduce the number of deaths among children remains open (*7*). Unfortunately in many developing countries most deaths, including those in children less than 5 years old, are not medically attended. Community-based mortality surveys are thus crucial in allowing health planners and policy-makers to obtain reliable and accurate information as well as assess the effectiveness of strategies in the community such as IMCI (*8*).

This intervention trial was conceived to determine whether sensitizing key community leaders to issues around childhood mortality and subsequently disseminating appropriate child-health messages into the community could have an influence on childhood mortality. Two adjacent areas were surveyed for two years to determine the number of deaths occurring among children less than 5 years old; a community sensitization programme was delivered in the intervention area at the midpoint of the study and a delayed programme delivered after the trial in the control area. The specific objectives of this trial were to detect any reduction in mortality among children less than 5 years old that occurred as a result of the intervention and to characterize patterns of childhood mortality in these communities together with their associated risk factors and the care-seeking behaviour of parents and caregivers.

Methods

This trial was carried out in two districts (woredas) of the Southern Zone of Tigrai Regional State (Saharti-Samre and Hintalo-Wajirat) over two years (December 2000–November 2002). The study area was located in the northern Ethiopian highlands and covered a total population of 223 000. The area is predominantly rural, situated some 50 km from Mekelle, the regional capital. The Hintalo-Wajirat woreda was selected for the intervention and Saharti-Samre as the control area using a lottery method. Ethiopian woredas are divided into village units (kushets), typically containing 1000 to 2000 people each.

We assumed a cumulative mortality among children less than 5 years old of 180 and aimed to detect a 40% reduction, so a sample of approximately 1000 children in each group over the two-year period was needed, using 95% confidence intervals and 80% power. Since the nature of the proposed intervention was necessarily based in individual kushets within each selected woreda, a design factor of 4 was applied. Thus the target sample was 4000 children in each area, corresponding to an overall population of approximately 20 000. To give individual children an equal chance of being selected irrespective of kushet size, kushets were sampled with a probability proportional to their size, with the result that 10 kushets from the 78 in the intervention area and 10 from the 64 in the control area yielded the required sample.

The selected kushets were mapped using a global positioning system to locate each house; each house was assigned a number. There was a total of 4617 households in the selected kushets with at least one child less than 5 years old. The trial area included one health centre (with health officers and nurses), 11 clinics and 8 health posts; details of their locations were provided by the Regional Health Bureau. The nearest hospital was in Mekelle.

IMCI guidelines and training have been extensively implemented at local health facilities in Ethiopia. In this trial, training in IMCI case management was reinforced among health workers (comprising health officers and nurses) working in health facilities in both the intervention and control areas, and IMCI-recommended drugs were supplied.

The additional intervention that was evaluated in this trial was the training of community facilitators (comprising community health agents, traditional birth attendants and "mothers of 30s" who were locally identified experienced mothers) on key household and community practices associated with good childcare. The assumption was that those trained within these community groups would disseminate health messages at the family level and to the community at large using their traditional networks for delivering messages. The training was mainly based on the 15 key household and community behaviour and practices nationally adopted from the WHO community-IMCI component. These practices fall into four categories: promotion of growth and development, disease prevention, home management of illnesses, and care-seeking and compliance. Moreover the community facilitators were also trained to recognize the key signs and symptoms of the five important childhood illnesses included in IMCI and to explain to parents or caregivers how to easily recognize them and when it was important to promptly seek health care. At each training session, the community facilitators were given a manual prepared in the local language that could be used in day-to-day activities. The community facilitators were selected from the study areas by the kushet administrations and women's associations.

This intervention was carried out in all kushets in the intervention woreda from the latter part of 2001, but no equivalent intervention was made in the control woreda until after the end of the trial (when the same intervention was carried out for ethical reasons). Thus the year from December 2000 to November 2001 was identified as a pre-intervention period and the following year as a post-intervention period for both woredas.

Ten data collectors who had a high-school education and were resident in the area were recruited in cooperation with the woreda administration; they were trained in interviewing and data collection techniques. All of them were conversant with the local language. Questionnaires were prepared in English and translated into the local language, then piloted in an area adjacent to the trial. These data were not included in the analysis. The field supervisors were responsible for daily data checking and editing and for sending data to the project office in Mekelle for data entry, which was done using Epi Info software version 6. Incomplete forms were returned to the field for revisits and completion. The investigators supervised the fieldwork at least fortnightly.

A baseline census of the trial area, which included demographic and socioeconomic factors, was carried out in both

woredas. Starting in early 2001 four mortality surveys were undertaken at six-monthly intervals, each covering a recall period of six months. Thus most households were under surveillance for the two-year trial period. When deaths were reported among children who were less than 5 years old, additional information was elicited as to symptoms before death and any treatment sought. New births and migrations were also registered.

From the baseline data and the mortality survey data, a database was compiled that included information on each child, his or her demographic details, the period under surveillance, and, for those who died during the trial, details relating to their death. Analysis of person-time mortality data was carried out using Cohort software (Umeå University); Cox proportional hazards modelling of survival and risk factors was carried out using Stata software (version 7). Space–time clustering of mortality was assessed using SaTScan software version 3.

Ethical clearance and permission for the trial were obtained from Tigrai Regional Health Bureau and the Woreda Administrative Councils. The officers of the Woreda Administrative Councils and the Woreda Health Office were instrumental in explaining to community leaders the importance and objectives of the trial.

Results

A total of 8498 children less than 5 years old were identified among 4617 households during the course of the study, giving a total exposure of 11 404 person-years. Cumulative mortality among children under 5 was 109 per 1000 live births. Infant mortality was 89 per 1000 person-years (83 per 1000 live births), and 97/201 (48%) of infant deaths occurred during the first week of life. In the pre-intervention period, 131 deaths among children under 5 occurred in 6263 person-years, giving a crude annual mortality rate of 20.9 per 1000 person-years. In the post-intervention period 131 deaths occurred in 5141 person-years, giving 25.5 per 1000 person-years. The crude mortality rates for the intervention and control areas and for infants and children aged 1–4 years are shown in Table 1. The age-standardized mortality ratio (SMR) between the post-intervention and pre-intervention period was 1.22 (95% confidence interval (CI) = 1.01–1.43), reflecting a significant overall increase in mortality in the second year of the trial. This increase in mortality occurred mainly in the control area, in which the standardized mortality ratio was 1.38 (95% CI = 1.07–1.69), with a minimal increase in the intervention area (SMR = 1.05; 95% CI = 0.77–1.33). An analysis of space–time clustering did not reveal any statistically significant clusters of high mortality within the trial areas, but a significantly low mortality cluster some 3 km in radius was detected around Samre health centre.

Information on background risk factors was collected for 8151 of the 8498 children (95.9%); this was used to build a Cox proportional hazards model. Table 2 shows crude mortality rates and univariate and multivariate adjusted hazard ratios for background risk factors during the study period. The ratio of person–time observed for each level of each factor between the intervention and control areas in the pre-intervention period to the post-intervention period is shown to demonstrate that the patterns of background factors did not change significantly during the trial. Statistically significant factors ($P < 0.05$) in the multivariate model were sex (females hazard ratio (HR = 0.63), father's age (over 40 years HR = 1.65), parents' marital status (not married for any reason HR = 1.63) and household size (5 or more people in household HR = 0.43). When the nearest health facility was a health centre this factor was of borderline significance (HR = 0.66).

Separate multivariate models were built for the pre-intervention and post-intervention periods, and non-significant factors dropped on a stepwise basis. The adjusted hazard ratios from these models are given in Table 3, showing after the intervention a one-third reduction in adjusted mortality for children less than 5 years old in the intervention area compared with the control area; no significant difference between the areas was shown for the pre-intervention period. There were no significant interactions between area and background factors.

Important symptoms reported following death included cough in all age groups (158/262; 60.3%) and fever in all age groups (148/262; 56.5%). Of 97 deaths occurring in the first week of life, only two parents or caregivers reported seeking any kind of health care. Among 165 deaths occurring after the first week of life, 60/165 (36.4%) of parents or caregivers reported watery diarrhoea and/or swollen legs, symptoms that are consistent with malnutrition. Bloody diarrhoea was reported for 15/165 (9.1%) of deaths in this age group. For these deaths after the first week, 70/165 (42.4%) of parents or caregivers reported seeking some kind of modern health-care while 62/165 (37.6%) sought some kind of traditional remedy. There was some overlap between these groups, with 40/165 (24.2%) reporting that they used both modern and traditional care. However, 73/165 (44.2%) sought no treatment prior to the child's death.

Discussion

The effects of this intervention using the community-based components of the IMCI programme to prevent mortality

Table 1. **Mortality rate per 1000 person-years among 8498 children in northern Ethiopia less than 5 years old**

Period	Age group	Area		Overall mortality rate
		Intervention[a]	Control	
Pre-intervention	Infants[b]	92.5 (67.1–117.6)	76.3 (55.5–97.0)	83.6 (67.6–99.6)
	1–4 yrs	5.0 (2.1–7.9)	5.7 (2.9–8.5)	5.4 (4.3–6.5)
	Overall	22.6 (17.0–28.2)	19.5 (13.9–24.1)	20.9 (17.3–23.7)
Post-intervention	Infants[b]	89.1 (62.1–106.1)	101.4 (74.6–128.2)	95.7 (76.7–114.7)
	1–4 yrs	7.0 (3.2–10.8)	9.2 (5.2–13.2)	8.2 (5.4–11.0)
	Overall	23.6 (17.3–29.9)	27.0 (20.9–33.1)	25.5 (21.1–29.9)
Overall		22.8 (19.1–26.5)	23.1 (18.9–27.3)	23.0 (20.2–25.8)

[a] Values in parentheses are 95% confidence intervals.
[b] Children in their first year of life.

Table 2. **Risk factors for mortality among 8151 children in northern Ethiopia less than 5 years old in terms of crude mortality rates and univariate and adjusted multivariate hazard ratios**

Risk factor		Person–time ratio[a]	Crude mortality/1000 person-years	Univariate hazard ratios[b]	Adjusted hazard ratios[b]
Area	Control	–	22.7	1	1
	Intervention	–	22.1	0.94 (0.73–1.21)	0.90 (0.61–1.35)
Altitude	< 1950 m above sea level	1.15	23.2	1	1
	1950–2149 m above sea level	0.99	21.3	1.01 (0.74–1.38)	1.18 (0.82–1.70)
	⩾ 2150 m above sea level	1.11	22.8	1.01 (0.75–1.35)	1.05 (0.70–1.57)
Sex	Male	1.05	26.5	1	1
	Female	1.01	18.4	0.65 (0.50–0.84)[c]	0.63 (0.49–0.82)[c]
Mother's age	< 30 years	1.02	23.6	1	1
	⩾ 30 yrs	1.02	21.5	1.07 (0.83–1.37)	0.99 (0.70–1.40)
Mother's education	Illiterate	1.02	23.5	1	1
	Some education	1.13	7.8	0.39 (0.17–0.88)[c]	0.47 (0.19–1.13)
Mother's occupation	Farmer	1.01	23.6	1	1
	Other	1.22	14.9	0.72 (0.46–1.12)	0.85 (0.49–1.46)
Father's age	< 40 yrs	1.03	21.5	1	1
	⩾ 40 yrs	1.02	23.7	1.26 (0.98–1.61)	1.65 (1.17–2.33)[c]
Father's education	Illiterate	1.01	23.0	1	1
	Basic literacy	1.02	23.2	0.95 (0.72–1.25)	1.03 (0.78–1.38)
	Some education	1.07	13.4	0.60 (0.31–1.18)	0.91 (0.43–1.95)
Father's occupation	Farmer	1.01	23.5	1	1
	Other	1.20	11.7	0.56 (0.30–1.02)	0.77 (0.36–1.65)
Marital status	Mother and father married	0.98	22.0	1	1
	Other	1.05	25.1	1.62 (1.15–2.29)[c]	1.63 (1.08–2.45)[c]
Number of people in household	> 5	1.00	35.0	1	1
	>5	1.04	18.0	0.56 (0.44–0.72)[c]	0.43 (0.31–0.59)[c]
Grain produced	< 500 kg	1.22	20.6	1	1
	500–1 000 kg	1.04	19.9	0.91 (0.64–1.27)	0.91 (0.62–1.34)
	> 1 000 kg	0.97	25.7	1.18 (0.87–1.60)	1.23 (0.80–1.88)
Roofing	Thatch	1.09	25.7	1	1
	Corrugated iron	1.12	12.4	0.60 (0.35–1.03)	0.75 (0.40–1.40)
	Mud	0.99	23.3	0.99 (0.74–1.32)	0.99 (0.72–1.38)
Flooring	Mud	1.02	22.6	1	1
	Other	1.63	20.9	0.97 (0.61–1.55)	1.04 (0.63–1.74)
Water source	Spring	0.98	28.3	1	1
	River	1.05	20.6	0.73 (0.50–1.08)	0.90 (0.58–1.39)
	Well	1.01	22.4	0.80 (0.54–1.19)	0.82 (0.54–1.26)
	Pipe	1.02	20.8	0.80 (0.58–1.11)	0.88 (0.62–1.25)
Latrine	Yes	1.13	17.5	1	1
	No	1.03	22.8	0.98 (0.53–1.79)	0.68 (0.35–1.32)
Livestock value	< 200 ETB[d]	1.04	21.2	1	1
	200–3 000 ETB	1.04	21.5	0.87 (0.61–1.25)	0.89 (0.57–1.39)
	> 3 000 ETB	1.00	24.3	1.02 (0.71–1.47)	1.13 (0.69–1.86)
Type of nearest health facility	Health post or clinic	0.92	24.6	1	1
	Health centre	1.02	13.9	0.63 (0.43–0.92)[c]	0.66 (0.42–1.05)
Distance to health facility	< 5 km	1.08	22.8	1	1
	> 5 km	0.98	22.1	0.90 (0.70–1.15)	0.78 (0.58–1.04)

[a] Ratio of person-time observed ([baseline intervention/control]: [follow-up intervention/control]).
[b] Figures in parentheses are 95% confidence intervals.
[c] $P < 0.05$.
[d] US$ 1.00 = 8 Ethiopian birr (ETB).

among children have to be interpreted carefully in the light of an overall increase in mortality during the post-intervention period and a significant increase in the control area. Since the intervention and control areas were adjacent woredas, and were similar in many respects, it is probable that the intervention area would have experienced much higher mortality during the second year in the absence of the intervention. This is reflected in the significantly lower hazard ratio for mortality in the intervention area during the post-intervention period, suggesting a reduction in mortality of approximately one-third. The extent

Table 3. **Significant determinants of mortality (with adjusted hazard ratios) before and after an Integrated Management of Childhood Illness health promotion intervention programme among 8151 children in northern Ethiopia less than 5 years old**

Risk factor		Pre-intervention adjusted hazard ratio[a]	Post-intervention adjusted hazard ratio[a]
Area	Control	1	1
	Intervention	0.93 (0.63–1.38)	0.66 (0.46–0.95)[b]
Sex	Male	1	1
	Female	0.63 (0.44–0.91)[b]	0.65 (0.46–0.93)[b]
Father's age	< 40 years	1	1
	⩾ 40 years	1.59 (1.06–2.39)[b]	1.73 (1.18–2.56)[b]
Parents' marital status	Mother and father married	1	1
	Other	1.06 (0.61–1.84)	1.83 (1.13–2.98)[b]
Number of people in household	> 5	1	1
	⩾ 5	0.46 (0.30–0.71)[b]	0.52 (0.34–0.79)[b]
Type of nearest health facility	Health post or clinic	1	1
	Health centre	0.71 (0.41–1.22)	0.34 (0.18–0.63)[b]

[a] Values in parentheses are 95% confidence intervals.
[b] $P < 0.05$.

of year-on-year variation in childhood mortality observed in the control area is not unusual in this environment, and it has been reported elsewhere in Ethiopia (*9*). Of course we cannot rule out the possibility that the observed differences arose by chance. Scaling down the observed mortality in the intervention group by the observed increase in the control group would have given an estimated post-intervention mortality of 17.2 children per 1000 person-years.

The observed mortality rates were consistent with other locations in Ethiopia (*10*, *11*). The overall age distribution of mortality in this trial was characterized by a high proportion of deaths occurring among young infants and accounting for 82% of mortality among children less than 5 years old. Since the altitude range in the trial was 1400–2670 m above sea level, with two-thirds of children living above 1950 m, malaria was not a predominant problem. This contrasts with Kidane & Morrow's work in a nearby area where malaria is endemic (*12*). Kidane & Morrow's study took place in an area where altitude ranged from 1000 m to 1250 m and reported an infant mortality rate of 112 per 1000 person-years and child mortality of 23 per 1000 person-years; deaths among infants accounted for 54% of deaths occurring among children less than 5 years old.

In our setting, reported symptoms prior to death were consistent with the major childhood illnesses identified in IMCI, and many childhood deaths were probably related to malnutrition. However, since no treatment was sought for the child in almost half of the deaths occurring after the first week of life, important questions remain about caretakers' attitudes and their access to health care. It may be argued that caretakers in remote rural areas were unable to access health care sufficiently quickly to help acutely sick young infants, but in the case of older children suffering, for example, from malnutrition, this would not be true.

Intervening in one woreda and comparing it with another was not an ideal design; it would have been desirable to have multiple woredas in each group. However, since each woreda typically covers a population of around 100 000, mostly in remote and inaccessible areas, it was not practical to undertake the study on a wider basis. Community-based interventions such as this are not easy to implement in a controlled manner. The nature of this intervention meant that once the community facilitators had been trained, there was little control over how the childcare messages spread. Thus it is possible, particularly in kushets close to the boundary of the intervention area, that some degree of intervention spilt over. However, this would have reduced any difference in mortality. In addition, other routine health education processes proceeded as usual, but since these would have applied to both areas, they would be unlikely to affect relative mortality. This also means that it was unrealistic to attempt to implement more rigorous randomization using smaller units, for example by kushet rather than woreda, since it would be expected that community-based messages could be passed on at local meeting places, such as markets and health facilities within woredas.

Although the major aim of this trial was to demonstrate differences in all-cause child mortality arising from sensitizing the community to basic IMCI principles, the associated background factors add further understanding of the patterns of mortality at the community level. Female children enjoyed a significant survival advantage during infancy, as has been found elsewhere (*12*), and since mortality in this trial occurred predominantly during infancy, this female advantage persisted in the overall rates for children less than 5 years old. Children whose fathers were younger, had parents who were married and who lived in larger households all had significant survival advantages, which may reflect social patterning in relation to childcare. In the post-intervention period, in which the advantageous effect of the sensitization process emerged, it also proved beneficial for children to live nearer the health centre, which is the highest locally available level of health care; this suggests that access to such care is an important complement to community education. If the community-based IMCI messages in this intervention succeeded in encouraging those who had access to health facilities to use them appropriately, then important health planning issues are raised about improving access to health centres, given that only 20.3% of the children in this sample lived within 10 km of a health centre. Since this intervention was designed to be disseminated via established social networks, the significant survival disadvantage for children of unmarried parents in the post-intervention period highlights the possibility that such social-based strategies may exclude key groups who happen to be outside such networks. Although mortality has often been

associated with relative socioeconomic deprivation (*13*), this was not seen to a significant extent in this trial, possibly because of the low overall economic status in these communities.

The IMCI approach was conceived as an attempt to integrate components of childhood health-care, but in many settings evaluations of the approach have concentrated on clinical and referral outcomes, including facility-based mortality studies, and have put less emphasis on the impact on mortality of community-based activities. Key behaviours leading to improved child survival have been identified as part of the IMCI package in Ethiopia (*5*). The question of whether IMCI-based health promotion constitutes a viable public health strategy for reducing mortality in the community is therefore an important issue and one that this trial has sought to address. No comparable general and community-based interventions to reduce mortality were identified in a recent review (*14*).

In conclusion, this trial suggests that sensitizing communities to the key IMCI behaviours can lead to significantly increased childhood survival at the community level, which demonstrates the importance of using general public health measures in parallel with specific clinical interventions. Community awareness of health issues needs to work synergistically with effective, available health care in order to have an impact on mortality and as part of the process of translating knowledge into action (*15*). Further attention needs to be paid to sensitizing crucial target groups within communities, such as unmarried parents and older fathers in this case, in order to maximize the potential overall benefits of health messages and avoid marginalization. ■

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Résumé

Aider les communautés de l'Éthiopie du Nord à réduire la mortalité infantile : essai d'intervention en population

Objectif Plus de 10 millions d'enfants meurent chaque année de causes la plupart du temps évitables, en particulier dans les pays en développement. Les lignes directrices de l'OMS relatives à la prise en charge intégrée des maladies de l'enfant (PCIME) visent à réduire la mortalité infantile et sont en cours de mise en œuvre en Éthiopie. En parallèle avec les interventions cliniques spécifiques, le rôle de la communauté dans la compréhension des maladies infantiles et dans les actions prises à leur égard constitue un facteur important dans l'amélioration de la survie. Le présent essai s'efforce d'évaluer l'effet sur la survie des activités de promotion de la santé s'appuyant sur les communautés.

Méthodes On a étudié deux districts du Nord de l'Éthiopie d'après un échantillon randomisé regroupant dans chaque cas plus de 4000 enfants de moins de 5 ans. On a procédé à des visites régulières tous les six mois pour réunir des informations sur les décès d'enfants. A l'issue de la première année, les communautés d'un des districts ont été formées aux soins à apporter aux enfants en bonne santé et malades, tandis que l'autre district ne recevait ces informations qu'à la fin de l'essai.

Résultats Bien que la mortalité globale ait été plus élevée durant la période post-intervention, la majeure partie de cette augmentation concernait la zone témoin. Un modèle de risque proportionnel de Cox a fourni un rapport de risques ajustés de 0,66 (intervalle de confiance à 95 % : 0,46 - 0,95) pour la zone d'intervention par rapport à la zone témoin pour la période post-intervention, sans faire apparaître de différence significative pour la période pré-intervention. On a relevé des avantages significatifs en matière de survie pour les femmes, ainsi que pour les enfants ayant des pères jeunes, ayant des parents mariés, vivant dans des familles nombreuses et pour lesquels l'installation de santé la plus proche était un centre de santé. Pour l'ensemble des enfants décédés, 44 % seulement des parents ou des parents substituts avaient recouru à des soins de santé avant la mort de l'enfant.

Conclusion Cette intervention de santé publique non spécifique s'appuyant sur les communautés, en tant que complément des stratégies de PCIME des installations de santé locales, semble avoir réduit de manière significative la mortalité infantile dans ces communautés. La possibilité que de telles interventions n'atteignent pas efficacement certains groupes sociaux (par exemple les parents isolés) est un point important à prendre en compte pour la mise en œuvre de stratégies similaires dans le futur. La synergie entre la sensibilisation des communautés et la disponibilité de services de santé périphériques efficaces constitue également un aspect méritant une étude plus poussée.

Resumen

Ayudar a las comunidades del norte de Etiopía a reducir la mortalidad en la niñez: ensayo de intervención basada en la población

Objetivo Más de 10 millones de niños mueren cada año, principalmente por causas prevenibles y en su mayoría en los países en desarrollo. Las directrices de la OMS para la Atención Integrada a las Enfermedades Prevalentes de la Infancia (AIEPI), que tienen por objeto reducir la mortalidad en la niñez, se están aplicando en Etiopía. Además de las intervenciones clínicas específicas, la función de la comunidad en lo que respecta a comprender las enfermedades de la niñez y actuar contra ellas es un factor importante para mejorar la supervivencia. El objetivo de este ensayo fue evaluar el efecto de las actividades comunitarias de promoción de la salud en la supervivencia.

Métodos Se estudiaron dos distritos del norte de Etiopía, cada uno con una muestra aleatorizada de más de 4000 niños menores de 5 años. Se hicieron visitas periódicas cada seis meses para

documentar las defunciones ocurridas entre los niños. Después del primer año, se educó a las comunidades de un distrito sobre la manera de atender bien a los niños y sobre el cuidado de los niños enfermos, mientras que el otro distrito sólo recibió esa información una vez concluido el ensayo.

Resultados Aunque la mortalidad global fue mayor en el periodo postintervención, la mayoría del aumento se observó en el área de control. Un modelo proporcional de riesgos de Cox arrojó un cociente ajustado del riesgo de 0,66 (intervalo de confianza del 95% = 0,46–0,95) para el área de intervención en comparación con el área de control en el período postintervención, sin ninguna diferencia importante en la fase preintervención. Se observaron mejoras sustanciales de la supervivencia para las mujeres, los niños de los padres más jóvenes, los niños con progenitores casados, los que vivían en los hogares más grandes y aquellos cuyo punto de atención sanitaria más cercano era un centro de salud. Considerando todos los niños que fallecieron, sólo el 44% de los padres o cuidadores habían buscado atención sanitaria antes de su defunción.

Conclusión Esta intervención inespecífica de salud pública comunitaria, como medida adicional de las estrategias de AIEPI implantadas en los centros de salud locales, parece haber reducido significativamente la mortalidad en la niñez en esas comunidades. La posibilidad de que tales intervenciones no lleguen eficazmente a ciertos grupos sociales (por ejemplo padres o madres solteros) es una consideración importante a tener en cuenta a la hora de aplicar estrategias similares en el futuro. La sinergia entre la sensibilización de la comunidad y la disponibilidad de servicios de salud periféricos eficaces es también un tema que habría que seguir estudiando.

ملخص

تقليص معدلات وفيات الأطفال في إثيوبيا

مساعدة المجتمعات في شمال أثيوبيا على تقليص وفيات الأطفال: تجربة تداخلية مرتكزة على السكان

الغرض: يموت كل عام ما يزيد على عشرة ملايين طفل، معظمهم لأسباب يمكن توقّيها، وخاصة في البلدان النامية. وتهدف الدلائل الإرشادية لمنظمة الصحة العالمية حول التدبير العلاجي المتكامل لأمراض الأطفال إلى تقليص وفيات الأطفال، وتُنفذ هذه الدلائل الإرشادية حالياً في إثيوبيا. ويُعَدُّ دور المجتمع في فهم أمراض الأطفال والعمل والتصدي لها دوراً هاماً في تحسين معدلات البقاء على قيد الحياة. وكان الهدف من هذه التجربة تقييم تأثير الأنشطة الاجتماعية لتعزيز الصحة على معدلات البقاء على قيد الحياة.

الطريقة: أجريت الدراسة في مقاطعتين في شمال إثيوبيا، بأخذ عينة عشوائية من كل منهما، تحتوي كل منها على ٤٠٠٠ طفل دون عمر الخامسة. وقمنا بزيارات منتظمة كل ستة شهور لتوثيق الوفيات لدى الأطفال. وبعد مرور السنة الأولى زودت المجتمعات في إحدى المقاطعتين بالتثقيف حول مواضيع الرعاية الجيدة للأطفال والمرضى منهم، في حين لم تتلق المجتمعات في المقاطعة الأخرى مثل هذه المعلومات إلا بعد نهاية التجربة.

الموجودات: رغم أن المعدل العام للوفيات كان أكثر ارتفاعاً في الفترة التالية للتدخل، إلا أن معظم الزيادة لوحظت في المناطق الشاهدة. وقد أعطى نموذج المخاطر التناسبية لكوكس معدلاً مصححاً للمخاطر مقداره ٠,٦٦ (بفاصلة ثقة ٩٥٪ وتتراوح بين ٠,٤٦ و٠,٩٥) بالنسبة لمنطقة التدخل مقارنة مع المنطقة الشاهدة في الفترة التالية للتدخل، دون أن يكون هناك فرق ملحوظ عن الفترة السابقة للتدخل. وقد لوحظ تحسن ملموس في معدل البقاء على قيد الحياة لدى الإناث والأطفال لآباء شبان والأطفال لعائلات ترسخ بنيانها بالزواج، والأطفال الذين يعيشون في أسر كبيرة، والأطفال الذين تكون أقرب المراكز إليهم هي المراكز الصحية. وبالنسبة لجميع الأطفال الذين ماتوا، لم تزد نسبة الآباء أو مقدمي الرعاية الصحية الذين التمسوا الرعاية الصحية لهؤلاء الأطفال قبل وفاتهم على ٤٤٪.

الاستنتاج: يبدو أن لهذه المداخلة الصحية العمومية غير النوعية والمرتكزة على المجتمع دوراً ملحوظاً إلى جانب دور استراتيجيات التدبير العلاجي لأمراض الأطفال في تقليص معدلات وفيات الأطفال بشكل ملحوظ في المجتمعات المدروسة. إن إمكانية ألا تصل هذه التدخلات إلى بعض الفئات الاجتماعية مثل الأب أو الأم الوحيدين، يعد من الاعتبارات الهامة التي ينبغي أخذها بالاهتمام عند تنفيذ الاستراتيجيات المشابهة في المستقبل. إن التآزر بين إذكاء الوعي لدى المجتمع وتوافر الخدمات الصحية الفعالة في المناطق المحيطة يعد أيضاً من القضايا الهامة التي تحتاج لمزيد من الاستقصاء.

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