

Original Research Article

Evaluation of the performance of out-patient malnutrition management in children under 5 years in Benin rural setting

ABSTRACT

Aims: To evaluate of the performance of out-patient malnutrition management in children under 5 years in the health district of Djougou-Copargo-Ouaké in Benin

Study design: Cross-sectional and evaluative study.

Place and Duration of Study: Benin rural setting, from 1st to 30th June, 2014.

Methodology: Fifteen functional out-patient malnutrition management canter (out the 27 existing) were included in the study. Data on malnutrition management were collected in skilled health workers by questionnaire and observation. Data were also collected in patient medical records, reference documents and supervisions note book. The performance of out-patient acute malnutrition management was assessed through three components “structure”, “process” and “results” using predetermined score of two scales seeking for achievement of criterions according to WHO reference for the evaluation of the performance of the health system.

Results: The performance of the component of the result of out-patient management of acute malnutrition in the health district was rated below national recommendations.

Conclusion: The performance of the component of the result of out-patient management of acute malnutrition in the health district was suboptimal. Adequate monitoring of malnourished child, appropriate communication, a greater mobilisation of community volunteers in the active search of drop out patients are required to improve performance of out-patient management of acute malnutrition in rural health district of Djougou-Copargo-Ouaké in Benin

Keywords: Out-patients acute malnutrition management, performance, health district, Benin.

1. INTRODUCTION

Malnutrition usually results in an imbalance between nutrient intakes and the needs of the body. Malnutrition can also be a result of an excess of one or more essential nutrients for an extended period. [1] Malnutrition is the greatest nutritional challenge observed in developing countries, with the largest number of children less than five years malnourished. More than 90% of acute malnourished children in the world live in 36 countries in sub-Saharan Africa and South Asia. Malnutrition is one of the main causes of child under 5 year's mortality in these countries [2].

Children who survive from malnutrition have reduced learning capacity and low productivity when they reach adulthood. [3] "Tackling" malnutrition is a development objective and first contact health facilities must provide out-patient care for children with severe acute malnutrition [4]. Despite the existence of evidence-based effective malnutrition care, attributable death rate to severe acute malnutrition (SAM) varies from 0.5 to 2 million per year [5].

In Benin, the Demographic and Health survey (DHS) of 2001, 2006 and 2011-2012 reported high prevalence of malnutrition children under 5 years. The first ones (2001 and 2006) showed persistence of stunting in northern departments including the department of Donga, where the health district Djougou - Copargo-Ouaké is located. The prevalence of stunting is estimated at 36.1% and 40.8% for children aged 0 to 59 months [7]. In 2012 the prevalence of stunting was estimated at 56.7%, underweight (21.3%) and wasting (16.7%) in the department of Donga [8]. This high prevalence has justified the implementation of appropriate management program for acute malnutrition. Unfortunately, the low extension of the community-based management of acute malnutrition induces a late reference of severe malnutrition cases to out-patient health centers (OPHC) and then to the hospital if required (NTC), as recommended the national protocol for the management of acute malnutrition.

The national protocol for the management of acute malnutrition was launched in June 2007 and has been revised in order to take into account the standards of WHO and the support of pilot experience in Alibori department. The new national guidelines for acute malnutrition are well developed and implemented in 2011. This reference document highlights the role to be played by the OPHC as part of fighting against children under five year's severe acute malnutrition. The main activities consist in screening for malnutrition among children 0-59 months; ensure care to children aged 6 to 59 months of uncomplicated cases of severe acute malnutrition; keep track of malnourished; make home visits and refer complicated cases to in-patient therapeutic nutrition centers (IPTNC) in hospitals.

For adequate implementation of actual protocol, health workers were trained on management of acute malnutrition. The OPHC were provided with anthropometric materials and inputs. The health district was supported by several partners in the management of malnutrition. The health district hospital contributed in active screening of child malnutrition in fifteen villages. The depicted malnourished children received care as outpatient or inpatient if appropriate. The United Nations Children's Fund (UNICEF) has trained health workers and community volunteers in the prevention and management of acute malnutrition. Community activities started in 2010.

The convergence of all these actions should contribute to enhance the performance of OPHC in the children under than 5 years' malnutrition management in the health district. Evaluate the performance of the management of malnutrition in OPHC in this health zone is timely.

2. OBJECTIVE

To evaluate the performance of out-patient malnutrition management in children under 5 years in health district of Djougou-Copargo-Ouaké in Benin.

3. SUBJECTS AND METHODS

3.1. Setting

The health district of Djougou -Copargo-Ouaké is one of the two health zones in the department of Donga in the western north of Benin. Its population was estimated to 397,942 inhabitants in 2013. the expected number of children under five in the same year was 79588..The agricultural and livestock activities are executed by about 80% of the workforce. Agricultural productions are based on maize, yam, beans and vegetables

There were two IPTNC in the health district for management of severe acute malnutrition with complications. Fifteen provide treatment for severe acute malnutrition without complications and refer complicated cases to the IPTNC.

Community health workers were selected in villages and were responsible for screening malnourished children in the community in collaboration with NGOs (Africare), to give advice to parents and refer children suffering from severe acute malnutrition to IPTNC. The health district included 27 health centers and 15 were functional as they ensured care to malnourished child.

3.2. Study design and subjects

It was cross-sectional and evaluative study conducted from from 1st to 30th June, 2014.

Study material was out-patient health center for infant malnutrition management. Study patient were skilled health workers, community health workers and malnourished children.

3.3. Sample size and subjects selection

The sampling method was non-probability for all targets. The 15 functional OPHC were out the 27 existing were exhaustively included. For convenience, health workers who gave care to malnourished children in the OPHC and who were present during the survey period were included. They were 02 doctors, 01 responsible for Community activities, 30 health workers. One community health workers was selected by OPHC particularly the first met in the villages located more than five kilometers from the OPHC. Forteen community volunteers were selected because one OPHC was close to villages. Malnourished children followed from 1st January to 31th December 2013 have been exhaustively included in the study.

3.4. The study variables

The main variable of the study was the performance of the performance of out-patient malnutrition management in children under 5 years. This main variable was explained by three components which were: the "structure" which referred to availability of required resources, the "process" which included activities executed and "results" that referred to health recovering (figure 1).

The three explicative components were operationalized through assigning a score to each criterion of the components (figure 1). A two scales score was used. The score "1" was assigned if the criterion was met and "0" if the criterion was not met according to WHO reference for the evaluation of the performance of the health system. [10]. The sum of the scores of different criterions determined the total score for the explicative component. The performance of the management of each OPHC was ranked "Good" if the score was greater than or equal to 85% of the expected rating and this is equivalent to 2 points. It was "acceptable" if the score is between 60% and 85% of the expected quotation; this is

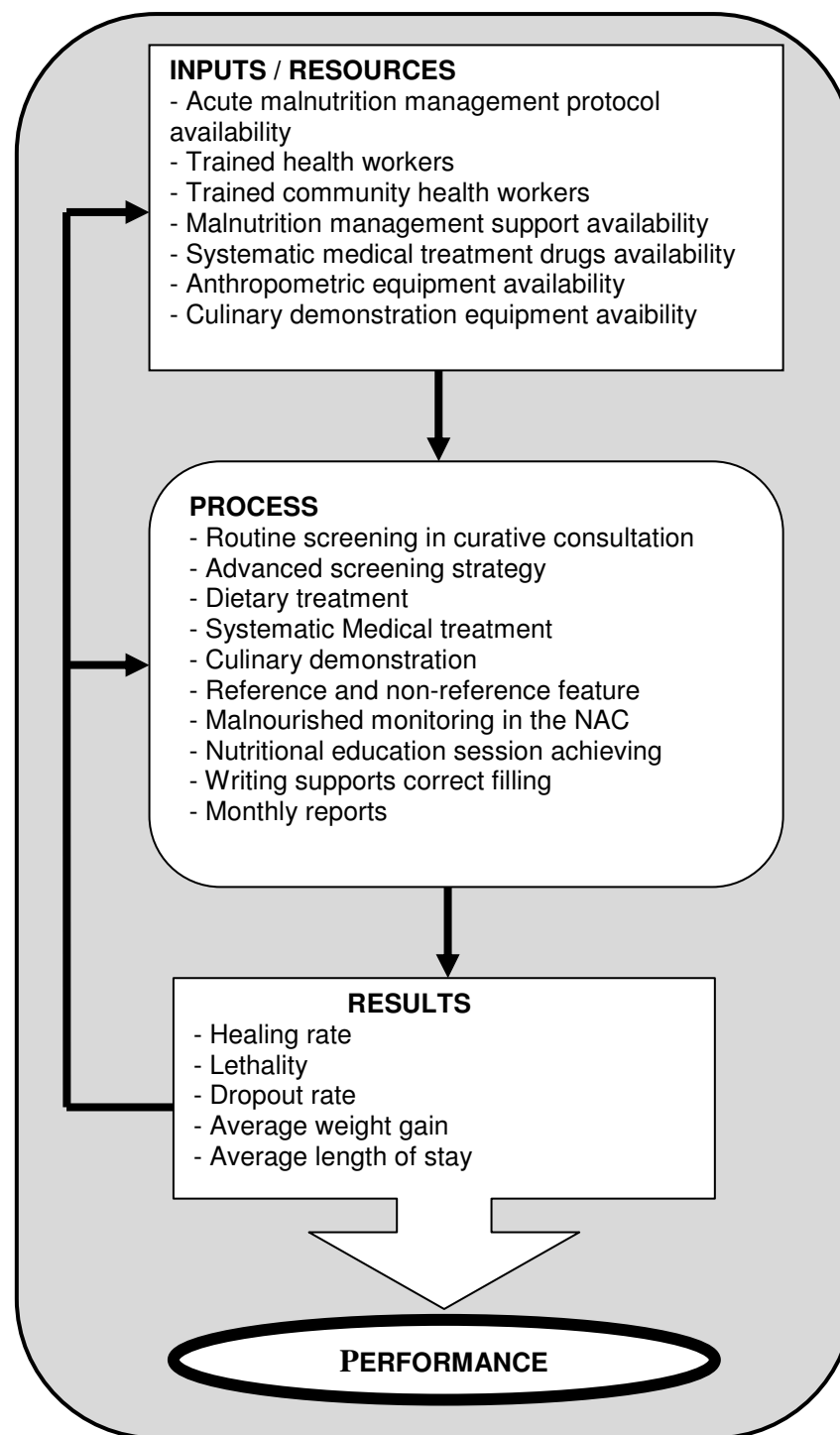


Figure 1: Conceptual framework of the performance of the management of malnutrition among children under 5 in out-patient malnutrition management in health centre BENIN, 2014. (*Adapted from Contadriopoulos*).

equivalent to 1 point. Finally, it was "Low" if the score was less than or equal to 60% of the maximum rating; which is worth 0 points.

Overall the performance of the management of children less than 5 years malnutrition in the health district was based on the score obtained in all OPHC as follows: it was "Good" if the score is at least 85% or more and 4; "Acceptable" if it was between 60% and 85% or between 3 and 4 and "Low" if it was below 60% or between 1 and 2.

3.5. Data collection procedures

Health workers were observed during their work (child care). Availability and functionality of anthropometric equipment, educational materials and culinary demonstration equipment were also observed. A questionnaire was administered to health workers and community volunteers to gather information on their profile on the active screening and the monitoring of malnourished in the community. Interviews had been held with the doctor, the management team of the Health Zone on the supervision, monitoring nutrition activities and also with the responsible of the supply. Documents' exploitation documents focused on medical records, reference sheets, supervision notebook.

3.6. Data analysis

Data were analysed using and analysis with STATA software (version 11.0). Scores of performance and its components were calculated as proportion of criterions met

3.7. Ethical considerations

The objectives of the study were explained to participants. Voluntary free and informed oral consent was obtained before starting the interview. This consent claims that participants are not at risk by refusing to participate in the survey or stopping their collaboration during the study. The confidentiality and anonymity of the information collected were ensured.

4. RESULTS

4.1. Characteristics of child and mothers

A total of 47 health workers were involved in the study. They age ranged from 26 years to 55 years, with an average of 38 years $\pm$ 6.5 years; and 66% (31) of them were male. The other categories of health personnel were 02 physicians, 15 nurses, midwives 3, 13 nursing-assistants, 01 social worker and 14 community health workers. Seniority for the post staff ranged between 1 and 26 years. The total number of malnourished children admitted in th 15 functional centers in 2013 was 296. They were aged 6 months to 59 months. The median age of the children at admission was 12 months. Girls accounted for 47.9%.

4.2. The component "structure"

Of 27 OPHC planned, 15 were functional, and had assured the care fo children suffering from malnutrition and were exhaustively included in the study. The national acute malnutrition management protocol was available in 08 OPHC. There was low availability of standard document. Table 1 shows that, all OPHC had at least one trained health worker for the management of acute malnutrition. All villages served had a trained community health worker. Availability of, human resources was "good". The anthropometric equipment was available in all OPHC. The stock of RUTF (Plumpynut) was sufficient in 12 OPHC. The breaking drug stock occurred in RUTF. The availability of monitoring and evaluation tools was fair. The picture box was not sufficient. OPHCs had no culinary demonstration equipment. Overall, the component "resources" was considered « acceptable ».

Table 1: Scores of the component « structure » in children acute malnutrition management in the OPHC; Benin 2014.

Criteria of component « structure »	Required points	score	Appreciation
National acute malnutrition management protocol availability	2	0	low
Human resources availability	4	4	good
Anthropometric Equipment availability	2	2	Good
RUTF availability	2	1	Acceptable
Systematic medical treatment drugs availability	12	12	Good
Monitoring and evaluation tools availability	8	6	Acceptable
Pictures boxes availability	2	0	low
Culinary demonstration equipment availability	2	0	low
Total	44	35	Acceptable

RUTF: Ready to use therapeutic food

4.3. Acute malnutrition management process

Children less than 5 years curative consultation allowed to observe the correct use of anthropometric equipment for measuring the size and the weight, and the comparison of the value size- weight allowed diagnosing malnutrition. In table 2, among the 15 OPHC, 11 have organised malnutrition screening outreach. Regarding dietary treatment, all malnourished children received RUTF (Plumpynut) as recommended by the national protocol with. The treatment of moderate acute malnutrition based on food supplements was not implemented in any OPHC. The respect of the national guidelines of management of acute malnutrition regarding systematic medical treatment was observed only in the two OPHC. Monitoring of malnourished child was effective in one OPHC. This monitoring included the following parameters: appetite test once a week, weighing and weigh appreciation once a week, brachial perimeter (BP) weekly, control of the presence of oedema every week, body temperature taking every week, clinics signs and symptoms looking every week, weekly nutrition education, calculation of weight gain at the output, home visits if necessary, measurement of height each month. The weekly visits recommended by the national protocol were not respected by the parents. Overall, the "process" component was therefore rated "low"

Table 2: Scores of the component « process » in children acute malnutrition management in the OPHC, Benin 2014.

Criteria of component « process »	Required points	Score	Appreciation
Systematic malnutrition screening in curative consultation	6	6	Good
Advanced screening strategy	2	1	Acceptable
Dietary treatment	2	2	Good
Systematic medical treatment	2	0	Low
Malnourished monitoring in the NAC	2	0	Low
Monitoring and evaluation tools correct filling	4	2	Acceptable

Reference and non-reference feature	2	0	Low
Nutritional education session achieving	2	0	Low
Culinary demonstration session achieving	1	0	Low
Activity reports writing	2	1	Acceptable
Supervision	2	0	Low
Total	26	12	Low

4.4. Result of the management of malnutrition

The appreciation of the component "Result" (Table 3) in the treatment of malnutrition in the OPHC was "weak". The results from the management are below national standards according to the criteria. Five of the 15 selected OPHC had good indicators that meet the national protocol standard.

Table 3: Scores of the component « results » in children acute malnutrition management in the OPHC, Benin 2014.

Criteria of component « results »	OPHC visited	National recommendations
Cure rate (%). n=203	68,6	> 75
Lethality. n=5	1,68	< 10
Dropout rate (%). n= 88	29,7	< 15
Average weight gain (g/kg/j). n= 203	6,91	> 6
Average length of stay (days). n= 203	52	< 42

4.5. Performance acute malnutrition management

The performance of the management of malnutrition among children under 5 in outpatient feeding centers based on the score obtained by the result of the treatment was low.

5. DISCUSSION

The study evaluated the performance of out-patient malnutrition management in children under 5 years in a rural health district in Benin. Overall, the performance was low.

5.1. The structure of acute malnutrition management

The low availability of acute malnutrition management protocol availability observed in OPHC was also reported in the Democratic Republic of Congo, where three of 17 centers had only this document. [11]. In contrast, the anthropometric equipment was available in all the centers surveyed during our evaluation as it has been observed elsewhere in Benin [12] and when assessing the management of acute malnutrition in Chad. [13] The good availability of this material may be explained by the fact that, more technical and financial partners involved in the field of nutritional recovery in children, particularly UNICEF provided the developing countries. It had been sufficient. The stock of RUTF was lapsing in 03 OPHC creating a break on two to three months. Similar result was observed with stock outs of RUTF in the Democratic Republic of Congo [11]. During these times the children screened nevertheless benefited from this treatment through collaboration with other OPHC. The causes of these out-dated failures could be explained by the dependence of the acute malnutrition management to a partner who provides the supply.

5.2. Malnutrition management Process

In the present study, children screened in outreached villages were supported with distribution of RUTF. The community health workers were responsible for making the weekly visits. Monitoring by health workers took place in the following month. This management strategy conducted weekly by the health

workers was observed by Schwartz in the evaluation of the management of acute malnutrition in Benin [14].

Systematic medical treatment drugs (Amoxicillin, artemisinin based therapeutic combination and albendazol or mebendazol) for the children less than 5 years malnutrition treatment was not free of charge. They paid this treatment unless in one OPHC where there is a NGO support. This is in concordance with results observed in Cameroon, where there was a lack of free care unless there is support from a partner [15], in Mali [16] and in the Democratic Republic of Congo [11] The treatment was uncomplete according to Yebyo in Tigray in Ethiopia where the application of the protocol by the agents was not rigorous. [17]

The malnourished children care monitoring has been uneven because its frequency was not weekly as recommended in the national protocol. The visits were sometimes separated with an interval of two to three weeks. Appointments were not respected by the parents. This made the treatment discontinuous and could explain the long residence times and low average weight gains [14]. In Ivory Coast, advanced strategies had been organized in collaboration with the community health workers in the villages to follow malnourished children screening. The community was mobilized and local radio [18] associated. This was done in a context where the health district manager was very motivated after receiving support from the NGO "Action Contre la Faim".

Supervision was irregular supervisions although it was scheduled. Other activities frequently disrupted their execution. This irregularity has been noted by Katumwa. [19] It may reflect a low integration of PCMA into the routine system.

5.3. Acute malnutrition management "Results"

The overall recovering rate was 68.6% according to the results of the present evaluation. This is lower than the national standard of Benin whose threshold is higher than 75%. The present result is lower those reported by Baldé (89.7%) [12]. According to the author, there was a strong community mobilization and some of the health workers have received more than three supervisions and free malnutrition treatment management. The lethality in our study was similar to that observed by Baldé (1.6%). The overall dropout rate was above the norm. The high dropout rate could be explained by long distance between health facilities and obstacles such as (river crossing, overload of work for health workers). The average length of stay was higher to the international standard (<28 days) [14]. But it could be right in the Benin's standard protocol that considers that children could exceed 6 weeks in OPHC. This period ranged from 36 to 45 days in OPHC in other study [12]. The average weight gain was in accordance with the standard range.

These performance indicators are comparable with the results found by Harris in Cambodia where the cure rate, lethality, the average weight gain and length of stay that were 55%, respectively, 5.6%, 4 g / kg / day 14 weeks [20]. In Burkina Faso Dombélé had found alarming indicators compared to the references. The average weight gain and length of stay were respectively 4,05g / kg / day and 55 days [21]. According to this, the poor performance could be explained by the use of inadequate local foods that would give less satisfactory results instead of RUTF for nutritional recovery.

The limitations of this study concern its geographic scope limited to a health district. However, the study shows interest results for improvement of the performance of out-patient malnutrition management in children less than 5 years in Benin rural setting.

6. CONCLUSION

The performance of out-patient malnutrition management in children less than 5 years in the studied health district was weak. Improving the management of acute malnutrition requires adequate monitoring of depicted malnourished children, appropriate communication, greater mobilization of community health workers in the active search of dropt out children and monitoring.

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