Systematic Review of Complementary Feeding Strategies amongst Children Less than Two Years of Age

Zohra S. Lassi, Guleshehwar Zahid, Jai K. Das, Zulfiqar A. Bhutta Division of Women and Child Health The Aga Khan University Karachi, Pakistan

Corresponding Author: Zulfiqar A. Bhutta Division of Women and Child Health The Aga Khan University P.O. Box 3500 Stadium Road Karachi-74800, Pakistan E-mail: <u>zulfiqar.bhutta@aku.edu</u>

Report from the Maximising the Quality of Scaling up Nutrition Programmes (MQSUN)

About Maximising the Quality of Scaling up Nutrition Programmes (MQSUN)

MQSUN aims to provide the Department for International Development (DFID) with technical services to improve the quality of nutrition-specific and nutrition-sensitive programmes. The project is resourced by a consortium of eight leading non-state organisations working on nutrition. The consortium is led by Program for Appropriate Technology in Health (PATH).

The group is committed to:

- Expanding the evidence base on the causes of undernutrition.
- Enhancing skills and capacity to support scaling up of nutrition-specific and nutrition-sensitive programmes.
- Providing the best guidance available to support programme design, implementation, monitoring, and evaluation.
- Increasing innovation in nutrition programmes.
- Knowledge-sharing to ensure lessons are learnt across DFID and beyond.

MQSUN partners are:

Aga Khan University Agribusiness Systems International ICF International Institute for Development Studies International Food Policy Research Institute Health Partners International, Inc. PATH Save the Children UK

Report Contact:

Zulfiqar A. Bhutta Division of Women and Child Health The Aga Khan University P.O. Box 3500 Stadium Road Karachi-74800, Pakistan E-mail: <u>zulfiqar.bhutta@aku.edu</u>

This document was produced through support provided by UKaid from the Department for International Development. The opinions herein are those of the author(s) and do not necessarily reflect the views of the Department for International Development.



Contents

Contents	3
Acknowledgments	4
Acronyms	5
Executive Summary	6
Introduction	8
Methods	10
Results	14
Discussion	
Conclusions	41
Recommendations for policy and research	42
References	43
Annex I	51
Annex II	64
Web Annex	67

Acknowledgments

The authors would like to thank Department for International Development (DFID) for entrusting them with this important piece of research.

They would also like to thank Muhammad Talha Mirza, Research Assistant, Division of Maternal and Child Health, Aga Khan University, Pakistan, for his assistance in full-text retrieval of papers, and for preparing the endnote reference library.

Acronyms

BF	Breastfeeding
BMI	Body Mass Index
CI	Confidence Interval
Cm	Centimetres
DFID	Department for International Development
EPOC	Effective Practise, Organisation, and Communication
GIV	Generic Inverse Variance
HAZ	Height-for-Age
IUGR	Intra Uterine Growth Retardation
Kg	Kilograms
LMIC	Low- and Middle-Income Countries
MD	Mean Difference
MFGM	Milkfat Globule Membrane
MUAC	Mid-Upper-Arm Circumference
NCHS	National Center for Health Statistics
QPM	Quality Protein Maize
RCT	Randomised Controlled Trials
RR	Risk Ratio
RUTF	Ready-to-Use Therapeutic Food
SD	Standard Deviation
SMD	Standard Mean Difference
WAZ	Weight-for-Age
WFP	World Food Programme
WHO	World Health Organization
WHZ	Weight-for-Height
WMD	Weighted Mean Difference

Executive Summary

The prevalence of malnutrition in low- and middle-income countries (LMICs) is considerably high. Malnutrition leads to susceptibility to preventable infectious diseases and has an indirect association with the leading causes of death in children. According to an estimate, 19.4% of children less than five years of age in these countries were underweight (weight-for-age [WAZ] Z score <-2) and about 29.9% were stunted in the year 2011 (height-for-age [HAZ] Z score <-2). Malnutrition is preventable through effective complementary feeding practices. Several strategies have been employed to improve complementary feeding practices. These include nutritional education to mothers designed to promote healthy feeding practices; provision of complementary food offering extra energy (with or without micronutrient fortification); and increasing energy density of complementary foods through simple technology.

In this review, we have included randomised controlled trials (RCTs) and non-RCTs that assessed the impact of complementary feeding and education on complementary feeding on linear growth, weight gain, iron status, and morbidity. Broadly, interventions were classified as education on complementary feeding and complementary feeding with or without nutrition education. We have also mentioned the costs of the interventions given in the included studies and other complementary foods available globally.

All available papers/reports on the effect of complementary feeding (fortified or unfortified, but not micronutrients alone) and education on complementary feeding on children less than two years of age in Low and middle income countries (LMIC) were included. Studies that delivered intervention and assessed outcome for at least six months were included. We excluded all those studies in which intervention was given for supplementary and therapeutic purposes and those that assessed the impact of micronutrients alone.

We included 11 randomised controlled trials (RCTs) and 7 non-RCTs. We conducted meta-analysis on RCTs. Amongst all RCTs, eight were on nutritional education only. We found significant impact of nutritional education on linear growth (height-for-age Z scores: SMD 0.22; 95% Confidence Interval [CI]: 0.08, 0.37, n=1,486, 4 studies; stunting: risk ratio (RR) 0.72; 95% CI: 0.57, 0.93, n=1445, 2 studies) and weight (weight-for-age [WAZ] Z scores: SMD 0.20; 95% CI: 0.07, 0.33, n=1673, 4 studies). On the other hand, we found four trials in which children were provided with complementary feeding with or without nutrition education. We found that complementary feeding with or without education had a non-significant impact on HAZ scores (SMD 0.46; 95% CI: -0.24, 1.17, 4 studies, n=500), and WAZ (SMD 0.15; 95% CI: -0.09, 0.40, 2 studies, n=262).We also performed a meta-analysis based on the type of food, but we are unable to conclude which types of foods are the most effective in preventing undernutrition because the numbers of studies in each subtype were few.

We found that these interventions had a significant impact on reducing the prevalence of respiratory illness (RR 0.68; 95% CI: 0.48, 0.97, 2 studies, n=629). However, there was no difference in fever and diarrhoea episodes.

We also attempted to gather data on cost of the interventions, food products, and complementary feeding strategies used in the included studies. Most papers did not mention estimates of cost and thus, we contacted the authors with the request to provide us with cost data. We have also included cost estimates of various complementary foods that were not used in any of the interventions included in

this review but can potentially have an impact in reducing undernutrition. The cost of different baby food products, including cereals, porridge, and biscuits produced by different manufacturers were identified via web search.

The scarcity of available studies and their heterogeneity as well as the variety in complementary feeding intervention as the most effective. Nonetheless, the results of this review indicate that effectively implemented provision of complementary feeding and education on complementary feeding have a potential to prevent undernutrition in children. Our review also found that nutritional education and complementary feeding (either individually or combined) both have the potential to reduce morbidity from respiratory infections. However, further high-quality studies need to be conducted which report consistent outcome measures and similar interventions in order to accurately map out which interventions, if scaled up, can be effective. Moreover, these trials should consider using standardised types of food in the intervention so that evidence can be formulated on which type of food is most effective. It is ideal to keep the duration of intervention for at least six months since anthropometric improvements are gradual. Trials should report consistent outcomes and also include morbidity outcomes. Despite clear evidence of the disastrous consequences of childhood nutritional deprivation in the short and long terms, nutritional health remains a low priority. Therefore, enhanced and rigorous actions are needed to deliver and scale up nutritional education and complementary feeding interventions.

Introduction

About one-third of deaths in children under five years of age are due to underlying undernutrition, which includes stunting, severe wasting, deficiencies of vitamin A and zinc, and suboptimum breastfeeding (BF).¹ Childhood malnutrition is prevalent LMICs. According to an estimate, 19.4% of children less than five years of age in these countries were underweight (WAZ Z score <-2) and about 29.9% were stunted in the year 2011 (height-for-age Z score <-2).² The prevalence of both underweight and stunting was highest in Africa and South-Central Asia, and stunting and wasting, along with intrauterine growth restriction (IUGR,) are responsible for about 2.1 million deaths worldwide in children less than five years of age.³ It is well-recognised that the period of 6 to 24 months of age is one of the most critical time periods in the growth of the infant. The incidence of stunting is the highest in this period, as children have high demand for nutrients and there are limitations in the quality and quantity of available foods, especially after exclusive BF.^{1, 4}

Importance of complementary feeding

Complementary feeding for infants refers to the timely introduction of safe and nutritional foods in addition to breast-feeding (BF) (i.e., clean and nutritionally rich additional foods introduced at about six months of age).⁵ These foods are typically provided to children from 6 to 24 months of age.⁶ It has been suggested that in addition to disease-prevention strategies, complementary feeding interventions targeting this 'critical window' are most efficient in reducing malnutrition and promoting adequate growth and development.⁷ According to the World Health Organization (WHO), complementary feeding should be timely, adequate, appropriate, and given in sufficient quantity.⁶ Several strategies have been employed to improve complementary feeding practices.¹ These include nutritional education to mothers designed to promote healthy feeding practices; provision of complementary foods offering extra energy (with or without micronutrient fortification); and increasing energy density of complementary foods through simple technology.^{1,8}

Evidence from previous reviews

Over the last five years, four reviews have been published on the impact of various complementary feeding interventions.^{1, 5, 9, 10} Squassero 2012¹⁰ is the most recently published review on the subject. It evaluated the effectiveness of the provision of supplementary feeding for children under the age of five in LMICs. It included only studies that used supplementary feeding interventions defined as the provision of extra food to children or families beyond the normal ration of their home diets. A meta-analysis by Batool et al. for Bhutta Lancet 2008⁹ evaluated the impact of complementary feeding strategies on linear growth, particularly HAZ (mean Z scores). They classified the included studies as 'food secure' or 'food insecure', depending on the average per capita income.

Imdad 2011,⁵ on the other hand, reviewed the impact of maternal education on complementary feeding with or with provision of complementary feeding. The outcomes reported were weight and height increase, but the review also included studies on malnourished children and studies that provided interventions for smaller periods of duration (i.e., less than six months). However, Dewey 2008¹ performed a systematic review that included trials with educational interventions, provision of complementary feeding plus education. The review also included studies in

which micronutrients were given alone (without food). They grouped studies and presented findings based on the scale of intervention (i.e., efficacy/effectiveness). No formal meta-analysis was performed due to the high heterogeneity in the components of the interventions. Hence, only a rough estimate of effect size was given by averaging across interventions.

We, in this review, have attempted to pool effect sizes from studies based on their scale of intervention (efficacy/effectiveness) and type of food provided, and we have considered the food security of the defined population. However, we have excluded all those studies in which micronutrient(s) were given alone without complementary foods, and in which complementary food was given for therapeutic purposes to malnourished children. We have also attempted to report data on the cost of different complementary food interventions and products available. Thus, our review will further add to the knowledge on this topic by attempting the pooled analyses based on different contextual factors.

The review by Dewey and Adu-Afarwuah 2008,¹ which was an update of a previously published review (Caulfield et al. 1999),⁸ was largely qualitative in nature, and little effort was undertaken to pool impact estimates. This review on six efficacy trials and five effectiveness studies in which the main intervention was education on complementary feeding found a modest effect on weight (mean effect size = 0.28; range -0.06, 0.96) and linear growth (mean effect size 0.20, range 0.04, 0.64). The review of seven efficacy trials indicated that provision of complementary feeding can have a significant impact on growth (weight 0.26; range -0.02, 0.57 and height 0.28; range -0.04, 0.69). Two efficacy and six effectiveness trials on the effect of the food combined with maternal education found a significant impact on weight 0.35 (range 0.18, 0.66) and linear growth 0.17 (range 0, 0.32).

The meta-analyses by Batool et al. for Bhutta 2008 Lancet Under-nutrition Series⁹ reported significant impact of provision of complementary feeding (with or without education) on HAZ Z score (weighted mean difference [WMD] 0.41 (95% CI: 0.05, 0.76) for food-insecure populations. The review also reported the significant impact of education on complementary feeding on HAZ Z score (WMD 0.25; 95% CI: 0.01, 0.49) for food-secure populations.

As previously mentioned, a review by Imdad 2011⁵ demonstrated that both provision of appropriate complementary foods (with or without nutritional counselling) and nutritional counselling alone resulted in significant increase in weight (WMD 0.34 95% CI: 0.11, 0.56 and WMD 0.30, 95% CI: 0.05, 0.54 respectively) and linear growth (WMD 0.26, 95% CI: 0.08, 0.43 and WMD 0.21 95% CI: 0.01, 0.41 respectively).

A recent Cochrane review by Squassero 2012¹⁰ looked at the impact of the provision of extra food to children or families beyond the normal rations of their home diets. The review found a significant difference in length in children less than 12 years of age (mean difference [MD] 0.19 centimetres (cm); 95% CI: 0.07, 0.31).

Why it is important to do this review

Previous reviews were largely qualitative in nature, and little effort was undertaken to develop robust meta-analysis based on impact estimates. We performed meta-analysis with studies pooled as type of complementary food; scale of trial (i.e., efficacy/effectiveness and according to food security of the given populations). We assessed the impact of two complementary feeding strategies—nutritional education on complementary feeding and provision of complementary food with or without nutritional

education on child growth. We also determined the impact of these two strategies on childhood morbidities, including diarrhoea, respiratory infections, and fever. We further gathered data on the cost of delivery of intervention and the cost of different food products available in the market.

Objectives

The specific objectives of this systematic review are to:

- Collate and synthesise relevant information on the roles of complementary feeding and education on complementary feeding in children 6 to 24 months of age.
 - Identify interventions and their effectiveness on growth, iron status, and morbidity.
 - Undertake cost analysis of intervention and food products.
- Based on the above, we will develop an analytical summary of current evidence of intervention impact and draft recommendations.

Methods

Criteria for considering studies for this review

Types of studies

A comprehensive search of studies was performed from several data sources, without language restrictions (in the case of non-English papers, efforts were made to translate the text into English). We considered all available published and unpublished papers/reports on the impact of complementary feeding interventions for children less than two years of age. Our priority was to select RCTs conducted in LMICs to generate the evidence of interventions. However, we also included non-RCTs and longitudinal studies with comparison groups (in which people/clusters are allocated to different interventions using methods that are not random) that provided outcomes observations at multiple time points using Campbell methods and Cochrane effective practice, organisation, and communication group (EPOC).^{11, 12}

Inclusion criteria

- 1. All available papers/reports on the effect of complementary feeding and education on complementary feeding (fortified or unfortified, but not micronutrients alone).
- 2. Included children less than two years of age.
- 3. Conducted in LMICs.
- 4. Studies that provided intervention for at least six months and more.

Exclusion criteria

- 1. Studies where the target group was deliberately selected to be acutely malnourished (stunted or wasted), and where the products were being tested for the purpose of treatment.
- 2. Studies in which the selected group was provided with supplementary foods rather than complementary foods
- 3. Studies that assessed the impact of micronutrients alone (where both the groups were given complementary feeding).

Search methods for identification of studies

Electronic searches

The following sources of information were used to search literature for review:

- 1. All available electronic reference libraries of indexed medical journals and analytical reviews.
- 2. Electronic reference libraries of non-indexed medical journals.
- 3. Non-indexed journals not available in electronic libraries.
- 4. Pertinent books, monographs, and theses identified through electronic or hand searching.
- 5. Project documents and reports.

We searched PubMed, Google, and Alltheweb, as well as the official websites of various private voluntary organisations for non-peer reviewed papers and programme reports not listed in PubMed. We also searched trial registers and by contacting key researchers in this area and inquiring whether there are any trials or systematic reviews planned on this topic. We used the same search strategy defined by Dewey 2008^1 with slight modification in the dates used (2006 previously; we changed it to 2012) :(((randomised controlled trial [pt] OR controlled clinical trial [pt] OR randomised controlled trials [mh] OR random allocation [mh] OR double-blind method [mh] OR single-blind method [mh] OR clinical trial [pt] OR clinical trials[mh] OR ('clinical trails' [tw]) OR ((sing* [tw] OR doubl* [tw] OR trebl* [tw] OR tripl* [tw]) AND (mask* [tw] OR blind*[tw])) OR ('latin square' [tw]) OR placebos [mh] OR placebo* [tw] OR random* [tw] OR research design [mh:noexp] OR comparative study [mh] OR evaluation studies [mh] OR follow-up studies [mh] OR prospective studies [mh] OR cross-over studies [mh] OR control* [tw] OR prospective* [tw] OR volunteer* [tw]) NOT (animal [mh] NOT human [mh]) AND (Clinical Trial [ptyp] OR Randomised Controlled Trial [ptyp] OR Classical Article [ptyp] OR Clinical Trial, Phase I [ptyp] OR Clinical Trial, Phase III [ptyp] OR Clinical Trial, Phase IV [ptyp] OR Controlled Clinical Trial [ptyp] OR Journal Article [ptyp]) AND (English [lang] OR Spanish [lang]) AND (infant [MeSH:noexp]) AND ((weaning food* [tw] OR weaning food* [mh] OR complementary food* [tw] OR complementary food* [mh] OR complementary feed* [tw] OR complementary feed* [mh]) OR home fortification [tw]AND (Clinical Trial [ptyp] OR Randomised Controlled Trial [ptyp] OR Classical Article [ptyp] OR Clinical Trial, Phase I [ptyp] OR Clinical Trial, Phase III [ptyp] OR Clinical Trial, Phase IV [ptyp] OR Controlled Clinical Trial [ptyp] OR Journal Article [ptyp]) AND (English [lang] OR Spanish [lang]) AND (infant [MeSH:noexp]) NOT (retracted publication [pt]).

Types of outcomes

Primary outcome:

• Linear growth amongst children aged 6 to 24 months (height, HAZ, prevalence of stunting).

Secondary outcomes:

- Weight gain amongst children aged 6 to 24 months.
- Weight gain and linear growth of children aged 24 to 59 months (weight, WAZ, WHZ, prevalence of wasting, and underweight).
- Other anthropometric measurements (mean upper-arm circumference [MUAC], body mass index [BMI]).
- Iron status (haemoglobin, ferritin, prevalence of anaemia).
- Morbidity amongst children (diarrhoea, respiratory infections, fever).
- Cost of delivery of intervention and cost of food product.

Data collection and analysis

Trial eligibility and screening of all available titles and abstracts for inclusion were assessed by two review authors independently. If we were unable to learn relevance by screening the title and abstract, we retrieved and went through the full text of the article. Two review authors retrieved full texts of relevant articles and independently judged eligibility by filling out forms designed in accordance with the specified inclusion criteria. We resolved any differences by discussion or, if required, conferred with a third review author. Excluded studies are tabulated in 'characteristics of excluded studies' (**Table 11**) along with their reasons for exclusion.

Quantitative data synthesis

We broadly classified the studies based on the intervention strategies used as nutrition education on complementary feeding and complementary feeding with or without nutrition education. Studies that had complementary feeding combined with nutritional education and those that had only complementary feeding as the intervention were merged and analysed together. The basis for this merging was that complementary feeding interventions are always attached with briefing and instructions on how to prepare or use the complementary food, even if nutritional education is not a specific component of the intervention. We synthesised findings based on scale of trial, food security of the given population, and type of food product used.

Data analysis

We performed statistical analysis of RCTs using the Review Manager software. Data analyses of the outcomes were based on an intention-to-treat principle. For dichotomous data, we presented results as summary RR with 95% CIs. For continuous data, we used the standard mean difference (SMD) between trials if outcomes were measured comparably. We first pooled the data to get a standardised WMD, also known as 'standard mean difference' (SMD), or 'effect size'. The advantage of calculating WMD is that it eliminates the problems of units of measurement and duration, which may vary across studies.¹³ In order to pool cluster randomised or individually randomised trials together, we converted them all in log RR and pooled them using generic inverse variance (GIV). We have also converted HAZ Z scores into rates of stunting after considering the standard deviation (SD) of 1.4 for stunting in this population.⁹ The forest plots included in this review are based on pooling evidence from RCTs only. However, most of the previous reviews^{5, 9} have also meta-analysed RCTs with non-randomised controlled studies. Therefore, we have separately pooled RCTs with non-RCTs together using Campbell methods and EPOC methods^{11,} ¹² and presented them in the **Web Annex**.

Dealing with missing data and heterogeneity

The level of attrition was noted for each study. Heterogeneity between trials was assessed using the I² statistic, P value of <0.1 (on chi²) and by visual inspection of forest plots. When high levels of heterogeneity between trials (exceeding 50% with P value <0.1) were identified, further exploration was conducted by subgroup analysis. We performed subgroup analyses based on single study as well to show how specific intervention was different in particular studies. We initially undertook fixed-effects meta-analysis for combining data where trials examined the same intervention, but then repeated the analysis and applied random-effects meta-analysis as an overall summary when substantial methodological heterogeneity between and amongst the studies was found. We also report P value of interaction tests.

Subgroup analysis

We performed the following subgroup analysis:

- Efficacy versus effectiveness trials: Interventions were considered efficacy trials if there was a high degree of assurance of delivery of the 'treatment', generally under carefully controlled research conditions (e.g., provision of a fortified complementary food with frequent follow-up to assess adherence). Evaluations of interventions carried out in a programme setting, generally with less ability to control delivery of and adherence to 'treatment', were considered effectiveness studies.¹ The majority of the studies included in this review provided this information.
- Type of complementary food.
- Studies in populations with an average per-capita income under USD 1.25 were classified as "food insecure," whilst studies in populations with a higher income were classified as "food secure."

Data extraction and management

Double data abstraction was performed on included studies using standardised extraction forms. The comparison of the extracted data enabled us to correct errors.

Assessment of risk of bias in included studies

The methodological quality of RCTs was measured using the Cochrane methods of risk of bias assessment¹⁴ described in **Table 1** below. However, for non-RCTs, we used EPOC methods for risk of bias assessment.¹²

Table 1: Assessment of Risk of Bias											
Sequence Generation	Allocation Concealment	Blinding	Incomplete Outcome Data	Selective Reporting Bias							
Low risk (any truly random process, e.g., random number table; computer random-number generator)	Low risk (e.g., telephone or central randomisation; consecutively numbered sealed opaque envelopes)	Low risk, high risk, or unclear for participants	Low risk	Adequate (where it is clear that all of the study's pre-specified outcomes and all expected outcomes of interest to the review have been reported)							
High risk (any non-random process, e.g., odd or even date of birth; hospital or clinic record number)	High risk (open random allocation; unsealed or non-opaque envelopes, alternation; date of birth)	Adequate, high risk, or unclear for personnel	High risk	Inadequate (where not all the study's pre- specified outcomes have been reported; one or more reported primary outcomes were not pre-specified; outcomes of interest are reported incompletely and so cannot be used; study fails to include results of a key outcome that would have been expected to have been reported)							
Unclear	Unclear	Low risk, high risk, or unclear for outcome assessors	Unclear	Unclear							

Results

We identified 701 titles from different sources. Following abstract screening of the identified titles, 139 studies met the criteria for which full-text articles were retrieved for assessment. Amongst these, 18 met the final eligibility criteria. Of these 18, 11 were RCTs and 7 were non-RCTs. The last date of search was October 2012 (**Figure 1**). Amongst the RCTs, six were from Asia, two were from Africa, and the remaining three were from different parts of Central and Latin America. Amongst the non-RCTs, three were from Africa, and two each were from Asia and from different parts of America. Anthropometrical and morbidity data on children more than two years of age was not reported separately. A list of excluded studies is mentioned in **Annex II**. We also identified four ongoing trials (**Table 2**).

Characteristics of non-randomised studies are mentioned in **Table 3**. Amongst these, two provided education^{15, 16} on complementary feeding and the rest provided complementary feeding with or without education. ¹⁷⁻²¹





Ongoing studies

We identified four ongoing studies that were relevant to this review (Table 2).

Table 2: Characteristics of ongoing studies on nutrition education on complementary feeding or complementary											
feeding with o	r without ed	ucation									
Study ID	Country	Type of Study	Title	Intervention	Duration	Status					
Tomedi 2012 ²² NCT01679535	L2 ²² Kenya Efficacy A Nutrition/Hygiene Education Programme for the Prevention of Child Malnutrition Infants 1 to 6 Months Nutrition and hygiene education b community health workers Nutrition and hygiene education b community health workers		Infants 1 to 6 Months Nutrition and hygiene education by community health workers	18 months	Currently recruiting participants						
Christian 2012 ²³ NCT01562379	Bangladesh	Efficacy	Complementary Food Supplements for Reducing Childhood Undernutrition	Infants 6-8 Months -Plumpy Doz -Wheat Soy Blend (WSB++) -Chickpea-based complementary food supplement -Rice-based complementary food supplement	12 months	Currently recruiting participants					
Cofie 2012 ²⁴ NCT01612442	Ghana	Effectivene SS	Integrated Education Intervention to Improve Infant and Young Child Nutrition and Growth in Ghana	Infants 6 to 24 Months Mothers of children aged 6 to 24 months received monthly nutrition education delivered by community health volunteers and agricultural education delivered by agricultural extension agents, in addition to standard monthly child welfare services delivered by Ghana Health Service	9 months	Study has been completed. Results are forthcoming.					
Hambidge 2012 ²⁵ NCT00726102	China	Efficacy	Development and Health of Rural Chinese Children Fed Meat as a Daily Complementary Food	Infants 6 to 18 Months Provide locally available meat daily	Infor- mation not available	Status unknown (as per website)					

 Table 3: Characteristics of non-randomised controlled studies on nutrition education on complementary feeding or complementary feeding with or without education

Author	Country	Region	Type of Study	Age Group	Intervention- what was the educational message?	Control	Duration of Inter- vention	Duration of Follow Up	Results
Guldan 2000 ¹⁵	China	Rural	Longitudinal with a comparison group Effectiveness Food secure	0 to 12 months/ I: 250 C: 245	Trained nutrition educators provided growth monitoring and counselling in intervention areas. Key messages: a. Bottle feeding may be dangerous b. Frequent suckling on demand is best c. After 4 to 6 months, give daily hard-boiled egg yolk, at first mixed with some breastmilk; thereafter, give thickened rice porridge and other foods d. Baby needs breastmilk for at least a year and needs other foods daily. e. Use home-produced food and the family diets	No inter- vention	4 to 12 months	12 months	Intervention group: WA2: -1.17 +- 0.79 HAZ: -1.32+- 1.00 Control: WAZ : 1.93+- 0.79 HAZ: -1.96+- 1.
Kilaru 2005 ¹⁶	India	Rural	Longitudinal with a comparison group Efficacy Food insecure	5 to 11 months/ I: 173 C: 69	Use of appropriate local foods and preparation of these foods, appropriate feeding frequency, gradually increasing food diversity, complementary feeding followed by BF, avoidance of feeding bottles	e. Use home-produced food and the amily diets Jse of appropriate local foods and preparation of these foods, appropriate feeding frequency, gradually increasing food diversity, complementary feeding followed by BF, avoidance of feeding bottles		12 months	Intervention group: Weight gain (kg): 0.25+- 0.18 Control: 0.22+-0.18

Table 3: Characteristics of non-randomised controlled studies on nutrition education on complementary feeding or complementary feeding with or without education												
Author	Country	Region	Type of Study	Age Group	Intervention- what was the educational message?	Control	Duration of Inter- vention	Duration of Follow Up	Results			
Gartner 2007 ¹⁹	Senegal	Peri- urban	Repeat cross- sectional study with comparison group Effectiveness Food secure	6 to 35 months (under- weight or nutrition- ally at risk children) I: 757 C: 917	Children received flour mix from local ingredients; mothers received education (details not specified)	No inter- vention	6 months	6 months	I: % underweight 24 % Stunted 14.7 C: % underweight 22.7 % Stunted 14.5			
Lopez de Romana 2000 ¹⁸	Peru		Longitudinal with a comparison group Effectiveness Food secure	6 to 23 months	Administration of <i>Ali Alimentu</i> (processed CF with the following ingredients: rice, barley, beans, powdered milk, vegetable oil) and nutritional counselling not specified but based on: a. Nutritional needs of children of this age in centres b. Breastfeeding promotion c. Preparation and administration of <i>Ali Alimentu</i>	No inter- vention	12 months	12 months	Stunted 56% in intervention and 56% in control			
Lutter 2008 ²¹	Ecuador	Poor com- muniti es	Quasi-RCT Effectiveness Insecure	9 to 14 months	 PANN 2000 has 5 major components: 1) information, education, and communication; 2) training of health workers in infant and young child nutrition and counselling skills; 3) community participation; 4) provision of a FCF (Mi Papilla); and 5) monitoring and evaluation Mi Papilla consists of a daily ration of 65 g of dry product that provides 275 kcal/d (1,150.6 kJ/d) and has an energy density of 1.2 kcal/g (5.0 kJ/g) when mixed with the appropriate amount of water. 	No inter- vention	12 months	12 months	Weight-for- age Z score 20.62 (60.91) ; 20.88 (61.03) Length-for- age Z score 21.50 (60.99) 21.77 (61.15) SD), % 0.6 0.0			
Adu- Afarwu ah 2007 ¹⁷	Ghana	Not men- tioned	RCT and compared with control arm which was not randomly selected Efficacy Food insecure	5 months/ I: 97 C: 81	Nutributter: fortified fat spread modified to include a still larger set of micronutrients plus added energy. (RNI of 14 vitamins and minerals plus some calcium, potassium, phosphorous, magnesium, and manganese as well as energy (108 kcal/g).	No inter- vention	6 months	6 months	Intervention grp: WAZ - 0.40+-1.10 HAZ: -0.14+- 1.00 Hb: 114+-14 % Anaemia: 10 Control: WAZ: -0.74+- 1.10 HAZ -0.40+- 1.00 Hb 106+-14 % Anaemia 32			
Lartey 1999 20	Ghana	Not men- tioned	RCT where no intervention arm was cross- sectional in which children who	6 to 12 months I 216 C: 464	Weanimix (W), Weanimix plus vitamins and minerals (WM), Weanimix plus fish powder (WF), and koko plus fish powder (KF). KF was compared with control group with no intervention.	No inter- vention	12 months	12 months	-1.19 0.93 -1.71 0.9 ES: 0.57 (WAZ) 0.63 0.84 1.27 1.02 ES: 0.69 (LAZ)			

Table 3 or com	Table 3: Characteristics of non-randomised controlled studies on nutrition education on complementary feeding or complementary feeding with or without education												
Author	Country	Region	Type of Study	Age Group	Intervention- what was the educational message?	Control	Duration of Inter- vention	Duration of Follow Up	Results				
			were not selected were measured. Efficacy Insecure										

Quality of the evidence

In general, the risk of bias assessment of all RCTs suggested a low to moderate level of quality. There was unclear or missing information regarding sequence generation, allocation concealment, blinding, and handling of exclusions after allocation to interventions in several papers (**Figures 2 and 3a**). However, risk of bias assessment of non-RCTs suggested poor quality, and most of the information for assessment was not given at all (**Figure 3b**)





Figure 3a: Risk of bias summary of RCTs



Figure 3b: Risk of bias summary of non-RCTs



Educational interventions

There were seven studies including 3,733 children at baseline in which the intervention group received education on complementary feeding only.²⁶⁻³³ Amongst these, five were efficacy trials,^{26, 27, 30, 32, 33} whereas three were effectiveness trials/programmes.^{28, 29, 31} Five were the studies from food-secure populations,^{28, 30-33} whereas three were from food-insecure populations.^{26, 27, 29} We have provided details of the educational interventions described in each study using the criteria reported by Ashworth and Ferguson 2009⁴⁰ (**Table 6**). Additionally, forest plots illustrating the results of the pooled analysis are given in **Annex I**.

Effect on linear growth

<u>Height gain</u>

Pooled analysis showed that nutritional education alone did not improve height gain (cm) (SMD 0.14; 95% CI: -0.05, 0.34, random model, n=2,242, five studies, $tau^2 = 0.04$, $I^2 = 79\%$, Chi² P value 0.0007) (Annex 1.1). Based on scale of trials, effectiveness trials showed significant improvement of height gain (SMD 0.36; 95% CI: 0.08, 0.65, n=814, two studies, $tau^2 = 0.03$, $I^2 = 76\%$, Chi² P value 0.04) (Annex 1.1.1). The test of interaction found a significant difference in estimates based on scale of trial (P=0.03). No significant differences in height gain were observed on food security (Annex 1.1.2).

Height-for-age (Z scores)

Pooled analysis showed that nutritional education alone had a significant impact on improving HAZ (SMD: 0.23; 95% CI: 0.08, 0.37, random model, n=1,486, four studies, tau²= 0.01, l²=46%, Chi² P value 0.14) (Annex 1.2). The test of interaction found a significant difference in impact estimates based on scale of trial (P=0.05), and results were significant for effectiveness trials (SMD: 0.30; 95% CI: 0.17, 0.43, random model, n=949, two studies, tau²= 0.00, l²=0%, Chi² P value 0.38) (Annex 1.2.1). All, except Roy 2007,³⁹ were from food-secure populations. Roy et al.³⁹ displayed a significant impact on HAZ (SMD 0.25; 95% CI: 0.09, 0.42) (Annex 1.2.2).

Table 4: Summary estimates from studies on nutrition education on complementary feeding: Impact differences by scale												
Outcome	Efficacy (estimate)	Number of studies	Effectiveness	Number of studies								
Height gain (cm)	SMD: 0.02 (95% CI: -0.08, 0.13)	3	SMD 0.36 (95% CI: 0.08, 0.65)	2								
HAZ (Mean Z scores)	SMD 0.09 (95% Cl: -0.08, 0.26)	2	SMD 0.30 (95% Cl: 0.17, 0.43)	2								
Stunting (HAZ <-2)	OR 0.82 (95% CI: 0.60, 1.11)	2	OR 0.55 (95% CI: 0.29, 1.04)	2								
Weight gain (kg)	SMD 0.02 (95% CI: -0.08, 0.13)	3	SMD 0.27 (95% CI: 0.14, 0.41)	2								
WAZ (Mean Z score)	SMD 0.08 (95% Cl: -0.06, 0.23)	2	SMD 0.30 (95% Cl: 0.18, 0.43)	2								
Underweight (WAZ <-2)	RR 1.03 (95% CI: 0.90, 1.18)	1	-	-								
WHZ (Z Score)	SMD 0.26 (95% CI: -0.14, 0.66)	2	SMD 0.14 (95% CI: 0.02, 0.27)	2								

Stunting

Pooled analysis showed that nutritional education alone had a significant impact on improving the rates of stunting (OR: 0.72; 95% CI: 0.57, 0.93, random model, n=1,445 studies, tau²= 0.04, I²=83%, Chi² P value 0.0006) (Annex 1.3). Based on scale of trials, education on CF alone had insignificant impacts on rates of stunting and test of interaction was non-significant (P=0.28) (Annex 1.3.1). All, except Roy 2007,³⁹ were from food-secure populations. Roy et al.³⁹ displayed a significant impact on stunting (OR 0.68; 95% CI: 0.60, 0.76) (Annex 1.3.2).

Effect on weight

Weight gain

Pooled analysis showed that nutritional education alone had a non-significant impact on weight gain (kg) (SMD 0.12; 95% CI: -0.02, 0.26, random model, n=2,242, five studies, tau²= 0.01, l²=61%, Chi² P value 0.04) (Annex 1.4). Based on scale of trial, effectiveness studies showed significant improvement in weight gain (SMD 0.27; 95% CI: 0.14, 0.41, two studies, n=814, tau²= 0.00, l²=0%, Chi² P value 0.32). Test of interaction found difference in results based on scale of trials (P 0.004) (Annex 1.4.1). Based on the food security, food-secure populations displayed a significant impact on weight gain (SMD 0.21; 95% CI: 0.07, 0.36, three studies, n=1,219 tau²= 0.01, l²=39%, Chi² P value 0.20) (Annex 1.4.2).

Weight-for-age (Z score)

Pooled estimates showed significant improvements in WAZ (SMD 0.20; 95% CI: 0.07, 0.33, random effects, four studies, n=1,673, tau²= 0.01, l²=43%, Chi² P value 0.16) (Analysis 1.5). The test of interaction found a significant difference in impact estimates based on scale of trial (P=0.02) and results were significant for effectiveness trials (SMD: 0.30; 95% CI: 0.18, 0.43, random model, n=949, four studies, tau²= 0.00, l²=0%, Chi² P value 0.75) (Annex 1.5.1). All studies were from food-secure populations, except Roy 2007,³⁹ which showed a significant impact on WAZ (SMD 0.20; 95% CI: 0.07, 0.33) (Annex 1.5.2).

<u>Underweight</u>

We found one efficacy trial from food-insecure populations that showed non-significant impact for underweight (RR 1.03; 95% CI: 0.90, 1.18, random model, n=829, one study) (Annex 1.6).

Effect on other anthropometric measurements

Weight-for-height Z scores

The pooled analysis showed a significant impact on weight-for-height Z scores (WHZ) (SMD 0.20; 95% CI: 0.03, 0.36, random model, n=1,566, four studies, tau²= 0.02, l²=64%, Chi² p value 0.04) (Annex 1.7). Based on scale of trials, effectiveness had a significant impact on WHZ (SMD 0.14, 95% CI: 0.02, 0.27, two studies, n=949, tau²= 0.00, l²=0%, Chi² P value 0.09) (Annex 1.7.1). However, test of interaction was insignificant (P=0.54). All studies were from food-secure populations, except Roy 2007,³⁹ which displayed a non-significant impact (Annex 1.7.2).

Table 5: Summary estimates from studies on nutrition education on complementary feeding: impact
estimates (as food secure/insecure populations)

Outcome	Food-secure populations(estimates)	Number of studies	Food-insecure populations (estimates)	Number of studies
Height gain (cm)	SMD 0.25 (95% CI: -0.01, 0.52)	3	SMD 0.00 (95% CI: -0.15, 0.16)	2
HAZ (Mean Z scores)	SMD 0.21 (95% CI: -0.01, 0.44)	3	SMD 0.25 (95% Cl: 0.09, 0.42)	1
Stunting (HAZ <-2)	OR 0.73 (95% Cl: 0.50, 1.05)	3	OR 0.68 (95% CI: 0.60, 0.76)	1
Weight gain (kg)	SMD 0.21 (95% CI: 0.07, 0.36)	3	SMD -0.00 (95% CI: -0.13, 0.12)	2
WAZ (Mean Z scores)	SMD 0.16 (95% CI: 0.00, 0.33)	3	SMD 0.29 (95% Cl: 0.12, 0.45)	1
Underweight (WAZ <-2)	-	-	RR 1.03 (95% CI: 0.90, 1.18)	1
WHZ (Z score)	SMD 0.21 (95% CI: -0.03, 0.45)	3	SMD 0.16 (95% CI: -0.00, 0.33)	1

Table 6	Table 6: Characteristics of included studies on nutrition education on complementary feeding													
Author	Country	Regio n	Type of study	Age group/ sample size	Intervention- what was the educational message?	Control	Who delivered?	Where was the educa- tion given?	Duration of inter- vention	Baseline demo- graphics	Baseline nutritional status	Season al varia- tion	Dura- tion of follow up	Results
Shi 2009 ³¹	China	Rural	cRCT Effective- ness Food secure	2-4 mo/ I: 294 C: 305	Educational messages and enhanced home-prepared recipes were disseminated to caregivers through group trainings and home visits. Messages: (i) group training sessions on food selection, preparation and hygiene, childhood nutrition and growth, and responsive feeding style; demonstration of preparing enhanced weaning food recipes, which were formulated using locally available, affordable, acceptable, and nutrient-dense foods such as egg, tomato, beans, meat, chicken, and liver; (iii) booklets which contained infant-feeding guidance and methods of preparing the recommended recipes; and (iv) home visits every three months to identify possible feeding problems and provide individual counselling.	Received a standard package of child health care from the township hospitals which included BF coun- selling, but did not contain anything other than standard counselling on comple- mentary feeding.	Health care providers	Health facility & home visits	12 months	Infants in the intervention group did not differ significantly from controls. However, more mothers at intervention sites than controls engaged in agriculture work (57.1% vs. 49.8%) and more fathers at intervention sites than controls were migrant labourers who worked temporarily in cities (67.3% v. 55.7%).	At baseline, there were no significant differences in the mean weights and lengths between the inter- vention and control groups (Weight: 6.51 v. 6.66 kg, P50v09; length: 60.75 v. 61.10 cm, P50v17).		8-10 mo	Adjusted differ- ence: weight (kg) gain Mean (95% Cl) 0.22 (0.003, 0.45) Length gain (cm) 0.66 (0.03, 1.29).

Author	Country	Regio n	Type of study	Age group	Intervention- what was the educational message?	Control	Who delivered?	Where was the	Duration of interventio n	Baseline demographic s	Baseline nutritional status	Season al variati	Durati on of follow	Results
								educati on given?				on	up	
Zaman 2008 ³³	Pakistan	Urban	RCT Efficacy Food secure	6-24 mo/ I: 151 C: 169	Educational: training health workers in nutrition counselling using the Integrated Management of Childhood Illness (IMCI) module 'Counsel the Mother.'	No inter- vention	IMCI module— 'Counsel the Mother' was used. A local adaptation of Pakistan's IMCI 'feeding counselling card' was developed in the local language.	Com- munity centre	No precise information given. Lady health visitors were trained to deliver education to mothers when they visited health centres. These children were followed up till 180 days.	The socio- economic and demographic character- istics of the two groups were similar.	-	-	180 days	Inter- vention grp: WAZ 12+ mths: - 0.35 +- 0.947 HAZ: - 0.35+- 0.947 Control: WAZ 0.8 14+- 1.02 HAZ - 0.814+- 1.02
Penny 2005 ²⁸	Peru	Peri- urban	cRCT Effective- ness Food secure	New- born/ I: 187 C: 190	Health staff received education in counselling and anthropometry; high- performing facilities were accredited. Three key messages: a. Use thick purees instead of soups, and at each meal, give puree first. b. Add a special food to your baby's serving (e.g., chicken liver, egg, or fish). c. Teach your child to eat with love, patience, and good humour.	No education	Health facility staff	Health facility	Nutrition education was given to caregivers during health facility visit, and these children were followed till 18 months.	Baseline character- istics in terms of SES were similar between the two groups; except that the intervention group has slightly better maternal education and hygiene score.	There were only slight differences in birthweight between the inter- vention and control groups at baseline (mean 3.41 vs. 3.35 kg) and no differences in length (cm).	-	18 mo	Inter- vention grp: WAZ : -0.33+- 0.90 HAZ: - 0.81+- 0.80 Control: WAZ: - 0.62+- 0.83 HAZ : - 1.19+- 0.83

Author	Country	Regio	Type of	Age	Intervention- what was the	Control	Who	Where	Duration of	Baseline	Baseline	Season	Durati	Results
		n	study	group	educational message		delivered	was	interventio	demographic	nutritional	al	on of	
			-		_			the	n	s	status	variati	follow	
								educati				on	up	
								on						
								given						
Santos	Brazil	Urban	cRCT	< 18	Health care providers were	No inter-	Health	Health	Education	The average	The	-	180 d	Intervention
2001 ³⁵			Efficacy	mo/	trained to deliver educational	vention	facility staff	facility	intervention	age of the	nutritional			grp:
			Food	I: 209	messages on food preparation				was	children in	status of			WAZ: -
			secure	C: 195	and infant feeding to mothers.				delivered	the	the children			0.18+-0.78
					Key messages:				for	intervention	was very			HAZ: -0.37+-
					a. Increase frequency of				outpatient	and control	similar			0.97
					breastfeeds/complementary				clinics, and	groups was	between			
					feeds				children	similar.	groups,			Control:
					b. Give animal protein and				were	Despite	except for			WAZ: -
					micronutrient-rich foods (egg,				followed for	paired	the mean			0.25+-0.78
					chicken liver, shredded				180 days.	randomisatio	weight-for-			HAZ: -0.41+-
					chicken, and beef).					n, children	age Z-score,			0.81
					c. Add oil to food					from the	which was			
					d. Increase energy and nutrient					intervention	significantly			
					density by giving mashed					group had	higher in			
					beans instead of broth and by					lower family	the control			
					giving thick papa instead of					income,	group,			
					soup.					social class,	when all			
										and maternal	children			
										schooling.	were			
											togothor			
											together.			

Author	Country	Regio n	Type of study	Age group	Intervention- what was the educational message?	Control	Who delivered?	Where was	Duration of interventio	Baseline demographic	Baseline nutritional	Season al	Durati on of	Results
								the educati	n	S	status	variati on	follow	
								on				0	чр	
Boy	Bangla-	Rural	CRCT	Children	Weekly nutrition education	regular	Community	given?	Weekly	Similar SES of	At haseline		6 mo	Inter-
2007 ³⁹	desh		Effective- ness Food insecure	aged 6 to 9 months who were well- nourish- ed or mildly mal- nourish- ed/ I: 306	based on the nutrition triangle concept of UNICEF for 6 months. The messages were prioritised for food security, psychosocial stimulation, and care and health-seeking behaviour, and were built on the preliminary exploration and focus group. The messages delivered were simple, standardised, and age- appropriate.	BINP services	health workers/ counsellors	munity centre	education for 6 months	the two groups at baseline.	the mean weight-for- age as a percentage of the NCHS median was comparable in the inter- vention and control groups (83.9% vs. 83.6%,			vention grp: WAZ : - 1.43 ± 0.73; WL Z: - 0.64 ± 0.87 HAZ: - 1 .90 ± 0.93 Control: WAZ: - 1. 90 ± 0.79; WLZ: - 1.
Bhanda ri 2001 ²⁶	India	Rural	RCT Efficacy food insecure	4 mo/ food supple men-	Nutritional counselling group (NC): 30-45 min monthly counselling with no food	Control #1: Visitation group (V): home visits	Trained nutrition- ists	Home	Monthly counselling	Children from control had almost the same	respectively ; p = NS)	-	8 mo	14 ± 0.93 HAZ: - 2. 15 ± 0.99 I: weight gain 1.93 +-0.57 Height
				tation grp: 87, nutri- tion coun- selling grp: 97, C: 91	supplement.	2/wk for morbidity assess- ment; no advice. Control #2: Non-inter- vention group (NI): contacted at 6, 9, and 12 mo for dietary and anthro assess- ment; no other visits, no advice.				demo- graphics as those in intervention.				68.6+-2.9 % Stunted 63.9 C: weight 1.84+- 0.72 Height 68.4+-2.4 % Stunted 75.8

Table 7: Description of nutritional education interventions used										
Study ID	Current practice and focus of emphasis regarding complementary foods	Specific messages about complementary foods	Target intake from complemen- tary foods	Use posters, cards, etc.	Cadre of worker	Monitor weight? Target	Assessed whether counselling is effective			
Shi 2009 ³¹	Focus was on family foods prepared from locally available and affordable, energy-dense foods.	Yes, educated on preparing home foods.	None	Yes, booklets which contained infant-feeding guidance and methods of preparing the recommended recipes.	Health care providers	Yes, no criteria	Yes			
Zaman 2008 ³³	-	Yes, frequency of feeding according to the child's age.	No	Yes, a local adaptation of Pakistan's IMCI 'feeding counselling card' was developed in the local language.	Lady health visitors	Yes, no criteria	Yes			
Penny 2005 ²⁸	Focus was on special foods (e.g., chicken liver, egg, or fish added to baby's serving).	Yes, use thick purees instead of soups, and at each meal, give puree first. Add a special food to your baby's serving (e.g., chicken liver, egg, or fish). Teach your child to eat with love, patience, and good humour.	No	Yes, flip charts and single- page recipe flyers.	Health facility staff	Yes, no criteria	No			
Vitolo 2005 ³²	Based on 'Ten Steps to Healthy Feeding': Feed only breastmilk for up to 6 months. Gradually introduce other foods after 6 months whilst maintaining breastfeeding.	Yes, give CF 3 times per day after 6 months. Ensure that no schedules impair the offering of CF. Offer 'thick' foods using spoons. Offer child different foods during the day. Stimulate daily consumption of fruits/vegetables. Avoid sugar and other junk foods. Pay attention to hygiene and proper handling of food. Stimulate sick/ convalescent to eat.								
Bhandari 2004 ²⁷	Children were fed cereal/legume gruels or mixes. Educational messages focused on food diversity and amylase- rich flour.	Yes, age-appropriate complementary feeding (immediately before after birth, exclusive before 4-6 mo, initiate complementary feeding at 4-6 mo, education on types of food to feed, frequency of feeding, amount, child encouragement, hand washing, feeding during illness). Health and nutrition workers in control communities did not receive any specific training or information.	Yes, at 6 mo start with 0.5 <i>katori</i> of recommended foods 3 times (breastfed child) or 5 times (non- breastfed child). At 1-2 years, give: 1.5 <i>katori</i> of recommended foods five	Yes, posters were designed for display at physician clinics; flip books, a feeding recommendation card for ready reference, and a counselling guide containing a list of feeding problems, along with locally acceptable solutions were developed.	Health/nutrition workers	Yes, no criteria	No			

Table 7: I	Table 7: Description of nutritional education interventions used										
Study ID	Current practice and focus of emphasis regarding complementary foods	Specific messages about complementary foods	Target intake from complemen- tary foods	Use posters, cards, etc.	Cadre of worker	Monitor weight? Target	Assessed whether counselling is effective				
			times/day.								
Santos 2001 ³⁵	Focus was on animal protein and micronutrient-rich foods (egg, chicken liver, shredded chicken, and beef).	Yes, key messages: Increase frequency of breastfeeds/complementary feeds. Give animal protein and micronutrient-rich foods (egg, chicken liver, shredded chicken, and beef). Add oil to food. Increase energy and nutrient density by giving mashed beans.	No	A Mother's Card summarising the recommendations was used to assist the health provider in counselling the mothers.	Health facility staff	Yes, no criteria	Yes				
Roy 2007 ³⁹	Emphasis was placed on demonstrations of the preparation of energy- and protein-rich local complementary foods rich in micronutrients, such as <i>khichuri.</i>	No	No	No	Community health workers/counsellors	Y weight-for-age above 75% of the median NCHS standards.	No				
Bhandari 2001 ²⁶	Focus was on identifying problems with current practices through a 24-hour dietary recall and giving solutions to those problems.	No	None	Nutritional counselling guide	Trained nutritionists	Yes, no criteria	Yes				

Complementary feeding with or without nutritional education

We included four studies in the meta-analysis with 512 infants that had complementary feeding combined with or without nutritional education as the intervention.^{26, 41-43} Amongst these studies, two were efficacy trials^{26, 41} and two were effectiveness trials.^{42, 43} All of the studies were from food-insecure populations. Tables 10 and 11 represent the characteristics of all included studies that had complementary feeding with or without education as the intervention. Table 12 has reported the energy and micronutrient content from food provided in the included studies.

Effect on linear growth

<u>Height gain</u>

Four studies reported height gain as the outcome (Annex 2.1). All of these studies were conducted in food-insecure populations and displayed a non-significant impact on height gain (SMD 0.34; 95% CI: - 0.09, 0.78, random model, n=512, four studies, tau²= 0.15, I²=79%, Chi² P value=0.002) (Annex 2.1.2). Pooled estimates based on efficacy/effectiveness were non-significant and the test of interaction was non-significant (P=0.10) (Annex 2.1.1).

Pooled analysis based on type of food showed that cereal had a significant impact on height gain as compared to usual diet (SMD 0.27; 95% CI: 0.01, 0.54; random model, n=220, two studies, tau²= 0.00, I²=0%, Chi² P value=0.49). An extruded formulated complementary diet from maize and cowpea also had a significant impact on height gain (SMD 1.13; 95% CI: 0.58, 1.68, random model). Studies that assessed the impact of food prepared from locally available raw ingredients showed no improvement in height gain (Annex 2.1.3).

Height-for-age (Z score)

Height-for-age (mean Z scores) was reported by four studies. Our results showed that complementary feeding (with or without nutritional education) resulted in non-significant improvement on HAZ (SMD 0.46; 95% CI: -0.24, 1.17, random model, n=500, four studies, tau²= 0.46, l²=92%, Chi² P value<0.001) (Annex 2.2). All of the trials were from food-insecure populations (Annex 2.2.2), and no difference was observed based on scale of trial (P=0.33) (Annex 2.2.1). Pooled analysis based on type of food showed that the results were not significant for studies that used cereal (SMD -0.01, 95% C: -0.28, 0.27). Food preparation from locally available ingredients had no impact. Whereas, extruded formulated complementary diet from maize and cowpea had a significant impact on HAZ (SMD 2.03; 95% CI: 1.40, 2.66) (Annex 2.2.3).

Impact differences by scale										
Outcome	Efficacy (estimate)	Number of studies	Effectiveness	Number of studies						
Height gain (cm)	SMD: 0.69 (95% CI: -0.12, 1.49)	2	SMD -0.01 (95% CI: -0.26, 0.23)	2						
HAZ (mean Z score)	SMD 1.00 (95% CI: -0.99, 2.98)	2	SMD -0.00 (95% CI: -0.25, 0.24)	2						
Stunting (HAZ <-2)	OR 0.05 (95% CI: 0.00, 9.69)	2	OR 1.23 (95% CI: 0.88, 1.73)	2						
Weight gain (kg)	SMD 0.91 (95% CI: -0.86, 2.68)	2	SMD -0.05 (95% CI: -0.29, 0.19)	2						
WAZ (mean Z score)	SMD 0.15 (95% CI: -0.09, 0.40)	2								
WHZ (mean Z score)	-	-	SMD 0.15 (95% CI: -0.31, 0.61)	2						

Table 8: Summary estimates from studies on complementary feeding with or without education: Impact differences by scale

Stunting

Stunting was reported by four studies. Our results showed that complementary feeding (with or without nutritional education) had no impact on rates of stunting (OR 0.23; 95% CI: 0.01, 5.84, random model, n=500, four studies, tau²= 10.86, I²=100%, Chi² P value<0.001) (Annex 2.3). All of the trials were from food-insecure populations (Annex 2.3.2), and no difference was observed based on scale of trial (P=0.23) (Annex 2.3.1). Pooled analysis based on type of food showed that the results were not significant for studies that used cereal (OR 0.85, 95% CI: 0.57, 1.27). Food preparation from locally available ingredients had a significant impact (OR 1.38; 95% CI: 1.15, 1.65). Whereas, extruded formulated complementary diet from maize and cowpea had no impact (Annex 2.2.3).

Weight

Weight gain

Four studies from food-insecure populations reported on weight gain. These found no impact on weight gain (kg) (SMD 0.43; 95% CI: -0.42, 1.27, four studies, random effects, n=500, tau²= 0.69, I²=95%, Chi² P value <0.0001). The test of interaction was insignificant (P=0.29) in terms of scale of trials. Pooled analysis based on type of food showed that the results were not significant for cereal or food prepared from locally available raw ingredients. Whereas, extruded formulated complementary diet from maize and cowpea displayed a significant impact (Annex 2.4).

Weight-for-age (Z score)

Two efficacy trials from food-insecure populations reported a non-significant impact on weight-for-age (mean Z scores) (SMD 0.15; 95% CI: -0.09, 0.40) (Annex 2.5). No impact of different food products were seen on WAZ, except for locally available food (SMD 0.30, 95% CI: 0.04, 0.55).

Table 9: Summary estimates from studies on complementary feeding with or without education:											
Outcome Food-secure populations (estimates) Number of studies Food-insecure populations (estimates) Number of studies											
Height gain (cm)	-	-	SMD 0.34 (95% CI: -0.09, 0.78)	4							
HAZ (mean Z score)	-	-	SMD 0.46 (95% CI: -0.24, 1.17)	4							
Stunting (HAZ <-2)	-	-	OR 0.23 (95% CI: 0.01, 5.84)	4							
Weight gain (kg)	-	-	SMD 0.43 (95% CI: -0.42, 1.27)	4							
WAZ (mean Z score)	-	-	SMD 0.15 (95% CI: -0.09, 0.40)	2							
WHZ (mean Z score)	-	-	SMD 0.15 (95% CI: -0.31, 0.61)	2							

Table 10	0: Characteristics of included studies on complementary feeding with or without education												
Study ID	Country	Region	Type of study	Age group	Intervention	Control	Duration of intervention	Baseline demographics	Baseline nutritional status	Seasonal variation	Duration of follow up	Results	
Obatolu 2003 ⁴¹	Nigeria	Rural	RCT Efficacy Food secure	4 mo/ I: 30 C: 30	Extruded formulated complementary diet from maize and cowpea (L1A1).	2 groups of controls: infants of low socio- economic status without the feeding intervention (L2N) and infants of above- average socio- economic status without the feeding intervention (HN).	14 months	There were similarities in mothers' educational level, occupation, and estimated family income between the L1A1 and L2N infants.			14 months	Intervention grp: weight (kg) 10.07+-1.08 Length gain: 79.7+-3.3 Control: weight (kg) 6.84+- 1.08 Length gain 73.7+-3.3	
Bhandari 2001 ²⁶	India	Rural	RCT Efficacy food secure	4 mo/ food suppl emen tation grp: 87, nutriti on couns elling grp: 97, C: 91	Children were randomised into 1 of 2 intervention groups: Nutritional counselling group (NC): 30-45 min monthly counselling with no food supplement. Food supplementation group (FS): received fortified milk-based cereal + nutritional counselling (in addition to usual before and home foods).	Control #1: Visitation group (V): home visits 2/wk for morbidity assessment, no advice. Control #2: Non- intervention group (NI): contacted at 6, 9, and 12 mo for dietary and anthro assessment; no other visits, no advice.	8 months	Children from control had almost the same demographics as those in intervention.	-	-	8 months	l: weight gain 1.93 +-0.57 Height 68.6+-2.9 % Stunted 63.9 C: weight 1.84+-0.72 Height 68.4+-2.4 % Stunted 75.8	
Oelofse 2003 ⁴²	Zambia	Urban	RCT Effective- ness	6 mo/ I: 16 C: 14	Received centrally processed, micronutrient- fortified complementary	Continued usual diet.	6 months	-	Hb concentrations were similar at baseline between	-	6 months	I: WAZ -0.55+-0.99 Height 74.4+-1.8 Mean Hb 108+-9	

Table 10	able 10: Characteristics of included studies on complementary feeding with or without education												
Study ID	Country	Region	Type of	Age	Intervention	Control	Duration of	Baseline	Baseline	Seasonal	Duration of	Results	
Study ID	country	Region	study	group	intervention	control	intervention	demographics	nutritional status	variation	follow up	Results	
			Food		food (dry cereal and test				the two groups,				
			secure		porridge) 60 g dry product				but serum iron			C: WAZ -0.52+-1.60	
					/d equivalent to: 100%				was slightly higher			Height 74.5+-3.1	
					RDA vitamin A 80% RDA				in the intervention			Mean Hb 106+-13	
					iron>100% RDA zinc. They				group as				
					received demonstrations				compared to				
					on how to prepare the				control (10.6 vs				
					porridge and a measuring				9.6).				
					spoon to ensure the								
					correct amount of								
					porridge to be consumed.								
					Mothers received								
					education on infant								
					feeding; malnourished								
					children received extra								
					food. Details of education								
			RCT		were not specified but								
			Effectiven	5-25	were based on:								
Schroede	Vietnam	Not clear	ess	mo/	Community-based	No	6 months	Not clear	Not clear	6 months		I: WAZ -1.92+-0.78	
r 200243			Food	1: 114	volunteers.	intervention						HAZ	
			secure	C: 118	a. Breastfeeding centres.								
					b. Food variety.								
					c. Complementary								
					feeding.								
					a. Health care.								
					e. Taking care of healthy								
					children at home.								

Table 11:	Table 11: Description of educational interventions used in studies with CF combined with nutritional education										
Study ID	Current practice and focus of emphasis regarding complementary foods	Specific messages about complementary foods	Target intake from complementary foods	Use posters, cards, etc.	Cadre of worker	Monitor weight? Target	Assessed whether counselling is effective				
Oelofse 2003 ⁴²		Yes, demonstrations on how to prepare the porridge and a measuring spoon to ensure the correct amount of porridge to be consumed.	1304 kJ	No	Research assistants	Yes, no criteria	No				
Schroeder 2002 ⁴³		Not specified but based on: a. Breastfeeding. b. Food variety. c. Complementary feeding. d. Health care. e. Taking care of healthy children at home.	No	No	Community-based volunteers	Yes, no criteria	No				

Table 12: Details of energy and micronutrient content in the complementary foods										
Study ID	Intervention	Energy density	Micronutrient composition/ phytate content							
Obatolu 2003 ⁴¹	Extruded formulated complementary diet from maize and cowpea (L1A1).	2,106 kJ of energy								
Bhandari 2001 ²⁶	Milk-based cereal and nutritional counselling based on negotiating with mother changes that could be implemented in a feasible and sustainable way.	941 kJ per 50 g	Vitamin A, <i>RE</i> 111 ; Ca Pantothenate, <i>mg</i> 0.10 Vitamin D, <i>mg</i> 1.25; Biotin, <i>mg</i> 0.49 Vitamin C, <i>mg</i> 8.00; Calcium, <i>mg</i> 140.00; Vitamin E, <i>mg</i> 1.00; Phosphorus, <i>mg</i> 98.00; Vitamin K, <i>mg</i> 6.40; Iron, <i>mg</i> 2.70; Thiamin, <i>mg</i> 0.10; Copper, <i>mg</i> 135.00; Riboflavin, <i>mg</i> 0.30; Iodine, <i>mg</i> 12.37; Vitamin B-6, <i>mg</i> 0.02; Manganese, <i>mg</i> 19.70; Vitamin B-12, <i>mg</i> 0.43; Magnesium, <i>mg</i> 22.30; Folate, <i>mg</i> 8.50; Zinc, <i>mg</i> 1.35; Niacin, <i>mg</i> 0.42; Selenium, <i>mg</i> 0.70							
Oelofse 2003 ⁴²	Micronutrient-fortified complementary food (dry cereal and test porridge).	1,304 kJ per 60 g of dry product	Vitamin A (iu) 1200 (420)** 96; Vitamin C (mg) 40; Vitamin B1 (mg) 0.64; Vitamin B2 (mg) 0.24; Niacin (mg) 3.2; Calcium (mg) 368; Iron (mg) 8; Vitamin D (iu) 160; Vitamin E (iu) 4; Biotin (mg) 20; Folic acid (mg) 17.6; Pantothenic acid (mg) 0.6; Vitamin B12 (mg) 0.6; Vitamin B6 (mg) 0.24; Phosphorous (mg) 232; Iodine (mg) 26; Zinc (mg) 5.6; Potassium (mg) 632; Sodium (mg) 272; Chloride (mg) 440							
Schroeder 2002 ⁴³	Mothers received education on infant feeding; malnourished children received extra food.									

Morbidity

<u>Diarrhoea</u>

Two trials reported on this outcome. Pooled estimates were insignificant (RR 0.71; 95% CI: 0.35, 1.45, random model, n=629, two studies, tau²= 0.00, I^2 =0%, Chi² P value=0.69).

		(CF +/- education	Control		Risk Ratio		Risk Ratio	
Study or Subgroup	log[Risk Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI		IV, Random, 95% Cl	
Schroeder 2002	0.0345	0.9913	114	118	13.3%	1.04 [0.15, 7.22]			
Vitolo 2005	-0.3948	0.3879	163	234	86.7%	0.67 [0.32, 1.44]			
Total (95% CI) Heterogeneity: Tau ² = Test for overall effect:	277 = 0.69); I ² = 0%	352	100.0%	0.71 [0.35, 1.45]	↓ 0.01	0.1 1 10 CF +/- edu Control	100		
Citation to the included study: Vitolo 2005, ³² Schroeder 2002 ⁴³									

Respiratory infections

Two trials reported on this outcome. Pooled estimates showed significant impact of complementary feeding or education on complementary feeding on respiratory infections (RR 0.68; 95% CI: 0.48, 0.97, random model, n=629, two studies, tau²= 0.04, l²=68%, Chi² P value=0.07).

Study or Subaroup	log[Risk Ratio]	SE	CF +/- education Total	Control Total	Weight	Risk Ratio IV. Random, 95% Cl	Risk Ratio IV. Random, 95% Cl	
Schroeder 2002 Vitolo 2005	-0.2124 -0.5736	0.1356 0.1508	114 163	118 234	51.7% 48.3%	0.81 [0.62, 1.05] 0.56 [0.42, 0.76]		
Total (95% CI) Heterogeneity: Tau² = Test for overall effect:	0.04; Chi² = 3.17, Z = 2.14 (P = 0.03	df=1(P)	277 = 0.07); I ² = 68%	352	100.0%	0.68 [0.48, 0.97]	0.01 0.1 1 10 CF +/- education Control	100
Citation to the included study: Vitolo 2005, ³² Schroeder 2002 ⁴³								

Fever

Only one study reported on this outcome. Pooled estimates showed non-significant impact of complementary feeding on reducing the prevalence of fever, and there was no heterogeneity (RR 1.06; 95% CI: 0.43, 2.62, random model, n=188, one study).

Study or Subgroup	log[Risk Ratio]	SE	CF +/- education Total	Control Total	Weight	Risk Ratio IV, Random, 95% CI	Risk Ratio IV, Random, 95% Cl
Bhandari 2001	0.0539	0.4635	97	91	100.0%	1.06 [0.43, 2.62]	
Total (95% CI) Heterogeneity: Not ap Test for overall effect:	97	91	100.0%	1.06 [0.43, 2.62] F	0.01 0.1 1 10 100 Favours [experimental] Favours [control]		
Citation to the included study: Bhandari 2001 ²⁶							

Cost

Most of the included studies did not mention estimates of cost of the intervention and complementary foods used in the trials. We personally contacted authors and attempted to get data on cost of the interventions used in the included studies (**Table 13**).

We have also made an attempt to provide cost information of different classes of complementary foods available globally. These were classified using the classification used by Pee 2009.⁷⁵ Food products were broadly classified as locally available foods, fortified blended foods, and complementary food supplements. We extracted the costs of local available foods (US\$/tonne) from the FAOSTAT database (**Table 14 A**). There are variations in the cost of local food items across different regions. The cost of meat is considerably high in most LMIC countries. Plant staple food items cost much less in most countries, and, as mentioned in the discussion section, if these are processed adequately, they can have an equal impact as animal products on growth of children.

We extracted the cost of fortified blended foods and complementary food supplements from the UNICEF 2006 report on "Situation analysis on fortified complementary foods for children between 6 and 36 months of age in Latin America and the Caribbean region." The price of producing and packaging the different fortified complementary food varies considerably, depending on the main ingredients and their levels, the technical specifications for the production, and the specifications for packaging, storage, transportation, and distribution of the product. Packaging costs are highly variable, depending on the amount packaged and the quality of materials used. Small pack sizes increase the price of the final product. Shipping and internal transportation also increase the price of the final product. The price also depends on whether the fortified complementary food product is used only for social programmes, sold in the retail market, or both. When products are sold only in the retail market, they do not necessarily reach the target population.

Table 13: Cost of interventions of studies included in the review						
Study ID	Product/intervention	Unit cost of complementary food/ cost of intervention				
Adu-Afarwuah 2007 ¹⁷		US\$0.10 per 15-20g (per day)				
		Cost of intervention: total budget of US\$7,425 (for Nutributter and other				
	Nutributter (LNS)	interventions in the trial and their shipping to Ghana). But the Sprinkles were				
		a donation, and Nutributter took most of the budget (around 80%). Hence,				
		total estimated cost for Nutributter in the trial was around US\$5,940.				
Roy 2007 ³⁹		Total cost of preventing malnutrition in one child was Taka 2,561.80				
	Educational intervention	(US\$37.00), 1,850.00 (US\$26.81), 1,305.68 (US\$18.92), and 1,473.66				
		(US\$21.34) for Nikli, Sherpur, Chakaria, and Dacope, respectively.				
We web searched different complementary food products that are available in the market (Table 14 A and B). The costs of similar products may vary amongst manufacturers primarily due to different packaging sizes. These costs may also vary considerably across regions and markets.

Contoxt	Cost	Source
Context	Cost	Source
Local diet	F	1
	568.7 US\$ (Bangladesh)	
Chick peas (per tonne)	301.3 US\$ (Ethiopia)	FAOSTAT Database
	1,170.2 US\$ (Peru)	
	1,304.3 US\$ (Sudan)	
Cereal, Nes	128.2 US\$ (Ukraine)	FAOSTAT Database
	704.0 US\$ (Bolivia)	
	4,726.7 US\$ (China)	
Goat meat (per tonne)	3,269.7 US\$ (Ethiopia)	FAOSTAT Database
	3,101.8 US\$ (Kenya)	
	4,672.1 US\$ (Pakistan)	
	3,085.9 US\$ (Ukraine)	
	715 US\$ (Bangladesh)	
	660.8 US\$ (Ecuador)	
Lentils (Per tonne)	532.6 US\$ (Ethiopia)	FAOSTAT Database
	503.0 US\$ (Madagascar)	
	865.2 US\$ (Peru)	
	223.7 US\$ (Bangladesh)	
	157.2 US\$ (Bolivia)	
	273.3 US\$ (Chile)	
	710 US\$ (Ecuador)	
	341.0 US\$ (Ghana)	
Maize (per tonne)	322.8 US\$ (Indonesia)	FAOSTAT Database
	2,853.8 US\$ (Jamaica)	
	217.4 US\$ (Kenya)	
	215.6 US\$ (Madagascar)	
	288.2 US\$ (Nicaragua)	
	228.9 US\$ (Pakistan)	
	150.9 US\$ (Ukraille)	
	109.8 055 (Bolivia)	
	209.1 US\$ (ELGaluador)	
	300.3 US\$ (El Salvauur)	
	421.1 033 (Ethiopia)	
	488.7 055 (ditaita)	
Rice, paddy (per tonne)	757 8 LISÉ (Konya)	FAOSTAT Database
	280 2 LISS (Madagascar)	
	374 2 US\$ (Madagasedi)	
	368 1 US\$ (Nicaragua)	
	269 5 US\$ (Nearugua)	
	295.7 US\$ (Ukraine)	
Fortified blended foods		
Corn soy blend (World Food	About US\$360 per metric top and US\$0.036 per	
Programme [WFP])	100 g. (Higher when mix is added to the CSB mix)	UNICEF 2006
	0.036 US\$	
CSB flour, 100 g	(Honduras)	UNICEF 2006
	0.070 US\$	
CSB cereal, 100 g	(Nicaragua)	UNICEF 2006
	0.036 US\$	
CSF Papilla, 100 g	(Honduras)	UNICEF 2006
	0.045 US\$	
CSB Soyarin, 100 g	(El Salvador)	UNICEF 2006
Alli Alimentu 250 m	0.192 US\$	
Alli Allmentu, 250 g	(Peru)	UNICEF 2006

Table 14 A: Cost of food	products as per functional classification	tion of food types
Context	Cost	Source
(Producto Lacteo (PL), 60 g	0.116 US\$	UNICEF 2006
Papilla INCAMIX, 110 g	0.100 US\$	UNICEF 2006
Incaparina (New), 18.75 g	0.020 US\$ (Guatemala)	UNICEF 2006
Mi Papilla, 65 g	0.098 US\$ (Ecuador)	UNICEF 2006
Fruit Puree, 100 g	0.223 US\$ (Cuba)	UNICEF 2006
(Nutricereal, Nutricrema, 45	0.098 US\$ (Panama)	UNICEF 2006
PACFO Papilla, 90 g	0.198 US\$ (Peru)	UNICEF 2006
Complementary Food Su	pplements (CFS)	
MNP, nutritional anaemia, 1g	4.5 US\$	Pee 200944
MNP, 15 V&M, 1 g	6.1 US\$	Pee 200944
Soy Sprinkles, 10 g		Pee 200944
MixMe Plus™, 5 g	9 US\$	Pee 200944
RUTF		
TopNutri™, 7.5 g		Pee 200944
Nutributter™, 20 g	19.8 US\$	Pee 200944
Plumpy Doz™, 46 g	24 US\$	Pee 200944
RUFC India, 50 g	15.6 US\$	Pee 200944
Suppl Plumpy™, 92 g	39.6 US\$	Pee 200944
Plumpy Nut™, 92 g	49.2 US\$	Pee 200944

Table 14 B: Cost of packaged food		
Food product	Cost obtained through web search Approximate cost [*] (US\$)	Cost obtained through contacting local manufacturer (PKR/US\$)
Plum Organics Mish Mash Blueberry Oats and Quinoa, 3.17-Ounce Pouches (Pack of 12)	US \$ 16.06	
Earth's Best Organic Whole Grain, Rice Cereal, 8-Ounce Box (Pack of 12)	US \$ 34.32	
Earth's Best Puree, Butternut Squash Pear, 4.2-Ounce (Pack of 12)	US \$ 19.99	
Happy Bellies Organic Baby Cereals with DHA Plus Pre and Probiotics, Oatmeal, 7-Ounce Canisters (Pack of 6)	US \$ 21.12	
Gerber Cereal, Rice Single Grain (with DHA and Probiotic), 8-Ounce Canisters (Pack of 6)	US \$ 17.58	
Earth's Best Organic 2nd Wholesome Breakfast, Variety Pack, 4.5-Ounce (Pack of 12)	US \$ 16.06	
Gerber Baby Cereal Oatmeal with Banana, 8-Ounce Boxes (Pack of 6)	US \$ 15.48	
Gerber Yogurt Blends Snack, Apple Cinnamon, 14-Ounce (Pack of 6)	US \$ 23.60	
Nestle Cerelac, Honey and Wheat with Milk, 14.11-Ounce Cans (Pack of 4)	US \$ 25.62	
Nestle Cerelac, Rice/Apple/Wheat/Banana 400 g (Europe)	US \$ 11.99	PKR 487.50 (US\$ 5.08)
Nestle Nestum Infant Cereal 5 Cereals, 300 g (Pack of 6)	US \$ 26.60	
NESTLE CERELAC GOLD 250 GM		PKR 403.00 (US\$ 4.20)
NESTLE CERELAC RICE 600 GM		PKR 351.00 (US \$ 3.65)
Nestle Banana 200 g		PKR 128.70 (US \$ 1.34)
Nestle Cerelac mixed vegetables 300 g		PKR 221.00 (US \$ 2.30)
Nestle Cerelac 3 Cereals with Milk 400 g	US \$ 11.50	
Nestum Cerelac Probiotics - Infant Wheat Cereal w/ Milk-14.1 oz.	US \$ 5.99	
Nestle Cerelac Baby Biscuits 150 g		PKR 143.00 (US \$ 1.50)
Happy Bellies Organic Super Cereals, DHA, Multi 3-Pack (1 each Brown Rice, Oatmeal,	US \$ 19.47	

Table 14 B: Cost of packaged food		
Food product	Cost obtained through web search Approximate cost [*] (US\$)	Cost obtained through contacting local manufacturer (PKR/US\$)
Multigrain 7oz)		
Plum Organics Organic Brown Rice Baby Cereal, 7-Ounce (Pack of 6)	US \$ 22.14	
Gerber 2nd Foods Banana Raspberry Oat DHA Organic, 2-Count, 3.5 Ounce Jars (Pack of 8)	US \$ 10.72	
Gerber Graduates Breakfast Buddies Hot cereal with Real fruit, Peach, 4.5 oz.	US \$ 2.95	
Barbara's Bakery High Fiber Cereal, Original, 12-Ounce Boxes (Pack of 6)	US \$ 26.28	
Gerber Cereal, Oatmeal Single Grain, 16-Ounce Boxes (Pack of 6)	US \$ 21.18	
Heinz First Baby Foods, Smooth Baby Rice From 4 Months	US \$ 10.34	
Heinz 6 Month Organic Biscotti Baby Biscuits 60 g	US \$ 6.28	
Heinz Farley's Rusks, Original Flavor, 300 g Boxes (Pack of 6)	US \$ 50.69	
Heinz 4 Month Sunrise Banana Cereal Packet 125 g	US \$ 10.90	
Heinz 4 Month Med Vegetable and Rice Packet 125 g	US \$ 11.05	
Heinz Breakfast Fruit with Yogurt Cereal 125 g	US \$ 6.15	
Heinz 9 Month Organic Gingerbread/ Chocolate Biscotti 60 g	US \$ 4.99	
Heinz 7 Month Breakfast Peachy Porridge Packet 120 g	US \$ 8.99	
Heinz 4 Month Can Strawberry Cheesecake 128 g	US \$ 1.99	
Baby Food Collection - Heinz Farleys Rusks, 2 x Biscotti, 2 x 6 Pack Stock Cubes AND Annabel Karmel Baby Pasta	US \$ 27.99	
Farley's Rusks 6x 300 g Pack	US \$ 59.55	
Toddler Mum-Mum Organic Strawberry Flavor Rice Biscuit, 24 Pieces (Pack of 6)	US \$ 19.71	
Sprout Organic Toddler Meal Sweet Potato and Apple Risotto with Turkey, 6.5-Ounce	US \$ 2.99	
Sprout Organic Baby Food Minestrone with Beans and Greens, Stage-3, 5.5-Ounces Pouches (Pack of 12)	US \$ 24.34	
Sprout Organic Baby Food Beef and Vegetable Lasagna, 5.5-Ounce (Pack of 12)	US \$ 23.88	
Sprout Organic Baby Food Butternut Squash Macaroni and Cheese, 5.5-Ounce (Pack of 12)	US \$ 23.88	
Gerber Nature Select 2nd Foods, Macaroni and Cheese, 7-Ounce (Pack of 8)	US \$ 13.91	
Happy Tot Toddler Meal Bowls, Vegetables, Brown Rice and Turkey, 6 Ounce Boxes (Pack of 12)	US \$ 36.34	
Gerber Graduates Cookies, Arrowroot Cookies, 5.5-Ounce Pouches (Pack of 6)	US \$ 13.26	
Gerber Graduates Cookies, Banana Cookies, 5-Ounce Boxes (Pack of 12)	US \$ 25.12	

*Approximate costs identified via web searching. The exact costs may differ across markets and regions.

Discussion

Complementary feeding interventions include a wide variety of strategies, including nutritional education on appropriate complementary feeding practises and provision of complementary feeding either alone or in combination, food fortification, and supplementary feeding. In this review, we have included trials that evaluated the disaggregated evidence of the impact of education on complementary feeding alone, and provision of complementary feeding with or without education (excluding those on food fortification and supplementary feeding) on growth and morbidity in children less than two years of age in LMICs. However, the pooled estimates are based on RCTs alone.

There is a wide variety of complementary feeding strategies that can be studied; the outcomes used to evaluate the impact of those strategies also vary considerably. These include growth (including linear growth, weight, and other anthropometric measurements), iron status, and morbidity. We calculated a pooled effect estimate of studies reporting the same outcome. We have done comparisons based on the scale of trial (efficacy or effectiveness), food security of the study population (food secure/insecure), and the type of food provided.

The evidence showed that nutritional education alone had a significant impact on linear growth and weight gain as evident by improvement in HAZ scores, stunting, and WAZ scores. The most improvements were seen in effectiveness trials, given the nature of intervention. These results are consistent with previous reviews by Bhutta 2008⁴⁵ and Imdad 2011⁵ which showed significant improvements in linear growth and weight gain with educational intervention. However, the fact to remember is that those reviews included non-randomised trials,^{5, 45} and Imdad 2011⁵ also included studies on malnourished children.

Table 15: Summary of estim	ates	
Outcome	Education only	Complementary feeding with or without education
	SMD 0.14	SMD 0.34
Height gain (cm)	95% CI: -0.05, 0.34	95% CI: -0.09, 0.78
	5 studies, n=2,242	4 studies, n=512
Height for age (mean 7	SMD: 0.22	SMD 0.46
reight-fol-age (,mean z	95% CI: 0.08, 0.37	95% CI: -0.24, 1.17
scoresj	4 studies, n=1,486	4 studies, n=500
	OR 0.72	OR 0.23
Stunting (HAZ <-2)	95% CI: 0.57, 0.93	95% CI: 0.01, 5.84
	4 studies, n=1,445	4 studies, n=500
	SMD 0.12	SMD 0.43
Weight gain (kg)	95% CI: -0.02, 0.26	95% CI: -0.42, 1.27
	5 studies, n=2,243	4 studies, n=502
Weight-for-age (mean 7	SMD 0.20	SMD 0.15
scores)	95% CI: 0.07, 0.33	95% CI: -0.09, 0.40
scoresy	4 studies, n=1,673	2 studies, n=262
	RR 1.03	
Underweight (WAZ <-2)	95% CI: 0.90, 1.18	-
	1 study, n=829	
Weight for height (mean 7	SMD 0.20	MD 0.15
scores)	95% CI: 0.03, 0.36	(95% CI: -0.31, 0.61)
scoresj	4 studies, n=1,466	2 studies, n=268

Though we pooled all the studies with nutritional education together, there were considerable variations in the types of educational messages delivered. Detailed assessment of educational messages showed that most studies delivered educational interventions of reasonably good quality with appropriate use of charts, posters, and booklets. We found two studies that had the most impact on growth, one of which was of high methodological quality RCT.^{15, 28} These studies gave clear messages regarding the use of affordable, animal-source products, which indicates that giving messages specifically promoting the use of nutrient-rich animal products may have an impact on growth. The study also focused on home-prepared foods. These results are consistent with Dewey 2008 and Imdad 2011.^{1,5} However, financial constraints limit the possibility of including adequate amounts of animal products in the child's diet, particularly amongst food-insecure populations. Thus, in food-insecure populations, these nutritional messages need to be combined with provision of adequate amounts of animal products. One option can be the use of protein-rich plant foods. However, most plant foods, especially staples, legumes, lentils, and vegetables contain anti-nutrients, which can reduce the bioavailability of micronutrients and interfere with digestion. These include phytate and alpha amylase. Processing is required in order to reduce the content of anti-nutrients such as phytate or addition of alpha amylase in order to increase the impact of plant foods. This is in turn associated with additional cost and required expertise.

We also reviewed the impact of trials that tested the efficacy/effectiveness of complementary feeding with or without education. There was a variety of complementary food(s) used as the intervention in the included studies. Amongst these foods were maize, fortified fat-based spread, food prepared from

locally available raw ingredients, and cereal. Though we subgrouped studies according to the type of food being tested to assess the impact of the different complementary feeding interventions on growth, iron status, and morbidity, control groups were usually children given no intervention, but in reality must have been receiving some kind of complementary feeding at home. We found that complementary feeding interventions given with or without education displayed no impact on linear growth and weight gain. Whereas, when the data from RCTs were pooled with non-RCTs, significant improvements were seen in HAZ scores, and non-significant improvement in rates of stunting. These results are again consistent with previous reviews by Bhutta 2008,⁴⁵ Dewey 2008,¹ and Imdad 2011,⁵ which included non-RCTs as well.

The scarcity of available studies and their heterogeneity, as well as the variety in complementary feeding interventions, make it difficult to conclude one particular type of complementary feeding intervention as the most effective. Moreover, the variation in the reported outcomes amongst studies makes it difficult to compare them. In the future, further studies in this area must use consistent outcomes and durations of the intervention. We have identified several ongoing studies during the course of this review that can potentially provide more firm evidence than available currently. Tomedi 2011²² is currently working on a nutrition education programme to prevent child malnutrition in Kenya. Cofie 2012²⁴ has completed a study recently on nutritional education in Ghana. Christian 2012²³ is studying the impact of Plumpy Doz, Wheat Soy Blend (WSB++), chickpea-based complementary food supplement, and rice-based complementary food supplementation on reducing child undernutrition in Bangladesh.

Nearly one in five children under age five in the developing world is underweight. Curing malnourishment in children is much more complex and challenging than preventing it. Malnourishment is associated with increased risk of infections, including pneumonia and diarrhoea—the major killers of children worldwide. It impairs behavioural and mental development. Despite clear evidence of the disastrous consequences of childhood nutritional deprivation in the short and long terms, nutritional health remains a low priority. Our review found that nutritional education and complementary feeding (either individually or combined) both have the potential to reduce morbidity from respiratory infections.

The evidence from the review highlights the importance of complementary feeding interventions in improving nutritional status, despite the fact that results were highly heterogeneous. Accelerated and concerted actions are needed to deliver and scale up nutritional education and complementary feeding interventions that are cost-effective, feasible, and effective in improving the nutritional status of children.

Conclusions

Education on complementary feeding alone and complementary feeding interventions with or without education have a potential to improve the nutritional status of children in developing countries. However, large, high-quality trials are required in the future to assess the impact of such interventions on growth and morbidity outcomes. Nutritional education interventions need to be combined with provision of complementary feeding that is affordable, particularly in food-insecure countries. The educational messages should emphasise the importance of appropriate, home-prepared foods, hygiene, and high-energy foods. It is important to assess the recall of the messages by mothers once the messages are delivered.

Recommendations for policy and research

Future high-quality research trials are required, particularly from food-insecure populations, to assess the impact of such interventions on growth and morbidity outcomes. Moreover, these trials should consider using standardised types of food as the intervention so that evidence can be formulated on which type of food is most effective. It is ideal to keep the duration of intervention for at least six months, since anthropometric improvements are gradual. Trials should report consistent outcomes and also include morbidity outcomes. Despite clear evidence of the disastrous consequences of childhood nutritional deprivation in the short and long terms, nutritional health remains a low priority. Therefore, enhanced and rigorous actions are needed to deliver and scale up nutritional education and complementary feeding interventions.

References

- Dewey KG, Adu-Afarwuah S. Systematic review of the efficacy and effectiveness of complementary feeding interventions in developing countries. *Matern Child Nutr.* 2008;4(Suppl 1):24–85.
- 2. Stevens GA, Finucane MM, Paciorek CJ, et al. Trends in mild, moderate, and severe stunting and underweight, and progress towards MDG 1 in 141 developing countries: a systematic analysis of population representative data. *Lancet.* 2012;380:824–834.
- **3.** Black RE, Allen LH, Bhutta ZA, et al. Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet.* 2008;371(9608):243–260.
- **4.** Shrimpton R, Victora CG, de Onis M, Lima RC, Blossner M, Clugston G. Worldwide timing of growth faltering: implications for nutritional interventions. *Pediatrics.* 2001;7(5):E75.
- **5.** Imdad A, Yakoob MY, Bhutta ZA. Impact of maternal education about complementary feeding and provision of complementary foods on child growth in developing countries. *BMC Public Health.* 2011;11(Suppl 3):S25.
- **6.** WHO: Report of Informal Meeting to Review and Develop Indicators for Complementary Feeding. Washington, D.C.: World Health Organization; 2002.
- **7.** Martorell R, Khan LK, Schroeder DG. Reversibility of stunting: epidemiological findings in children from developing countries. *Eur J Clin Nutr.* 1994;48(Suppl 1):S45–57.
- **8.** Caulfield LE, Huffman SL, Piwoz EG. Interventions to improve intake of complementary foods by infants 6 to 12 months of age in developing countries: impact on growth and on the prevalence of malnutrition and potential contribution to child survival. *Food Nutr Bull.* 1999;20:183-200.
- **9.** Bhutta ZA, Ahmed T, Black RE, et al. What works? Interventions for maternal and child undernutrition and survival. *Lancet.* 2008;9610(3):417–440.
- **10.** Sguassero Y, De Onis M, Carroli G. Community-based supplementary feeding for promoting the growth of children under five years of age in low and middle income countries. *Cochrane Database Syst Rev.* 2012;4:Issue 6. Art. No.: CD005039.
- Shadish W, Myers D. Research Design Policy Brief. Available at: <u>http://www.campbellcollaboration.org/artman2/uploads/1/C2_Research_Design_Policy_Brief-</u> <u>2.pdf</u>. The Campbell Collaboration. [Accessed on Jan 31, 2013] 2004.
- 12. EPOC Cochrane group. What study designs should be included in an EPOC review and what should they be called? <u>http://epoc.cochrane.org/sites/epoc.cochrane.org/files/uploads/EPOC%20Study%20Designs%2</u> 0About.pdf [Accessed on Jan 31, 2013].
- **13.** Hunter JE, Schmidt FL. *Methods of meta-analysis: Correcting error and bias in research findings:* Sage Publications, Incorporated; 1990.
- **14.** Deeks JJ, Altman DG, Bradburn MJ. *Statistical methods for examining heterogeneity and combining results from several studies in meta-analysis*: London: BMJ Books; 2001.
- **15.** Guldan GS, Fan HC, Ma X, Ni ZZ, Xiang X, Tang MZ. Culturally appropriate nutrition education improves infant feeding and growth in rural Sichuan, China. *J Nutr.* 2000;130(5):1204-1211.
- **16.** Kilaru A, Griffiths PL, Ganapathy S, Shanti G. Community-based nutrition education for improving infant growth in rural Karnataka. *Indian Pediatr.* 2005;42(5):425.
- **17.** Adu-Afarwuah S, Lartey A, Brown KH, Zlotkin S, Briend A, Dewey KG. Randomized comparison of 3 types of micronutrient supplements for home fortification of complementary foods in Ghana: effects on growth and motor development. *Am J Clin Nutr.* 2007;86(2):412–420.
- **18.** de Romana GL. Experience with complementary feeding in the FONCODES Project. *Food & Nutrition Bulletin.* 2000;21(1):43–48.

- **19.** Gartner A, Kameli Y, Traissac P, Dhur A, Delpeuch F, Maire B. Has the first implementation phase of the Community Nutrition Project in urban Senegal had an impact? *Nutrition*. 2007;23(3):219–228.
- **20.** Lartey A, Manu A, Brown KH, Peerson JM, Dewey KG. A randomized, community-based trial of the effects of improved, centrally processed complementary foods on growth and micronutrient status of Ghanaian infants from 6 to 12 mo of age. *Am J Clin Nutr.* 1999;70(3):391–404.
- **21.** Lutter CK, Rodriguez A, Fuenmayor G, Avila L, Sempertegui F, Escobar J. Growth and micronutrient status in children receiving a fortified complementary food. *J Nutr.* 2008;138(2):379–388.
- **22.** Tomedi A, Rohan-Minjares F, McCalmont K, Ashton R, Opiyo R, Mwanthi M. Feasibility and effectiveness of supplementation with locally available foods in prevention of child malnutrition in Kenya. *Public Health Nutr.* 2011;1(1):1–8.
- **23.** Christian. Complementary Food Supplements for Reducing Childhood Undernutrition. Available at: <u>http://www.clinicaltrials.gov/ct2/show/NCT01562379</u>. 2012.
- **24.** Cofie. Integrated Education Intervention to Improve Infant and Young Child Nutrition and Growth in Ghana. Available at: <u>http://www.clinicaltrials.gov/ct2/show/NCT01612442</u>. 2012.
- 25. Hambidge. Development and Health of Rural Chinese Children Fed Meat as a Daily Complementary Food From 6-18 Mos of Age. Available at: http://www.clinicaltrials.gov/ct2/show/NCT00726102. 2012.
- **26.** Bhandari N, Bahl R, Nayyar B, Khokhar P, Rohde JE, Bhan MK. Food supplementation with encouragement to feed it to infants from 4 to 12 months of age has a small impact on weight gain. *J Nutr.* 2001;131(7):1946–1951.
- **27.** Bhandari N, Mazumder S, Bahl R, Martines J, Black RE, Bhan MK. An educational intervention to promote appropriate complementary feeding practices and physical growth in infants and young children in rural Haryana, India. *J Nutr.* 2004;134(9):2342–2348.
- **28.** Penny ME, Creed-Kanashiro HM, Robert RC, Narro MR, Caulfield LE, Black RE. Effectiveness of an educational intervention delivered through the health services to improve nutrition in young children: a cluster-randomised controlled trial. *Lancet.* 2005;365(9474):1863–1872.
- **29.** Roy SK, Fuchs GJ, Mahmud Z, et al. Intensive nutrition education with or without supplementary feeding improves the nutritional status of moderately-malnourished children in Bangladesh. *J Health Popul Nutr.* 2005;23(4):320–330.
- **30.** Santos I, Gigante Denise P, Coitinho Denise C, Haisma Hinke VNCJ. Evaluation of the impact of a nutritional programme for undernourished children in Brazil. *Cad Saude Publica*. 2005;21(3):776–785.
- **31.** Shi L, Zhang J, Wang Y, Caulfield LE, Guyer B. Effectiveness of an educational intervention on complementary feeding practices and growth in rural China: a cluster randomised controlled trial. *Public Health Nutr.* 2009;13(04):556–565.
- **32.** Vitolo MR, Bortolini GA, Feldens CA, de Lourdes Drachler M. Impactos da implementacao dos dez passos da alimentacao saudavel para criancas: ensaio de campo randomizado. Impacts of the 10 Steps to Healthy Feeding in Infants: a randomized field trial. *Cad Saude Publica*. 2005;21(5):1448–1457.
- **33.** Zaman S, Ashraf RN, Martines J. Training in complementary feeding counselling of healthcare workers and its influence on maternal behaviours and child growth: a cluster-randomized controlled trial in Lahore, Pakistan. *J Health Popul Nutr.* 2008;26(2):210.
- **34.** Kapur D, Sharma S, Agarwal KN. Effectiveness of nutrition education, iron supplementation or both on iron status in children. *Indian Pediatrics*. 2003;40(12):1131–1144.
- **35.** Santos I, Victora CG, Martines J, et al. Nutrition counselling increases weight gain among Brazilian children. *J Nutr.* 2001;131(11):2866–2873.

- **36.** Aboud FE, Shafique S, Akhter S. A responsive feeding intervention increases children's self-feeding and maternal responsiveness but not weight gain. *J Nutr.* 2009;139(9):1738–1743.
- **37.** Hotz C, Gibson RS. Participatory nutrition education and adoption of new feeding practices are associated with improved adequacy of complementary diets among rural Malawian children: a pilot study. *Eur J Clin Nutr.* 2005;59(2):226–237.
- **38.** Brown LV, Zeitlin MF, Peterson KE, et al. Evaluation of the impact of weaning food messages on infant feeding practices and child growth in rural Bangladesh. *Am J Clin Nutr.* 1992;56(6):994–1003.
- **39.** Roy SK, Jolly SP, Shafique S, et al. Prevention of malnutrition among young children in rural Bangladesh by a food-health-care educational intervention: a randomized, controlled trial. *Food Nutr Bull.* 2007;28(4):375–383.
- **40.** Ashworth A, Ferguson E. Dietary counselling in the management of moderate malnourishment in children. *Food & Nutrition Bulletin.* 2009;30(3):405.
- **41.** Obatolu VA. Growth pattern of infants fed with a mixture of extruded malted maize and cowpea. *Nutrition.* 2003;19(2):174–178.
- **42.** Oelofse A, Van Raaij JMA, Benade AJS, Dhansay MA, Tolboom JJM, Hautvast J. The effect of a micronutrient-fortified complementary food on micronutrient status, growth and development of 6- to 12-month-old disadvantaged urban South African infants. *Int J Food Sci Nutr.* 2003;54(5):399–407.
- **43.** Schroeder DG, Pachon H, Dearden KA, Ha TT, Lang TT, Marsh DR. An integrated child nutrition intervention improved growth of younger, more malnourished children in northern Viet Nam. *Food Nutr Bull.* 2002;23(Supplement 2):50–58.
- Pee SD, Bloem MW. Current and potential role of specially formulated foods and food supplements for preventing malnutrition among 6-23 months old and treating moderate malnutrition amongst 6-59 months old children Available at:
 http://www.who.int/nutrition/publications/moderate_malnutrition/MM_Background_paper4.pdf. 2009.
- **45.** Black RE, Allen LH, Bhutta ZA, et al. Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet.* 2008;371(9608):243–260.
- **46.** Akalu G, Taffesse S, Gunaratna NS, De Groote H. The effectiveness of quality protein maize in improving the nutritional status of young children in the Ethiopian highlands. *Food Nutr Bull.* 2010;31(3):418–430.
- **47.** Lutter CK, Mora JO, Habicht JP, Rasmussen KM, Robson DS, Herrera MG. Age-specific responsiveness of weight and length to nutritional supplementation. *Am J Clin Nutr.* 1990;51(3):359–364.
- **48.** Mazariegos M, Hambidge KM, Westcott JE, et al. Neither a zinc supplement nor phytate-reduced maize nor their combination enhance growth of 6- to 12-month-old Guatemalan infants. *J Nutr.* 2010;140(5):1041–1048.
- **49.** Thakwalakwa C, Ashorn P, Phuka J, et al. A lipid-based nutrient supplement but not corn-soy blend modestly increases weight gain among 6- to 18-month-old moderately underweight children in rural Malawi. *J Nutr.* 2010;140(11):2008–2013.
- **50.** Thakwalakwa CM, Ashorn P, Jawati M, Phuka JC, Cheung YB, Maleta KM. An effectiveness trial showed lipid-based nutrient supplementation but not corn-soya blend offered a modest benefit in weight gain among 6- to 18-month-old underweight children in rural Malawi. *Public Health Nutr.* 2012;1(1):1–8.
- **51.** Isanaka S, Nombela N, Djibo A, et al. Effect of preventive supplementation with ready-to-use therapeutic food on the nutritional status, mortality, and morbidity of children aged 6 to 60 months in Niger. *JAMA*. 2009;301(3):277–285.

- **52.** Grellety E, Shepherd S, Roederer T, et al. Effect of Mass Supplementation with Ready-to-Use Supplementary Food during an Anticipated Nutritional Emergency. *PloS ONE*. 2012;7(9):e44549.
- **53.** Huybregts L, Houngbe F, Salpeteur C, et al. The Effect of Adding Ready-to-Use Supplementary Food to a General Food Distribution on Child Nutritional Status and Morbidity: A Cluster-Randomized Controlled Trial. *PLoS Med.* 2012;9(9):e1001313.
- **54.** Patel MP, Sandige HL, Ndekha MDJ, Briend A, Ashorn P, Manary MJ. Supplemental feeding with ready-to-use therapeutic food in Malawian children at risk of malnutrition. *J Health Popul Nutr.* 2011;23(4):351–357.
- **55.** Oliveira SMS, Costa MJC, Rivera MAA, et al. Impact of a dietary supplement on the nutritional status of preschool children enrolled in day care centers. *Revista de Nutricao*. 2006;19(2):169–176.
- **56.** Ferreira HS, Cavalcante SA, Cabral Jr CR, Paffer AT. Efeitos do consumo da multimistura sobre o estado nutricional: ensaio comunitario envolvendo criancas de uma favela da periferia de Maceio, Alagoas, Brasil / Effects of the consumption of multimixture on nutritional status: a community trial involving children from a slum district on the outskirts of Maceio, State of Alagoas, Brazil. *Revista Brasileira de Saude Materno Infantil.* 2008;8(3):309–318.
- **57.** Faber M, Kvalsvig JD, Lombard CJ, Benade AJS. Effect of a fortified maize-meal porridge on anemia, micronutrient status, and motor development of infants. *Am J Clin Nutr.* 2005;82(5):1032–1039.
- **58.** Zlotkin S, Antwi KY, Schauer C, Yeung G. Use of microencapsulated iron (II) fumarate sprinkles to prevent recurrence of anaemia in infants and young children at high risk. *Bull World Health Organ.* 2003;81(2):108–115.
- **59.** Moursi M, Mbemba F, Treche S. Does the consumption of amylase-containing gruels impact on the energy intake and growth of Congolese infants? *Public Health Nutr.* 2003;6(3):249–258.
- **60.** John C, Gopaldas T. II. Evaluation of the Impact on Growth of a Controlled 6-month Feeding Trial on Children (6-24 Months) Fed a Complementary Feed of a High Energy Low Bulk Gruel Versus a High Energy High Bulk Gruel in Addition to Their Habitual Home Diet. *J Trop Pediatr.* 1993;39(1):16–22.
- **61.** World Vision Mongolia. Effectiveness of Home-Based Fortification of Complementary Foods with Sprinkles in an Integrated Nutrition Programme to Address Rickets and Anemia. 2005.
- **62.** Menon P, Ruel MT, Loechl CU, et al. Micronutrient Sprinkles reduce anemia among 9- to 24-moold children when delivered through an integrated health and nutrition programme in rural Haiti. *J Nutr.* 2007;137(4):1023–1030.
- **63.** Giovannini M, Sala D, Usuelli M, et al. Double-blind, placebo-controlled trial comparing effects of supplementation with two different combinations of micronutrients delivered as sprinkles on growth, anemia, and iron deficiency in Cambodian infants. *J Pediatr Gastroenterol Nutr.* 2006;42(3):306–312.
- 64. Sazawal S, Dhingra U, Dhingra P, et al. Effects of fortified milk on morbidity in young children in north India: community based, randomised, double masked placebo controlled trial. *BMJ*. 2007;334(7585):140.
- **65.** Dhingra P, Menon VP, Sazawal S, et al. Effect of fortification of milk with zinc and iron along with vitamins C, E, A and selenium on growth, iron status and development in preschool children's community-based double-masked randomized trial. Paper presented at: Report from the 2nd World Congress of Pediatric Gastroenterology, Hepatology and Nutrition, 2004.
- **66.** Sharieff W, Bhutta Z, Schauer C, Tomlinson G, Zlotkin S. Micronutrients (including zinc) reduce diarrhoea in children: The Pakistan Sprinkles Diarrhoea Study. *Arch Dis Child.* 2006;91(7):573–579.

- **67.** Walter T, Dallman PR, Pizarro F, et al. Effectiveness of iron-fortified infant cereal in prevention of iron deficiency anemia. *Pediatrics.* 1993;91(5):976–982.
- **68.** Villalpando S, Shamah T, Rivera JA, Lara Y, Monterrubio E. Fortifying milk with ferrous gluconate and zinc oxide in a public nutrition program reduced the prevalence of anemia in toddlers. *J Nutr.* 2006;136(10):2633–2637.
- **69.** Schumann K, Romero-Abal ME, Maurer A, et al. Haematological response to haem iron or ferrous sulphate mixed with refried black beans in moderately anaemic Guatemalan pre-school children. *Public Health Nutr.* 2005;8(06):572–581.
- Javaid N, Haschke F, Pietschnig B, et al. Interactions between Infections, Malnutrition and Iron Nutritional Status in Pakistani Infants A Longitudinal Study. *Acta Paediatrica*. 1991;80(s374):141–150.
- **71.** Kuusipalo H, Maleta K, Briend A, Manary M, Ashorn P. Growth and change in blood haemoglobin concentration among underweight Malawian infants receiving fortified spreads for 12 weeks: a preliminary trial. *J Pediatr Gastroenterol Nutr.* 2006;43(4):525–532.
- **72.** Aitchison TC, Durnin J, Beckett C, Pollitt E. Effects of an energy and micronutrient supplement on growth and activity, correcting for non-supplemental sources of energy input in undernourished children in Indonesia. *Eur J Clin Nutr.* 2000;54(2):69.
- **73.** Beckett C, Durnin J, Aitchison TC, Pollitt E, Schurch B. Effects of an energy and micronutrient supplement on anthropometry in undernourished children in Indonesia. *Eur J Clin Nutr.* 2000;54(supp 2):S52–S59.
- **74.** Saco-Pollitt C, Triana N, Harahap H, Husaini M, Jahari AB, Pollitt E. The eco-cultural context of the undernourished children in a study on the effects of early supplementary feeding in Indonesia. *Eur J Clin Nutr.* 2000;54:S11.
- **75.** Pollitt E, Saco-Pollitt C, Jahari A, Husaini MA, Huang J, Schurch B. Effects of an energy and micronutrient supplement on mental development and behavior under natural conditions in undernourished children in Indonesia. *Eur J Clin Nutr.* 2000;54(supp 2):S80–S90.
- **76.** Hirve S, Bhave S, Bavdekar A, et al. Low dose 'Sprinkles'—an innovative approach to treat iron deficiency anemia in infants and young children. *Indian Pediatr*. Feb 2007;44(2):91–100.
- **77.** Morgan JB, Lucas A, Fewtrell MS. Does weaning influence growth and health up to 18 months? *Arch Dis Child*. 2004;89(8):728–733.
- **78.** Krebs NF, Westcott JE, Butler N, Robinson C, Bell M, Hambidge KM. Meat as a first complementary food for breastfed infants: feasibility and impact on zinc intake and status. *J Pediatr Gastroenterol Nutr.* 2006;42(2):207.
- 79. Lucas A, Stafford M, Morley R, et al. Efficacy and safety of long-chain polyunsaturated fatty acid supplementation of infant-formula milk: a randomised trial. *Lancet*. 1999;354(9194):1948–1954.
- **80.** He M, Yang YX, Han H, Men JH, Bian LH, Wang GD. Effects of yogurt supplementation on the growth of preschool children in Beijing suburbs. *Biomedical and environmental sciences: BES.* 2005;18(3):192.
- **81.** Davidsson L, Sarker SA, Jamil KA, Sultana S, Hurrell R. Regular consumption of a complementary food fortified with ascorbic acid and ferrous fumarate or ferric pyrophosphate is as useful as ferrous sulfate in maintaining hemoglobin concentrations> 105 g/L in young Bangladeshi children. *Am J Clin Nutr.* 2009;89(6):1815–1820.
- **82.** den Besten L, Glatthaar II, Ijsselmuiden CB. Adding a-amylase to weaning food to increase dietary intake in children. A randomized controlled trial. *J Trop Pediatr.* 1998;44(1):4–9.
- **83.** Hoffman DR, Birch EE, Castaaeda YS, et al. Visual function in breast-fed term infants weaned to formula with or without long-chain polyunsaturates at 4 to 6 months: a randomized clinical trial. *J Pediatr.* 2003;142(6):669–677.

- **84.** Harrington M, Hotz C, Zeder C, et al. A comparison of the bioavailability of ferrous fumarate and ferrous sulfate in non-anemic Mexican women and children consuming a sweetened maize and milk drink. *Eur J Clin Nutr.* 2011;65(1):20–25.
- **85.** Domellof M, Lonnerdal B, Abrams SA, Hernell O. Iron absorption in breast-fed infants: effects of age, iron status, iron supplements, and complementary foods. *Am J Clin Nutr.* 2002;76(1):198–204.
- **86.** Morley R, Abbott R, Fairweather-Tait S, MacFadyen U, Stephenson T, Lucas A. Iron fortified follow on formula from 9 to 18 months improves iron status but not development or growth: a randomised trial. *Arch Dis Child.* 1999;81(3):247–252.
- **87.** Lind T, Persson LA, Lonnerdal B, Stenlund H, Hernell O. Effects of weaning cereals with different phytate content on growth, development and morbidity: a randomized intervention trial in infants from 6 to 12 months of age. *Acta Paediatrica*. 2007;93(12):1575–1582.
- **88.** Shamah-Levy T, Villalpando S, Rivera-Dommarco JA, Mundo-Rosas V, Cuevas-Nasu L, Jimenez-Aguilar A. Ferrous gluconate and ferrous sulfate added to a complementary food distributed by the Mexican nutrition program Oportunidades have a comparable efficacy to reduce iron deficiency in toddlers. *J Pediatr Gastroenterol Nutr.* 2008;47(5):660–666.
- **89.** Owino VO, Bahwere P, Bisimwa G, Mwangi CM, Collins S. Breast-milk intake of 9–10-mo-old rural infants given a ready-to-use complementary food in South Kivu, Democratic Republic of Congo. *Am J Clin Nutr.* 2010;93(6):1300–1304.
- **90.** Phuka JC, Maleta K, Thakwalakwa C, et al. Complementary feeding with fortified spread and incidence of severe stunting in 6- to 18-month-old rural Malawians. *Arch Pediatr Adolesc Med.* 2008;162(7):619.
- **91.** Manno D, Siame J, Larke N, Baisley K, Kasonka L, Filteau S. Effect of multiple micronutrientfortified food on mild morbidity and clinical symptoms in Zambian infants: results from a randomised controlled trial. *Eur J Clin Nutr.* 2011;65:1163–1166.
- **92.** Liu D, Bates CJ, Yin TA, Wang XB, Lu C. Nutritional efficacy of a fortified weaning rusk in a rural area near Beijing. *Am J Clin Nutr.* 1993;57(4):506–511.
- **93.** Ouedraogo HZ, Traore T, Zaba AN, Dramaix-Wilmet M, Hennart P, Donnen P. Effect of an improved local ingredient-based complementary food fortified or not with iron and selected multiple micronutrients on Hb concentration. *Public Health Nutr.* 2010;13(11):1923.
- **94.** Rim HY, Kim SH, Sim BC, et al. Effect of iron fortification of nursery complementary food on iron status of infants in the DPR Korea. *Asia Pac J Clin Nutr.* 2008;17(2):264–269.
- **95.** Makrides M, Hawkes JS, Neumann MA, Gibson RA. Nutritional effect of including egg yolk in the weaning diet of breast-fed and formula-fed infants: a randomized controlled trial. *Am J Clin Nutr.* 2002;75(6):1084–1092.
- **96.** Tuthill DP, Cosgrove M, Dunstan F, Stuart ML, Wells JCK, Davies DP. Randomized double-blind controlled trial on the effects on iron status in the first year between a no added iron and standard infant formula received for three months*. *Acta Paediatrica*. 2002;91(2):119–124.
- **97.** Hess SY, Bado L, Aaron GJ, Ouedraogo JB, Zeilani M, Brown KH. Acceptability of zinc-fortified, lipid-based nutrient supplements (LNS) prepared for young children in Burkina Faso. *Matern Child Nutr.* 2011;7(4):357–367.
- **98.** Van Phu P, Van Hoan N, Salvignol B, et al. Complementary foods fortified with micronutrients prevent iron deficiency and anemia in Vietnamese infants. *J Nutr.* 2010;140(12):2241–2247.
- **99.** Birch EE, Castaneda YS, Wheaton DH, Birch DG, Uauy RD, Hoffman DR. Visual maturation of term infants fed long-chain polyunsaturated fatty acid supplemented or control formula for 12 month. *Am J Clin Nutr.* 2005;81(4):871–879.

- Kattelmann KK, Ho M, Specker BL. Effect of timing of introduction of complementary foods on iron and zinc status of formula fed infants at 12, 24, and 36 months of age. J Am Diet Assoc. 2001;101(4):443–447.
- 101. Guyon AB, Quinn VJ, Hainsworth M, et al. Implementing an integrated nutrition package at large scale in Madagascar: The Essential Nutrition Actions Framework. *Food Nutr Bull.* 2009;30(3):233–244.
- **102.** Bisimwa G, Owino VO, Bahwere P, et al. Randomized controlled trial of the effectiveness of a soybean-maize-sorghum based ready-to-use complementary food paste on infant growth in South Kivu, Democratic Republic of Congo. *Am J Clin Nutr.* 2012;95(5):1157–1164.
- **103.** Islam MM, Khatun M, Peerson JM, et al. Effects of energy density and feeding frequency of complementary foods on total daily energy intakes and consumption of breast milk by healthy breastfed Bangladeshi children. *Am J Clin Nutr.* 2008;88(1):84–94.
- **104.** Owino VO, Kasonka LM, Sinkala MM, Wells JK, Eaton S, Darch T. Fortified complementary foods increases growth and hemoglobin independently of a-amylase treatment, without reducing breastmilk intake of 9-month old Zambian infants. *Am J Clin Nutr.* 2007;86:1094–1103.
- **105.** Simondon, Berger J, Simondon K, et al. Effect of early, short-term supplementation on weight and linear growth of 4–7-mo-old infants in developing countries: a four-country randomized trial. *Revue d Epidemiologie et de Sante Publique*. 1997;45:S109.
- **106.** Simondon KB, Gartner A, Berger J, et al. Effect of early, short-term supplementation on weight and linear growth of 4–7-mo-old infants in developing countries: a four-country randomized trial. *Am J Clin Nutr.* 1996;64(4):537–545.
- **107.** Walker SP, Powell CA, Grantham-McGregor SM, Himes JH, Chang SM. Nutritional supplementation, psychosocial stimulation, and growth of stunted children: the Jamaican study. *Am J Clin Nutr.* 1991;54(4):642–648.
- **108.** Grantham-McGregor SM, Powell CA, Walker SP, Himes JH. Nutritional supplementation, psychosocial stimulation, and mental development of stunted children: the Jamaican Study. *Lancet.* 1991;338(8758):1–5.
- **109.** Grantham-McGregor SM, Walker SP, Himes JH, Powell CA. The effect of nutritional supplementation and stunting on morbidity in young children: the Jamaican study. *Trans R Soc Trop Med Hyg.* 1993;87(1):109-113.
- **110.** Walker SP, Grantham-McGregor SM, Himes JH, Powell CA, Chang SM. Early childhood supplementation does not benefit the long-term growth of stunted children in Jamaica. *J Nutr.* 1996;126(12):3017.
- **111.** Husaini MA, Karyadi L, Husaini YK, Karyadi D, Pollitt E. Developmental effects of short-term supplementary feeding in nutritionally-at-risk Indonesian infants. *Am J Clin Nutr.* 1991;54(5):799–804.
- **112.** Lachat CK, Van Camp JH, Mamiro PS, et al. Processing of complementary food does not increase hair zinc levels and growth of infants in Kilosa district, rural Tanzania. *Br J Nutr.* 2006;95(1):174–180.
- **113.** Cohen RJ, Brown KH, Canahuati J, Rivera LL, Dewey KG. Determinants of growth from birth to 12 months among breast-fed Honduran infants in relation to age of introduction of complementary foods. *Pediatrics.* 1995;96(3):504–510.
- **114.** Smuts CM, Dhansay MA, Faber M, et al. Efficacy of multiple micronutrient supplementation for improving anemia, micronutrient status, and growth in South African infants. *J Nutr.* 2005;135(3):653S–659S.
- **115.** Maluccio J, Flores R. *Impact evaluation of a conditional cash transfer program: The Nicaraguan Red de Proteccion Social*: International Food Policy Research Insitute; 2004.

- **116.** Rivera JA, Sotres-Alvarez D, Habicht JP, Shamah T, Villalpando S. Impact of the Mexican program for education, health, and nutrition (Progresa) on rates of growth and anemia in infants and young children. *JAMA*. 2004;291(21):2563–2570.
- **117.** Zavaleta N, Kvistgaard AS, Graverholt G, et al. Efficacy of an MFGM-enriched Complementary Food in Diarrhea, Anemia, and Micronutrient Status in Infants. *J Pediatr Gastroenterol Nutr.* 2011;53(5):561.

Annex I

Forest plots

1.0 Education alone

			Linea	ar Grov	wth		
			1.1 Heig	<mark>sht G</mark> ai	i <mark>n (c</mark> m)	
1.1.1 As effi	cacy/effectivene	SS					
Study or Subgroup	Std. Moon Difforonco	CE.	Education on CF	Control	Woight	Std. Mean Difference	Std. Mean Difference
8.3.1 Efficacy	Stu. Mean Difference	ЭE	Total	TULAI	weigin	iv, Random, 95% Cr	IV, Raildoni, 95% Ci
Bhandari 2001	-0.13	0.1434	95	100	16.5%	-0.13 [-0.41, 0.15]	+
Bhandari 2004	0.05	0.0695	435	394	22.8%	0.05 [-0.09, 0.19]	1
Santos 2001 Subtotal (95% CI)	U.U4	0.0996	209 739	195 689	20.3% 59.6%	0.04 [-0.16, 0.24] 0.02 [-0.08, 0.13]	Ī
Heterogeneity: Tau ² Test for overall effec	= 0.00; Chi² = 1.32, df = 2 t: Z = 0.43 (P = 0.67)	(P = 0.52	!); I² = 0%			0.02 [0.00, 0.10]	
8.3.2 Effectiveness							
Penny 2005	0.51	0.1047	187	190	19.8%	0.51 [0.30, 0.72]	+
Shi 2009 Subtotal (05% CI)	0.22	0.0962	234	203	20.6%	0.22 [0.03, 0.41]	Ť
Heterogeneity: Tau ² Test for overall effec	= 0.03; Chi² = 4.16, df = 1 t: Z = 2.50 (P = 0.01)	(P = 0.04	42 1 1); I ² = 76%	222	40.4%	0.30 [0.08, 0.03]	
Total (95% CI)			1160	1082	100.0%	0.14 [-0.05, 0.34]	
Heterogeneity: Tau² Test for overall effec Test for subgroup di	= 0.04; Chi² = 19.41, df = t: Z = 1.49 (P = 0.14) fferences: Chi² = 4.84, df	4 (P = 0.0 = 1 (P = 0	1007); I² = 79% 1.03), I² = 79.3%				-100 -50 0 50 100 Control Education on CF
Citation to the i Bhandari 2001, ²	ncluded studies: ⁶ Bhandari 2004, ²⁷	Penny	2005, ²⁸ Santo	s 2001,	, ³⁵ Shi 2	2009 ³¹	
1.1.2 As food s	ecure/insecure						
Study of Subgroup	Ctd Maan Difference		Education on CF	Control	Weight	Std. Mean Difference	Std. Mean Difference
8.1.1 Food secure	Std. Mean Difference	SE	Total	Total	vveight	IV, Random, 95% CI	IV, Random, 95% CI
Penny 2005	0.51	0.1047	187	190	19.8%	0.51 [0.30, 0.72]	
Santos 2001	0.04	0.0996	209	195	20.3%	0.04 [-0.16, 0.24]	
Shi 2009 Subtatal (05% CI)	0.22	0.0962	234	203	20.6%	0.22 [0.03, 0.41]	
Heterogeneity: Tau ² Test for overall effec	= 0.04; Chi² = 10.71, df = t: Z = 1.91 (P = 0.06)	2 (P = 0.0	105); I² = 81%	500	00.7%	0.25 [-0.01, 0.52]	
8.1.2 Food insecure	•						
Bhandari 2001	-0.13	0.1434	95	100	16.5%	-0.13 [-0.41, 0.15]	
Bhandari 2004	0.05	0.0695	435	394	22.8%	0.05 [-0.09, 0.19]	*
Heterogeneity: Tau ² Test for overall effec	= 0.00; Chi² = 1.28, df = 1 t: Z = 0.05 (P = 0.96)	(P = 0.26	550 i); I² = 22%	494	39.3%	0.00 [-0.15, 0.16]	
Total (95% CI)			1160	1082	100.0%	0.14 [-0.05, 0.34]	◆
Heterogeneity: Tau² Test for overall effec Test for subgroup di	= 0.04; Chi² = 19.41, df = t: Z = 1.49 (P = 0.14) fferences: Chi² = 2.62, df	4 (P = 0.0 = 1 (P = 0	1007); I² = 79% 1.11), I² = 61.8%				-1 -0.5 0 0.5 1 Control Education on CF
Citation to the i	ncluded studies:						
Bhandari 2001 ²	⁶ Bhandari 2004 ²⁷	Pennv	2005 ²⁸ Santo	s 2001	³⁵ Shi 2	2009 ³¹	
bhandari 2001,	51111111112004,	r enny	2005, 54110	5 2001,	, 51112	-005	

1.2 Height-for-Age (Mean Z Scores)

1.2.1 As efficacy/effectiveness

1.2.1 AS Efficac	y/enectiveness						
			Education on CF	Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Tota	l Total	Weight	IV, Random, 95% CI	IV, Random, 95% Cl
9.1.1 Efficacy							
Santos 2001	0.0446	0.0972	218	206	28.6%	0.04 [-0.15, 0.24]	_ _
Zaman 2008 Subtotal (95% CI)	0.2461	0.1898	62 280	51 257	12.0% 40.6%	0.25 [-0.13, 0.62] 0.09 [-0.08, 0.26]	•
Heterogeneity: Tau² = Test for overall effect:	= 0.00; Chi² = 0.89, df = 1 Z = 1.00 (P = 0.32)	(P = 0.34	l); I ^z = 0%				
9.1.2 Effectiveness							
Penny 2005	0.3702	0.1039	187	' 190	26.7%	0.37 [0.17, 0.57]	
Roy 2007 Subtotal (95% CI)	0.253	0.084	290 477	282 472	32.7% 59.4%	0.25 [0.09, 0.42] 0.30 [0.17, 0.43]	•
Heterogeneity: Tau² = Test for overall effect:	= 0.00; Chi² = 0.77, df = 1 Z = 4.58 (P ≤ 0.00001)	(P = 0.38	3); I² = 0%				
Total (95% CI)			757	729	100.0%	0.22 [0.08, 0.37]	◆
Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff	: 0.01; Chi² = 5.52, df = 3 Z = 3.02 (P = 0.003) ferences: Chi² = 3.86, df	(P = 0.14 = 1 (P = 0	4); I² = 46% 0.05), I² = 74.1%				-1 -0.5 0 0.5 1 Control Education on CF

Citation to the included studies:

Penny 2005,²⁸ Santos 2001,³⁵ Zaman 2008,³³ Roy 2007³⁹

1.2.2 As food secure/insecure

	•						
		Educatio	n on CF	Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% Cl
9.5.1 Food secure							
Penny 2005	0.3702	0.1039	187	190	26.7%	0.37 [0.17, 0.57]	│ — ● —
Santos 2001	0.0446	0.0972	218	206	28.6%	0.04 [-0.15, 0.24]	_ _
Zaman 2008	0.2461	0.1898	62	51	12.0%	0.25 [-0.13, 0.62]	
Subtotal (95% CI)			467	447	67.3%	0.21 [-0.01, 0.44]	\bullet
Heterogeneity: Tau ² =	0.02; Chi ² = 5.30, df = 2	(P = 0.07); I ² = 629	6				
Test for overall effect: 2	Z = 1.84 (P = 0.07)						
9.5.2 Food insecure							
Roy 2007	0.253	0.084	290	282	32.7%	0.25 [0.09, 0.42]	
Subtotal (95% CI)			290	282	32.7%	0.25 [0.09, 0.42]	
Heterogeneity: Not ap	plicable						
Test for overall effect: 2	Z = 3.01 (P = 0.003)						
Total (95% CI)			757	729	100.0%	0.22 [0.08, 0.37]	•
Heterogeneity: Tau ² =	0.01; Chi ² = 5.52, df = 3	$(P = 0.14); I^2 = 469$	6				
Test for overall effect: 2	Z = 3.02 (P = 0.003)						-1 -U.5 U U.5 Control Education on (
Test for subgroup diffe	erences: Chi² = 0.08, df	= 1 (P = 0.78), I ² = I	0%				Control Education on C

Citation to the included studies:

Penny 2005,²⁸ Santos 2001,³⁵ Zaman 2008,³³ Roy 2007³⁹

L3.1 As efficacy/effectiveness Study or Subgroup togOdds Ratio SE Education on CF Control Very M, Random, 95% CI V, Rand				1.3 Stun	ting (I	HAZ < -	-2)	
Education on CF Control Odds Ratio Odds Ratio V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI V, Random, 95% CI </th <th>L.3.1 As efficacy</th> <th>/effectivene</th> <th>SS</th> <th></th> <th></th> <th></th> <th></th> <th></th>	L.3.1 As efficacy	/effectivene	SS					
Study or Subgroup log(Ddds Ratio) SE 1041 1041 Weight IV, Random, 95% C1 IV, Random, 95%			E	ducation on CF C	ontrol		Odds Ratio	Odds Ratio
11.1 E lindacy 11.1 E lindacy 2amin 2009 -0.3839 0.1318 62 651 26.3% 0.84 [0.52, 1.07] 2amin 2009 -0.3839 0.1318 62 651 26.3% 0.88 [0.53, 0.88] 2amin 2005 -0.1117 0.4698 171 165 6.0% 0.33 [0.13, 0.83] 11.1 E flectiveness Penny 2005 -0.1117 0.4698 171 165 6.0% 0.33 [0.13, 0.83] Fest for overall effect $Z = 12.9$ ($P = 0.03$); $P = 78\%$ Test for overall effect $Z = 13.9$ ($P = 0.03$; $D = 57\%$ Test for overall effect $Z = 13.9$ ($P = 0.07$) Total (95% C) -0.3066 0.059 290 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Tau ² = 0.04; Ch ² = 17.23, df = 3 ($P = 0.0006$); $P = 83\%$ Test for overall effect $Z = 17.23$, df = 3 ($P = 0.0006$); $P = 83\%$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$ Test for overall effect $Z = 25.7 (P = 0.01)$; $P = 78\%$ Test for overall effect $Z = 25.7 (P = 0.01)$ Total (95% C) -0.3939 0.1318 62 51 26.3% 0.68 [0.63, 0.76] Subtotal (95% C) -0.3939 0.1318 62 51 26.3\% 0.68 [0.60, 0.76] Test for overall effect $Z = 25.7 (P = 0.01)$; $P = 78\%$ Test for overall effect $Z = 25.7 (P = 0.00)$ Total (95% C) -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Tau ² = 0.07; Ch ² = 8.90, df = 2 (P = 0.01); P = 78\% Test for overall effect $Z = 25.7 (P = 0.00)$ Total (95% C) -0.3906 0.059 290 282 34.2\% 0.68 [0.60, 0.76] Heterogeneity: Tau ² = 0.04; Ch ² = 1.72.3 (f = 3 (P = 0.0006); P = 83\% Test for overall effect $Z = 25.7 (P = 0.01)$ Test for subarou differences: Ch ² = 0.12, df = 1 (P = 0.73), P = 0\% Test for overall effect $Z = 25.7 (P = 0.0006);$	Study or Subgroup	log[Odds Ratio]	SE	Total	Total	Weight	IV, Random, 95% Cl	IV, Random, 95% CI
Samas 2001 -0.0652 0.0673 218 200 30.4% 0.4(0.82, 10.7) Zamara 2002 -0.333 0.1318 25 51 26.3% 0.68 [0.53, 0.83] Subtotal (95% C) -0.3300 0.059 280 282 34.2% 0.68 [0.50, 0.76] Subtotal (95% C) -0.3006 0.059 280 282 34.2% 0.68 [0.50, 0.76] Subtotal (95% C) -0.3006 0.059 280 200 282 34.2% 0.68 [0.50, 0.76] Subtotal (95% C) -0.3006 0.059 280 200 282 34.2% 0.68 [0.50, 0.76] Subtotal (95% C) -0.3006 0.059 280 200 282 34.2% 0.68 [0.50, 0.76] Subtotal (95% C) -0.3300 0.058 280 200 739 -0.330 -0.033 P = 15.6% Station to the included studies: tenny 2005, 28 Santos 2001, 35 Zaman 2008, 33 Roy 2007 39 Latarana 2008 -0.333 0 13, 0.83 Santos 2001 -0.0862 0.0679 218 206 33.4% 0.44 [0.52, 1.07] Di 0.5.1 Food secure / Intervention CF Control Subtotal (95% C) -0.3330 0.1318 45 171 165 6.0% 0.33 [0.13, 0.83] Santos 2001 -0.0862 0.0679 218 206 33.4% 0.44 [0.52, 1.07] Penny 2005 -1.1117 0.4888 171 165 6.0% 0.33 [0.13, 0.83] Santos 2001 -0.0862 0.0679 218 206 33.4% 0.44 [0.68 [0.50, 0.76] Subtotal (95% C) -0.3390 0.1318 452 51 26.3% 0.68 [0.60, 0.76] Subtotal (95% C) -0.3390 0.1318 452 51 26.3% 0.68 [0.60, 0.76] Subtotal (95% C) -0.3390 0.059 280 282 34.2% 0.68 [0.60, 0.76] Subtotal (95% C) -0.3390 0.059 280 282 34.2% 0.68 [0.60, 0.76] Subtotal (95% C) -0.3390 0.059 280 282 34.2% 0.68 [0.60, 0.76] Subtotal (95% C) -0.3390 0.059 280 282 34.2% 0.68 [0.60, 0.76] Fetorogeneity: Tau" = 0.07; ChF = 1.72, df = 3 (P = 0.00)6; P = 83% Test for overall effect Z = 5.62 (P < 0.0001) Total (95% C) -0.3906 0.059 280 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Tau" = 0.07; ChF = 1.72, df = 3 (P = 0.0006; P = 83% Test for overall effect Z = 5.62 (P < 0.0001) Total (95% C) -0.3906 0.059 280 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Tau" = 0.07; ChF = 1.72, df = 3 (P = 0.0006; P = 83% Test for overall effect Z = 5.62 (P < 0.0001) Total (95% C) -0.3046 0.059 280 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Tau" = 0.04; ChF = 1.72, df = 3 (P = 0.030, P = 83% Test for overall effect Z = 5.62 (P < 0.000	10.1.1 Efficacy	0.0050	0 0070	04.0		00.400	0.04/0.00 4.071	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Santos 2001 Zaman 2009	-0.0652	0.06/9	218	206	33.4% วดวด	0.94 [0.82, 1.07]	
Heterogeneity: Tau ² = 0.04; Ch ² = 4.62, df = 1 (P = 0.03); P = 78% Test for overall effect $Z = 1.29$ (P = 0.20) 10.1.2 Effectiveness Penny 2005 - 1.1117 0.4698 171 165 6.0% 0.33 [0.13, 0.83] Roy 2007 - 0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Tau ² = 0.15; Ch ² = 2.32, df = 1 (P = 0.13); P = 57% Test for overall effect $Z = 1.83$ (P = 0.07) Total (95% CI) Heterogeneity: Tau ² = 0.04; Ch ² = 17.23, df = 3 (P = 0.0006); P = 83% Test for overall effect $Z = 2.57$ (P = 0.01) Test for subgroup log[Odds Ratio SE Total Total Weight IV, Random, 95% CI IV, RandoN, 95% CI IV, RandoN,	Subtotal (95% CI)	-0.3839	0.1318	280	257	20.3% 59.8%	0.82 [0.60, 1.11]	-
10.1.2 Effectiveness Penny 2005 -1.1117 0.4688 171 165 6.0% 0.33 (0.13, 0.83) Roy 2007 -0.3906 0.059 290 282 34.2% 0.88 (0.60, 0.76) Subtotal (95% CI) -0.55 (0.29, 1.04) 447 40.2% 0.55 (0.29, 1.04) Heterogeneity Tau" = 0.04; Chi" = 17.23, df = 3 (P = 0.0006); P = 83% 741 704 100.0% 0.72 [0.57, 0.93] Test for overall effect Z = 2.57 (P = 0.01) Test for subgroup differences: Chi" = 1.19, df = 1 (P = 0.28); P = 15.6% 0.43 (0.13, 0.83) 0.55 (0.29, 1.04) Colspan="2">Colspan="2" Colspan="2">Colspan="2"	Heterogeneity: Tau ² = Test for overall effect	= 0.04; Chi ^z = 4.62, : Z = 1.29 (P = 0.20)	df=1 (P=))	0.03); i² = 78%			[•
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	10.1.2 Effectiveness							
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Poppy 2005	1 1 1 1 7	0 4600	171	165	200.3	0 22 10 12 0 021	
Subtol (95% CI) Clock of Color 461 447 40.2% 0.55 [0.29, 1.04] Heterogeneity: Tau ² = 0.15; Chi ² = 2.32; df = 1 (P = 0.13); P = 57%. Test for overall effect Z = 1.83 (P = 0.07) 704 100.0% 0.72 [0.57, 0.93] Total (95% CI) Total (95% CI) 741 704 100.0% 0.72 [0.57, 0.93] Heterogeneity: Tau ² = 0.04; Chi ² = 17.23; df = 3 (P = 0.0006); P = 83%. Test for overall effect Z = 2.57 (P = 0.01) Test for subgroup differences: Chi ² = 1.19, df = 1 (P = 0.28), P = 15.6% Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹ L3.2 As food secure/insecure Education on CF Control Study or Subgroup log[Odds Ratio] SE Total Total Weight IV, Random, 95% CI V, Random, 95% CI Penny 2005 -1.1117 0.4698 171 165 6.0% 0.33 [0.13, 0.83] Santos 2001 -0.0652 0.0679 218 263 34.4% 0.48 [0.50, 0.76] Penny 2005 -1.1117 0.4698 171 165 6.0% 0.33 [0.13, 0.83] Santos 2001 -0.0652 0.0679 218 265 34.4% 0.68 [0.60, 0.76] 0.451	Roy 2005	-0.3906	0.4098	290	782	34.7%	0.33 [0.13, 0.83]	-
Heterogeneity: Tau ² = 0.15; Chi ² = 2.32, df = 1 (P = 0.13); P = 57% Test for overall effect Z = 1.83 (P = 0.07) Total (95% Cl) 741 704 100.0% 0.72 [0.57, 0.53] Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); P = 83% Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01), ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹ 1.3.2 As food secure/insecure Denny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹ 1.3.2 As food secure/insecure Penny 2005 -1.1117 0.4698 Tital Total Weight IV, Random, 95% Cl 10.5.1 Food secure Penny 2005 -1.1117 0.4698 Tital 65 6.0% 0.33 [0.13, 0.83] Santos 2001 -0.0652 0.0679 218 206 33.4% 0.94 [0.82, 1.07] Zaman 2008 -0.3893 0.1318 62 51 26.3% 0.68 [0.60, 0.76] Heterogeneity: Tau ² = 0.07; Chi ² = 8.90, df = 2 (P = 0.01); P = 78% Test for overall effect Z = 1.71 (P = 0.09) 10.5.2 Food insecure Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Tau ² = 0.04; Chi ² = 1.723, df = 3 (P = 0.0006); I ² = 83% Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 2.57 (P = 0.01) Test for overall effect Z = 0.02 (A ³ Z = 1 (P = 0.73), P = 0% Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹	Subtotal (95% CI)	0.0000	0.000	461	447	40.2%	0.55 [0.29, 1.04]	
Total (95% CI) 741 704 100.0% 0.72 [0.57, 0.93] Heterogeneity: Tau ² = 0.04; Ch ² = 17.23, df = 3 (P = 0.0006); P = 83% Test for overall effect: $Z = 2.57$ (P = 0.01) Test for subgroup differences: Ch ² = 1.19, df = 1 (P = 0.28), P = 15.6% itation to the included studies: enny 2005; ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹ 3.2 As food secure/insecure Education on CF Control Odds Ratio Odds Ratio Odds Ratio Odds Ratio Odds Ratio Odds Ratio Odds Ratio Odds Ratio Odds Ratio N, Random, 95% CI N, Random,	Heterogeneity: Tau² = Test for overall effect	= 0.15; Chi² = 2.32, : Z = 1.83 (P = 0.07)	df=1(P=)	0.13); l² = 57%				
Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); I ² = 83% Test for overall effect Z = 2.57 (P = 0.01) Test for subgroup differences: Chi ² = 1.19, df = 1 (P = 0.28), P = 15.6% Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹ L.3.2 As food secure/insecure Education on CF Control Study or Subgroup log[Odds Ratio] SE Total Total Weight IV, Random, 95% Cl IV, Random, 95% C	Total (95% CI)			741	704	100.0%	0.72 [0.57, 0.93]	•
Test for overall effect: $Z = 2.57$ (P = 0.01) U1 0.2 0.5 1 2 Test for subgroup differences: Chi ^P = 1.19, df = 1 (P = 0.28), P = 15.6% Education on CF Control Citation to the included studies: Penny 2005, 28 Santos 2001, 35 Zaman 2008, 33 Roy 200739 L.3.2 As food secure/insecure Education on CF Control Odds Ratio Study or Subgroup log[Odds Ratio] SE Total Total Weight IV, Random, 95% Cl 10.5.1 Food secure Penny 2005 -1.1117 0.4698 171 165 6.0% 0.33 [0.13, 0.83] Santos 2001 -0.0652 0.0679 218 206 33.4% 0.94 [0.82, 1.07] Zaman 2008 -0.3839 0.1318 62 51 26.3% 0.68 [0.50, 0.105] 4 Heterogeneity: Tau ^a = 0.07; Chi ^p = 8.90, df = 2 (P = 0.01); P = 78% Test for overall effect: Z = 1.71 (P = 0.09) 10.5.2 Food insecure Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] 4 Heterogeneity: Not applicable Test for overall effect: Z = 6.62 (P < 0.00001)	Heterogeneity: Tau ² =	= 0.04; Chi ² = 17.23	, df = 3 (P =	= 0.0006); I ² = 83%				
Test for subgroup differences: $Ch^{\mu} = 1.19$, $df = 1 (P = 0.28)$, $P = 15.6\%$ Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹ L.3.2 As food secure/insecure Education on CF Control Odds Ratio Odds Ratio Odds Ratio IV, Random, 95% CI IV, Ran	Test for overall effect	: Z = 2.57 (P = 0.01))	,				U.1 U.2 U.5 1 2 Education on CE Control
Citation to the included studies: trans 2005, 28 Santos 2001, 35 Zaman 2008, 33 Roy 2007 ³⁹ Control Odds Ratio Odds Rati	Test for subgroup dif	ferences: Chi ² = 1. ⁴	19. df = 1 (F	P = 0.28), P = 15.69	%			Education on CF Control
Study or Subgroup log[Odds Ratio] SE Total Total Weight IV, Random, 95% CI IV, Random, 95% CI 10.5.1 Food secure Penny 2005 -1.1117 0.4698 171 165 6.0% 0.33 [0.13, 0.83] Santos 2001 -0.0652 0.0679 218 206 33.4% 0.94 [0.82, 1.07] Zaman 2008 -0.3839 0.1318 62 51 26.3% 0.68 [0.50, 0.88] Subtotal (95% CI) 451 422 65.8% 0.73 [0.50, 1.05] 4 Heterogeneity: Tau ² = 0.07; Chi ² = 8.90, df = 2 (P = 0.01); P = 78% 78% 78 73 0.68 [0.60, 0.76] 4 Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] 4 Heterogeneity: Not applicable 290 282 34.2% 0.68 [0.60, 0.76] 4 4 4 4 4 5 6 <th>- /,</th> <th></th> <th></th> <th>0, NUY 2007</th> <th>5</th> <th></th> <th></th> <th></th>	- /,			0, NUY 2007	5			
Construction Total Total <thtotal< th=""> Total <thtotal< th=""></thtotal<></thtotal<>	.3.2 As food se	cure/insecur	e	ducation on CE	ontrol		Odds Ratio	Odds Ratio
Penny 2005 -1.1117 0.4698 171 165 6.0% 0.33 [0.13, 0.83] Santos 2001 -0.0652 0.0679 218 206 33.4% 0.94 [0.82, 1.07] Zaman 2008 -0.3839 0.1318 62 51 26.3% 0.68 [0.53, 0.88] Subtotal (95% CI) 451 422 65.8% 0.73 [0.50, 1.05] Heterogeneity: Tau ² = 0.07; Chi ² = 8.90, df = 2 (P = 0.01); I ² = 78% Test for overall effect: $Z = 1.71$ (P = 0.09) 10.5.2 Food insecure Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Subtotal (95% CI) -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Not applicable Test for overall effect: $Z = 6.62$ (P < 0.00001) Total (95% CI) 741 704 100.0% 0.72 [0.57, 0.93] Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); I ² = 83% Test for overall effect: $Z = 2.57$ (P = 0.01) Test for subgroup differences: Chi ² = 0.12, df = 1 (P = 0.73), I ² = 0% Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹	.3.2 As food se	cure/insecur	e SE	ducation on CF C	ontrol	Weight	Odds Ratio IV. Random, 95% Cl	Odds Ratio IV. Random, 95% Cl
Santos 2001 -0.0652 0.0679 218 206 33.4% 0.94 $[0.82, 1.07]$ Zaman 2008 -0.3839 0.1318 62 51 26.3% 0.68 $[0.53, 0.88]$ Subtotal (95% CI) 451 422 65.8% 0.73 $[0.50, 1.05]$ Heterogeneity: Tau ² = 0.07; Chi ² = 8.90, df = 2 (P = 0.01); I ² = 78% Test for overall effect: $Z = 1.71$ (P = 0.09) 10.5.2 Food insecure Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 $[0.60, 0.76]$ Subtotal (95% CI) 290 282 34.2% 0.68 $[0.60, 0.76]$ Heterogeneity: Not applicable Test for overall effect: $Z = 6.62$ (P < 0.00001) Total (95% CI) 741 704 100.0% 0.72 $[0.57, 0.93]$ Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); I ² = 83% Test for overall effect: $Z = 2.57$ (P = 0.01) Test for overall effect: $Z = 2.57$ (P = 0.12) Test for subgroup differences: Chi ² = 0.12, df = 1 (P = 0.73), I ² = 0%	Study or Subgroup	log[Odds Ratio]	e SE	ducation on CF C	ontrol Total	Weight	Odds Ratio IV, Random, 95% CI	Odds Ratio IV, Random, 95% Cl
Zaman 2008 -0.3839 0.1318 62 51 26.3% 0.68 [0.53, 0.88] Subtotal (95% CI) 451 422 65.8% 0.73 [0.50, 1.05] Heterogeneity: Tau ² = 0.07; Chi ² = 8.90, df = 2 (P = 0.01); P = 78% Test for overall effect: $Z = 1.71$ (P = 0.09) 10.5.2 Food insecure Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Subtotal (95% CI) 290 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Not applicable Test for overall effect: $Z = 6.62$ (P < 0.00001) Total (95% CI) 741 704 100.0% 0.72 [0.57, 0.93] Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); I ² = 83% Test for overall effect: $Z = 2.57$ (P = 0.01) Test for subgroup differences: Chi ² = 0.12, df = 1 (P = 0.73), I ² = 0% Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹	Study or Subgroup 10.5.1 Food secure Penny 2005	cure/insecure log[Odds Ratio]	e E 0.4698	ducation on CF C Total	ontrol Total	Weight 6.0%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83]	Odds Ratio IV, Random, 95% Cl
Subtotal (95% Cl) 451 422 65.8% 0.73 [0.50, 1.05] Heterogeneity: Tau ² = 0.07; Chi ² = 8.90, df = 2 (P = 0.01); I ² = 78% Test for overall effect: $Z = 1.71$ (P = 0.09) 0.52 Food insecure Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Subtotal (95% Cl) 290 282 34.2% 0.68 [0.60, 0.76] • Heterogeneity: Not applicable 290 282 34.2% 0.68 [0.60, 0.76] • Test for overall effect: $Z = 6.62$ (P < 0.00001)	Study or Subgroup 10.5.1 Food secure Penny 2005 Santos 2001	cure/insecure log[Odds Ratio] -1.1117 -0.0652	0.4698 0.0679	ducation on CF C Total 171 218	ontrol Total 165 206	Weight 6.0% 33.4%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07]	Odds Ratio IV, Random, 95% Cl
Heterogeneity: Tau ² = 0.07; Chi ² = 8.90, df = 2 (P = 0.01); P = 78% Test for overall effect: $Z = 1.71$ (P = 0.09) 10.5.2 Food insecure Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Subtotal (95% Cl) 290 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Not applicable Test for overall effect: $Z = 6.62$ (P < 0.00001) Total (95% Cl) 741 704 100.0% 0.72 [0.57, 0.93] Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); P = 83% Test for overall effect: $Z = 2.57$ (P = 0.01) Test for subgroup differences: Chi ² = 0.12, df = 1 (P = 0.73), P = 0% Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹	Study or Subgroup 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008	cure/insecure log[Odds Ratio] -1.1117 -0.0652 -0.3839	0.4698 0.0679 0.1318	ducation on CF C Total 171 218 62	ontrol Total 165 206 51	Weight 6.0% 33.4% 26.3%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88]	Odds Ratio IV, Random, 95% Cl
10.5.2 Food insecure Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Subtotal (95% CI) 290 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Not applicable Test for overall effect: $Z = 6.62$ (P < 0.00001)	Study or Subgroup 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI)	cure/insecur log[Odds Ratio] -1.1117 -0.0652 -0.3839	e SE 0.4698 0.0679 0.1318	ducation on CF C Total 171 218 62 451	00000000000000000000000000000000000000	Weight 6.0% 33.4% 26.3% 65.8%	Odds Ratio IV, Random, 95% CI 0.33 (0.13, 0.83) 0.94 (0.82, 1.07) 0.68 (0.53, 0.88) 0.73 (0.50, 1.05)	Odds Ratio IV, Random, 95% Cl
Roy 2007 -0.3906 0.059 290 282 34.2% 0.68 [0.60, 0.76] Subtotal (95% CI) 290 282 34.2% 0.68 [0.60, 0.76] Heterogeneity: Not applicable 704 704 704 706 0.72 [0.57, 0.93] Total (95% CI) 741 704 704 100.0% 0.72 [0.57, 0.93] Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); l ² = 83% 704 100.0% 0.72 [0.57, 0.93] Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); l ² = 83% 704 100.0% 0.72 [0.57, 0.93] Test for overall effect: Z = 2.57 (P = 0.01) 704 100.0% 0.72 [0.57, 0.93] $= 0.10.2 = 0.5 = 1.2$ $= 0.00006$; l ² = 83% $= 0.00066$; l ² = 0.01 $= 0.000666666666666666666666666666666666$	L.3.2 As food se <u>Study or Subgroup</u> 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 <u>Subtotal (95% CI)</u> Heterogeneity: Tau ² = Test for overall effect	cure/insecur log[Odds Ratio] -1.1117 -0.0652 -0.3839 = 0.07; Chi ² = 8.90, ; Z = 1.71 (P = 0.09)	e 0.4698 0.0679 0.1318 df = 2 (P =	ducation on CF C Total 171 218 62 451 0.01); I ² = 78%	ontrol Total 165 206 51 422	Weight 6.0% 33.4% 26.3% 65.8%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88] 0.73 [0.50, 1.05]	Odds Ratio IV, Random, 95% CI
Subtrait (95% Cl) 290 282 34.2% 0.08 [0.00, 0.76] Heterogeneity: Not applicable Test for overall effect: $Z = 6.62$ (P < 0.00001)	L.3.2 As food se <u>Study or Subgroup</u> 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect 10.5.2 Food insecure	-1.1117 -0.0652 -0.3839 = 0.07; Chi ² = 8.90, ; Z = 1.71 (P = 0.09)	e 0.4698 0.0679 0.1318 df = 2 (P =	ducation on CF C Total 171 218 62 451 0.01); I [*] = 78%	ontrol Total 165 206 51 422	Weight 6.0% 33.4% 26.3% 65.8%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88] 0.73 [0.50, 1.05]	Odds Ratio IV, Random, 95% CI
Test for overall effect: $Z = 6.62$ (P < 0.00001) Total (95% Cl) 741 704 100.0% 0.72 [0.57, 0.93] Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); l ² = 83% Test for overall effect: $Z = 2.57$ (P = 0.01) Test for subgroup differences: Chi ² = 0.12, df = 1 (P = 0.73), l ² = 0% Citation to the included studies: Cenny 2005, 28 Santos 2001, 35 Zaman 2008, 33 Roy 2007 ³⁹ Test for subgroup differences: Chi ³ = 2008, 33 Roy 2007 ³⁹	L.3.2 As food se <u>Study or Subgroup</u> 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect 10.5.2 Food insecure Roy 2007 Cubtotel (95% CI)	Cure/insecure log[Odds Ratio] -1.1117 -0.0652 -0.3839 = 0.07; Chi [≈] = 8.90, : Z = 1.71 (P = 0.09) e -0.3906	e 0.4698 0.0679 0.1318 df = 2 (P = 0.059	ducation on CF C Total 171 218 62 451 0.01); I ² = 78% 290 200	ontrol Total 165 206 51 422 282	Weight 6.0% 33.4% 26.3% 65.8%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88] 0.73 [0.50, 1.05] 0.68 [0.60, 0.76]	Odds Ratio IV, Random, 95% Cl
Total (95% Cl) 741 704 100.0% 0.72 [0.57, 0.93] Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); I ² = 83% 0.1 0.2 0.5 1 2 Test for overall effect: Z = 2.57 (P = 0.01) Test for subgroup differences: Chi ² = 0.12, df = 1 (P = 0.73), I ² = 0% 0.4 0.5 1 2 1 Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹ Penny 2007 ³⁹ Penny 2007 ³⁹ Penny 2007 ³⁹ Penny 2007 ³⁹	L.3.2 As food se <u>Study or Subgroup</u> 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect 10.5.2 Food insecure Roy 2007 Subtotal (95% CI)	Core/insecure log[Odds Ratio] -1.1117 -0.0652 -0.3839 = 0.07; Chi² = 8.90, : Z = 1.71 (P = 0.09) e -0.3906	e 0.4698 0.0679 0.1318 df = 2 (P = 0.059	ducation on CF C Total 171 218 62 451 0.01); I² = 78% 290 290 290	2001 2015 2016 51 422 282 282 282	Weight 6.0% 33.4% 26.3% 65.8% 34.2% 34.2%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88] 0.73 [0.50, 1.05] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76]	Odds Ratio IV, Random, 95% Cl
Heterogeneity: Tau ² = 0.04; Chi ² = 17.23, df = 3 (P = 0.0006); l ² = 83% Test for overall effect: Z = 2.57 (P = 0.01) Test for subgroup differences: Chi ² = 0.12, df = 1 (P = 0.73), l ² = 0% Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹	L.3.2 As food se <u>Study or Subgroup</u> 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect 10.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not an Test for overall effect	Cure/insecure log[Odds Ratio] -1.1117 -0.0652 -0.3839 = 0.07; Chi [≥] = 8.90, : Z = 1.71 (P = 0.09) e -0.3906 pplicable : Z = 6.62 (P ≤ 0.00)	e 0.4698 0.0679 0.1318 df = 2 (P = 0.059 0.01)	ducation on CF C Total 171 218 62 451 0.01); I² = 78% 290 290 290	ontrol Total 165 206 51 422 282 282	Weight 6.0% 33.4% 26.3% 65.8% 34.2% 34.2%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88] 0.73 [0.50, 1.05] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76]	Odds Ratio IV, Random, 95% Cl
Test for overall effect: Z = 2.57 (P = 0.01) 0.1 0.2 0.5 1 2 Test for subgroup differences: Chi ² = 0.12, df = 1 (P = 0.73), I ² = 0% Education on CF Control Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹	L.3.2 As food se <u>Study or Subgroup</u> 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect 10.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not aj Test for overall effect Total (95% CI)	Cure/insecure log[Odds Ratio] -1.1117 -0.0652 -0.3839 = 0.07; Chi [≥] = 8.90, : Z = 1.71 (P = 0.09) e -0.3906 pplicable : Z = 6.62 (P ≤ 0.00)	e 0.4698 0.0679 0.1318 df = 2 (P =) 0.059 001)	ducation on CF C Total 171 218 62 451 0.01); I² = 78% 290 200 200 741	ontrol Total 165 206 51 422 282 282 282 704	Weight 6.0% 33.4% 26.3% 65.8% 34.2% 34.2% 34.2%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88] 0.73 [0.50, 1.05] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76]	Odds Ratio IV, Random, 95% CI
Citation to the included studies: Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹	L.3.2 As food se <u>Study or Subgroup</u> 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 <u>Subtotal (95% CI)</u> Heterogeneity: Tau ² = Test for overall effect 10.5.2 Food insecure Roy 2007 <u>Subtotal (95% CI)</u> Heterogeneity: Not aj Test for overall effect Total (95% CI) Heterogeneity: Tau ² =	Core/insecure/ cure/insecure -1.1117 -0.0652 -0.3839 = 0.07; Chi² = 8.90, : Z = 1.71 (P = 0.09) e -0.3906 pplicable : Z = 6.62 (P < 0.00) = 0.04; Chi² = 17.23	e 0.4698 0.0679 0.1318 df = 2 (P =) 0.059 001)	ducation on CF C Total 171 218 62 451 0.01); I ² = 78% 290 290 290 290 741 = 0.0006); I ² = 83%	ontrol Total 165 206 51 422 282 282 282 704	Weight 6.0% 33.4% 26.3% 65.8% 34.2% 34.2% 100.0%	Odds Ratio IV, Random, 95% CI 0.33 (0.13, 0.83) 0.94 (0.82, 1.07) 0.68 (0.53, 0.88) 0.73 (0.50, 1.05) 0.68 (0.60, 0.76) 0.68 (0.60, 0.76] 0.68 (0.60, 0.76] 0.72 (0.57, 0.93]	Odds Ratio IV, Random, 95% CI
² enny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007 ³⁹	L.3.2 As food se <u>Study or Subgroup</u> 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 <u>Subtotal (95% CI)</u> Heterogeneity: Tau ² = Test for overall effect 10.5.2 Food insecure Roy 2007 <u>Subtotal (95% CI)</u> Heterogeneity: Not aj Test for overall effect Total (95% CI) Heterogeneity: Tau ² = Test for overall effect Total (95% CI)	cure/insecur ing[Odds Ratio] -1.1117 -0.0652 -0.3839 = 0.07; Chi ² = 8.90, : Z = 1.71 (P = 0.09) e -0.3906 pplicable : Z = 6.62 (P < 0.00) = 0.04; Chi ² = 17.23 : Z = 2.57 (P = 0.01) ferences: Chi ² = 0.1	e 0.4698 0.0679 0.1318 df = 2 (P = 0.059 0.059 001) 1, df = 3 (P = 12, df = 1 (F	ducation on CF C Total 171 218 62 451 0.01); I ² = 78% 290 200 200 200 200 200 200 200 200 200 200 200 200 200 20	ontrol Total 165 206 51 422 282 282 282 704	Weight 6.0% 33.4% 26.3% 65.8% 34.2% 34.2% 100.0%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88] 0.73 [0.50, 1.05] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76]	Odds Ratio IV, Random, 95% CI
	L.3.2 As food se Study or Subgroup 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect 10.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not al Test for overall effect Total (95% CI) Heterogeneity: Tau ² = Test for subgroup dif	cure/insecur ing[Odds Ratio] -1.1117 -0.0652 -0.3839 = 0.07; Chi ² = 8.90, : Z = 1.71 (P = 0.09) = -0.3906 pplicable : Z = 6.62 (P < 0.00) = 0.04; Chi ² = 17.23 : Z = 2.57 (P = 0.01) ferences: Chi ² = 0.7 cluded studies	e 0.4698 0.0679 0.1318 df = 2 (P = 0.059 0.059 0.01) 12, df = 3 (P = 12, df = 1 (F :	ducation on CF C Total 171 218 62 451 0.01); I ² = 78% 290 200 20	ontrol Total 165 206 51 422 282 282 282 704	Weight 6.0% 33.4% 26.3% 65.8% 34.2% 34.2% 100.0%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88] 0.73 [0.50, 1.05] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76]	Odds Ratio IV, Random, 95% CI
	L.3.2 As food se <u>Study or Subgroup</u> 10.5.1 Food secure Penny 2005 Santos 2001 Zaman 2008 <u>Subtotal (95% CI)</u> Heterogeneity: Tau ² = Test for overall effect 10.5.2 Food insecure Roy 2007 <u>Subtotal (95% CI)</u> Heterogeneity: Not an Test for overall effect Total (95% CI) Heterogeneity: Tau ² = Test for overall effect Total (95% CI) Heterogeneity: Tau ² = Test for overall effect Total (95% CI) Heterogeneity: Tau ² = Test for subgroup dif Citation to the inte Penny 2005, ²⁸ Sar	Iog[Odds Ratio] -1.1117 -0.0652 -0.3839 = 0.07; Chi² = 8.90, : Z = 1.71 (P = 0.09) e -0.3906 pplicable : Z = 6.62 (P < 0.00)	e 0.4698 0.0679 0.1318 df = 2 (P = 0.059 0.059 001) 12, df = 3 (P = 12, df = 1 (F man 200	ducation on CF C Total 171 218 62 451 0.01); I ^z = 78% 290 200 20	ontrol Total 165 206 51 422 282 282 282 704	Weight 6.0% 33.4% 26.3% 65.8% 34.2% 34.2% 100.0%	Odds Ratio IV, Random, 95% CI 0.33 [0.13, 0.83] 0.94 [0.82, 1.07] 0.68 [0.53, 0.88] 0.73 [0.50, 1.05] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76] 0.68 [0.60, 0.76]	Odds Ratio IV, Random, 95% CI

			1.4 \	Veigh	t Ga	in (kg	g)				
.4.1 As efficacy	/effectiveness	5									
			Education of CF	Contro	ol	Ste	d. Mean Difference		Std. Mean	Difference	
Study or Subgroup	Std. Mean Difference	SE	Tota	l Tot	tal We	eight	IV, Random, 95% CI		IV, Rando	m, 95% Cl	
11.9.1 Efficacy											
Bhandari 2001	-0.1	0.1429	9	5 10	00 14	4.2%	-0.10 [-0.38, 0.18]			-	
Bhandari 2004 Contoo 2004	0.02	0.0695	43	5 39	94 2: De pr	5.4% 0.00/	0.02 [-0.12, 0.16]			_	
Santos 2001 Subtotal (95% CI)	0.09	0.0996	20	9 19 9 69	90 ZI 90 5	0.2%	0.09 [-0.11, 0.29]				
Heterogeneity: Tau ² = 0. Fest for overall effect: Z :	.00; Chi² = 1.20, df = 2 = 0.44 (P = 0.66)	(P = 0.55	i); I² = 0%				0.02 [0.00, 0.10]				
11 9 2 Effectiveness											
Penny 2005	0.35	0 1039	10	7 10	an 10	9.5%	0.35 (0.15, 0.65)				
Bhi 2009	0.35	0.1000	23	4 71	13 20	0.5% 0.7%	0.33 [0.13, 0.35]				
Subtotal (95% CI)	0.21	5.5502	42	1 39	93 4	0.2%	0.27 [0.14, 0.41]			•	
Heterogeneity: Tau² = 0. Test for overall effect: Z :	.00; Chi² = 0.98, df = 1 = 3.89 (P < 0.0001)	(P = 0.32	?); I² = 0%								
Total (95% CI)			116		02 40	_					
				J 108	5.) 10	0.0%	0.12 [-0.02, 0.26]				
leterogeneity: Tauª = 0. Test for overall effect: Z Test for subgroup differ	.01; Chi² = 10.30, df = = 1.71 (P = 0.09) ences: Chi² = 8.12, df:	4 (P = 0.0 = 1 (P = 0	14); i² = 61 % 0.004), i² = 87.79	0 108	55 10	0.0%	0.12 [-0.02, 0.26]	-1 Favours (e)	-0.5 ((perimental)	0.5 Favours [cor	ntrol
Heterogeneity: Tau ² = 0. Fest for overall effect: Z is Fest for subgroup different tation to the incon handari 2001, ²⁶ E 4.2 As food see	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : luded studies: Bhandari 2004, ²¹ cure/insecure	4 (P = 0.0 = 1 (P = 0 ⁷ Penny	14); I² = 61% 1.004), I² = 87.79 y 2005, ²⁸ Sa	ntos 2	2001,	, ³⁵ Shi	0.12 [-0.02, 0.26]		-0.5 C (perimental)	0.5 Favours [cor	ntrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z is Test for subgroup differ itation to the inco handari 2001, ²⁶ E . 4.2 As food se	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : luded studies: Bhandari 2004, ^{2:} cure/insecure	4 (P = 0.0 = 1 (P = 0 ⁷ Penny	14); I² = 61% 0.004), I² = 87.79 <u>y 2005, ²⁸ Sa</u> Education on	ntos 2	2001, ntrol	0.0% , ³⁵ Shi	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe	-+ -1 Favours (e)	-0.5 (perimental)	n Difference	ntrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z is Test for subgroup differ itation to the inc handari 2001, ²⁶ E .4.2 As food see Study or Subgroup	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : Iuded studies: Bhandari 2004, ^{2:} cure/insecure Std. Mean Difference	4 (P = 0.0 = 1 (P = 0 7 Penny e SI	14); I ² = 61% 0.004), I ² = 87.79 y 2005, ²⁸ Sa Education on E 1	ntos 2 CF Col	2001, ntrol Total	0.0% , ³⁵ Shi Weight	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95	-1 Favours (ex nce % CI	-0.5 (perimental) Std. Mea	n Difference	htrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z is Test for subgroup differ tation to the inc handari 2001, ²⁶ E 4.2 As food sec Study or Subgroup 1.1.1 Food secure	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : Iuded studies: Bhandari 2004, ^{2:} cure/insecure <u>Std. Mean Difference</u>	4 (P = 0.0 = 1 (P = 0 ⁷ Penny e SI	14); ² = 61% 0.004), ² = 87.79 <u>y 2005, ²⁸ Sa</u> Education on <u>E 1</u>	ntos 2 CF Col otal	2001, ntrol Total	0.0% , ³⁵ Shi Weight	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95	-1 Favours [ex nce % CI	-0.5 (perimental) Std. Mea IV, Rand	n Difference	ntrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z is Test for subgroup differ tation to the incon handari 2001, ²⁶ E 4.2 As food sec Study or Subgroup 1.1.1 Food secure Penny 2005	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : Iuded studies: Bhandari 2004, ^{2:} cure/insecure <u>Std. Mean Difference</u> 0.3:	4 (P = 0.0 = 1 (P = 0 ⁷ Penny e <u>SI</u> 5 0.1034	14); ² = 61% 0.004), ² = 87.79 <u>y 2005, ²⁸ Sa</u> Education on E 1	ntos 2 CF Col otal	2001, ntrol Total 190	0.0% , ³⁵ Shi Weight 19.5%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95 6 0.35 [0.15, 1	-t Favours [ex nce % CI 0.55]	-0.5 (perimental) Std. Mea IV, Rand	n Difference	ntrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z is Test for subgroup different tation to the incon handari 2001, ²⁶ E 4.2 As food sec Study or Subgroup 1.1.1 Food secure Penny 2005 Santos 2001	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : Iuded studies: Bhandari 2004, ^{2:} cure/insecure <u>Std. Mean Difference</u> 0.3: 0.0:	4 (P = 0.0 = 1 (P = 0 7 Penny e SI 5 0.1030 9 0.0990	14); I ² = 61% 0.004), I ² = 87.79 <u>y 2005, ²⁸ Sa</u> Education on E 1 8 6	ntos 2 CF Cor otal	2001, ntrol Total 190 196	0.0% , ³⁵ Shi Weight 19.5% 20.2%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95 6 0.35 [0.15, 1 6 0.09 [-0.11, 1	-1 Favours [e) nce % Cl 0.65] 0.29]	-0.5 (cperimental) Std. Mea IV, Rand	n Difference	htrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z = Test for subgroup different tation to the incommon nandari 2001, ²⁶ E 4.2 As food secure Study or Subgroup 11.11 Food secure Penny 2005 Santos 2001 Shi 2009	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : :luded studies: Bhandari 2004, ²¹ cure/insecure <u>Std. Mean Difference</u> 0.3: 0.09 0.2	4 (P = 0.0 = 1 (P = 0 7 Penny e <u>SI</u> 5 0.1038 9 0.0998 1 0.0962	14); I ² = 61% 0.004), I ² = 87.79 y 2005, ²⁸ Sa Education on E 1 8 6 2	ntos 2 CF Cor otal 187 209 234	2001, ntrol Total 190 196 203	0.0% , ³⁵ Shi Weight 19.5% 20.2% 20.7%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Different IV, Random, 95 0.35 [0.15, 1 0.09 [-0.11, 1 0.21 [0.02, 1]	-1 Favours [e) nce % Cl 0.55] 0.29] 0.40]	-0.5 C (perimental) Std. Mea IV, Rand	n Difference	htrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z Test for subgroup different tation to the incommon nandari 2001, ²⁶ E 4.2 As food secure Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI)	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df :luded studies: Bhandari 2004, ²¹ cure/insecure <u>Std. Mean Difference</u> 0.3 0.0 0.2	4 (P = 0.0 = 1 (P = 0 7 Penny e <u>SI</u> 5 0.103(9 0.099(1 0.096)	14); ² = 61% 0.004), ² = 87.79 <u>y 2005,²⁸ Sa</u> Education on E 1 8 6 2	ntos 2 CF Cor otal 187 209 234 630	2001, ntrol Total 190 196 203 589	0.0% , ³⁵ Shi 19.5% 20.2% 20.7% 60.4%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95 5 0.35 [0.15, 5 0.09 [-0.11, 5 0.21 [0.02, 16 0.21 [0.07, 16	-1 Favours [e) nce % Cl 0.55] 0.29] 0.40] 0.36]	-0.5 (perimental) Std. Mea	n Difference	ntrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z: Test for subgroup difference itation to the incommon handari 2001, ²⁶ E .4.2 As food secure Study or Subgroup 11.1.1 Food secure Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z	.01; Chi [≇] = 10.30, df = = 1.71 (P = 0.09) ences: Chi [≇] = 8.12, df : :luded studies: Bhandari 2004, ²¹ cure/insecure <u>Std. Mean Difference</u> 0.3: 0.09 0.2: 0.01; Chi [≇] = 3.27, df = = 2.91 (P = 0.004)	4 (P = 0.0 = 1 (P = 0 7 Penny e SI 5 0.103(9 0.0991 1 0.096) 2 (P = 0.1	14); I ² = 61% 1.004), I ² = 87.79 <u>y 2005, ²⁸ Sa</u> <u>Education on</u> <u>E</u> 1 8 6 2 20); I ² = 39%	ntos 2 CF Col otal 187 209 234 630	2001, ntrol Total 190 196 203 589	0.0% , ³⁵ Shi Weight 19.5% 20.2% 20.7% 60.4%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95 0.35 [0.15, 1 0.09 [-0.11, 1 0.21 [0.07, 0	-1 Favours [e) nce % Cl 0.55] 0.29] 0.40] 0.36]	-0.5 C (perimental) Std. Mea IV, Rand	n Difference	htrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z: Test for subgroup differ itation to the inc handari 2001, ²⁶ E .4.2 As food secure Study or Subgroup 11.1.1 Food secure Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z 11.1.2 Food insecure	.01; Chi [≆] = 10.30, df = = 1.71 (P = 0.09) ences: Chi [≈] = 8.12, df : Iuded studies: Bhandari 2004, ²¹ cure/insecure <u>Std. Mean Difference</u> 0.3: 0.09 0.2: 0.01; Chi [≈] = 3.27, df = Z = 2.91 (P = 0.004)	4 (P = 0.0 = 1 (P = 0 7 Penny e SI 5 0.103(9 0.099(1 0.096) 2 (P = 0.2	(14); ² = 61% 1.004), ² = 87.79 <u>y 2005,²⁸ Sa</u> <u>Education on</u> <u>E</u> 1 8 6 2 20); ² = 39%	ntos 2 CF Col otal 187 209 234 630	2001, ntrol Total 190 196 203 589	0.0% , ³⁵ Shi Weight 19.5% 20.2% 20.7% 60.4%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95 0.35 [0.15, 1 0.09 [-0.11, 1 0.21 [0.07, 0 0.21 [0.07, 0	-1 Favours [e) nce % Cl 0.55] 0.29] 0.40] 0.36]	-0.5 (perimental) Std. Mea IV, Rand	n Difference	htrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z: Test for subgroup differning itation to the incommunity of the second handari 2001, ²⁶ E .4.2 As food secure Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z 11.1.2 Food insecure Bhandari 2001	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : cure/insecure <u>Std. Mean Difference</u> 0.3: 0.0: 0.2: 0.01; Chi ² = 3.27, df = Z = 2.91 (P = 0.004) -0.:	4 (P = 0.0 = 1 (P = 0 7 Penny e <u>SI</u> 5 0.103(3 0.099(1 0.096) 2 (P = 0.1 1 0.142)	(14); ² = 61% 1.004), ² = 87.79 <u>y 2005,²⁸ Sa</u> <u>Education on</u> E 1 8 6 2 20); ² = 39% 9	ntos 2 CF Col otal 187 209 234 630	2001, ntrol 190 196 203 589 100	0.0% , ³⁵ Shi <u>Weight</u> 19.5% 20.2% 20.7% 60.4% 14.2%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Different t IV, Random, 95 0.35 [0.15, 1 0.09 [-0.11, 1 0.21 [0.07, 0 0.21 [0.07, 0] 0 0.21 [0.07, 0] 0 0 0 0 0 0 0 0 0 0 0 0 0	-1 =avours [e) nce % Cl 0.55] 0.29] 0.40] 0.36]	-0.5 (perimental) Std. Mea IV, Rand	n Difference	ntrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z: Test for subgroup differi- itation to the inco- handari 2001, ²⁶ E .4.2 As food secure Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z 11.1.2 Food insecure Bhandari 2001 Bhandari 2004	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : :luded studies: Bhandari 2004, ²¹ cure/insecure <u>Std. Mean Difference</u> 0.3: 0.02 0.01; Chi ² = 3.27, df = [= 2.91 (P = 0.004) -0.7 0.02	4 (P = 0.0 = 1 (P = 0 7 Penny = <u>SI</u> 5 0.1036 9 0.099 1 0.096 2 (P = 0.1 1 0.1422 2 0.069	(14); ² = 61% 1.004), ² = 87.79 <u>y 2005,²⁸ Sa</u> <u>Education on</u> <u>E</u> 1 8 6 2 20); ² = 39% 9 5	ntos 2 CF Cor otal 187 209 234 630 95 435	2001, ntrol 190 196 203 589 100 394	0.0% , ³⁵ Shi 19.5% 20.2% 20.7% 60.4% 14.2% 25.4%	0.12 [-0.02, 0.26] 20009 ³¹ Std. Mean Differe t IV, Random, 95 0.35 [0.15, 1 0.09 [-0.11, 1 0.21 [0.02, 1 0.21 [0.07, 0 0.21 [0.07, 0 0.21 [0.07, 0 0.21 [0.07, 0 0.21 [0.07, 0 0.21 [0.07, 0 0.21 [0.02, 0.21, 1 0.21 [0.02, 0 0.21 [0.02, 0] [0.02, 0] [0.02, 0] [0.02, 0] [0.02, 0] [0.02, 0] [0.02, 0] [0.	-1 =avours [e) nce % Cl 0.55] 0.29] 0.29] 0.29] 0.36]	-0.5 (perimental) Std. Mea IV, Rand	n Difference	ntrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z: Test for subgroup differi- itation to the inco- handari 2001, ²⁶ E .4.2 As food secure Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z 11.1.2 Food insecure Bhandari 2004 Subtotal (95% CI)	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : :luded studies: Bhandari 2004, ²¹ cure/insecure Std. Mean Difference 0.33 0.09 0.21; Chi ² = 3.27, df = 2.91 (P = 0.004) -0.1000	4 (P = 0.0 = 1 (P = 0 7 Penny 5 0.1036 9 0.0996 1 0.0965 2 (P = 0.5 2 (P = 0.5 1 0.1426 2 0.0696	$ 14\rangle; ^{2} = 61\%$ $\frac{(14)}{(14)}; ^{2} = 61\%$ $\frac{(14)}{(14)}; ^{2} = 87.79$	ntos 2 CF Col otal 187 209 234 630 95 435 530	2001, ntrol 190 196 203 589 100 394 494	0.0% , ³⁵ Shi 19.5% 20.2% 20.2% 60.4% 14.2% 25.4% 39.6%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95 0.35 [0.15, 1 0.09 [-0.11, 1 0.21 [0.02, 1 0.21 [0.07, 0 0.21 [0.07, 0 0.02 [-0.12, 1 0.00 [-0.38, 1 0.00 [-0.13, 0 0.00 [-0.13, 0] [-0.13, 0 0.00 [-0.13, 0]	-1 =avours [e) nce % Cl 0.29] 0.40] 0.36] 0.36] 0.18] 0.16] 0.12]	-0.5 (perimental) Std. Mea IV, Rand	n Difference	htrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z = Test for subgroup differing tation to the incompany tation tation tation tation tation tation tation tation tation tation tation tation tation tation tation tation tation tation tati	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : cure/insecure Std. Mean Difference 0.3: 0.01; Chi ² = 3.27, df = [= 2.91 (P = 0.004) -0.; 0.00; Chi ² = 0.57, df = [= 0.05 (P = 0.96)	4 (P = 0.0 = 1 (P = 0 7 Penny e SI 5 0.1036 9 0.099 1 0.096 2 (P = 0.1 1 0.1422 2 0.069 1 (P = 0.1	$ 14\rangle; ^{2} = 61\%$ $ 1004\rangle, ^{2} = 87.79$ $\frac{y \ 2005, ^{28} \ Sa}{Education \ on}$ $\frac{E}{E} \qquad 1$ 8 6 2 $20\rangle; ^{2} = 39\%$ 9 5 $45\rangle; ^{2} = 0\%$	ntos 2 CF Cor otal 187 209 234 630 95 435 530	2001, ntrol 190 203 589 100 394 494	0.0% , ³⁵ Shi 19.5% 20.2% 20.7% 60.4% 14.2% 25.4% 39.6%	0.12 [-0.02, 0.26] 20009 ³¹ Std. Mean Differe t IV, Random, 95 0.35 [0.15, 1 0.09 [-0.11, 1 0.21 [0.02, 1 0.21 [0.07, 0 0.21 [0.02, 0.23, 0 0.21 [0.02, 0.24]	-1 =avours [e) nce % Cl 0.55] 0.29] 0.40] 0.36] 0.36] 0.18] 0.16] 0.12]	-0.5 (perimental) Std. Mea IV, Rand	n Difference	htrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z = Test for subgroup differing tation to the incompany test for subgroup differing Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z Test for overall effect: Z Total (95% CI)	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : cure/insecure Std. Mean Difference 0.3: 0.01; Chi ² = 3.27, df = (= 2.91 (P = 0.004) -0.; 0.00; Chi ² = 0.57, df = (= 0.05 (P = 0.96)	4 (P = 0.0 = 1 (P = 0 7 Penny = <u>SI</u> 5 0.1036 9 0.0991 1 0.096 2 (P = 0.1 1 0.1422 2 0.0693 1 (P = 0.4	(14); ² = 61% 1.004), ² = 87.79 <u>y 2005, ²⁸ Sa</u> <u>Education on</u> <u>E</u> 1 8 6 2 20); ² = 39% 9 5 45); ² = 0%	ntos 2 CF Cor otal 187 209 234 630 95 435 530	2001, ntrol 190 203 589 100 394 494	0.0% , ³⁵ Shi 19.5% 20.7% 60.4% 14.2% 25.4% 39.6% 100.0%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95 0.35 [0.15, 1 0.09 [-0.11, 1 0.21 [0.02, 1 0.21 [0.07, 0 0.21 [0.07, 0 0.21 [0.07, 0 0.21 [0.07, 0 0.21 [0.07, 0 0.21 [0.07, 0 0.00 [-0.13, 0 0.00 [-0.13, 0 0.012 [-0.02, 0]	-1 =avours [e) nce % Cl 0.55] 0.29] 0.40] 0.36] 0.18] 0.16] 0.12]	-0.5 (perimental) Std. Mea IV, Rand	n Difference	htrol
Heterogeneity: Tau ² = 0. Test for overall effect: Z: Test for subgroup differi- itation to the inco- handari 2001, ²⁶ E .4.2 As food secure Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z I1.1.2 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z Subtotal (95% CI) Heterogeneity: Tau ² = 0 Test for overall effect: Z Fotal (95% CI) Heterogeneity: Tau ² = 0 Total (95% CI)	.01; Chi ² = 10.30, df = = 1.71 (P = 0.09) ences: Chi ² = 8.12, df : Iluded studies: Bhandari 2004, ²¹ cure/insecure Std. Mean Difference 0.3: 0.02 0.01; Chi ² = 3.27, df = [= 2.91 (P = 0.004) -0.7 0.00; Chi ² = 0.57, df = [= 0.05 (P = 0.96)	4 (P = 0.0 = 1 (P = 0 7 Penny = SI 5 0.1036 9 0.0991 1 0.0962 2 (P = 0.1 1 0.1429 2 0.0695 1 (P = 0.1 1 (P = 0.1	$ 14\rangle; ^{2} = 61\%$ $\frac{y \ 2005, ^{28} \ Sa}{Education \ on}$ $\frac{Education \ on}{E}$ $20); ^{2} = 39\%$ 9 5 $45); ^{2} = 0\%$ 1 $104): ^{2} = 61\%$	ntos 2 CF Col otal 187 209 234 630 95 435 530	2001, ntrol 190 203 589 100 394 494	0.0% , ³⁵ Shi 19.5% 20.2% 60.4% 14.2% 25.4% 39.6% 100.0%	0.12 [-0.02, 0.26] 2009 ³¹ Std. Mean Differe t IV, Random, 95 0.35 [0.15, 1 0.03 [0.15, 1 0.02 [-0.12, 1 0.02 [-0.12, 1 0.00 [-0.13, 0 0.12 [-0.02, 0	-1 =avours [e) nce % Cl 0.55] 0.29] 0.29] 0.36] 0.36] 0.18] 0.16] 0.12]	-0.5 (perimental) Std. Mea IV, Rand	n Difference	ntrol

Citation to the included studies: Bhandari 2001,²⁶ Bhandari 2004,²⁷ Penny 2005,²⁸ Santos 2001,³⁵ Shi 2009³¹

1.5 Weight-for-Age (Mean Z Scores)

1.5.1 As efficacy/effectiveness

	/ checkweness						
			education	Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
20.1.1 Efficacy							
Santos 2001	0.09	0.0996	209	195	24.9%	0.09 [-0.11, 0.29]	+
Zaman 2008 Subtotal (95% CI)	0.07	0.112	151 360	169 364	21.6% 46.5%	0.07 [-0.15, 0.29] 0.08 [-0.06, 0.23]	†
Heterogeneity: Tau² = Test for overall effect:	0.00; Chi² = 0.02, df = 1 Z = 1.09 (P = 0.28)	(P = 0.89	3); I² = 0%				
20.1.2 Effectiveness/	Programs						
Penny 2005	0.33	0.1037	187	190	23.7%	0.33 [0.13, 0.53]	-
Roy 2007 Subtotal (95% CI)	0.2883	0.0841	290 477	282 472	29.8% <mark>53.5%</mark>	0.29 [0.12, 0.45] 0.30 [0.18, 0.43]	
Heterogeneity: Tau ² = Test for overall effect:	0.00; Chi ² = 0.10, df = 1 Z = 4.67 (P ≤ 0.00001)	(P = 0.75	5); I ^z = 0%				
Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diffe	0.01; Chi² = 5.22, df = 3 Z = 3.09 (P = 0.002) erences: Chi² = 5.10, df:	(P = 0.16 = 1 (P = 0	837 6); I ^z = 43% 0.02), I ^z = 80.	836 4%	100.0%	0.20 [0.07, 0.33]	-4 -2 0 2 4 Favours control Favours education

Citation to the included studies:

Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007³⁹

1.5.2 As food security

	•		Education on CE	Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
11.2.1 Food secure							
Penny 2005	0.33	0.1037	187	190	23.7%	0.33 [0.13, 0.53]	_
Santos 2001	0.09	0.0996	209	195	24.9%	0.09 [-0.11, 0.29]	- -
Zaman 2008 Subtotal (95% CI)	0.07	0.112	151 547	169 554	21.6% 70.2%	0.07 [-0.15, 0.29] 0.16 [0.00, 0.33]	
Heterogeneity: Tau² = Test for overall effect:	: 0.01; Chi² = 3.82, df = 2 Z = 1.97 (P = 0.05)	(P = 0.1	5); I² = 48%				
11.2.2 Food insecure	•						
Roy 2007 Subtotal (95% CI)	0.2883	0.0841	290 290	282 282	29.8% 29.8%	0.29 [0.12, 0.45] 0.29 [0.12, 0.45]	•
Heterogeneity: Not ap	plicable						
lest for overall effect:	Z = 3.43 (P = 0.0006)						
Total (95% CI)			837	836	100.0%	0.20 [0.07, 0.33]	•
Heterogeneity: Tau ² =	: 0.01; Chi ² = 5.22, df = 3	(P = 0.1	6); I² = 43%				
Test for overall effect:	Z = 3.09 (P = 0.002)						Control Education on C
Test for subgroup diff	ferences: Chi ² = 1.08, df	= 1 (P =	0.30), I² = 7.7%				Control Education on C

Citation to the included studies:

Penny 2005, ²⁸ Santos 2001, ³⁵ Zaman 2008, ³³ Roy 2007³⁹

1.6 Underweight (WAZ <-2)

1.6.1 Efficacy stu	udy from food	l-inse	cure populat	ion					
			Education on CF	Control		Risk Ratio	Risk	Ratio	
Study or Subgroup	log[Risk Ratio]	SE	Total	Total	Weight	IV, Fixed, 95% CI	IV, Fixed	, 95% CI	
11.3.1 Food insecure	;							_	
Bhandari 2004	0.0319	0.0699	435	394	100.0%	1.03 [0.90, 1.18]	-	-	
Subtotal (95% CI)			435	394	100.0%	1.03 [0.90, 1.18]			
Heterogeneity: Not ap	oplicable								
Test for overall effect:	Z = 0.46 (P = 0.65))							
Total (95% CI)			435	394	100.0%	1.03 [0.90, 1.18]			
Heterogeneity: Not ap	oplicable							15	
Test for overall effect:	Z = 0.46 (P = 0.65)	1					Education on CE	Control	2
Test for subgroup dif	ferences: Not appli	cable					Education on or	Control	

Citation to the included study:

Bhandari 2004²⁷

1.7 Weight-for-Height (Mean Z Scores)

	,,		education	Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
20.3.1 Efficacy							
Santos 2001	0.06	0.0996	209	195	25.0%	0.06 [-0.14, 0.26]	
Zaman 2008 Subtotal (95% CI)	0.47	0.1135	62 271	51 <mark>246</mark>	22.6% 47.6%	0.47 [0.25, 0.69] 0.26 [-0.14, 0.66]	-
Heterogeneity: Tau² = Test for overall effect:	= 0.07; Chi² = 7.37, df = 1 : Z = 1.28 (P = 0.20)	(P = 0.00)7); I² = 86%				
20.3.2 Effectiveness	i						
Penny 2005	0.12	0.1031	187	190	24.4%	0.12 [-0.08, 0.32]	-+ -
Roy 2007 Subtotal (95% CI)	0.1609	0.0838	290 477	282 472	28.0% 52.4%	0.16 [-0.00, 0.33] 0.14 [0.02, 0.27]	•
Heterogeneity: Tau ² = Test for overall effect:	= 0.00; Chi² = 0.09, df = 1 : Z = 2.22 (P = 0.03)	(P = 0.76	ó); I² = 0%				
Total (95% CI)			748	718	100.0%	0.20 [0.03, 0.36]	•
Heterogeneity: Tau² =	= 0.02; Chi² = 8.36, df = 3	(P = 0.04	4); I² = 64%				-0.5-0.25 0 0.25 0.5
Test for overall effect: Z = 2.36 (P = 0.02)							Favours control Favours educa
Fest for subaroup dif	ferences: Chiř = 0.29. df	= 1 (P = 0	159) P=0%	6			

Citation to the included studies:

Penny 2005, 28 Santos 2001, 35 Zaman 2008, 33 Roy 2007 39

1.7.2 As food secure/insecure

			education	Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
20.18.1 Food secure	populations						
Penny 2005	0.12	0.1031	187	190	24.4%	0.12 [-0.08, 0.32]	+
Santos 2001	0.06	0.0996	209	195	25.0%	0.06 [-0.14, 0.26]	+
Zaman 2008	0.47	0.1135	62	51	22.6%	0.47 [0.25, 0.69]	_
Subtotal (95% CI)			458	436	72.0%	0.21 [-0.03, 0.45]	•
Heterogeneity: Tau² =	: 0.03; Chi ² = 8.24, df = 2	(P = 0.0)	2); I² = 76%				
Test for overall effect:	Z = 1.72 (P = 0.09)						
20.18.2 Food insecur	e populations						
Roy 2007	0.1609	0.0838	290	282	28.0%	0.16 [-0.00, 0.33]	
Subtotal (95% CI)			290	282	28.0%	0.16 [-0.00, 0.33]	•
Heterogeneity: Not ap	plicable						
Test for overall effect:	Z = 1.92 (P = 0.05)						
Total (95% CI)			748	718	100.0%	0.20 [0.03, 0.36]	◆
Heterogeneity: Tau ² =	: 0.02; Chi ² = 8.36, df = 3	(P = 0.0)	4); I ² = 64%				
Test for overall effect:	Z = 2.36 (P = 0.02)						-2 -1 U 1 2
Test for subgroup diff	rerences: Chi² = 0.12, df:	= 1 (P =)	0.73), I^z = 09	6			Favours control Favours education
Citation to the inc	cluded studies:						
Penny 2005, ²⁸ Sar	ntos 2001, ³⁵ Zaman	2008,	³³ Roy 20	07 ³⁹			

2.0 Complementary feeding plus education AND complementary feeding alone

			Lin	ear Gr	owth	, ,	
			2 1 He	oight G	ain (c	m)	
2 1 1 Ac officacy	/offectiveness		2.1110				
2.1.1 AS efficacy	//enectiveness	(°E+/odu (Control		Std. Moon Difforence	Std Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% Cl	IV, Random, 95% Cl
8.4.1 Efficacy							
Bhandari 2001	0.31	0.146	97	93	29.7%	0.31 [0.02, 0.60]	 ■
Obatulo 2003 Subtotal (95% CI)	1.13	0.2794	30 127	30 123	22.2%	1.13 [0.58, 1.68]	
Heterogeneity: Tau ² =	: 0.29: Chi ² = 6.77, df = 1	(P = 0.00)	9): I ř = 85%	120	0100	orga Foritzi intel	
Test for overall effect:	Z = 1.68 (P = 0.09)	v	-/1.				
8.4.2 Effectiveness							
Oelofse 2003	0.04	0.366	16	14	17.8%	0.04 [-0.68, 0.76]	<u>+</u>
Schroeder 2002 Subtotal (95% CI)	-0.02	0.1313	114 130	118 132	30.4% 48.2%	-0.02 [-0.28, 0.24] - 0.01 [-0.26, 0.23]	↓
Heterogeneity: Tau ² = Test for overall effect:	: 0.00; Chi ² = 0.02, df = 1 Z = 0.11 (P = 0.92)	(P = 0.88)); I² = 0%				
Total (95% CI)			257	255	100.0%	0.34 [-0.09, 0.78]	•
Heterogeneity: Tau² =	0.15; Chi² = 14.57, df =	3 (P = 0.00	02); i² = 79%	6			
Test for overall effect:	Z = 1.54 (P = 0.12)	= -					Control CF +/- edu
Test for subgroup diff	ferences: Chi ² = 2.68, df	= 1 (P = 0.	10), I ^e = 62.1	7%			
0'+-+' +o +b o in.	·						
Citation to the inc	cluded studies:						
	- · · · · · · · · · · · · · · · · · · ·				22024	1	
Bhandari 2001, ²⁶ (Oelofse 2003,42 Sch	roeder	2002, ⁴³ C	Dbatulo	2003 ⁴	1	
Bhandari 2001, ²⁶ (2.1.2 Food secu	Oelofse 2003, ⁴² Sch re/insecure	roeder	2002, ⁴³ C	Dbatulo	2003 ⁴	1	
Bhandari 2001, ²⁶ (2.1.2 Food secure	Oelofse 2003, ⁴² Sch re/insecure	nroeder	2002, ⁴³ C	Obatulo	2003 ⁴	1 Std. Mean Difference	Std. Mean Difference
Bhandari 2001, ²⁶ (2.1.2 Food secure Study or Subgroup 8.2.1 Food insecure	Oelofse 2003, ⁴² Sch re/insecure Std. Mean Difference	nroeder SE	2002, ⁴³ C CF +/- edu (Total	Dbatulo Control Total	0 20034 Weight	1 Std. Mean Difference IV, Random, 95% CI	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001	Oelofse 2003, ⁴² Sch re/insecure Std. Mean Difference 0.31	0.146	2002, ⁴³ C CF +/- edu (<u>Total</u> 97	Dbatulo Control Total 93	2003 ⁴ Weight 29.7%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60]	Std. Mean Difference IV, Random, 95% Cl
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003	Oelofse 2003, ⁴² Sch re/insecure Std. Mean Difference 0.31 1.13	0.146 0.2794	2002, ⁴³ C CF +/- edu (Total 97 30	Dbatulo Control Total 93 30	2003 ⁴ Weight 29.7% 22.2%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68]	Std. Mean Difference IV, Random, 95% Cl
Bhandari 2001, ²⁶ (2.1.2 Food secur Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003	Oelofse 2003,42 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04	0.146 0.2794 0.366	2002, ⁴³ C CF +/- edu (Total 97 30 16	Dbatulo Control Total 93 30 14	2003 ⁴ Weight 29.7% 22.2% 17.8%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76]	Std. Mean Difference IV, Random, 95% Cl
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtroid (05% CD)	Oelofse 2003, ⁴² Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02	0.146 0.2794 0.366 0.1313	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257	Dbatulo Control Total 93 30 14 118 255	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09 C78]	Std. Mean Difference IV, Random, 95% Cl
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogenetik Tau ² =	Oelofse 2003, ⁴² Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02	0.146 0.2794 0.366 0.1313	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257	Dbatulo Control Total 93 30 14 118 255	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% Cl
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect:	Oelofse 2003,42 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15; Chi ^a = 14.57, df = Z = 1.54 (P = 0.12)	0.146 0.2794 0.366 0.1313 3 (P = 0.00	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79%	20000000000000000000000000000000000000	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI)	Oelofse 2003,42 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15; Chi# = 14.57, df = Z = 1.54 (P = 0.12)	0.146 0.2794 0.366 0.1313 3 (P = 0.00	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257	Control Total 93 30 14 118 255 5 255	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food secure Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² =	Oelofse 2003, ⁴² Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15; Chi [≈] = 14.57, df = Z = 1.54 (P = 0.12) 0.15; Chi [≈] = 14.57, df =	0.146 0.2794 0.366 0.1313 3 (P = 0.00	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257 02); I ² = 79%	255	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food secure Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for overall effect: Test for overall effect: Test for overall effect:	Oelofse 2003, 4^2 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15; Chi ^a = 14.57, df = Z = 1.54 (P = 0.12) = 0.15; Chi ^a = 14.57, df = Z = 1.54 (P = 0.12)	0.146 0.2794 0.366 0.1313 3 (P = 0.01	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257 02); I ² = 79%	255	29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff	Oelofse 2003,42 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15; Chi ² = 14.57, df = Z = 1.54 (P = 0.12) $z = 1.54$ (P = 0.12) ferences: Not applicable	0.146 0.2794 0.366 0.1313 3 (P = 0.00	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257 02); I ² = 79%	255	29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 (0.02, 0.60) 1.13 (0.58, 1.68) 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff	Oelofse 2003,42 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 $= 0.15$; Chi ² = 14.57, df = Z = 1.54 (P = 0.12) $= 0.15$; Chi ² = 14.57, df = Z = 1.54 (P = 0.12) ferences: Not applicable	0.146 0.2794 0.366 0.1313 3 (P = 0.00	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257 02); I ² = 79%	255 255 255	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff Citation to the ind Phandari 2001 ²⁶ (Oelofse 2003, 4^2 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15 ; Chi ² = 14.57, df = Z = 1.54 (P = 0.12) 0.15 ; Chi ² = 14.57, df = Z = 1.54 (P = 0.12) ferences: Not applicable cluded studies: Oclofer 2003 42 Set	0.146 0.2794 0.366 0.1313 3 (P = 0.00 3 (P = 0.00	2002,43 C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257 02); I ² = 79%	Obatulo Control Total 93 30 14 118 255 255	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff Citation to the inco Bhandari 2001, ²⁶ (Oelofse 2003, 4^2 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15 ; Chi² = 14.57, df = Z = 1.54 (P = 0.12) 0.15 ; Chi² = 14.57, df = Z = 1.54 (P = 0.12) ferences: Not applicable cluded studies: Oelofse 2003, 4^2 Sch	0.146 0.2794 0.366 0.1313 3 (P = 0.00 3 (P = 0.00	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257 02); I ² = 79% 2002, ⁴³ C	Dbatulo Control Total 93 30 14 118 255 5 255 5 255	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff Citation to the ind Bhandari 2001, ²⁶ (Oelofse 2003, 4^2 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15 ; Chi ² = 14.57, df = Z = 1.54 (P = 0.12) 0.15 ; Chi ² = 14.57, df = Z = 1.54 (P = 0.12) ferences: Not applicable cluded studies: Oelofse 2003, 4^2 Sch	0.146 0.2794 0.366 0.1313 3 (P = 0.00 3 (P = 0.00	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257 02); I ² = 79% 2002, ⁴³ C	Dbatulo Control Total 93 30 14 118 255 5 255 5 255	29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food securi Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff Citation to the ind Bhandari 2001, ²⁶ (Oelofse 2003, 4^2 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15 ; Chi [#] = 14.57, df = Z = 1.54 (P = 0.12) 0.15 ; Chi [#] = 14.57, df = Z = 1.54 (P = 0.12) ferences: Not applicable cluded studies: Oelofse 2003, 4^2 Sch	0.146 0.2794 0.366 0.1313 3 (P = 0.01 3 (P = 0.01	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257 02); I ² = 79%	Dbatulo Control Total 93 30 14 118 255 5 255 5 255	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.08, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI
Bhandari 2001, ²⁶ (2.1.2 Food secure Study or Subgroup 8.2.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff Citation to the ind Bhandari 2001, ²⁶ (Oelofse 2003, 4^2 Sch re/insecure Std. Mean Difference 0.31 1.13 0.04 -0.02 0.15 ; Chi [#] = 14.57, df = Z = 1.54 (P = 0.12) 0.15 ; Chi [#] = 14.57, df = Z = 1.54 (P = 0.12) ferences: Not applicable cluded studies: Oelofse 2003, 4^2 Sch	0.146 0.2794 0.366 0.1313 3 (P = 0.00 3 (P = 0.00	2002, ⁴³ C CF +/- edu (Total 97 30 16 114 257 02); I ² = 79% 257 02); I ² = 79% 2002, ⁴³ C	Dbatulo Control Total 93 30 14 118 255 5 255 5 255	2003 ⁴ Weight 29.7% 22.2% 17.8% 30.4% 100.0%	1 Std. Mean Difference IV, Random, 95% CI 0.31 [0.02, 0.60] 1.13 [0.58, 1.68] 0.04 [-0.68, 0.76] -0.02 [-0.28, 0.24] 0.34 [-0.09, 0.78] 0.34 [-0.09, 0.78]	Std. Mean Difference IV, Random, 95% CI

.1.3 As type o	f food							
			CF+/-education	Control		Std. Mean Difference	Std. Mea	n Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Rand	om, 95% Cl
21.31.1 cereal								
Bhandari 2001	0.31	0.146	97	93	29.7%	0.31 [0.02, 0.60]		
Oelofse 2003	0.04	0.366	16	14	17.8%	0.04 [-0.68, 0.76]		+
Subtotal (95% CI)			113	107	47.4%	0.27 [0.01, 0.54]		◆
Heterogeneity: Tau ² =	0.00; Chi ² = 0.47, df = 1	(P = 0.49)	3); I ² = 0%					
Test for overall effect:	Z = 2.01 (P = 0.04)							
21.31.4 Food prepare	ed from locally available	raw ing	redients					
Schroeder 2002	-0.02	0.1313	114	118	30.4%	-0.02 [-0.28, 0.24]	-	-
Subtotal (95% CI)			114	118	30.4%	-0.02 [-0.28, 0.24]	•	•
Heterogeneity: Not ap	plicable							
Test for overall effect:	Z = 0.15 (P = 0.88)							
21.31.6 extruded for	mulated complementar	y diet fro	m maize and co	wpea				
Obatulo 2003	1.13	0.2794	30	30	22.2%	1.13 [0.58, 1.68]		
Subtotal (95% CI)			30	30	22.2%	1.13 [0.58, 1.68]		
Heterogeneity: Not ap	plicable							
Test for overall effect:	Z = 4.04 (P < 0.0001)							
Total (95% CI)			257	255	100.0%	0.34 [-0.09, 0.78]		
Heterogeneity: Tau ² =	0.15; Chi ² = 14.57, df = 3	3 (P = 0.0	002); I ² = 79%				t t	
Test for overall effect:	Z = 1.54 (P = 0.12)						-2 -1	U 1 L Faurura OF / ad
Test for subaroup diff	erences: Chi ² = 14.10. d	f = 2 (P =	0.0009), ² = 85.(3%			Favours contro	Favours CF+/-ed

Bhandari 2001,²⁶ Oelofse 2003,⁴² Schroeder 2002,⁴³ Obatulo 2003⁴¹

2.2 Height-for-age (Mean Z scores)

2.2.1 As efficacy/ effectiveness CF +/- edu Control Std. Mean Difference Std. Mean Difference Study or Subgroup Std. Mean Difference SE Total Weight IV, Random, 95% CI Total IV, Random, 95% CI 9.2.1 Efficacy Bhandari 2001 0 0.1499 0.00 [-0.29, 0.29] 87 91 27.2% Obatulo 2003 30 30 23.3% 2.03 [1.40, 2.66] 2.03 0.3216 Subtotal (95% CI) 117 121 50.5% 1.00 [-0.99, 2.98] Heterogeneity: Tau² = 2.00; Chi² = 32.73, df = 1 (P < 0.00001); l² = 97% Test for overall effect: Z = 0.98 (P = 0.33) 9.2.2 Effectiveness -0.04 0.366 Oelofse 2003 16 14 22.1% -0.04 [-0.76, 0.68] Schroeder 2002 0 0.1313 114 118 27.5% 0.00 [-0.26, 0.26] 49.5% -0.00 [-0.25, 0.24] Subtotal (95% CI) 130 132 Heterogeneity: Tau² = 0.00; Chi² = 0.01, df = 1 (P = 0.92); $I^{2} = 0\%$ Test for overall effect: Z = 0.04 (P = 0.97) Total (95% CI) 247 253 100.0% 0.46 [-0.24, 1.17] Heterogeneity: Tau² = 0.46; Chi² = 36.73, df = 3 (P < 0.00001); l² = 92% -4 4 -2 ż Ó Test for overall effect: Z = 1.28 (P = 0.20) Control CF +/- edu Test for subgroup differences: Chi² = 0.96, df = 1 (P = 0.33), l² = 0% Citation to the included studies: Bhandari 2001,²⁶ Oelofse 2003,⁴² Schroeder 2002,⁴³ Obatulo 2003⁴¹

2.2.2 As type of	f food						
			CF+/-education	Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
21.15.1 Food prepare	d from locally available	raw ing	redients				
Schroeder 2002 Subtotal (95% CI)	0	0.1313	114 114	118 118	27.5% 27.5%	0.00 [-0.26, 0.26] 0.00 [-0.26, 0.26]	+
Heterogeneity: Not ap	plicable						
Test for overall effect:	Z = 0.00 (P = 1.00)						
21.15.2 Cereal							
Bhandari 2001	0	0.1499	87	91	27.2%	0.00 [-0.29, 0.29]	-+-
Oelofse 2003	-0.04	0.366	16	14	22.1%	-0.04 [-0.76, 0.68]	
Subtotal (95% CI)			103	105	49.2%	-0.01 [-0.28, 0.27]	•
Heterogeneity: Tau ² = Test for overall effect: .	0.00; Chi ² = 0.01, df = 1 Z = 0.04 (P = 0.97)	(P = 0.9)	2); I ² = 0%				
21.15.3 Extruded form	nulated complementar	y diet fro	om maize and co	wpea			
Obatulo 2003	2.03	0.3216	30	30	23.3%	2.03 [1.40, 2.66]	
Subtotal (95% CI)			30	30	23.3%	2.03 [1.40, 2.66]	
Heterogeneity: Not ap	plicable						
Test for overall effect: .	Z = 6.31 (P < 0.00001)						
Total (95% CI)			247	253	100.0%	0.46 [-0.24, 1.17]	-
Heterogeneity: Tau² =	0.46; Chi ² = 36.73, df = 3	3 (P < 0.)	00001); I² = 92%			-	
Test for overall effect: .	Z = 1.28 (P = 0.20)						Favours control Favours CE+/-educatio
Test for subgroup diffe	erences: Chi² = 36.72, d	f=2(P =	< 0.00001), I² = 94	1.6%			avoid control in avoid of theodealo
Citation to the in	ncluded studies:						

Bhandari 2001,²⁶ Oelofse 2003,⁴² Schroeder 2002,⁴³ Obatulo 2003⁴¹

2.2.3 As food secure/insecure Std. Mean Difference Std. Mean Difference Control Control Study or Subgroup Std. Mean Difference SE Total Total Weight IV, Random, 95% CI IV, Random, 95% CI 9.4.1 Food insecure Bhandari 2001 0 0.1499 0.00 [-0.29, 0.29] 87 91 27.2% Obatulo 2003 2.03 0.3216 30 30 23.3% 2.03 [1.40, 2.66] ۰ Oelofse 2003 -0.04 0.366 16 14 22.1% -0.04 [-0.76, 0.68] Schroeder 2002 0 0.1313 0.00 [-0.26, 0.26] 114 118 27.5% Subtotal (95% CI) 247 253 100.0% 0.46 [-0.24, 1.17] Heterogeneity: Tau² = 0.46; Chi² = 36.73, df = 3 (P < 0.00001); l² = 92% Test for overall effect: Z = 1.28 (P = 0.20) Total (95% CI) 247 253 100.0% 0.46 [-0.24, 1.17] Heterogeneity: Tau² = 0.46; Chi² = 36.73, df = 3 (P < 0.00001); l² = 92% -0.5 0.5 -1 ń Test for overall effect: Z = 1.28 (P = 0.20) Control CF +/- edu Test for subgroup differences: Not applicable

Citation to the included studies:

Bhandari 2001,²⁶ Oelofse 2003,⁴² Schroeder 2002,⁴³ Obatulo 2003⁴¹

			2.3 Stu	unting	g (HAZ	<-2)		
2.3.1 Efficacy/eff	ectiveness					-		
		(CF +/- edu Co	ontrol		Odds Ratio	Odds Ratio	
Study or Subgroup	log[Odds Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% Cl	
10.2.1 Efficacy	0.0446	0.0074	07		24.00	0.74 (0.07.4.07)		
Bhandari 2001	-U.3440 5 000	0.3371	87	91	24.9%	0.71 [0.37, 1.37]	·	
Subtotal (95% CI)	-0.005	0.101	117	121	25.1% 49.9%	0.05 [0.00, 0.00]		
Heterogeneity: Tau ² = Test for overall effect: .	14.86; Chi² = 203. Z = 1.13 (P = 0.26)	96, df = 1	(P < 0.00001); I ² = 1(00%			
10.2.2 Effectiveness								
Oelofse 2003	-0.0535	0.255	16	14	25.0%	0.95 (0.58, 1.56)	_ _	
Schroeder 2002	0.322	0.092	114	118	25.1%	1.38 [1.15, 1.65]	-	
Subtotal (95% CI)			130	132	50.1%	1.23 [0.88, 1.73]	◆	
Heterogeneity: Tau ² = Test for overall effect: :	0.03; Chi² = 1.92, (Z = 1.22 (P = 0.22)	df = 1 (P =	= 0.17); I ^z = 48	3%				
Total (95% CI)			247	253	100.0%	0.23 [0.01, 5.84]		
Heterogeneity: Tau ² = Test for overall effect. Test for subgroup diffe	10.86; Chi² = 924.) Z = 0.89 (P = 0.37) erences: Chi² = 1.4	85, df= 3 45, df= 1 ((P < 0.00001) (P = 0.23), I ² =); I² = 10 = 30.9%)0%	-	0.01 0.1 1 10 CF +/- edu Control	100
1.3.2 FOOU Secure	?/Insecure	(CE +/- edu Co	ontrol				
						Odds Ratio	Odds Ratio	
Study or Subgroup 10.4.1 Food insecure	log[Odds Ratio]	SE	Total	Total	Weight	Odds Ratio IV, Random, 95% Cl	IV, Random, 95% Cl	
Study or Subgroup 10.4.1 Food insecure Bhandari 2001	log[Odds Ratio]	SE	Total 87	Total 91	<u>Weight</u>	Odds Ratio IV, Random, 95% CI	IV, Random, 95% CI	
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Ohatulo 2003	log[Odds Ratio] -0.3446 -5.809	SE 0.3371 0.181	Total 87 30	<u>Total</u> 91 30	Weight 24.9% 25.1%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 (0.00, 0.00]	IV, Random, 95% CI	
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003	log[Odds Ratio] -0.3446 -5.809 -0.0535	SE 0.3371 0.181 0.255	Total 87 30 16	<u>Total</u> 91 30 14	Weight 24.9% 25.1% 25.0%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56]	Udds Ratio IV, Random, 95% Cl	
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002	log[Odds Ratio] -0.3446 -5.809 -0.0535 0.322	SE 0.3371 0.181 0.255 0.092	Total 87 30 16 114	<u>Total</u> 91 30 14 118	Weight 24.9% 25.1% 25.0% 25.1%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65]	Udds Ratio IV, Random, 95% Cl	
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI)	log[Odds Ratio] -0.3446 -5.809 -0.0535 0.322	SE 0.3371 0.181 0.255 0.092	Total 87 30 16 114 247	91 30 14 118 253	Weight 24.9% 25.1% 25.0% 25.1% 100.0%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84]	IV, Random, 95% CI	
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 2	log[Odds Ratio] -0.3446 -5.809 -0.0535 0.322 10.86; Chi ² = 924. Z = 0.89 (P = 0.37)	SE 0.3371 0.181 0.255 0.092 85, df = 3	Total 87 30 16 114 247 (P < 0.00001	<u>Total</u> 91 30 14 118 253); I ² = 1(Weight 24.9% 25.1% 25.0% 25.1% 100.0%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84]	IV, Random, 95% CI	
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: : Total (95% CI)	log[Odds Ratio] -0.3446 -5.809 -0.0535 0.322 10.86; Chi ² = 924.3 Z = 0.89 (P = 0.37)	SE 0.3371 0.181 0.255 0.092 85, df = 3	Total 87 30 16 114 247 (P < 0.00001	<u>Total</u> 91 30 14 118 253); I ² = 1(253	Weight 24.9% 25.1% 25.0% 25.1% 100.0%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	Udds Ratio	
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Total (95% CI) Heterogeneity: Tau ² =	<u>log[Odds Ratio]</u> -0.3446 -5.809 -0.0535 0.322 10.86; Chi ² = 924. Z = 0.89 (P = 0.37) 10.86; Chi ² = 924.	SE 0.3371 0.181 0.255 0.092 85, df = 3 85, df = 3	Total 87 30 16 114 247 (P < 0.00001 247 (P < 0.00001	91 30 14 118 253); I ² = 1(253): I ² = 1(Weight 24.9% 25.1% 25.1% 100.0% 00%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	Udds Ratio IV, Random, 95% CI	
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Total (95% CI) Heterogeneity: Tau ² = Total (95% CI)	log[Odds Ratio] -0.3446 -5.809 -0.0535 0.322 10.86; Chi ² = 924.1 Z = 0.89 (P = 0.37) 10.86; Chi ² = 924.1 Z = 0.89 (P = 0.37)	SE 0.3371 0.181 0.255 0.092 85, df = 3 85, df = 3	Total 87 30 16 114 247 (P < 0.00001 247 (P < 0.00001	Total 91 30 14 253); I² = 1(253); I² = 1(Weight 24.9% 25.1% 25.1% 100.0% 100.0% 00%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	0.001 0.1 1 10	1000
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Total (95% CI) Heterogeneity: Tau ² = Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: : Total (95% CI)	-0.3446 -5.809 -0.0535 0.322 10.86; Chi ² = 924.7 Z = 0.89 (P = 0.37) 10.86; Chi ² = 924.7 Z = 0.89 (P = 0.37) erences: Not applie	SE 0.3371 0.181 0.255 0.092 85, df = 3 85, df = 3 :able	Total 87 30 16 114 247 (P < 0.00001 247 (P < 0.00001	<u>Total</u> 91 30 14 118 253); I ² = 1(253); I ² = 1(Weight 24.9% 25.1% 25.1% 100.0% 100.0% 00%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	0005 Ratio IV, Random, 95% CI	1000
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Total (95% CI) Heterogeneity: Tau ² = Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: : Test for subgroup diffe	-0.3446 -5.809 -0.0535 0.322 10.86; Chi² = 924. Z = 0.89 (P = 0.37) 10.86; Chi² = 924. Z = 0.89 (P = 0.37) srences: Not applie	SE 0.3371 0.181 0.255 0.092 85, df = 3 85, df = 3 xable	Total 87 30 16 114 247 (P < 0.00001 247 (P < 0.00001	<u>Total</u> 91 30 14 118 253); I ² = 1(253); I ² = 1(Weight 24.9% 25.1% 25.0% 25.1% 25.0% 25.1% 00%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	0005 Ratio IV, Random, 95% CI	1000
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: : Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: : Test for subgroup diffe	log[Odds Ratio] -0.3446 -5.809 -0.0535 0.322 10.86; Chi² = 924. Z = 0.89 (P = 0.37) 10.86; Chi² = 924. Z = 0.89 (P = 0.37) erences: Not applic uded studies:	SE 0.3371 0.181 0.255 0.092 85, df = 3 85, df = 3 cable	Total 87 30 16 114 247 (P < 0.00001 247 (P < 0.00001	<u>Total</u> 91 30 14 118 253); I ² = 1(253); I ² = 1(Weight 24.9% 25.1% 25.0% 25.0% 25.1% 00%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	0005 Ratio IV, Random, 95% CI	1000
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% Cl) Heterogeneity: Tau ² = Test for overall effect: . Total (95% Cl) Heterogeneity: Tau ² = Test for overall effect: . Test for subgroup diffe itation to the inclu- bandari 2001. ²⁶ O	-0.3446 -5.809 -0.0535 0.322 10.86; Chi² = 924. Z = 0.89 (P = 0.37) 10.86; Chi² = 924. Z = 0.89 (P = 0.37) erences: Not applic uded studies: elofse 2003.42 S	SE 0.3371 0.181 0.255 0.092 85, df = 3 85, df = 3 cable	Total 87 30 16 114 247 (P < 0.00001 247 (P < 0.00001	<u>Total</u> 91 30 14 118 253); I ² = 10 253); I ² = 10 Ωbatu	Weight 24.9% 25.1% 25.0% 25.0% 100.0% 100.0% 100.0%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	0005 Ratio IV, Random, 95% CI	1000
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: . Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: . Total overall effect: . Test for subgroup diffe Sitation to the inclu- shandari 2001, ²⁶ Oe	log[Odds Ratio] -0.3446 -5.809 -0.0535 0.322 10.86; Chi² = 924. Z = 0.89 (P = 0.37) 10.86; Chi² = 924. Z = 0.89 (P = 0.37) erences: Not applie uded studies: elofse 2003, ⁴² S	SE 0.3371 0.181 0.255 0.092 85, df = 3 85, df = 3 cable Schroed	Total 87 30 16 114 247 (P < 0.00001 247 (P < 0.00001 er 2002, ⁴³	<u>Total</u> 91 30 14 118 253); I ² = 10 253); I ² = 10	Weight 24.9% 25.1% 25.0% 25.1% 100.0% 100.0% 100.0% lo 2003	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	0.001 0.1 1 10 CF +/- edu Control	1000
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: . Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: . Totst for subgroup diffe Citation to the inclusion Bhandari 2001, ²⁶ Oe	log[Odds Ratio] -0.3446 -5.809 -0.0535 0.322 10.86; Chi² = 924. Z = 0.89 (P = 0.37) 10.86; Chi² = 924. Z = 0.89 (P = 0.37) erences: Not applie uded studies: elofse 2003, ⁴² S	SE 0.3371 0.181 0.255 0.092 85, df = 3 85, df = 3 cable Schroed	Total 87 30 16 114 247 (P < 0.00001 247 (P < 0.00001) er 2002, ⁴³	<u>Total</u> 91 30 14 118 253); I ² = 10 253); I ² = 10	Weight 24.9% 25.1% 25.0% 100.0% 100.0% 100.0%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	0.001 0.1 1 10 CF +/- edu Control	1000
Study or Subgroup 10.4.1 Food insecure Bhandari 2001 Obatulo 2003 Oelofse 2003 Schroeder 2002 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: . Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: . Total overall effect: . Test for subgroup diffe Citation to the inclue Bhandari 2001, ²⁶ Oe	log[Odds Ratio] -0.3446 -5.809 -0.0535 0.322 10.86; Chi ² = 924. Z = 0.89 (P = 0.37) 10.86; Chi ² = 924. Z = 0.89 (P = 0.37) erences: Not applie uded studies: elofse 2003, ⁴² S	SE 0.3371 0.181 0.255 0.092 85, df = 3 85, df = 3 cable Schroed	Total 87 30 16 114 247 (P < 0.00001 247 (P < 0.00001 er 2002, ⁴³ (<u>Total</u> 91 30 14 118 253); I ² = 10 253); I ² = 10	Weight 24.9% 25.1% 25.0% 25.1% 100.0% 100.0% 100.0% 100.0%	Odds Ratio IV, Random, 95% CI 0.71 [0.37, 1.37] 0.00 [0.00, 0.00] 0.95 [0.58, 1.56] 1.38 [1.15, 1.65] 0.23 [0.01, 5.84] 0.23 [0.01, 5.84]	0005 Ratio IV, Random, 95% CI	1000

			CF +/- education	Control		Odds Ratio	Odds Ratio
Study or Subgroup	log[Odds Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
10.3.1 Cereal							
Bhandari 2001	-0.3446	0.3371	87	91	24.9%	0.71 [0.37, 1.37]	
Oelofse 2003	-0.0535	0.255	16	14	25.0%	0.95 [0.58, 1.56]	+
Subtotal (95% CI)			103	105	49.8%	0.85 [0.57, 1.27]	•
Heterogeneity: Tau² =	0.00; Chi ² = 0.47,	df = 1 (P :	= 0.49); I ² = 0%				
Test for overall effect:	Z = 0.78 (P = 0.43))					
10.3.2 Locally availab	ole raw food						
Schroeder 2002	0.322	0.092	114	118	25.1%	1.38 [1.15, 1.65]	
Subtotal (95% CI)			114	118	25.1%	1.38 [1.15, 1.65]	•
Heterogeneity: Not ap	plicable						
Test for overall effect:	Z = 3.50 (P = 0.00)	D5)					
10.3.3 Extruded form	ulated compleme	ntary ma	ize and cowpea				
Obatulo 2003	-5.809	0.181	30	30	25.1%	0.00 [0.00, 0.00]	•
Subtotal (95% CI)			30	30	25.1%	0.00 [0.00, 0.00]	•
Heterogeneity: Not ap	plicable						
Test for overall effect:	Z = 32.09 (P < 0.0)	0001)					
Total (95% CI)			247	253	100.0%	0.23 [0.01, 5.84]	
Heterogeneity: Tau² =	10.86; Chi ² = 924.	85, df = 3	F(P < 0.00001); I²	= 100%			
Test for overall effect:	Z = 0.89 (P = 0.37)	1					CF +/- edu Control
Test for subgroup diff	erences: Chi ^z = 92	4.37, df=	2 (P < 0.00001),	I ^z = 99.8%	I.		

Citation to the included studies:

Bhandari 2001,²⁶ Oelofse 2003,⁴² Schroeder 2002,⁴³ Obatulo 2003⁴¹ **2.4 Weight Gain (kg)**

				<u> </u>		0/	
2.4.1 As efficacy	/effectiveness						
			CF +/- edu	Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
11.11.1 Efficacy							
Bhandari 2001	0.01	0.1492	87	93	26.0%	0.01 [-0.28, 0.30]	-+-
Obatulo 2003	1.82	0.2102	30	30	25.3%	1.82 [1.41, 2.23]	
Subtotal (95% CI)			117	123	51.3%	0.91 [-0.86, 2.68]	
Heterogeneity: Tau² =	1.60; Chi ² = 49.31, df =	1 (P < 0.	00001); I ^z =	98%			
Test for overall effect:	Z = 1.00 (P = 0.32)						
11.11.2 Effectiveness	3						
Oelofse 2003	-0.11	0.3663	16	14	22.5%	-0.11 [-0.83, 0.61]	
Schroeder 2002	-0.04	0.1313	114	118	26.2%	-0.04 [-0.30, 0.22]	-+-
Subtotal (95% CI)			130	132	48.7%	-0.05 [-0.29, 0.19]	•
Heterogeneity: Tau² =	0.00; Chi ² = 0.03, df = 1	(P = 0.8	6); I² = 0%				
Test for overall effect:	Z = 0.39 (P = 0.70)						
Total (95% CI)			247	255	100.0%	0.43 [-0.42, 1.27]	
Heterogeneity: Tau ² =	0.69; Chi ² = 64.01, df =	3 (P < 0.	00001); I ^z =	95%			
Test for overall effect:	Z = 0.99 (P = 0.32)						Control CE +/- edu
Test for subgroup diff	erences: Chi ^z = 1.10, df	= 1 (P =	0.29), l ^z = 8.9	9%			Control Of A Cuu

Citation to the included studies:

Bhandari 2001,²⁶ Oelofse 2003,⁴² Schroeder 2002,⁴³ Obatulo 2003⁴¹

2.4.2 As food se	cure/insecure						
		CF	+/- edu C	ontrol		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% Cl	IV, Random, 95% CI
11.4.1 Food insecure)						
Bhandari 2001	0.01 (0.1492	87	93	26.0%	0.01 [-0.28, 0.30]	_ +
Obatulo 2003	1.82 (0.2102	30	30	25.3%	1.82 [1.41, 2.23]	_ →
Oelofse 2003	-0.11 (J.3663	16	14	22.5%	-0.11 [-0.83, 0.61]	
Schröeder 2002 Subtotal (95% CI)	-0.04 (J.1313	114 247	118 255	26.2% 100.0%	-0.04 [-0.30, 0.22] 0.43 [-0.42, 1.27]	
Heterogeneity: Tau² = Test for overall effect:	= 0.69; Chi ² = 64.01, df = 3 Z = 0.99 (P = 0.32)	(P < 0.000	01); I² = 95	i%			
Total (95% CI)			247	255	100.0%	0.43 [-0.42, 1.27]	
Heterogeneity: Tau*= Test for overall effect: Test for subgroup dif	: 0.69; Chi* = 64.01, df = 3 Z = 0.99 (P = 0.32) ferences: Not applicable	(P < 0.000	U1); I*= 95	1%			-1 -0.5 0 0.5 1 Control CF +/- edu
Citation to the in	cluded studies:						
Bhandari 2001, ²⁶	Oelofse 2003, ⁴² Schr	oeder 2	002, ⁴³ O	batulo	o 2003'	41	
2.4.3 As type of	food						
		CF+/-ed	ucation C	ontrol	1	Std. Mean Difference	Std. Mean Difference
Study or Subgroup 21.38.1 cereal	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% Cl	IV, Random, 95% CI
Bhandari 2001	0.01 0.14	92	87	93	26.0%	0.01 [-0.28, 0.30]	+
Oelofse 2003	-0.11 0.36	63	16	14	22.5%	-0.11 [-0.83, 0.61]	
Subtotal (95% CI)			103	107	48.5%	-0.01 [-0.28, 0.26]	•
Heterogeneity: Tau² = 0 Test for overall effect: Z	0.00; Chi² = 0.09, df = 1 (P = 0 (= 0.05 (P = 0.96)).76); I² = 0'	%				
21.38.4 extruded form	ulated complementary diet	from maiz	e and cowr	oea			
Obatulo 2003 Subtotal (95% CI)	1.82 0.21	02	30 30	30 30	25.3% 25.3%	1.82 [1.41, 2.23] 1.82 [1.41, 2.23]	→
Heterogeneity: Not app Test for overall effect: Z	licable := 8.66 (P < 0.00001)						
21.38.5 food prepared	from locally available raw i	ngredients					
Schroeder 2002 Subtotal (95% CI)	-0.04 0.13	13	114 114	118 118	26.2% 26.2%	-0.04 [-0.30, 0.22] - 0.04 [-0.30, 0.22]	
Heterogeneity: Not app Test for overall effect: Z	licable := 0.30 (P = 0.76)						
Total (95% CI)			247	255	100.0%	0.43 [-0.42, 1.27]	
Heterogeneity: Tau ² = 0).69; Chi² = 64.01, df = 3 (P <	0.00001);1	I² = 95%				
Test for overall effect: Z	(= 0.99 (P = 0.32)						-2 -1 U 1 2 Eavours control Eavours CE+/-educatio
Test for subgroup diffe	rences: Chi ² = 63.92, df = 2 (P < 0.0000	1), I ² = 96.9	%			
Citation to the in	cluded studies:	oodor D	002 43 0	botul	- 20024	11	
Dildiludil 2001, ²⁰	Jeiuise 2003, - SChr		002, ° 0			C	
		2.5	weigh	L-TOP-	Age-Z	Scores	
2.5.1 Efficacy tri	ials from food-inse	ecure p	opulati	on			
Study or Subgroup	Std. Maan Difference	CF	+/- edu C	ontrol	Moight	Std. Mean Difference	Std. Mean Difference
Study of Subgroup	Std. Mean Difference	SE	Total	Total	vveignt	IV, Random, 95% CI	IV, Random, 95% CI
Schroeder 2003	-0.0223	0.366).1316	16	14 118	11.4% 88.6%	0.18 [-0.08, 0.44]	
Total (95% CI)			130	132	100.0%	0.15 [-0.09, 0.40]	•
Heterogeneity: Tau ² =	: 0.00; Chi² = 0.26, df = 1 (f	P = 0.61); P	²=0%				
Test for overall effect:	Z = 1.25 (P = 0.21)						-1 -0.5 0 0.5 1 Control CF +/- edu
Citation to the in	cluded studies:						
Oelofse 2003,42 So	chroeder 2002, ⁴³						



Annex II

Characteristics of exclud	Characteristics of excluded studies							
Author / Year	Reason for exclusion							
Thakwalakwa 2012 ^{49, 50}	The groups received supplementation food (corn-soy blend vs. lipid-based nutrient supplementation) for three months. Thus, we excluded this study since it did not test the effectiveness or efficacy of a complementary food and was thus beyond the scope of our current review.							
Isanaka 2009 ⁵¹	The intervention group received Ready-to-Use Therapeutic Foods (RUTFs). This was excluded because the intervention aimed at treating malnutrition and those at high risk for malnutrition rather than preventing it. Also, as mentioned above, the intervention group did not receive complementary food per se, and thus the study was beyond the scope of this review.							
Grellety 2012 ⁵²	The intervention group received ready-to-use supplementary foods. We excluded it because it took place during the hunger/gap season.							
Huybregts 2012 ⁵³	Study tested the impact of blanket supplementation to reduce cumulative wasting incidence during the seasonal hunger gap (June to October).							
Patel 2005 ⁵⁴	As above, the intervention group received RUTFs. This was excluded because the intervention aimed at treating malnutrition and those at high risk for malnutrition rather than preventing it. Also, as mentioned above, the intervention group did not receive complementary food per se, and thus the study was beyond the scope of this review.							
Oliveira 2006 ⁵⁵	The intervention group was given a supplementary diet (bran-based cereal mixture (multi-mixture)) and not a complementary food. Since our review focuses only on complementary feeding interventions and not supplementary feeding, we excluded this study.							
Ferreira 2008 ⁵⁶	The intervention group was given a supplementary diet (bran-based cereal mixture [multi-mixture]) and not a complementary food. Since our review focuses only on complementary feeding interventions and not supplementary feeding, we excluded this study.							
Faber 2005 ⁵⁷	The intervention group received fortified porridge. The control group received similar unfortified porridge.							
Zlotkin 2003 ⁵⁸	The study evaluated the use of micronutrient alone.							
Moursi 2003 ⁵⁹	The intervention group received maize/soya-based flour that contained amylase. The control group received identical flour without amylase.							
John & Gopaldas 1993 ⁶⁰	Both groups received identical gruels with differences in the energy densities.							
World Vision Mongolia 2005 ⁶¹	Intervention group received micronutrient alone (Sprinkles).							
Menon 2007 ⁶²	Children receiving food assistance (fortified wheat/soy blend) were given Sprinkles.							
Giovannini 200663	Children received added micronutrients through home fortification with Sprinkles.							
Dhingra 2004 ^{64, 65}	Children received added micronutrients in a milk supplement.							
Sharieff 2006 ⁶⁶	Infants received Sprinkles added to complementary foods daily. Both groups received identical complementary foods.							
Walter 1993 ⁶⁷	Children received fortified (electrolytic Fe 55 mg per 100 g of dry power) rice cereal daily. Control received unfortified rice cereal.							
Villalpando 2006 ⁶⁸	Children received added micronutrients in milk product. Control received milk product only.							

Schumann 2005 ⁶⁹	Children received black beans fortified with haem. Control received identical unfortified black beans							
Javaid 1991 ⁷⁰	Children received milk cereal fortified with Fe. Control group received unfortified milk							
Kuusipala 2006 ⁷¹	Cereal.							
	Children received milk product with different energy contents with an without							
Beckett 2000 ⁷²⁻⁷⁵	Micronutrients.							
Hirve 2006 ⁷⁶	Children were given micronutrient alone.							
Morgan 200477	All the studies included in this review were conducted in UK.							
Krebs 2006 ⁷⁸	The study was conducted in USA.							
Lucas 1999 ⁷⁹	The study was conducted in UK.							
He 2005 ⁸⁰	The study included children aged 3 to 5 years from 7 kindergartens.							
D 11 2000 ⁹¹	Intervention group received fortified cereal, and control group was given unfortified,							
Davidsson 2009°1	identical cereal.							
	Both groups received identical food with the amylase added to the food given to the							
den Besten 1998 ⁸²	intervention group.							
Hoffman 2003 ⁸³	Children were given formula milk and the study was conducted in the USA							
Harrington 2011 ⁸⁴	Both groups were given sweetened drink based on degermed maize flour and milk							
Domellöf 2002 ⁸⁵	Children were given micronutrient alone							
Morley 100086	The study was conducted in the UK, and it used formula milk							
WONEY 1999								
Lind 2004*/	The study is from a developed country.							
Shamah-Levy 2008 ⁸⁸	Intervention group received Nutrisano fortified with Sprinkles. Control group received regular Nutrisano.							
Owino 2011 ⁸⁹	This study was excluded because both groups received different complementary foods (RUCFs vs UMIX-corn-soy blend) and there was no comparison group. Therefore, we							
	could not assess the impact of one complementary food.							
Phuka 2008 ³⁰	One type of complementary food was compared with another type.							
Manno 2011 ⁹¹	Intervention group received multi-micronutrient-fortified porridge. Control group received identical, unfortified porridge.							
Liu 1993 ⁹²	Intervention group received fortified rusk. Control group received identical unfortified rusk.							
Oue´draogo 2010 ⁹³	Intervention group received multi-micronutrient-fortified improved gruel. Control group							
Pim 200894	It was a systematic raview							
Makridae 200295	The study was conducted in Australia							
	The study was conducted in Australia.							
Tuthill 2006 ⁹⁶	iron-supplemented formula.							
Hess 2011 ⁹⁷	Intervention group received fortified porridge with LNS. Control group received identical unfortified porridge with LNS.							
Phu 2010 ⁹⁸	Intervention group received fortified gruel. Control group received identical, unfortified							
Birch 2002 ⁹⁹	Used infant formula as intervention							
Kattlemann 2001 ¹⁰⁰	This study was done in the USA							
	The study was done in the OSA.							
Roy 2005 ²⁹	delivered for less than six months.							
Guyon 2009 ¹⁰¹	It was a "before and after" trial.							
Bisimwa 2012 ¹⁰²	The study was excluded because both the groups received complementary food (either RUCF or UNIMIX)							
	This study from Bangladesh provided standard education to both interventions and							
Aboud 2008 ³⁶	control groups for 12 months and then an additional six sessions for a week in the							
	intervention group only.							

Hotz & Gibson 2005 ³⁷	This study from Malawi, measuring the effectiveness of education intervention, was
Kapur 2003 ³⁴	This study from India provided educational intervention and followed up in four months.
Brown 1002 ³⁸	This was a quasi-experimental study from Bangladesh which tested the efficacy of
BIOWII 1992**	weaning education intervention in five months.
Islam 2008 ¹⁰³	This study from Bangladesh provided three different intervention for 27 days only.
Owino 2007 ¹⁰⁴	This study from Zambia provided processed cereal/legume blend without amylase for
	three months.
Simondon 1996 ^{105, 106}	This study from Congo, Senegal, Bolivia, and Caedonia provided food intervention for
51110110011 1990	three months only.
Walker 1991 ¹⁰⁷⁻¹¹⁰	This study from Jamaica included stunted children.
Husaini 1991 ¹¹¹	This study from Indonesia supplemented complementary food intervention for 90 days.
Lachat 2006 ¹¹²	This study from Tanzania delivered intervention for an undescribed period of time.
Cohen 1995 ¹¹³	This study from Honduras studied the impact of food started at four months.
Lartey 1999 ²⁰	This study from Ghana evaluated the impact of four different kinds of food products on
	child growth.
Santos 2005 ³⁰	This study from Brazil assessed the impact of the Milk Supplement Programme on
Santos 2005	undernourished children.
	This study predominantly studied the impact of supplementary feeding in which children
Lutter 1990 ⁴⁷	received enriched bread, powdered skim milk, and vegetable oil, as did all other family
	members. They also received education based on raising awareness about good early
	childhood nutrition.
	This study from Ethiopia provided quality protein maize (QPM) seeds to the intervention
Akalu 2010 ⁴⁶	arm, whereas the control arm received conventional maize. Since the study provided
	commodity (seeds) and not food itself, it is excluded.
Smuts 2005 ¹¹⁴	The study provided daily MN foodlets which were mixed with porridge. The main
	intention was to assess the impact of micronutrients.
Mazariegoes 200448	The intervention improved the phytate concentration of maize and was compared with
	regular maize.
Maluccio & Flores	In this effectiveness trial, mothers received cash transfers and education, not specified
2004 ¹¹⁵	but based on breastfeeding, child feeding, illness care, and household sanitation and
	hygiene. None of the outcomes reported in the study was of any interest to this review.
445	Children and pregnant and lactating women in participating households received
Rivera 2004	fortified nutrition supplements, and the families received nutrition education, health
	care, and cash transfers.
	Complementary food (40g/day) with the protein source being the milkfat globule
Zavaleta 2011 ¹¹⁷	membrane (MFGM) protein fraction was compared with complementary food (40g/day)
	with the protein source being skim milk proteins.

Web Annex

This section has evaluated the impact of education on complementary feeding and complementary feeding with or without education on linear growth, weight, and morbidity; we meta-analysed all RCTs and non-RCTs in this section. The table below has summarised the estimates, and Tables 1, 2, and 3 present all the forest plots.

Meta-analysis of RCTs with non-RCTs

Summary of estimates		
Outcome	Education only	Complementary feeding with or without education
	SMD 0.23	SMD 0.34
Height gain (cm)	95% CI: -0.00, 0.45	95% CI: -0.09, 0.78
	6 studies, n=2,737	4 studies, n=512
Height for age (Mean 7	SMD: 0.23	SMD 0.39
Scores)	95% CI: 0.09, 0.36	(95% CI: 0.05, 0.73)
Scores	5 studies, n=1,981	7 studies, n=1,652
	OR 0.71	OR 0.33
Stunting (HAZ <-2)	95% CI: 0.56, 0.91	95% CI: 0.11, 1.00
	5 studies, n=1,940	7 studies, n=1,652
	SMD 0.26	SMD 0.43
Weight gain (kg)	OR 0.71 (HAZ <-2)	95% CI: -0.42, 1.27
	7 studies, n=2,980	4 studies, n=502
Weight for age (Mean 7	SMD 0.16	SMD 0.26
Scores)	95% Cl: 0.05, 0.27	95% CI: -0.04, 0.48
5001837	6 studies, n=2,410	3 studies, n=527
	RR 1.03	RR 0.35
Underweight (WAZ <-2)	95% CI: 0.90, 1.18	95% CI: 0.16, 0.77
	1 study, n=829	1 study, n=319
Weight-for-height (Mean 7	SMD 0.20	MD 0.22
Scores)	95% CI: 0.03, 0.36	(95% CI: 0.07, 0.36)
5001837	4 studies, n=1,466	4 studies, n=765
	RR 0.07	
Wasting (WHZ <-2)	95% CI: 0.00, 1.14	-
	1 study, n=495	
	SMD 0.35	
Haemoglobin (g/L)	95% CI: 0.17, 0.52	-
	1 study, n=495	
	RR 0.69	RR 0.76
Anaemia (hb<110 g/L)	95% Cl: 0.25, 1.88	95% CI: 0.59, 0.97
	1 study, n=495	2 studies, n=278

1.0 Education alone

Linear Growth							
			1.1 Heig	ht Ga	in (cm)	
As food secure	/insecure		-				
			Education on CF (Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% Cl	IV, Random, 95% Cl
5.1.1 Food Secure	0.60	0.0004	250	245	17.10	0 60 10 45 0 041	
Penny 2005	0.63	0.0921	250	240	16.5%	0.63 [0.45, 0.81] 0.51 [0.30, 0.72]	
Santos 2001	0.04	0.0996	209	195	16.8%	0.04 [-0.16, 0.24]	_ _
Shi 2009	0.22	0.0962	234	203	16.9%	0.22 [0.03, 0.41]	
Subtotal (95% CI)			880	833	67.3%	0.35 [0.08, 0.62]	-
Heterogeneity: Tau² = Test for overall effect:	0.06; Chi ² = 23.08, df = Z = 2.58 (P = 0.010)	3 (P < 0.0	1001); I² = 87%				
5.1.2 Food insecure							
Bhandari 2001	-0.13	0.1434	95	100	14.8%	-0.13 [-0.41, 0.15]	_
Bhandari 2004	0.05	0.0695	435	394	17.9%	0.05 [-0.09, 0.19]	- <u>+</u>
Subtotal (95% CI)			530	494	32.7%	0.00 [-0.15, 0.16]	•
Heterogeneity: Tau ² = Test for overall effect:	0.00; Chi ² = 1.28, df = 1 Z = 0.05 (P = 0.96)	(P = 0.26	i); I²= 22%				
Total (95% CI)			1410	1327	100.0%	0.23 [-0.00, 0.45]	•
Heterogeneity: Tau ² =	0.07; Chi ² = 42.67, df =	5 (P < 0.0	10001); I² = 88%				
Test for overall effect:	Z = 1.95 (P = 0.05)						-1 -0.5 U 0.5 1 Control Education on CE
Test for subgroup diff	erences: Chi² = 4.88, df	= 1 (P = 0	.03), I² = 79.5%				
Citation to the in	cluded studies:						
Bhandari 2001, ²⁶	Bhandari 2004, ²⁷	Penny	2005, ²⁸ Santos	2001	. ³⁵ Shi 2	2009, ³¹ Guldan 20	00 ¹⁵
	,	1.2	Height-for-A	ge (N	lean Z	Scores)	
As food secure	linsecure			0- (
As food secure	insecure						
				ontrol		Std Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Difference	SE	Education on CF (Total	Control Total	Weight	Std. Mean Difference IV, Random, 95% CI	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure	Std. Mean Difference	SE	Total	Control Total	Weight	Std. Mean Difference IV, Random, 95% Cl	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guldan 2000	Std. Mean Difference	SE 0.899	Total	Control Total 245	Weight	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005	Std. Mean Difference 0.64 0.3702	SE 0.899 0.1039	250 187	245 190	Weight 0.6% 26.4%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001	Std. Mean Difference 0.64 0.3702 0.0446	SE 0.899 0.1039 0.0972	250 187 218	245 206 206	0.6% 26.4% 28.6%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (05% CD)	Std. Mean Difference 0.64 0.3702 0.0446 0.2461	SE 0.899 0.1039 0.0972 0.1898	250 187 218 62	245 190 206 51	0.6% 26.4% 28.6% 10.8%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.25 [-0.13, 0.62]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI)	Std. Mean Difference 0.64 0.3702 0.0446 0.2461	SE 0.899 0.1039 0.0972 0.1898	250 187 218 62 717	245 245 190 206 51 692	Weight 0.6% 26.4% 28.6% 10.8% 66.4%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect:	<u>Std. Mean Difference</u> 0.64 0.3702 0.0446 0.2461 0.02; Chi [≠] = 5.53, df = 3 Z = 2.06 (P = 0.04)	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14	250 187 218 62 717); I [#] = 46%	245 190 206 51 692	Ueight 0.6% 26.4% 28.6% 10.8% 66.4%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guidan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04)	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14	250 187 218 62 717); I [#] = 46%	245 190 206 51 692	0.6% 26.4% 28.6% 10.8% 66.4%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guidan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi² = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084	250 187 218 62 717); I* = 46% 290	245 190 206 51 692 282	Weight 0.6% 26.4% 28.6% 10.8% 66.4%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guidan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI)	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084	250 187 218 62 717); I* = 46% 290 290	245 190 206 51 692 282 282	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guidan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 plicable	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084	250 187 218 62 717); ² = 46% 290 290	245 190 206 51 692 282 282 282	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect:	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 plicable Z = 3.01 (P = 0.003)	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084	250 187 218 62 717); I [#] = 46% 290 290	245 190 206 51 692 282 282 282	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.67] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% Cl
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI)	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi² = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 plicable Z = 3.01 (P = 0.003)	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14	250 187 218 62 717); I* = 46% 290 290	Control Total 245 190 206 51 692 282 282 282 282 974	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6% 33.6%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% CI
Study or Subgroup 3.5.1 Food secure Guidan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Tau ² =	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi² = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 plicable Z = 3.01 (P = 0.003) 0.01; Chi² = 5.73, df = 4	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084 (P = 0.22	250 187 218 62 717); I ² = 46% 290 290 290	Control Total 245 190 206 51 692 282 282 282 974	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6% 100.0%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% CI
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect:	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 plicable Z = 3.01 (P = 0.003) 0.01; Chi [#] = 5.73, df = 4 Z = 3.32 (P = 0.0009)	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084 (P = 0.22	250 187 218 62 717); I ² = 46% 290 290 290	Control Total 245 190 206 51 692 282 282 282 974	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6% 33.6%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.67] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% CI
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect:	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 plicable Z = 3.01 (P = 0.003) 0.01; Chi [#] = 5.73, df = 4 Z = 3.22 (P = 0.009) erences: Chi [#] = 0.07, df	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084 (P = 0.22 = 1 (P = 0	250 187 218 62 717); I [#] = 46% 290 290 290 290 1007); I [#] = 30%	Control Total 245 190 206 51 692 282 282 282 974	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6% 100.0%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% CI
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 plicable Z = 3.01 (P = 0.003) 0.01; Chi [#] = 5.73, df = 4 Z = 3.32 (P = 0.009) erences: Chi [#] = 0.07, df	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084 (P = 0.22 = 1 (P = 0	250 187 218 62 717); I* = 46% 290 290 290 290 1007); I* = 30%	Control Total 245 190 206 51 692 282 282 282 974	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6% 100.0%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% CI
Study or Subgroup 3.5.1 Food secure Guidan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for subgroup diff Citation to the in	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 oplicable Z = 3.01 (P = 0.003) 0.01; Chi [#] = 5.73, df = 4 Z = 3.22 (P = 0.009) erences: Chi [#] = 0.07, df cluded studies:	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084 (P = 0.22 = 1 (P = 0	250 187 218 62 717); I* = 46% 290 290 290 290 (); I* = 30%	Control Total 245 190 206 51 692 282 282 282 974	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6% 100.0%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42]	Std. Mean Difference IV, Random, 95% CI
Study or Subgroup 3.5.1 Food secure Guidan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for subgroup diff Citation to the in Guidan 2000. ¹⁵ Pe	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 oplicable Z = 3.01 (P = 0.003) 0.01; Chi [#] = 5.73, df = 4 Z = 3.32 (P = 0.009) erences: Chi [#] = 0.07, df cluded studies: enny 2005. ²⁸ Santa	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084 (P = 0.22 = 1 (P = 0 os 2002	250 187 218 62 717); I* = 46% 290 290 290 1007); I* = 30% .80), I* = 0% L, 35 Zaman 200	2005 210 2006 51 692 282 282 282 974	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6% 100.0%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42] 0.23 [0.09, 0.36]	Std. Mean Difference IV, Random, 95% CI
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for subgroup diff Citation to the in Guldan 2000, ¹⁵ Per	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 oplicable Z = 3.01 (P = 0.003) 0.01; Chi [#] = 5.73, df = 4 Z = 3.22 (P = 0.0009) erences: Chi [#] = 0.07, df cluded studies: enny 2005, ²⁸ Sante	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084 (P = 0.22 = 1 (P = 0 DS 2002	250 187 218 62 717); I* = 46% 290 290 290 1007); I* = 30% 1007 1, I* = 30% 1007 1, I* = 0%	2006 51 282 282 282 974	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6% 100.0%	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.67] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42] 0.23 [0.09, 0.36]	Std. Mean Difference IV, Random, 95% CI
Study or Subgroup 3.5.1 Food secure Guldan 2000 Penny 2005 Santos 2001 Zaman 2008 Subtotal (95% CI) Heterogeneity: Tau ² = Test for overall effect: 3.5.2 Food insecure Roy 2007 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Tau ² = Test for overall effect: Test for overall effect: Test for subgroup diff Citation to the in Guldan 2000, ¹⁵ Pe	Std. Mean Difference 0.64 0.3702 0.0446 0.2461 0.02; Chi [#] = 5.53, df = 3 Z = 2.06 (P = 0.04) 0.253 oplicable Z = 3.01 (P = 0.003) 0.01; Chi [#] = 5.73, df = 4 Z = 3.32 (P = 0.0009) erences: Chi [#] = 0.07, df cluded studies: enny 2005, ²⁸ Sante	SE 0.899 0.1039 0.0972 0.1898 (P = 0.14 0.084 (P = 0.22 = 1 (P = 0 DS 2002	250 187 218 62 717); I* = 46% 290 290 290 1007); I* = 30% 1007 1, I* = 30% 1007 1, I* = 0%	2005 245 190 206 51 692 282 282 282 974 08, ³³ R	Weight 0.6% 26.4% 28.6% 10.8% 66.4% 33.6% 33.6% 100.0% 000 200	Std. Mean Difference IV, Random, 95% CI 0.64 [-1.12, 2.40] 0.37 [0.17, 0.57] 0.04 [-0.15, 0.24] 0.25 [-0.13, 0.62] 0.22 [0.01, 0.43] 0.25 [0.09, 0.42] 0.25 [0.09, 0.42] 0.23 [0.09, 0.36]	Std. Mean Difference IV, Random, 95% CI

1.3 Stunting (HAZ < -2)

		E	Education on CF	Control		Odds Ratio	Odds Ratio
Study or Subgroup	log[Odds Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
28.5.1 Food secure							
Guldan 2000	-1.1416	0.899	250	245	1.8%	0.32 [0.05, 1.86]	
Penny 2005	-1.1117	0.4698	171	165	5.9%	0.33 [0.13, 0.83]	_
Santos 2001	-0.0652	0.0679	218	206	32.8%	0.94 [0.82, 1.07]	•
Zaman 2008	-0.3839	0.1318	62	51	25.8%	0.68 [0.53, 0.88]	+
Subtotal (95% CI)			701	667	66.4%	0.70 [0.49, 1.01]	◆
Heterogeneity: Tau ² = Test for overall effect:	: 0.07; Chi² = 10.11 Z = 1.91 (P = 0.06)	, df = 3 (P	= 0.02); I ² = 70%				
28.5.2 Food insecure	•						
Rov 2007	-0.3906	0.059	290	282	33.6%	0.68 (0.60, 0.76)	-
Subtotal (95% CI)			290	282	33.6%	0.68 [0.60, 0.76]	•
Heterogeneity: Not ap	plicable						-
Test for overall effect:	Z = 6.62 (P < 0.00)	001)					
	(,					
Total (95% CI)			991	949	100.0%	0.71 [0.56, 0.91]	◆
Heterogeneity: Tau ² =	0.04; Chi ² = 18.17	, df = 4 (P	= 0.001); I ² = 78%				
Test for overall effect:	Z = 2.72 (P = 0.00)	7)					Education on CE Control
Test for subgroup diff	ferences: Chi ² = 0.0)4. df = 1 (P = 0.85), I ² = 0%				Education of Cr Control
Citation to the inc	adibuts babul						
Culder 2000 ¹⁵ De			01 35 7	000 33 1		 39	
Guidan 2000, ²⁰ Pe	nny 2005,=° Sa	ntos 20	01, ⁵⁵ Zaman Z	008,°° i	KOY 200	755	
			1.4 We	eight G	ain (kg		
As food secure/	insecure						
•			Education on CF	Control		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Std. Mean Differen	0	F Tota				
6.1.1 Food secure		ce s	- 1000	l Tota	I Weight	IV, Random, 95% C	IV, Random, 95% CI
0.11.0000		ce s		l Tota	l Weight	IV, Random, 95% C	IV, Random, 95% Cl
Guidan 2000	0	<u>ce s</u> 94 0.094	8 250	1 Tota	I Weight	IV, Random, 95% C	I IV, Random, 95% CI
Guidan 2000 Penny 2005	0	<u>ce s</u> 94 0.094 35 0.103	8 250 8 183	1 Tota 0 24: 7 190	<u>I Weight</u> 5 14.6% 0 14.4%	IV, Random, 95% C 0.94 [0.75, 1.13] 0.35 [0.15, 0.55]	IV, Random, 95% CI
Penny 2005 Santos 2001	0 0 0	<u>ce s</u> 94 0.094 35 0.103 09 0.099	8 250 8 183 6 209	1 Tota 0 245 7 190 9 196	Weight 5 14.6% 0 14.4% 5 14.5%	IV, Random, 95% C 0.94 (0.75, 1.13 0.35 (0.15, 0.55 0.09 (-0.11, 0.29	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009	0 0 0 0	ce s 94 0.094 35 0.103 09 0.099 21 0.096	8 250 8 18 6 209 2 23	1 Tota 0 245 7 190 9 196 4 203	Weight 5 14.6% 0 14.4% 5 14.5% 3 14.6%	IV, Random, 95% C 0.94 (0.75, 1.13 0.35 (0.15, 0.55 0.09 (-0.11, 0.29 0.21 (0.02, 0.40	IV, Random, 95% Cl
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI)	0 0 0 0	<u>ce</u> 94 0.094 35 0.103 09 0.099 21 0.096	8 250 8 183 6 209 2 234 886	1 Tota 0 245 7 190 9 196 4 203 0 83 4	Weight 5 14.6% 0 14.4% 5 14.5% 3 14.6% 4 58.1%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78]	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2	0 0 0 0.14; Chi≇ = 46.23, c Z = 2.06 (P = 0.04)	<u>ce</u> 94 0.094 35 0.103 09 0.099 21 0.096 f=3(P≤1	8 256 8 18 6 209 2 23 880 0.00001); I ² = 94%	1 Tota 0 246 7 190 9 196 4 200 0 834	I Weight 5 14.6% 0 14.4% 5 14.5% 3 14.6% 4 58.1%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78]	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 6.1.2 Food insecure	0 0 0 0.14; Chi≇ = 46.23, c Z = 2.06 (P = 0.04)	<u>ce</u> 94 0.094 35 0.103 09 0.099 21 0.096 f=3(P <1	8 25(8 18; 6 20; 2 23; 88(0.00001); ² = 94%	1 Tota 0 245 7 190 9 196 4 203 0 834	I Weight 5 14.6% 0 14.4% 5 14.5% 3 14.6% 4 58.1%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78]	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 6.1.2 Food insecure Bhandari 2001	0 0 0 0.14; Chi² = 46.23, c Z = 2.06 (P = 0.04)	<u>ce</u> 94 0.094 35 0.103 09 0.099 21 0.096 f= 3 (P < 1 0.1 0.142	2 25(8 18; 6 20; 2 23; 2 23; 88(0.00001); I²= 94% 9 9;	1 Tota 0 245 7 190 9 196 4 203 0 834 5 100	I Weight 5 14.6% 0 14.4% 5 14.5% 3 14.6% 4 58.1% 0 13.4%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78]	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 6.1.2 Food insecure Bhandari 2001 Bhandari 2004	0 0 0 0.14; Chi ² = 46.23, c Z = 2.06 (P = 0.04) - 0	<u>ce</u> 5 94 0.094 35 0.103 09 0.099 21 0.096 f=3(P < 1 0.1 0.142 02 0.069	2 25 8 25 8 18 6 20 2 23 88 0.00001); I ² = 94% 9 9; 5 43;	1 Tota 0 245 7 190 9 196 4 203 0 834 5 100 5 394	I Weight 5 14.6% 0 14.4% 5 14.5% 3 14.6% 4 58.1% 0 13.4% 4 15.1%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78] -0.10 [-0.38, 0.18 0.02 [-0.12, 0.16	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ^a = (Test for overall effect: 2 6.1.2 Food insecure Bhandari 2001 Bhandari 2004 Kilaru 2005	0 0 0 0.14; Chi ² = 46.23, c Z = 2.06 (P = 0.04) - 0	<u>ce</u> <u>5</u> 94 0.094 35 0.103 09 0.099 21 0.096 f= 3 (P ≤ 1 0.1 0.142 02 0.069 0.3 0.14	2 25(8 18; 6 20; 2 23; 880 0.00001); I² = 94% 9 9; 5 43; 3 17;	I Tota 0 244 7 190 9 190 4 203 0 834 5 100 5 394 3 69	I Weight 5 14.6% 0 14.4% 6 14.5% 3 14.6% 4 58.1% 0 13.4% 4 15.1% 3 13.4%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78] -0.10 [-0.38, 0.18 0.02 [-0.12, 0.16 0.30 [0.02, 0.58	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 6.1.2 Food insecure Bhandari 2001 Bhandari 2004 Kilaru 2005 Subtotal (95% CI)	0 0 0 0.14; Chi² = 46.23, c Z= 2.06 (P = 0.04) - 0	ce s 94 0.094 35 0.103 09 0.098 21 0.096 f= 3 (P ≤ 1) 0.1 0.142 0.3 0.14	2 250 8 18: 6 20: 2 23: 880 0.00001); I² = 94% 9 9: 5 43: 3 17: 70:	I Tota 0 24: 7 19: 9 19: 9 19: 9 29: 9 3 19: 5 39: 5 39: 3 6: 3 5: 3 5:	I Weight 5 14.6% 0 14.4% 6 14.5% 3 14.6% 4 58.1% 0 13.4% 4 15.1% 3 13.4% 4 15.1% 3 13.4%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78] -0.10 [-0.38, 0.18 0.02 [-0.12, 0.16 0.30 [0.02, 0.58 0.06 [-0.13, 0.25]	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ^a = (Test for overall effect: 2 6.1.2 Food insecure Bhandari 2001 Bhandari 2004 Kilaru 2005 Subtotal (95% CI) Heterogeneity: Tau ^a = (Test for overall effect: 2	0 0 0 0.14; Chi² = 46.23, c Z = 2.06 (P = 0.04) - 0 0.02; Chi² = 4.34, df Z = 0.64 (P = 0.52)	ce s 94 0.094 35 0.103 09 0.992 21 0.096 f=3 (P < 1)	2 25(8 25(8 18; 6 20; 2 23; 2 23; 88(0.00001); ² = 94% 9 9; 5 43; 3 17; 70; 11); ² = 54%	I Tota 0 24: 7 190 9 199 9 29: 9 39: 5 100 5 39: 3 6: 3 56: 3	I Weight 5 14.6% 0 14.4% 6 14.5% 8 14.6% 4 58.1% 0 13.4% 4 15.1% 8 13.4% 8 41.9%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78] -0.10 [-0.38, 0.18 0.02 [-0.12, 0.16 0.30 [0.02, 0.58 0.06 [-0.13, 0.25]	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 6.1.2 Food insecure Bhandari 2001 Bhandari 2004 Kilaru 2005 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 Total (95% CI)	0 0 0 0.14; Chi² = 46.23, c 2 = 2.06 (P = 0.04) - 0 0.02; Chi² = 4.34, df 2 = 0.64 (P = 0.52)	ce s 94 0.094 35 0.103 09 0.098 21 0.096 f=3 (P ≤ 1 0.1 0.142 0.2 0.069 0.3 0.144 = 2 (P = 0	2 158: 8 25(8 18; 6 20; 2 23; 2 23; 88(0.00001); ² = 94% 9 9; 5 43; 3 17; 70; 11); ² = 54% 158;	I Tota 0 244 7 190 3 191 4 203 5 100 5 394 3 563 3 563 3 563	I Weight 5 14.6% 0 14.4% 6 14.5% 8 14.6% 4 58.1% 0 13.4% 4 58.1% 0 13.4% 4 15.1% 8 13.4% 7 100.0%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78] -0.10 [-0.38, 0.18 0.02 [-0.12, 0.16 0.30 [0.02, 0.58 0.06 [-0.13, 0.25]	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 6.1.2 Food insecure Bhandari 2001 Bhandari 2004 Kilaru 2005 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 Total (95% CI) Heterogeneity: Tau ² = (0 0.14; Chi [≠] = 46.23, c Z = 2.06 (P = 0.04) 0.02; Chi [≠] = 4.34, df Z = 0.64 (P = 0.52) 0.11; Chi [≠] = 73.72, c	ce s 94 0.094 95 0.103 09 0.098 21 0.096 f=3 (P ≤ 1 0.1 0.142 0.2 0.068 0.3 0.14 =2 (P = 0 f=6 (P ≤ 1	2 1000 8 25(8 18; 6 20; 2 23; 880 0.00001); ² = 94% 9 9; 5 43; 3 17; 70; 11); ² = 54% 158; 0.00001); ² = 92%	I Tota 0 24% 7 190 9 19% 9 19% 9 19% 9 19% 9 19% 9 19% 9 19% 9 19% 9 19% 5 100 5 39% 3 563 3 563 3 139%	I Weight 5 14.6% 0 14.4% 5 14.6% 14.4% 54.1% 0 13.4% 4 58.1% 0 13.4% 4 15.1% 3 14.6% 4 15.1% 3 13.4% 4 15.1% 3 13.4% 4 15.1% 3 13.4% 4 15.1% 3 13.4% 4 10.0%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78] -0.10 [-0.38, 0.18 0.02 [-0.12, 0.16 0.30 [0.02, 0.58 0.06 [-0.13, 0.25]	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 6.1.2 Food insecure Bhandari 2001 Bhandari 2004 Kilaru 2005 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 Total (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2	0 0.14; Chi [≠] = 46.23, c Z = 2.06 (P = 0.04) 0.02; Chi [≠] = 4.34, df Z = 0.64 (P = 0.52) 0.11; Chi [≠] = 73.72, c Z = 1.95 (P = 0.05)	ce s 94 0.094 95 0.103 09 0.098 21 0.096 f= 3 (P ≤ 1 0.1 0.142 0.2 0.068 0.3 0.14 = 2 (P = 0. f= 6 (P ≤ 1)	2 1000 8 25(8 18; 6 20; 2 23; 88(0.00001); I² = 94% 9 9; 5 43; 3 17; 70; 11); I² = 54% 158; 0.00001); I² = 92%	I Tota 0 245 7 190 9 198 9 198 9 198 9 198 9 198 9 198 9 198 9 198 5 100 5 393 3 68 3 563 3 563	I Weight 5 14.6% 0 14.4% 5 14.6% 14.5% 3 3 14.6% 4 58.1% 0 13.4% 4 15.1% 3 41.9% 7 100.0%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78] -0.10 [-0.38, 0.18 0.02 [-0.12, 0.16 0.30 [0.02, 0.58 0.06 [-0.13, 0.25]	IV, Random, 95% CI
Guidan 2000 Penny 2005 Santos 2001 Shi 2009 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 6.1.2 Food insecure Bhandari 2001 Bhandari 2004 Kilaru 2005 Subtotal (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 Total (95% CI) Heterogeneity: Tau ² = (Test for overall effect: 2 Test for overall effect: 2	0 0.14; Chi ² = 46.23, c 2 = 2.06 (P = 0.04) 0.02; Chi ² = 4.34, df 2 = 0.64 (P = 0.52) 0.11; Chi ² = 73.72, c 2 = 1.95 (P = 0.05) rences: Chi ² = 2.40	ce s 94 0.094 95 0.103 09 0.099 21 0.096 f= 3 (P ≤ 1) 0.1 0.142 0.2 0.069 0.3 0.14 = 2 (P = 0) 0.14 f= 6 (P ≤ 1) (P ≤ 1)	2 1000 8 25(8 18; 6 20; 2 23; 880 0.00001); I² = 94% 9 9; 5 43; 3 17; 70; 11); I² = 54% 158; 0.00001); I² = 92% = 0.12), I² = 58.3%	I Tota 0 24% 7 19% 9 19% 9 19% 9 19% 9 19% 9 19% 9 19% 9 19% 9 19% 9 19% 5 100 5 39% 3 6% 3 563 3 563 3 1397	I Weight 5 14.6% 0 14.4% 5 14.6% 14.5% 3 3 14.6% 4 58.1% 0 13.4% 4 15.1% 3 41.9% 7 100.0%	IV, Random, 95% C 0.94 [0.75, 1.13 0.35 [0.15, 0.55 0.09 [-0.11, 0.29 0.21 [0.02, 0.40 0.40 [0.02, 0.78] -0.10 [-0.38, 0.18 0.02 [-0.12, 0.16 0.30 [0.02, 0.58 0.06 [-0.13, 0.25]	IV, Random, 95% CI

Citation to the included studies: Bhandari 2001,²⁶ Bhandari 2004,²⁷ Penny 2005,²⁸ Santos 2001,³⁵ Shi 2009,³¹ Guldan 2000,¹⁵ Kilaru 2005¹⁶

		1.5 V	Veight-f	or-Δge	(Mear	7 Scores)	
As food secure/in	nsecure	2.0 1			(
Study or Subaroup	Std. Mean Difference	SE	education Total	Control Total	Weight	Std. Mean Difference	Std. Mean Difference
20.16.1 Food secure p	opulations					,	
Guldan 2000	0.0044	0.0899	250	245	19.5%	0.00 [-0.17, 0.18]	+
Kilaru 2005	0.17	0.154	173	69	10.1%	0.17 [-0.13, 0.47]	+-
Penny 2005	0.33	0.1037	187	190	16.8%	0.33 [0.13, 0.53]	+
Santos 2001	0.09	0.0996	209	195	17.5%	0.09 [-0.11, 0.29]	+
Zaman 2008	0.07	0.112	151	169	15.4%	0.07 [-0.15, 0.29]	t
Subtotal (95% CI)			970	868	79.3%	0.13 [0.01, 0.24]	•
Heterogeneity: Tau² = 0 Test for overall effect: Z	0.01; Chi² = 6.15, df = 4 I = 2.08 (P = 0.04)	(P = 0.19)); I² = 35%				
20.16.2 From food inse	ecure population						
Roy 2007 Subtotal (95% CI)	0.2883	0.0841	290 290	282 282	20.7% <mark>20.7%</mark>	0.29 [0.12, 0.45] 0.29 [0.12, 0.45]	•
Heterogeneity: Not app Test for overall effect: Z	licable (= 3.43 (P = 0.0006)						
Total (95% CI)			1260	1150	100.0%	0 16 [0 05 0 27]	
Hotorogonoity: Tou ² – 0	0.01: ChiZ - 0.15 df - 5	(P = 0.10)	1200 1): IZ = 45%	1150	100.0%	0.10 [0.05, 0.27]	
Teet for overall effect: 7	7 – 2 79 (P – 0 005)	(F = 0.10	n, i = 45%				-4 -2 0 2 4
Test for subgroup diffe	. – 2.75 (F – 0.003) rences: Chi≩= 2.49 df	= 1 (P = 0) 11) I₹= 59	8%			Favours control Favours education
reation adoption of the	rences. oni = 2.45, ur	(, - (0.0			
.							
Citation to the incl	uded studies:						
Guldan 2000,15 Kila	aru 2005, ¹⁶ Penny	2005, ²	⁸ Santos 2	2001,35	Zaman	2008, ³³ Roy 2007	39
			I 6 Unde	rwoig	nt (\\/A	7 <-2)	
		•		weig		,	
As food secure/ii	οςοςιικο						
	isceare						
	iscure	Edu	cation on Cl	Contro	d	Risk Ratio	Risk Ratio
Study or Subgroup	log[Risk Ratio]	Edu SE	cation on Cl Tot	F Contro al Tot	l al Weig	Risk Ratio ht IV, Fixed, 95% CI	Risk Ratio IV, Fixed, 95% Cl
Study or Subgroup 6.3.1 Food insecure	log[Risk Ratio]	Edu SE	cation on Cl Tot	F Contro al Tot	l al Weig	Risk Ratio ht IV, Fixed, 95% CI	Risk Ratio IV, Fixed, 95% Cl
Study or Subgroup 6.3.1 Food insecure Bhandari 2004	log[Risk Ratio]	Edu SE 699	cation on Cl Tot	F Contro al Tot 5 39	l <u>al Weig</u> 34 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 (0.90, 1.18)	Risk Ratio IV, Fixed, 95% Cl
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI)	log[Risk Ratio]	Edu SE 699	cation on Cl Tot 43 43	F Contro al Tot 5 39	l <u>al Weig</u> 34 100.0 34 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% Cl
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap	log[Risk Ratio] 0.0319 0.0 plicable	Educ SE 699	cation on Cl Tot 43 43	F Contro al Tot 5 39 5 39	l <u>al Weig</u> 94 100.0 94 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% Cl
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect.	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65)	Edu(SE 699	cation on Cl Tot 43 43	F Contro al Tot 5 30 5 30	1 al Weig 04 100.0 04 100. 0	Risk Ratio ht IV, Fixed, 95% Cl % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% Cl
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect:	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65)	Edu(<u>SE</u> 699	cation on Cl Tot 43 43	F Contro al Tot 5 39 5 39	1 <u>al Weig</u>)4 100.0)4 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% Cl
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI)	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65)	Edu(<u>SE</u> 699	cation on Cl Tot 43 43	F Contro al Tot 5 39 5 39	il <u>al Weig</u> 04 100.0 04 100.0	Risk Ratio <u>ht IV, Fixed, 95% CI</u> % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% Cl
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable	Educ SE 699	cation on Cl Tot 43 43 43	F Contro al Tot 5 39 5 39	il <u>al Weig</u> 04 100.0 04 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap Test for overall effect.	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65)	Educ SE 699	cation on Cl Tot 43 43 43	F Contro al Tot 5 39 5 39	1 al Weig 04 100.0 04 100.0	Risk Ratio ht IV, Fixed, 95% Cl % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: . Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe	log[Risk Ratio] 0.0319 0.0 plicable 2 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) 0.65)	Educ SE 699	Cation on Cl Tot 43 43 43	Contro al Tot 5 39 5 39 5 39	I al Weig 14 100.0 14 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: . Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe	log[Risk Ratio] 0.0319 0.0 plicable 2 0.46 (P = 0.65) plicable 2 0.46 (P = 0.65) pricable 2 0.46 (P = 0.65)	Educ SE 699	cation on Cl Tot 43 43 43	Contro al Tot 5 30 5 30 5 30	1 <u>al Weig</u> 04 100.0 04 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect Total (95% CI) Heterogeneity: Not ap Test for overall effect Test for subgroup diffe	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicab	Edur SE 699	cation on Cl Tot 43 43 43	Contro al Tot 5 30 5 30 5 30	4 100.0 14 100.0 14 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe	log[Risk Ratio] 0.0319 0.0 plicable 2 = 0.46 (P = 0.65) plicable 2 = 0.46 (P = 0.65) erences: Not applicable 1000000000000000000000000000000000000	Edur SE 699	cation on Cl Tot 43 43 43	F Contro al Tot 5 39 5 39 5 39	4 100.0 4 100.0 4 100.0	Risk Ratio <u>ht IV, Fixed, 95% CI</u> % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable 2 = 0.46 (P = 0.65) plicable 2 = 0.46 (P = 0.65) erences: Not applicable 1000000000000000000000000000000000000	Edur SE 699 Ie	Cation on Cl Tot 43 43 43	F Contro al Tot 5 39 5 39 5 39	1 al Weig 14 100.0 14 100.0 14 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable 2 = 0.46 (P = 0.65) plicable 2 = 0.46 (P = 0.65) erences: Not applicab Iuded study:	Edur SE 699 Ie	Cation on Cl Tot 43 43 43	Contro al Tot 5 39 5 39	1 al Weig 14 100.0 14 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable 2 = 0.46 (P = 0.65) plicable 2 = 0.46 (P = 0.65) erences: Not applicab Iuded study:	Edur SE 699	Cation on Cl Tot 43 43 43	Contro al Tot 5 39 5 39	1 al Weig 14 100.0 14 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect Total (95% CI) Heterogeneity: Not ap Test for overall effect Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicab	SE 699	Cation on Cl Tot 43 43 43	Contro al Tot 5 39 5 39	1 al Weig 14 100.0 14 100.0	Risk Ratio ht IV, Fixed, 95% Cl % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: . Total (95% CI) Heterogeneity: Not ap Test for overall effect: . Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicab	SE 699	Cation on Cl Tot 43 43 43	Contro al Tot 5 39 5 39 5 39	1 al Weig 14 100.0 14 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: . Total (95% CI) Heterogeneity: Not ap Test for overall effect: . Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicab	SE 699	Cation on Cl Tot 43 43 43	Contro al Tot 5 3(5 3(5 3)	4 100.0 4 100.0 4 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Not ap Test for overall effect: Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicab	SE 699	Cation on Cl Tot 43 43 43	Contro al Tot 5 3(5 3(5 3)	4 100.0 4 100.0 4 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: Total (95% CI) Heterogeneity: Not ap Test for overall effect: Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicable	SE 699 Ie	Cation on Cl Tot 43 43 43	F Contro al Tot 5 34 5 39 5 39	4 100.0 4 100.0 4 100.0	Risk Ratio ht IV, Fixed, 95% Cl % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicab luded study:	SE 699	Cation on Cl Tot 43 43 43	F Contro al Tot 5 39 5 39	4 100.0 4 100.0 4 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% Cl
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect: . Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicable	SE 699	Cation on Cl Tot 43 43 43	F Contro al Tot 5 39 5 39 5 39	4 100.0 4 100.0 4 100.0	Risk Ratio ht IV, Fixed, 95% CI % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicable	SE 699	Cation on Cl Tot 43 43 43	F Contro al Tot 5 39 5 39 5 39	1 al Weig 14 100.0 14 100.0	Risk Ratio <u>ht IV, Fixed, 95% CI</u> % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicab	SE 699	Cation on Cl Tot 43 43 43	F Contro al Tot 5 39 5 39 5 39	1 al Weig 14 100.0 14 100.0	Risk Ratio <u>ht IV, Fixed, 95% CI</u> % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI
Study or Subgroup 6.3.1 Food insecure Bhandari 2004 Subtotal (95% CI) Heterogeneity: Not ap Test for overall effect. Total (95% CI) Heterogeneity: Not ap Test for overall effect. Test for subgroup diffe Citation to the incl Bhandari 2004 ²⁷	log[Risk Ratio] 0.0319 0.0 plicable Z = 0.46 (P = 0.65) plicable Z = 0.46 (P = 0.65) erences: Not applicab	SE 699 Ie	Cation on Cl Tot 43 43 43	F Contro al Tot 5 39 5 39 5 39	1 al Weig 14 100.0 14 100.0	Risk Ratio <u>ht IV, Fixed, 95% CI</u> % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18] % 1.03 [0.90, 1.18]	Risk Ratio IV, Fixed, 95% CI

	1.7 Weight-for-Height (Mean Z Scores)							
As food secure/	insecure							
Study or Subgroup	Std. Mean Difference	SE	education Total	Control Total	Weight	Std. Mean Difference IV, Random, 95% Cl	Std. Mean Difference IV, Random, 95% Cl	
20.18.1 Food secure	populations							
Penny 2005	0.12	0.1031	187	190	24.4%	0.12 [-0.08, 0.32]	Ē	
Zaman 2001	0.06	0.0996	209	195	25.0%	0.06 [-0.14, 0.26]	↓	
Subtotal (95% CI)	0.41	0.1100	458	436	72.0%	0.21 [-0.03, 0.45]	◆	
Heterogeneity: Tau² = Test for overall effect:	0.03; Chi² = 8.24, df = 2 Z = 1.72 (P = 0.09)	(P = 0.0)	2); I² = 76%					
20.18.2 Food insecu	re populations							
Roy 2007 Subtotal (95% CI)	0.1609	0.0838	290 290	282 282	28.0% 28.0%	0.16 [-0.00, 0.33] 0.16 [-0.00, 0.33]	<u>-</u>	
Heterogeneity: Not ap Test for overall effect:	oplicable Z = 1.92 (P = 0.05)							
Total (95% CI)			748	718	100.0%	0.20 [0.03, 0.36]	◆	
Heterogeneity: Tau ² =	0.02; Chi² = 8.36, df = 3	(P = 0.0-	4); I² = 64%					
Test for overall effect:	Z = 2.36 (P = 0.02)	4.00		,			Favours control Favours education	
l est for subgroup dif	terences: Chi*= 0.12, df:	= 1 (P = I	0.73), F= 09	6				
Citation to the in	ماريط معارمة برطائمه							
	tos 2001 ³⁵ Zaman	2000	33 Pov 200	³⁹				
Penny 2005, Sai		2008,	1 2 \	octina	/\\/⊔7	<-2)		
	/•		1.0 W	asting		<-2)		
As food secure/	insecure					Dials Datia	Diele Defie	
Study or Subgroup	Ion[Risk Ratio]	SE 60	Total	Total	Weight	RISK RAUO	RISK RAUO	
20.10.2 Effectivene	ss/ Programs	JL	Total	Total	weight	10,1180,357001	10,11,20,357 CI	
Guldan 2000	-2.7282 1.4	578	250	245	100.0%	0.07 [0.00, 1.14]		
Subtotal (95% CI)			250	245	100.0%	0.07 [0.00, 1.14]		
Heterogeneity: Not a	applicable							
Test for overall effec	:t: Z = 1.87 (P = 0.06)							
Total (95% CI)			250	245	100.0%	0.07 [0.00, 1.14]		
Heterogeneity: Not a	applicable							
Test for overall effect	t: Z = 1.87 (P = 0.06)					U.U Eave	01 0.1 1 10 1000	
Test for subgroup d	ifferences: Not applical	ole				100		
Citation to the in	cluded study:							
Guldan 2000 ¹⁵								
		Ha	aematolo	ogical	Measu	rements		
			1.9 Ha	nemog	lobin (g/L)		
As food secure/	insecure							
			education	Control		Std. Mean Difference	Std. Mean Difference	
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% Cl	
Guldan 2000 Subtotal (95% CI)	0.3471	0.0906	250 250	245 245	100.0% 100.0%	0.35 [0.17, 0.52] 0.35 [0.17, 0.52]	•	
Heterogeneity: Not ap	plicable					,	-	
Test for overall effect:	Z = 3.83 (P = 0.0001)							
Total (95% CI)			250	245	100.0%	0.35 [0.17. 0.52]	٠	
Heterogeneity: Not ap	plicable							
Test for overall effect:	Z = 3.83 (P = 0.0001)						Favours control Favours education	
Test for subgroup dif	ferences: Not applicable						·	
.								
Guldan 2000 ¹⁵	cluded Study:							
20.00.2000								



2.0 Complementary feeding plus education AND complementary feeding alone

Linear Growth 2.1 Height Gain (cm)									
			CF +/- edu	Control		Std. Mean Difference	Std. Mean Difference		
Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI		
5.2.1 Food insecure									
Bhandari 2001	0.31	0.146	97	93	29.7%	0.31 [0.02, 0.60]			
Obatulo 2003	1.13	0.2794	30	30	22.2%	1.13 [0.58, 1.68]	_		
Oelofse 2003	0.04	0.366	16	14	17.8%	0.04 [-0.68, 0.76]	_		
Schroeder 2002	-0.02	0.1313	114	118	30.4%	-0.02 [-0.28, 0.24]	-+-		
Subtotal (95% CI)			257	255	100.0%	0.34 [-0.09, 0.78]			
Heterogeneity: Tau² =	= 0.15; Chi ² = 14.57, df =	3 (P = 0.0	002); I ^z = 799	6					
Test for overall effect:	Z = 1.54 (P = 0.12)								
Total (95% CI)			257	255	100.0%	0.34 [-0.09, 0.78]	-		
Heterogeneity: Tau ² =	= 0.15; Chi ² = 14.57, df =	3 (P = 0.0	002); I ^z = 799	6					
Test for overall effect:	Z = 1.54 (P = 0.12)						-2 -1 U 1 2		
Test for subgroup diff	ferences: Not applicable						Control CF +- edu		

Citation to the included studies:

Bhandari 2001,²⁶ Oelofse 2003,⁴² Schroeder 2002,⁴³ Obatulo 2003⁴¹
	2.2 Height-for-Age (Mean Z Scores)											
1	As food secure/insecure											
				CF +/-edu	Control		Std. Mean Difference	Std. Mean Difference				
_	Study or Subgroup	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI				
	3.4.1 Food insecure											
	Adu-Afarwuah 2007	0.2589	0.1512	97	81	15.3%	0.26 [-0.04, 0.56]					
	Bhandari 2001	0	0.1499	87	91	15.4%	0.00 [-0.29, 0.29]					
	Lartey 1999	0.6581	0.088	190	465	16.6%	0.66 [0.49, 0.83]					
	Lutter 2008	0.1407	0.1124	170	149	16.2%	0.14 [-0.08, 0.36]	+				
	Obatulo 2003	2.03	0.3216	30	30	10.9%	2.03 [1.40, 2.66]		+			
	Oelofse 2003	-0.04	0.366	16	14	9.8%	-0.04 [-0.76, 0.68]					
	Schroeder 2002	0	0.1313	114	118	15.8%	0.00 [-0.26, 0.26]					
	Subtotal (95% CI)			704	948	100.0%	0.39 [0.05, 0.73]	-				
	Heterogeneity: Tau ² = 0.18; Chi ² = 57.04, df = 6 (P ≤ 0.00001); l ² = 89%											
	Test for overall effect: 2	Z = 2.23 (P = 0.03)										
	Total (95% CI)			704	948	100.0%	0.39 [0.05, 0.73]	•				
	Heterogeneity: Tau ² = 0.18; Chi ² = 57.04, df = 6 (P < 0.00001); l ² = 89%											
	Test for overall effect: Z = 2.23 (P = 0.03)											
	Test for subgroup differences: Not applicable											

Citation to the included studies: Oelofse 2003,⁴² Adu-Afarwuah,¹⁷ Bhandari 2001,²⁶ Lartey 1999,²⁰ Lutter 2008,²¹ Obatulo 2003,⁴¹ Schroeder 2002⁴³

2.3 Stunting (HAZ <-2)										
As food secure/insecure										
			CF +/- edu	Control		Odds Ratio		Odds Ratio		
Study or Subgroup	log[Odds Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI		IV, Random, 95% C	1	
4.4.1 Food insecure										
Adu-Afarwuah 2007	-0.4	0.105	97	81	14.4%	0.67 [0.55, 0.82]		+		
Bhandari 2001	-0.3446	0.3371	87	91	13.8%	0.71 [0.37, 1.37]				
Lartey 1999	-1.1813	0.055	190	465	14.5%	0.31 [0.28, 0.34]		•		
Lutter 2008	-0.21202	0.1124	170	149	14.4%	0.81 [0.65, 1.01]		-		
Obatulo 2003	-5.809	0.181	30	30	14.3%	0.00 [0.00, 0.00]	•			
Oelofse 2003	-0.0535	0.255	16	14	14.1%	0.95 [0.58, 1.56]		-		
Schroeder 2002	0.322	0.092	114	118	14.5%	1.38 [1.15, 1.65]		+		
Subtotal (95% CI)			704	948	100.0%	0.33 [0.11, 1.00]		-		
Heterogeneity: Tau ² =	2.15; Chi ² = 1011.	49, df = 6	6 (P < 0.000	01); I ^z = 99	3%					
Test for overall effect:	Z = 1.96 (P = 0.05)									
Total (95% CI)			704	948	100.0%	0.33 [0.11, 1.00]		-		
Heterogeneity: Tau ² = 2.15; Chi ² = 1011.49, df = 6 (P < 0.00001); i ² = 99%										
Test for overall effect:	Test for overall effect: Z = 1.96 (P = 0.05)									100
Test for subgroup differences; Not applicable										

Citation to the included studies:

Oelofse 2003,⁴² Adu-Afarwah,¹⁷ Bhandari 2001,²⁶ Lartey 1999,²⁰ Lutter 2008,²¹ Obatulo 2003,⁴¹ Schroeder 2002⁴³

2.4 Weight Gain (kg)

As food secure/	insecure								
04. J 0. J	044 Marca D.W.		CF +/- edu (Control	104-1-L4	Std. Mean Difference	Std. Mean Difference		
Study or Subgroup 6.4.1 Food insecure	Std. Mean Difference	SE	Total	Total	Weight	IV, Random, 95% Cl	IV, Random, 95% CI		
Bhandari 2001	0.01	0.1492	87	93	26.0%	0.01 [-0.28, 0.30]	_ _		
Obatulo 2003	1.82	0.2102	30	30	25.3%	1.82 [1.41, 2.23]	→ _		
Oelofse 2003	-0.11	0.3663	16	14	22.5%	-0.11 [-0.83, 0.61]			
Schroeder 2002 Subtotal (95% CI)	-0.04	0.1313	114 247	118 255	26.2% 100.0%	-0.04 [-0.30, 0.22] 0.43 [-0.42, 1.27]			
Heterogeneity: Tau ² = Test for overall effect:	0.69; Chi² = 64.01, df = Z = 0.99 (P = 0.32)	3 (P < 0.0	0001); l ^z = 9	5%					
Total (95% CI)			247	255	100.0%	0.43 [-0.42, 1.27]			
Heterogeneity: Tau ² = Test for overall effect: Test for subgroup diff	0.69; Chi² = 64.01, df = Z = 0.99 (P = 0.32) erences: Not applicable	3 (P < 0.0	0001); I ^z = 9	5%			-1 -0.5 0 0.5 1 Control CF +/- edu		
Citation to the inc	luded studies:								
Bhandari 2001, ²⁶ (Delofse 2003, ⁴² Sch	nroeder	2002, ⁴³ C	batul	o 20034	1			
		2.	.5 Weigh	t-for-	Age-Z	Scores			
As food secure/	nsecure								
Study or Subgroup	Std. Mean Difference	SE	CF +/- edu (Total	Control Total	Weight	Std. Mean Difference	Std. Mean Difference		
Adu-Afarwuah 2007	0.3078	0.1514	97	81	55.9%	0.31 [0.01, 0.60]			
Lutter 2008	0.2639	0.1927	170	149	34.5%	0.26 [-0.11, 0.64]	+		
Oelofse 2003	-0.0223	0.366	16	14	9.6%	-0.02 [-0.74, 0.70]			
Total (95% CI)			283	244	100.0%	0.26 [0.04, 0.48]	◆		
Heterogeneity: Tau² = Test for overall effect:	0.00; Chi² = 0.69, df = 2 Z = 2.31 (P = 0.02)	(P = 0.71)); I ^z = 0%				-1 -0.5 0 0.5 1 Control CF +/- edu		
Citation to the inc	luded studies:								
Adu-Afarwuah 200	07, ¹⁷ Lutter 2008, ²	¹ Oelofs	e 2003 ⁴²						
		2	.6 Undei	rweig	nt (WA	Z <-2)			
As food secure/	insecure								
		CF -	+/- edu Co	ntrol		Risk Ratio	Risk Ratio		
Study or Subgroup	log[Risk Ratio]	SE	Total	Total	Weight	IV, Fixed, 95% Cl	IV, Fixed, 95% CI		
Lutter 2008	-1.0481 0	.403	170	149	100.0%	0.35 [0.16, 0.77]			
Total (95% CI)			170	149	100.0%	0.35 [0.16, 0.77]	•		
Heterogeneity: Not a	applicable					H III			
Test for overall effec	t: Z = 2.60 (P = 0.009)	l				0.0	CF +/- edu Control		
Citation to the included study:									
		3 7 \\/-	ight for	Haiah	+ / 1 /	n 7 Scores)			
		z./ we	ugnt-tor-	neigh	it tivlea	in Z Scores)			



Complementary food or education on complementary food



			CF +/- education	Control		Risk Ratio	Risk Ratio			
Study or Subgroup	log[Risk Ratio]	SE	Total	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI			
Adu-Afarwuah 2007	-0.5314	0.716	98	96	29.5%	0.59 [0.14, 2.39]				
Bhandari 2001	0.0539	0.4635	97	91	70.5%	1.06 [0.43, 2.62]				
Total (95% CI)			195	187	100.0%	0.89 [0.41, 1.90]	+			
Heterogeneity: Tau² =	0.00; Chi ² = 0.47,	df = 1 (P	= 0.49); I ² = 0%							
Test for overall effect:	Z = 0.31 (P = 0.76)				F	avours [experimental] Eavours [control]			
							areare [experimental] + areare [control]			
Citation to the included studies:										
Adu-Afarwuah 2007, ¹⁷ Bhandari 2001 ²⁶										