Annex

Table S1A. PubMed search

Theme	Query No.	Query details	Results/hits as of 14 Jan 2024
Intervention	#1	nutrition-specific intervention OR nutrition-specific programme OR nutrition-sensitive intervention OR nutrition-sensitive programme OR food supplementation OR dietary supplementation OR micronutrient supplementation OR energy supplementation OR protein supplementation OR folic acid supplementation OR iron supplementation OR calcium supplementation OR vitamin A supplementation OR zinc supplementation OR salt iodisation OR food fortification OR micronutrient fortification OR food aid OR feeding programme OR school meal feeding OR food distribution OR emergency nutrition OR disease prevention OR disease management OR treatment of severe acute malnutrition OR deworming OR management of moderate acute malnutrition OR (Water Sanitation Hygiene) OR WASH OR breastfeeding promotion OR IYCF OR infant and young child feeding support OR complementary feeding OR responsive feeding OR adolescent health OR preconception health OR maternal health OR adolescent nutrition OR preconception nutrition OR maternal nutrition OR agriculture OR home garden OR homestead food production OR irrigation system OR value chain OR agricultural capacity development OR access to agricultural input OR cash transfer OR conditional cash transfer OR unconditional transfer OR income generation programme OR social safety net OR social protection OR women empowerment OR early child development OR maternal mental health OR child protection OR education OR schooling OR behaviour change OR health service OR family planning OR multisector	**17,658,593**
Outcome	#2	malnutrition OR dietary pattern OR dietary quality OR nutrient OR food OR diet OR nutrition OR micronutrient OR deficiency OR undernutrition OR stunting OR wasting OR underweight OR height-for-age OR weight-for-age OR anthropometry OR overweight OR obesity OR nutritional assessment OR fruit OR vegetable OR legume OR nut OR whole grain OR free sugar OR total fat OR unsaturated fat OR saturated fat OR trans fat OR salt OR sodium	**5,426,665**
Food system elements	#3	food supply chain OR food production system OR food storage OR food distribution OR food transportation OR food processing OR food retail OR food market OR food environment OR food availability OR physical access OR economic access OR food affordability OR food price OR food promotion OR food advertising OR food information OR food quality OR food safety OR consumer behaviour OR consumer attitude OR consumer choice OR consumer preference OR buying behaviour OR food purchasing OR food consumption pattern OR food product selection OR buying habit OR food preparation OR food consumption	**1,179,851**
Context	#4	shock OR crisis OR crises OR conflict OR pandemic OR SARS OR covid-19 OR recession OR inflation OR catastrophe OR catastrophic OR disaster OR climate change OR global warming OR drought OR flood OR earthquake OR tsunami OR clash OR war OR upheaval	**3,785,008**
Countries	#5	low income OR lower-middle income OR LMIC* OR developing country OR Afghanistan OR Angola OR Burundi OR Benin OR Burkina Faso OR Bangladesh OR Bolivia OR Bhutan OR Central African Republic OR Côte d'Ivoire OR Cameroon OR Congo OR Comoros OR Cabo Verde OR Djibouti OR Algeria OR Egypt OR Eritrea OR Ethiopia OR Micronesia OR Ghana OR Guinea OR Gambia OR Guinea-Bissau OR Honduras OR Haiti OR India OR Iran OR Jordan OR Kenya OR Kyrgyzstan OR Cambodia OR Kiribati OR Laos OR Lebanon OR Liberia OR Sri Lanka OR Lesotho OR Morocco OR Madagascar OR Mali OR Myanmar OR Mongolia OR Mozambique OR Mauritania OR Malawi OR Niger OR Nigeria OR Nicaragua OR Nepal OR Pakistan OR Philippines OR Papua New Guinea OR Korea OR Rwanda OR Sudan OR Senegal OR Solomon Islands OR Sierra Leone OR Somalia OR South Sudan OR São Tomé and Príncipe OR Eswatini OR Syria OR Chad OR Togo OR Tajikistan OR Timor-Leste OR Tunisia OR Tanzania OR Uganda OR Ukraine OR Uzbekistan OR Vietnam OR Vanuatu OR Samoa OR Yemen OR Zambia OR Zimbabwe	**2,950,682**
Combined all	#6	#1 AND #2 AND #3 AND #4 AND #5	**31,704**
Restriction	#7	#6 Restricted to systematic review and meta-analysis (filter)	**928**
Restriction-2	#8	#7 AND (baby OR toddler OR babies OR paediatr* OR neonat* OR newborn* OR infant* OR "under 5*" OR "under five*" OR "under-five*" OR child, preschool OR preschool* OR girl OR boy OR "women of reproductive age" OR women)	**249**

Table S1B. Cochrane Library search

Theme	Query No.	Query details	Results/hits as of 14 Jan 2024
Intervention	#1	nutrition-specific intervention OR nutrition-specific programme OR nutrition-sensitive intervention OR nutrition-sensitive programme OR food supplementation OR dietary supplementation OR micronutrient supplementation OR energy supplementation OR protein supplementation OR folic acid supplementation OR iron supplementation OR calcium supplementation OR vitamin A supplementation OR zinc supplementation OR salt iodisation OR food fortification OR micronutrient fortification OR food aid OR feeding programme OR school meal feeding OR food distribution OR emergency nutrition OR disease prevention OR disease management OR treatment of severe acute malnutrition OR deworming OR management of moderate acute malnutrition OR (Water Sanitation Hygiene) OR WASH OR breastfeeding promotion OR IYCF OR infant and young child feeding support OR complementary feeding OR responsive feeding OR adolescent health OR preconception health OR maternal health OR adolescent nutrition OR preconception nutrition OR maternal nutrition OR agriculture OR home garden OR homestead food production OR irrigation system OR value chain OR agricultural capacity development OR access to agricultural input OR cash transfer OR conditional cash transfer OR unconditional transfer OR income generation programme OR social safety net OR social protection OR women empowerment OR early child development OR maternal mental health OR child protection OR education OR schooling OR behaviour change OR health service OR family planning OR multisector	**8,493**
Outcome	#2	malnutrition OR dietary pattern OR dietary quality OR nutrient OR food OR diet OR nutrition OR micronutrient OR deficiency OR undernutrition OR stunting OR wasting OR underweight OR height-for-age OR weight-for-age OR anthropometry OR overweight OR obesity OR nutritional assessment OR fruit OR vegetable OR legume OR nut OR whole grain OR free sugar OR total fat OR unsaturated fat OR saturated fat OR trans fat OR salt OR sodium	**4,892**
Food system elements	#3	food supply chain OR food production system OR food storage OR food distribution OR food transportation OR food processing OR food retail OR food market OR food environment OR food availability OR physical access OR economic access OR food affordability OR food price OR food promotion OR food advertising OR food information OR food quality OR food safety OR consumer behaviour OR consumer attitude OR consumer choice OR consumer preference OR buying behaviour OR food purchasing OR food consumption pattern OR food product selection OR buying habit OR food preparation OR food consumption	**3,824**
Context	#4	shock OR crisis OR crises OR conflict OR pandemic OR SARS OR covid-19 OR recession OR inflation OR catastrophe OR catastrophic OR disaster OR climate change OR global warming OR drought OR flood OR earthquake OR tsunami OR clash OR war OR upheaval	**3,400**
Countries	#5	low income OR lower-middle income OR LMIC* OR developing country OR Afghanistan OR Angola OR Burundi OR Benin OR Burkina Faso OR Bangladesh OR Bolivia OR Bhutan OR Central African Republic OR Côte d'Ivoire OR Cameroon OR Congo OR Comoros OR Cabo Verde OR Djibouti OR Algeria OR Egypt OR Eritrea OR Ethiopia OR Micronesia OR Ghana OR Guinea OR Gambia OR Guinea-Bissau OR Honduras OR Haiti OR India OR Iran OR Jordan OR Kenya OR Kyrgyzstan OR Cambodia OR Kiribati OR Laos OR Lebanon OR Liberia OR Sri Lanka OR Lesotho OR Morocco OR Madagascar OR Mali OR Myanmar OR Mongolia OR Mozambique OR Mauritania OR Malawi OR Niger OR Nigeria OR Nicaragua OR Nepal OR Pakistan OR Philippines OR Papua New Guinea OR Korea OR Rwanda OR Sudan OR Senegal OR Solomon Islands OR Sierra Leone OR Somalia OR South Sudan OR São Tomé and Príncipe OR Eswatini OR Syria OR Chad OR Togo OR Tajikistan OR Timor-Leste OR Tunisia OR Tanzania OR Uganda OR Ukraine OR Uzbekistan OR Vietnam OR Vanuatu OR Samoa OR Yemen OR Zambia OR Zimbabwe	**4,872**
Combined all	#6	#1 AND #2 AND #3 AND #4 AND #5	**928**
Restriction	#7	#6 Restricted to systematic review and meta-analysis (#6 AND (systematic review OR systematic literature review OR meta-analysis OR meta analysis OR meta-analyses OR meta analyses OR systematic review OR meta-analysis))	**928**
Restriction-2	#8	#7 AND (baby OR toddler OR babies OR paediatr* OR neonat* OR newborn* OR infant* OR "under 5*" OR "under five*" OR "under-five*" OR child, preschool OR preschool* OR girl OR boy OR "women of reproductive age" OR women)	**887**

Table S1C. Embase search

Theme	Query No.	Query details	Results/hits as of 14 Jan 2024
Intervention	#1	'nutrition-specific intervention' OR 'nutrition-specific programme' OR 'nutrition-sensitive intervention' OR 'nutrition-sensitive programme' OR 'food supplementation' OR 'dietary supplementation' OR 'micronutrient supplementation' OR 'energy supplementation' OR 'protein supplementation' OR 'folic acid supplementation' OR 'iron supplementation' OR 'calcium supplementation' OR 'vitamin A supplementation' OR 'zinc supplementation' OR 'salt iodisation' OR 'food fortification' OR 'micronutrient fortification' OR 'food aid' OR 'feeding programme' OR 'school meal feeding' OR 'food distribution' OR 'emergency nutrition' OR 'disease prevention' OR 'disease management' OR 'treatment of severe acute malnutrition' OR 'deworming' OR 'management of moderate acute malnutrition' OR 'Water Sanitation Hygiene' OR 'WASH' OR 'breastfeeding promotion' OR 'IYCF' OR 'infant and young child feeding support' OR 'complementary feeding' OR 'responsive feeding' OR 'adolescent health' OR 'preconception health' OR 'maternal health' OR 'adolescent nutrition' OR 'preconception nutrition' OR 'maternal nutrition' OR 'agriculture' OR 'home garden' OR 'homestead food production' OR 'irrigation system' OR 'value chain' OR 'agricultural capacity development' OR 'access to agricultural input' OR 'cash transfer' OR 'conditional cash transfer' OR 'unconditional transfer' OR 'income generation programme' OR 'social safety net' OR 'social protection' OR 'women empowerment' OR 'early child development' OR 'maternal mental health' OR ' child protection' OR 'education' OR 'schooling' OR 'behaviour change' OR 'health service' OR 'family planning' OR 'multisector'	**3,823,389**
Outcome	#2	'malnutrition' OR 'dietary pattern' OR 'dietary quality' OR 'nutrient' OR 'food' OR 'diet' OR 'nutrition' OR 'micronutrient' OR 'deficiency' OR 'undernutrition' OR 'stunting' OR 'wasting' OR 'underweight' OR 'height-for-age' OR 'weight-for-age' OR 'anthropometry' OR 'overweight' OR 'obesity' OR 'nutritional assessment' OR 'fruit' OR 'vegetable' OR 'legume' OR 'nut' OR 'whole grain' OR 'free sugar' OR 'total fat' OR 'unsaturated fat' OR 'saturated fat' OR 'trans fat' OR 'salt' OR 'sodium'	**5,382,870**
Food system elements	#3	'food supply chain' OR 'food production system' OR 'food storage' OR 'food distribution' OR 'food transportation' OR 'food processing' OR 'food retail' OR 'food market' OR 'food environment' OR 'food availability' OR 'physical access' OR 'economic access' OR 'food affordability' OR 'food price' OR 'food promotion' OR 'food advertising' OR 'food information' OR 'food quality' OR 'food safety' OR 'consumer behaviour' OR 'consumer attitude' OR 'consumer choice' OR 'consumer preference' OR 'buying behaviour' OR 'food purchasing' OR 'food consumption pattern' OR 'food product selection' OR 'buying habit' OR 'food preparation' OR 'food consumption'	**173,491**
Context	#4	'shock' OR 'crisis' OR 'crises' OR 'conflict' OR 'pandemic' OR 'SARS' OR 'covid-19' OR 'recession' OR 'inflation' OR 'catastrophe' OR 'catastrophic' OR 'disaster' OR 'climate change' OR 'global warming' OR 'drought' OR 'flood' OR 'earthquake' OR 'tsunami' OR 'clash' OR 'war' OR 'upheaval'	**1,502,577**
Countries	#5	'low income' OR 'lower-middle income' OR 'LMIC*' OR 'developing country' OR 'Afghanistan' OR 'Angola' OR 'Burundi' OR 'Benin' OR 'Burkina Faso' OR 'Bangladesh' OR 'Bolivia' OR 'Bhutan' OR 'Central African Republic' OR 'Côte dIvoire' OR 'Cameroon' OR 'Congo' OR 'Comoros' OR 'Cabo Verde' OR 'Djibouti' OR 'Algeria' OR 'Egypt' OR ' Eritrea' OR 'Ethiopia' OR 'Micronesia' OR 'Ghana' OR 'Guinea' OR 'Gambia' OR 'Guinea-Bissau' OR 'Honduras' OR 'Haiti' OR 'India' OR 'Iran' OR 'Jordan' OR 'Kenya' OR 'Kyrgyzstan' OR 'Cambodia' OR 'Kiribati' OR 'Laos' OR 'Lebanon' OR 'Liberia' OR 'Sri Lanka' OR 'Lesotho' OR 'Morocco' OR 'Madagascar' OR 'Mali' OR 'Myanmar' OR 'Mongolia' OR 'Mozambique' OR 'Mauritania' OR 'Malawi' OR 'Niger' OR 'Nigeria' OR 'Nicaragua' OR 'Nepal' OR 'Pakistan' OR 'Philippines' OR 'Papua New Guinea' OR 'Korea' OR 'Rwanda' OR 'Sudan' OR 'Senegal' OR 'Solomon Islands' OR 'Sierra Leone' OR 'Somalia' OR 'South Sudan' OR 'São Tomé and Príncipe' OR 'Eswatini' OR 'Syria' OR 'Chad' OR 'Togo' OR 'Tajikistan' OR 'Timor-Leste' OR 'Tunisia' OR 'Tanzania' OR 'Uganda' OR 'Ukraine' OR 'Uzbekistan' OR 'Vietnam' OR 'Vanuatu' OR 'Samoa' OR 'Yemen' OR 'Zambia' OR 'Zimbabwe'	**4,225,964**
Combined all	#6	#1 AND #2 AND #3 AND #4 AND #5	**763**
Restriction	#7	#6 Restricted to systematic review and meta-analysis (#6 AND ('systematic review' OR 'systematic literature review' OR 'meta-analysis' OR 'meta analysis' OR 'meta-analyses' OR 'meta analyses' OR 'systematic review' OR 'meta-analysis')	**39**

Table S1C. Embase search (continued)

Theme	Query No.	Query details	Results/hits as of 14 Jan 2024
Restriction-2	#8	#7 AND ('baby' OR 'toddler' OR 'babies' OR 'paediatr*' OR 'neonat*' OR 'newborn*' OR 'infant*' OR 'under 5*' OR 'under five*' OR 'under-five*' OR 'child, preschool' OR 'preschool*' OR 'girl' OR 'boy' OR 'women of reproductive age' OR 'women')	**8**

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
#1 Pega et al., 2015[1]	3	13885	2008-2013	0-15 (n=9640) adults (n=4245)	Seasonal hunger, SCC-sensitive country, Combination	Nicaragua, Niger	**F-access:** · Unconditional cash transfer	**D-diversity:** · Increased dietary diversity (1/1)	NA	**F-prod:** · Increased production of cash crop (1/1)	**F-affordability:** · Increased purchasing power (1/1) · Higher expenditure for nutrient-rich food group (1/1)	**F-prod:** · Increased cultivation of women's cash crops (1)	NA
							D-intake + F-access: · Supplementary feeding · Cash transfer	NA	**N-AM + N-mortality:** · Decreased MAM and SAM (1/1) · Decreased mortality (1/1)	NA	NA	NA	**F-affordability + C-bh:** · Purchasing power for nutrient-rich food (1) · Choosing nutrient-rich foods for children (1)
Aker et al., 2011[2]		>1200 households in 96 villages	2011	NA	Combination (Natural disaster + Food crisis)	Niger	**F-access:** · Unconditional cash transfer (pay in-hand, pay via ZAP and pay in-hand with mobile phone)	**D-diversity:** · Increased household diet diversity	NA	**F-prod:** · Households in ZAP villages grew more types of crops	**F-affordability:** · Households in ZAP villages purchased more types of food and non-food items	**F-prod:** · Increased cultivation of women's cash crops	NA
Macours et al., 2012[3]		8490 participants : 4245 children and 4245 adults (the children's mothers)	2012	0~15	SCC-sensitive country	Nicaragua	**F-access:** Attention a crisis pilot programme · A conditional cash transfer · A conditional cash transfer plus a scholarship that allowed one of the household members to participate in a vocational training course. · A conditional cash transfer plus a	NA	NA	NA	**F-affordability:** · Changed the composition of food expenditures to spend higher fractions on animal proteins, fruits, and vegetables	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							productive investment grant, aimed at encouraging recipients to start a small non-agricultural activity.						
Langendorf et al., 2014[4]		5,395 children	2014	0.5~2	Seasonal hunger	Niger	**D-intake + F-access:** · High-quantity - LNS/cash · Medium-quantity - LNS/cash · Super cereal+/cash · Super cereal+/food ration · High-quantity -LNS · Super cereal + · Cash only	NA	**N-AM + N-mortality:** · Decreased the incidence of MAM and SAM (supplementary food with household support) · Decreased the mortality (high and medium-quantity - LNS/cash)	NA	NA	NA	**F-affordability + C-bh:** · Specific locally available nutritious foods, affordable thanks to cash transfer. · Households used their additional resources to improve the nutritional quality of the diet of young children
#2 Pradhan et al., 2016[5]	5	10489	2000-2015	0.5~5	Natural disaster, Combination	China, Sri Lanka, Bangladesh, India, Kenya	**D-intake:** · Supplementary feeding	NA	**N-status + N-ant:** · Decreased anaemia (1/1) · Decreased wasting (1/1), underweight (1/1), stunting (2/2)	NA	NA	NA	**F-access:** · Channels available to supply quality food to young children (1)

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
									· Increased HAZ (1/1), WAZ (1/1), WHZ (1/1)				
							D-intake + C-aware + S-care: · Supplementary feeding · Health education (focus on child care, iodised salt usage) · Nutrition education (IYCF)	NA	**N-ant + N-AM** · Decreased under nutrition (0/1), underweigh t (0/1) and severely malnutrition (0/1)	NA	NA	NA	**C-bh:** · IYCF (1) · Care capacity (1)
							D-intake + S-health: · Supplementary feeding · Medical care	NA	**N-ant + N-AM:** · Increased WHZ (1/1) · Decreased GAM and SAM (0/1)	NA	NA	NA	**C-bh + H-access:** · Seeking health services (1) · Access to health system (1)
Dong et al., 2013[6]		1019 children	2013	0.5~2	Natural disaster	China	**D-intake:** · Distribute formulated supplementary foods	NA	**N-status + N-ant:** · Decreased the prevalence of anaemia [b] · Increased the average Hb level · Increased HAZ, WAZ and WHZ	NA	NA	NA	**F-access:** · Increasing food supplies and improving food quality to infants and young children

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
									· Decreased the prevalence of wasting, stunting and underweigh t [b]				
Rah et al., 2011[7]		· 100714 children · 59,439 pregnant or lactating women	2011	· Children:< 5 · Pregnant or lactating women: NA	Natural disaster	Bangladesh	**D-intake:** · Distribute micronutrient powder contained RNI	NA	**N-ant:** · Decreased prevalence of stunting	NA	NA	NA	NA
US Centers for Disease Control and Preventio n, 2012[8]		2475 children	2012	0.5~3	Natural disaster	Kenya	**D-intake + S-health:** Blanket supplementary feeding programme: · Distribute CSB+ and oil · Systematic interventions (vitamin A supplementation) · Health education	NA	**N-ant:** · Increased WHZ	NA	NA	NA	NA
Jayatissa et al., 2012[9]		· Phase I, n=3638 · Phase II, n=38953 · Phase III n=43221 · End line survey n=282	2012	<5	Combinat ion (Conflict + Natural disaster)	Sri Lanka	**D-intake + S-health:** The Nutrition Rehabilitation Programme: · Provide RUTF, HEBs, CSB food · Refer for treatment	NA	**N-AM:** · SAM recovery rates (42.5-93.9%) [b] · MAM recovery rates (32.3-50.5%) [b] · Decreased the	NA	NA	NA	**C-bh + H-access:** · Proper feeding practices for infants and young children. · Effective child-care practices. · The availability of free health services, good accessibility, the

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							• Provide health staff with a series of training sessions		prevalence of GAM and SAM [b]				high literacy rate among mothers, and their proactive health-seeking behaviour. • The continuity of supply, generous ration sizes, and the prevention of sharing due to the blanket approach to feeding with CSB. • The enhancement of community awareness and emphasis on the importance of breastfeeding.
Kumar et al., 2005[10]		3206 children	2005	<5	Natural disaster	India	**D-intake + C-aware + S-care:** Set up Nutrition Care Centers: • Targeted feeding • Nutrition and health education (exclusive breast feeding, complimentary feeding, feeding care of children during illness, use of iodised salt and vitamin A administration in children)	NA	**N-ant + N-AM:** • Decreased the prevalence of under nutrition, underweigh t and severely malnutrition [b]	NA	NA	NA	**C-bh:** • Empowering local women • Child-care practices • Increase knowledge on breastfeeding • Training programme in upgrading their knowledge and skills to identify and manage severely malnourished children
#3	91 (6)[a]	NA		0-5			**D-intake:**	NA	**N-AM:**	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Shah et al., 2021[11]			1991-2018		Conflict, Combination	47.3% sub-Saharan Africa 34.1% Middle East and North Africa	· Supplementary feeding		· GAM recovery rates (>75%) (0/1)				
							D-intake + S-health/care: · Supplementary feeding · medical care · Health education · training health staff	NA	**N-AM + N-mortality:** · Decreased GAM and SAM (0/1) · GAM recovery rates (>75%) (0/2) · SAM recovery rates (>75%) (0/1) · Decreased mortality (0/1)	NA	NA	NA	**C-bh + H-access:** · Seeking health services (1) · Access to health system (1)
Vautier et al., 1999[12]		40223 children	1999	<5	Conflict	Liberia, Burundi, DRC	**D-intake:** Supplementary feeding programme · Provide food ration	NA	**N-AM:** · GAM recovery rates (76.9%) [b]	NA	NA	NA	NA
Jayatissa et al., 2012[9]		· Phase I, n=3638 · Phase II, n=38953 · Phase III n=43221 · End line survey n=282	2012	<5	Combination (Conflict + Natural disaster)	Sri Lanka	**D-intake + S-health:** The Nutrition Rehabilitation Programme: · Provide RUTF, HEBs, CSB food · Refer for treatment · Provide health staff with a series of training sessions	NA	**N-AM:** · SAM recovery rates (42.5-93.9%) · MAM recovery rates (32.3-50.5%) · Decreased the prevalence	NA	NA	NA	**C-bh + H-access:** · Effective child-care practices. · Proper feeding practices for infants and young children. · The availability of free health services, good accessibility, the high literacy rate among mothers,

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
									of GAM and SAM [b]				and their proactive health-seeking behaviour. · The continuity of supply, generous ration sizes, and the prevention of sharing due to the blanket approach to feeding with CSB. · The enhancement of community awareness and emphasis on the importance of breastfeeding.
Nielsen et al., 2004[13]		247 children	2004	0.5-5	Conflict	Guinea-Bissau	**D-intake + S-health:** The supplementary feeding programmemes: · Provide micronutrient supplement and flour mixture · Medical treatment	NA	**N-AM:** · GAM recovery rates (59.9%) [b]	NA	NA	NA	NA
Tappis et al., 2012[14]		43316 children	2012	<5	Conflict	Kenya, Tanzania	**D-intake + S-health:** Supplementary feeding programme: · Provide primarily fortified blended foods, oil, and sugar Therapeutic feeding programme: · Refer for treatment	NA	**N-AM:** · GAM recovery rates (75-92%) [b]	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Dureab et al., 2017[15]		1103 children	2017	<5	Conflict	Yemen	**D-intake + S-health:** Establish a supplementary feeding programme: · Provision of therapeutic milks and RUTF · Provision of maternal education and counselling · Referral for treatment Improving acute malnutrition treatment services: · Hold training courses on SAM management for doctors, nurses, medical students, and health workers Establish an outpatient therapeutic programme	NA	**N-AM + N-mortality:** · SAM recovery rates (7.1%) · Decreased death rates [b]	NA	NA	NA	NA
Hammoud, 2015[16]		519 children	2015	<5	Conflict	Lebanon	**D-intake + S-health + S-care:** Health Programme: · Provide RUSF, RUTF, micronutrients and protein-rich biscuits · Provide treatment for acute illnesses · Conduct pediatric consultations	NA	**N-AM:** · GAM recovery rates (79.2%) [b]	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							· Administer vaccinations · Deliver health education Nutrition Programme: · Provide micronutrients and vitamins for malnutrition · Provide oral rehydration salts for diarrhea and/or other medication · Refer for treatment						
#4 Als et al., 2020[17]	58 (1) [a]	NA	1994-2018	NA	Conflict	72% Sub-Saharan Africa	**S-health:** · Use the improved containers for water collection	NA	NA	NA	**S-other:** · Improved containers were protective against diarrhea (1/1)	NA	NA
Roberts et al., 2001[18]		310	2001	NA	Conflict	Malawi	**S-health:** · Use the improved containers for water collection	NA	NA	NA	**S-other:** · Improved containers were protective against diarrhea	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
#5 Munyuzangabo et al., 2020[19]	115 (3) [a]	NA	1991-2018	NA	Conflict	43% sub-Saharan Africa region 27% East Asia and Pacific region	**D-intake:** · Supplementary feeding	NA	**N-ant:** · Increased neonates' body weight (2/2) and head circumference (1/1) · Lowered the incidence of low birthweight (1/1)	NA	NA	NA	**F-access + C-aware:** · Increased accessibility of food rations (1) · Education to decrease betel nut consumption (1)
Carrara et al., 2017[20]		1048 women (972 neonate)	2017 women who had pregnancy	NA	Conflict	Thailand-Myanmar border	**D-intake:** · Provide food ration (routine pregnancy-specific ration and micronutrient supplement)	NA	**N-ant:** · Increased neonates' body weight and head circumference	NA	NA	NA	NA
Shrimpton et al., 2009[21]		5234 women	2009 women who had pregnancy	NA	Conflict	Nepal	**D-intake:** · Provide food ration	NA	**N-ant:** · Lowered the incidence of low birthweight	NA	NA	NA	**F-access:** · Adequacy of the general food ration available to women during the first half of pregnancy

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
McGready et al., 2001[22]		50 pregnant women	2001	· Intervention group: 25.1 ± 7.2 · Control group: 24.2 ± 7.1	Conflict	Thailand's western border	**D-intake:** · Provide 100 mg of oral thiamine hydrochloride, polished rice, and 33 g of fish paste daily (for patients showing symptoms of beriberi)	NA	NA	NA	NA	NA	**C-aware:** · Education to decrease betel nut
#6 Bridge et al., 2024[23]	25 (17) [a]	1136411 participants and 95 study villages	2009-2021	<5	Economic crisis, SCC-sensitive country, Natural disaster, Conflict	84% sub-Saharan Africa 12% Middle East North Africa 4% Latin America	**D-intake:** · Supplementary feeding	NA	**N-mortality:** · Decreased the risk of death (1/1)	NA	NA	NA	NA
							D-intake + C-aware + S-health/care: · Supplementary feeding · Nutrition Education (IYCF, cooking, WASH, health care seeking, and child development) · Medical care · Nutrition counselling (IYCF)	NA	**N-status + N-ant + N-AM + N-mortality:** · Decreased anaemia (1/1) · Increased WHZ (1/1), MUAC (1/1), weight gain (1/1), stunting (1/1) · Increased malnutrition recovery (1/1) · Decreased the risk of death (1/1)	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							D-intake + S-health/care: · Supplementary feeding · Medical care · Improving sanitation and hygiene nutrition counselling · Enhancing infant feeding practices	**D-qual + D-qty + D-CF:** · Increased duration of feeding (1/1) · Increased breastfeeding frequency (1/1) · Increased nutrient-rich food consumption (0/1) · Increased dietary quality (1/2)	**N-ant + N-AM + N-mortality:** · Decreased anaemia (1/1) · Increased weight (2/2), MUAC (2/2), WHZ (1/1) · Increased malnutrition recovery (1/2) · Decreased the risk of death (1/1)	NA	**C-aware:** · Increased knowledge of anaemia (1/1) and IYCF (1/2)	NA	**C-bh:** · Good nutrition and WASH practices (1)
							F-access + C-aware + S-care: · Cash transfer · Health education (handwashing practices, treatment of drinking water, and managing diarrhea). · Nutrition education (training on exclusive breastfeeding, complementary feeding, and preparing nutritious meals)	**D-CF:** · Increased exclusive breastfeeding (1/1)	NA	NA	**C-aware:** · Increased knowledge of child feeding (1/1)	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							C-aware + S-care: · Promote nutrition-sensitive agricultural activities · Communication activities (IYCF) · Individual counselling (offer support for feeding practices and demonstrate cooking procedures)	**D-diversity + D-qual + D-qty:** · Increased dietary diversity (1/1) · Increased meal frequency (1/1) · Increased dietary quality (1/1)	**N-ant:** · Increased WAZ (2/2) · Increased HAZ (1/1) · Increased infant length and weight (1/1) · Decreased stunting and underweigh t (1/1)	**F-prod:** Raise chicken (1)	**C-aware:** · Increased knowledge of maternal and child nutrition and feeding (1/1)	NA	**C-bh + C-aware:** · Increased breastfeeding (2) · Increased knowledge of IYCF (1)
							S-care: · Promote IYCF · Enhance community-based nutrition. · Familiarise with nutrition-sensitive agriculture.	**D-CF + D-diversity:** · Increased exclusively breast feeding (1/1) · Increased dietary diversity (1/1)	NA	NA	NA	NA	**C-bh + C-aware:** · Good food practices (1) · Increased knowledge of nutrition and IYCF (1)
Isanaka et al., 2019[24]		95 study villages; 12 community health centres	2019	0.5~3	SCC-sensitive country	Mali	**D-intake:** Delivery of one of 4 dietary Supplements: · RUSF · CSB++ · Misola · Locally milled flour mixture	NA	**N-mortality:** · RUSF: decreased the risk of death by 15.4%. · CSB++: decreased the risk of death by 12.7%. · Misola: decreased the risk of death by 11.9%.	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
									· Locally Milled Flour: decreased the risk of death by 10.3%. (Compared to no dietary supplements)				
Lelijveld et al., 2021[25]		Intervention: 573 children Control: 714 children	2021	0.5~5	SCC-sensitive country	Sierra Leone	**D-intake + C-aware + S-health + S-care** · Provide RUTF and amoxicillin · Hold nutrition sessions (Optimising IYCF, cooking, WASH, health care seeking, child development, & MUAC for mothers) · Attend clinic · Offer nutrition counselling	NA	**N-ant + N-AM + N-mortality:** · Increased WHZ · Increased attain in MUAC · Increased weight gain · Decreased the risk of death · Increased malnutrition short-term recovery · Decreased the risk of progressing to SAM	NA	NA	NA	NA
Charle-Cuéllar et al., 2021[26]		6112 children	2021	0.5~5	SCC-sensitive country	Mali	**D-intake + S-care:** High supervision arm: · Provide RUTF · Provide supportive supervision for Integrated iCCM	NA	**N-AM:** Increased SAM recovery percentage	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							· . · Implement nutrition-specific supervision. Light supervision arm: · Provide RUTF · Offer supportive supervision based on the iCCM package.						
Stewart et al., 2020[27]		· T2: 92 children · T3: 94 children · T4: 89 children · Control group: 95 children	2020	0~2	Economic crisis	Madagascar	**D-intake + S-care:** · T2: Adhere to the standard Madagascan growth monitoring and nutrition education protocol, with the addition of home visits for intensive nutrition counselling, and provide LNS to children aged 6–18 months. · T3: Add to T2 by including LNS for pregnant and lactating women. · T4: Combine T1 with early childhood stimulation and parenting messages.	NA	**N-status:** · T2 and T3 decrease the prevalence of anaemia. · T2 and T3 decrease the prevalence of iron deficiency.	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Rajabi et al., 2022[28]		· Supplementary feeding group:1077 children · Counselling group:714 children	2022	0.5~5	Economic crisis	Sierra Leone	**D-intake + S-care:** Supplementary feeding group: · Distribute CSB, and super cereal plus Counselling group: · Provide counselling (feeding optimisation, hygiene instruction, and a cooking demonstration)	NA	**N-ant + N-AM + N-mortality:** · Decreased risk of developing SAM · Decreased risk of dying · Increased proportion of children with a healthy MUAC at 6 and 12 weeks. · Increased rates of weight and MUAC gain at 6 and 12 weeks (Supplementary feeding group compared to counselling group)	NA	NA	NA	NA
Maust et al., 2015[29]		Integrated management: 1100 children Standard management: 857 children	2015	0.5~5	Conflict	Sierra Leone	**D-intake + S-health + S-care:** Integrated management: · Provide RUTF · Distribute nutrient supplements · Provide insecticide-treated bed net and a	**D-CF** · Increased duration of feeding	**N-ant + N-AM:** · Increased GAM recovery rates [b] · Increased weight gain · Increased MUAC gain	NA	NA	NA	**C-bh:** · Reinforce good nutrition and hygiene practices

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							package of oral rehydration salts · Nutrition counselling		· Increased WHZ				
Locks et al., 2019[30]		Intervention: 654 women Control: 653 women	2019	Women who had children under 1 years old or were pregnant	SCC-sensitive country	Democratic Republic of Congo	**D-intake + S-health + S-care:** Enhanced IYCF programme: · Provide micronutrient and food supplements · Conduct community- and facility-based counselling (handwashing, SQ-LNS, IYCF practices) · Administer vaccinations	**D-CF:** · Increased initiation of breastfeeding within 1 hour of birth.	NA	NA	**C-aware:** · Increased in knowledge about anaemia. · Increased practice of handwashing with soap after using the bathroom, before preparing food, and before feeding a child	NA	NA
Paul et al., 2012[31]		Nutrient supplements group: 16 children Control: 414 children	2012	0.5~1	Natural disaster	Zimbabwe	**D-intake + S-health + S-care:** · Supply LNS · Improve infant feeding practices · Trials of improved practices with nutrient supplements: · Improve sanitation/hygiene practices	**D-CF + D-qual + D-qty:** · Increased breastfeeding frequency · Increased intake of beans, fruits, green leafy vegetables, and peanut/seed butters · Increased intake of energy, protein, fat,	NA	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
								vitamin A, folate, calcium, iron and zinc					
Desai et al., 2015[32]		19 women	2015	Women who had children 0.5~1 years old or were pregnant	SCC-sensitive country	Zimbabwe	**D-intake + S-health + S-care:** The SHINE trial infant feeding Intervention: · Provide lessons on WASH, IYCF, or a combined approach of WASH + IYCF. · Provide LNS	**D-qual + D-qty:** · Increased the quantities of each nutrient consumed. [b]	NA	NA	**C-aware:** · Increase feeding knowledge [b]	NA	NA
Addo et al., 2020[33]		2995 children	2020	0.5~1	Conflict	DRC	**D-intake + C-aware + S-care:** Enhanced IYCF package: · Provide counselling on IYCF. · Distribute daily SQ-LNS. · Implement community-based nutrition education for mothers and pregnant women.	NA	**N-status + N-ant:** · Decreased increase in anaemia prevalence · Decreased Hb level For those who received ≥ 3 monthly SQ-LNS: · Increased Hb levels. · Decreased the prevalence of stunting.	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Kurdi et al., 2020[34]		1,945 women	2020	Women who had children under 2 years old or were pregnant	Conflict	Yemen	**F-access + C-aware + S-care:** · The cash for nutrition programme: provide monthly cash transfers · Conduct nutrition and health education sessions (training on EBF, complementary feeding, preparing nutritious meals, handwashing practices, treatment of drinking water, and how to treat diarrhea)	**D-CF:** · Increased initiation of breastfeeding within the first hour after delivery · Increased exclusive breastfeeding	NA	NA	**C-aware:** · Increased knowledge of breastfeeding	NA	NA
Mayhew et al., 2014[35]		cGMP programme: 414 children Control: 414 children	2014	0.5~1.5	Conflict	Afghanistan	**C-aware + S-care:** cGMP programme: · Monitor the weights of children · Promote feeding practices	NA	**N-ant**: · Increased WAZ	NA	NA	NA	NA
Kim et al., 2019[36]		Intensive group: 1360 children Nonintensive group: 1360 children	2019	0.5~2	SCC-sensitive country	Ethiopia	**C-aware + S-care:** Intensive BCC interventions: · Conduct interpersonal communication activities focused on IYCF. · Promote nutrition-sensitive	**D-diversity + D-qual + D-qty:** · Increased minimum dietary diversity · Increased egg consumption (Exploring the correlation)	**N-ant:** · Increased HAZ	**F-prod:** · Raise chicken	**C-aware:** · Increased maternal complementary feeding knowledge	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							agricultural activities. · Engage religious leaders to deliver IYCF-focused community mobilisation. · Implement a mass media campaign on IYCF practices	· Increased minimum meal frequency. · Increased minimum acceptable diet. · Increased eggs, vitamin A-rich fruits and vegetables, and other fruits and vegetables consumption					
Bisimwa et al., 2009[37]		5479 children	2009	<5	Conflict	DRC	**C-aware + S-care:** A community-based nutrition programme: · Launch a public awareness campaign. · Recruit and train community volunteers. · Arrange monthly community weighing sessions.	NA	**N-ant:** · Decreased the proportion of children whose WAZ ratio is less than -3 Standard Deviations	NA	NA	NA	NA
Ayalew et al., 2021[38]		Intervention: 306 women Control: 306 women	2021	Women who had children under 0.5 years old or were pregnant	SCC-sensitive country	Ethiopia	**C-aware + S-care:** · Conduct training sessions that include cooking demonstrations focused on complementary feeding practices · Provide individual counselling and support for feeding practices and to	NA	**N-ant:** · Increased gains in infant length and weight · Decreased rates of stunting and underweigh t	NA:	NA	NA	**C-bh:** · Increased frequent breastfeeding. · Increased knowledge of safe and adequate complementary foods

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							demonstrate cooking procedures						
Balaluka et al., 2012[39]		Intervention: 208 children Comparator: 178 children	2012	<0.5	Conflict	DRC	**S-care:** The community-based nutrition project: · Promote exclusive breastfeeding	**D-CF:** · Increased proportion of infants exclusively breastfed at six months of age.	NA	NA	NA	NA	NA
Worku et al., 2020[40]		180499 mother and child pairs	2020	0.5~2	SCC-sensitive country	Ethiopia	**S-care:** Sustainable undernutrtion reduction programmemes: · Enhance community-based nutrition. · Focus on IYCF. · Familiarise with nutrition-sensitive agriculture.	**D-diversity:** · Increased proportion of adequate dietary diversity.	NA	NA	NA	NA	**C-bh + C-aware:** · Enable mothers to acquire skills and confidence in selecting food mixtures and preparing meals · Improve awareness about adequate dietary diversity in child feeding. · Enhance knowledge of IYCF and nutrition-sensitive agriculture.

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
#7 van Daalen et al., 2022[41]	23 (13) [a]	140 individuals to approximately 24 000 households	2010-2022	NA	Conflict, Food crisis, Natural disaster, Combination	Niger, Somalia, Afghanistan, Jordan, Lebanon, Yemen, Palestine, Democratic Republic of Congo, Syria, Cameroon, Uganda, Bangladesh, Ecuador, Mexico, Kenya and Togo	**F-access:** · Conditional/unconditional cash transfers · Voucher transfer · Food transfer	**D-diversity+ D-qual + D-qty:** · Increased dietary diversity (10/10) · Increased child meal frequency (5/5) · Increased total calorie consumption (2/2) · Increased household food security (4/4) · Increased quantity and quality of diets (1/1)	**N-ant + N-AM:** · Increased MUAC (2/2), WHZ (1/1), weight gain (1/1) · Preventing (child) acute malnutrition (2/2) · Increased weight gain (1/1)	NA	**F-availability + F-affordability + F-access + C-bh + C-aware:** · Increased income opportunity (0/1) · Promoting small scale production (0/1) · Increased food expenditure for nutrient-rich food (1/1) · Increased purchasing power (0/2) · Poor consumers are willing to sacrifice grain quality to increase overall dietary diversity (1/1) · Increased nutrition knowledge from nutritional training sessions (1/1) · Gender sensitive assistance (0/1)	NA	**F-availability + F-access + F-affordability v + F-market + F-other + C-bh + C-aware + S-social:** · Control over purchasing decision (1) · Increased food expenditure (1) · Increased the investment in home-produced vegetables, fruits, and animal products (1) · The promotion of income-generating activities and employment (1) · Increased access to water resource, household income and non-food expenditure (1) · Increased food affordability (2) · Place with well-functioning markets and supermarkets (1) · Conditional education/ · Increased knowledge of IYCF (2) · Increased knowledge of

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
													nutrition and food security (1) · Good food and nutrition practices (1) · Food recipients consume more calories from wheat and oils than cash recipients (1) · Nutritional training sessions (1) · Gender sensitive assistance (1)
Aker, 2017[42]		474 IDPs and their households	2017	NA	Conflict	Republic of Congo	**F-access:** · Cash and voucher transfer	**D-diversity + D-qty:** · Increased diet diversity, the number of meals per day, and the number of months of adequate provisioning	NA	NA	**F-affordability + F-access:** · Cash households used their transfer to purchase a more diverse set of food and non-food items compared with voucher · Increased income through resale salt in a nearby market with transfer cash [b]	NA	**F-other:** · Affected women control over purchasing decisions
Bliss et al., 2016[43]		420 households	2016	0.5~3	Food crisis	Niger	**F-access**: · Cash transfer programmemes	NA	NA	NA	NA	NA	**F-affordability:** · Increased expenditures on food

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Bliss et al., 2018[44]		426 households 212 in the cash group and 214 in the comparison group	2018	0.5~2	Food crisis	Niger	**F-access:** · Conditional emergency cash transfer programme	**D-qual + D-qty:** · Increased meal frequency and dietary diversity (especially consumption of animal protein and legumes)	**N-ant + N-AM**: · Increased weight gain · Increased WHZ scores · Decreased the prevalence of acute malnutrition	NA	NA	NA	**C-aware:** · High rate of adherence to conditional education sessions on infant and child feeding
Doocy et al., 2020[45]		514 pregnant and lactating women	2020	25-28	Food crisis	Somalia	**F-access:** · A variety of transfer modalities including in-kind food provision, food vouchers, and cash transfers	**D-diversity + D-qty:** · Increased meal frequency · Increased MDDW score (after adjusted no significant)	**N-ant:** · Increased MUAC	NA	NA	NA	**F-access** (physical access)**:** · Consumption of high-quality foods were attributed to transfer receipt (of Food Assistance)
Doocy et al., 2020[46]		656 · Mixed transfer: 359 · Food vouchers: 224 · Cntrol:73	2020	0.5~6	Food crisis	Somalia	**F-access:** · Cash and voucher assistance	**D-diversity + D-qty:** Households: · Decreased HHS · Increased meal frequency and dietary diversity · Increased children achieved minimum dietary diversity (mixed transfer vs. voucher)	**N-ant+ N-AM:** · Increased MUAC · Decreased prevalence of acute malnutrition	NA	NA	NA	NA
Falb et al., 2020[47]		456 households	2020	Women with children aged 6 months to 1 year	Conflict	Syria	**F-access:** · Unconditional cash transfers	**D-qty:** · Increased household food security	NA	NA	**F-affordability + C-bh:** · Women could able to purchase food with cash and	NA	**F-affordability + S-social:** · Assisted women and their families to meet their basic needs

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
											prepare the meal they wanted [b]		
Grijalva-Eternod et al., 2018[48]		• Intervention group: 111 households Control group: 117 households	2018	Women and their children aged 6 months to 1 year	Combination (Conflict + Natural disaster)	Somalia	**F-access:** Cash-based interventions: • Transfer monthly unconditional cash. • Distribute once-only a non-food items kit. • Provide piped water free of charge.	**D-diversity + D-qual + D-qty:** • Increased household meal frequency. • Increased household, children, and women dietary diversity. • Decreased household food insecurity. • Increased expenditure on dairy products.	NA	NA	NA	NA	**F-other:** • The inclusion of piped water free of charge • Households increased their non-food expenditure on cooking fuel, health, clothing, debt repayments, and housing, whilst significantly decreasing their expenditure on drinking
Hidrobo et al., 2014[49]		2087 households	2014	NA	Conflict	Ecuador	**F-access:** • Cash transfers, food vouchers, or food transfers	**D-diversity + D-qual + D-qty:** • Increased both households' caloric intake and dietary diversity (vouchers) • Significant increased on quantity and quality of food consumed (all arms) • Increase in total capita food consumption [b] • Increased FCS point	NA	NA	NA	NA	**F-market + C-bh + C-aware:** • Behaviour change induced by nutrition knowledge • Increase in per capita food consumption • Nutrition trainings on food security • Place with well-functioning markets and supermarkets

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
								· Increase in caloric intake from food (except the voucher)					
Hou, 2010[50]		24,000 households	2010	NA	Natural disaster	Mexico	**F-access:** · Conditional cash transfer programme	**D-diversity:** · Increased the dietary diversity	NA	NA	**F-affordability:** · Higher food expenditures especially for high-quality food categories · Significantly increases the amount of calories available from purchased grains	NA	**F-availability :** · The increased investment in home-produced vegetables, fruits, and animal products
MacPherson et al., 2021[51]		1874 refugees living in 1126 households	2021	NA	Conflict	Kenya	**F-access:** Refugee assistance · Income-generating activities · Market development · Cash transfers	**D-diversity + D-qual + D-qty:** · Increased the dietary diversity (from starchy food, beans, vegetable and fruits, and meat and fish) · Less food insecure	NA	NA	**F-availability:** · Promotion of small-scale agriculture [b]	NA	**F-accessibility:** · The promotion of income-generating activities and employment
Schwab, 2020[52]		1,983 households	2020	NA	Combination (Conflict +Food crisis +Economic crisis)	Yemen	**F-access:** · Food or cash transfer	**D-diversity + D-qty:** Cash group: · Increased Food Consumption Score · Increased the dietary diversity · Increased meal frequency · Raised food security	NA	NA	**C-bh:** · Cash recipients consume more from a wider variety and higher value group of foods [b] · Diversity is driven by more frequent consumption of higher quality food groups	NA	**C-bh:** · Food recipients consume more calories from wheat and oils than cash recipients

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
								Food group: · Consumed more calorie			· Poor consumers are willing to sacrifice grain quality to increase overall dietary diversity · Cash transfers increase calories from meat		
Sibson et al., 2018[53]		1,831 children in 1,254 households	2018	0.5~6	Food crisis	Niger	**F-access:** · Unconditional cash transfers	**D-diversity + D-qty:** · Increased the dietary diversity Scores · Decreased household food insecurity access scores · Increased diet diversity and food consumption scores	NA	NA	**F-access:** · Improved food availability and accessibility [b]	NA	NA
Kurdi, 2021[54]		· Intervention:1001 household · Control:999 households	2021	NA	Conflict	Yemen	**F-access:** Cash for Nutrition programme · Provide monthly cash transfers to households	**D-diversity + D-qual:** · Increased food diversity for children · Increased the probability that children would consume animal source proteins [b]	NA	NA	**C-bh + C-aware:** · Children would consume animal source proteins due to behavioural change by the nutritional training sessions	NA	**C-aware:** · The nutritional training sessions
#8 Kim et al., 2020[55]	63 (3) [a]	NA	NA	households, or children <5 years	Conflict	Afghanistan	**D-intake:** · Supplementary feeding	NA	**N-ant:** · Increased weight and height (1/1)	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							S-care: · Promote feeding practices	NA	**N-ant:** · Increased WAZ (1/1)	NA	NA	NA	NA
							C-aware + S-care: · Provide an electronic picture book to communicate public health messages (WASH, diet, mental health, breastfeeding and peripartum care)	NA	NA	NA	**C-aware:** · Increased knowledge about breast-feeding and micronutrients (1/1)	NA	NA
Morikawa et al., 2013[56]		744 children	2013	<5	Conflict	Afghanistan	**D-intake:** · Provide supplementary feeding	· NA	**N-ant:** · Increased weight and heigh	NA	NA	NA	· NA
Mayhew et al., 2014[35]		· cGMP programme: 414 children · Control: 414 children	2014	0.5~1.5	Conflict	Afghanistan	**S-care:** cGMP programme: · Monitor the weights of children · Promote feeding practices	· NA	**N-ant:** · Increased WFA Z-score	NA	NA	NA	· NA
Kim et al., 2008[57]		3,372 households	2008	NA	Conflict	Afghanistan	**C-aware + S-care:** · Provide an electronic picture book to communicate public health messages (micronutrients, WASH, diet, malaria, tuberculosis, acute	· NA	NA	NA	**C-aware:** · Increased knowledge about breast-feeding and micronutrients	NA	· NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							respiratory infections, sexually transmitted disease, safety, first aid, mental health, female anatomy, birth spacing, breastfeeding and peripartum care)					
#9 Ghodsi et al., 2021[58]	8 (6)[a]	212 mothers to 1302 mother-child dyads	2008-2018	<5	SCC-sensitive country	Pakistan and Iran	**D-intake + C-aware + S-care:** · Supplementary feeding · Training health worker · Nutritional education	· NA	**N-ant:** · Increased HAZ (1/1)	NA	NA	NA	· NA
							F-access: · Cash or voucher transfer	**D-diversity + D-qual + D-qty:** · Increased dietary diversity at mother and child (1/1) · Increased in consumption of animal protein (1/1)	**N-status + N-ant:** · Lower Hb level (1/1) · Increased HAZ (2/2) · Reduced moderate and severe stunting (1/1) · Decreased wasting (1/1)	NA	NA	NA	**F-access + C-bh + C-aware:** · Direct access to food · Blanket food distribution for children (1) · Gender sensitive, empowering families and mothers (1) · Improved food diversity security in general (1) · Community mobilisation (1) · Increased knowledge of nutrient-rich food, good food and

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
													nutrition practices (1), and IYCF (1)
							C-aware: · Maternal education (complementary feeding)	NA	**N-ant:** · Increased weight, height and MUAC of infants (1/1) · Decreased wasting, stunting, and underweigh t of infant (0/1)	NA	NA	NA	**C-aware:** · Educational intervention (1)
							S-care: · Training health workers (how to counsel the mother")	**D-qual + D-CF:** · Increased offering of eggs and meat to children (1/1) · Increased consumption of liver (0/1)	**N-ant:** · Increased WAZ (1/1)	NA	**C-aware:** · Increased knowledge of child feeding (1/1)	NA	**C-bh:** · Community mobilization and use of mass media (1)
Yousafzai et al., 2014[59]		· 1489 mother–infant dyads	2014	Children aged 2.5 months to 1 year	SCC-sensitive country	Pakistan	**D-intake + C-aware + S-care:** LHW programme: Enhanced nutrition and responsive stimulation · Enhanced nutrition (nutritional education and micronutrient supplement) · Responsive stimulation · Combined · Control	NA	**N-ant:** · Increased HAZ	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Ghodsi et al., 2018[60]		· Intervention group:362 children · Control group:409 children	2018	0.5~6	SCC-sensitive country	Iran	**F-access:** National food distribution programme · Distribute food/voucher/cash transfers to electronic cards	NA	**N-ant:** · Increased HAZ (received vouchers)	NA	NA	NA	**F-access + C-bh + C-aware:** · Empowering families and mothers · Increasing the accessibility of food and the knowledge of distributing / choosing food for children or intrahousehold
Fenn et al., 2017[61]		5128 households	2017	Households with children aged 0.5 to 1 year	SCC-sensitive country	Pakistan	**F-access:** · Cash-based interventions (standard cash, double cash and fresh food voucher with cash)	**D-diversity + D-qual + D-qty:** · Increased dietary diversity for mother and child · Increased in consumption of animal protein (fresh food voucher) · Higher intakes of both iron-rich foods and iron absorption inhibitors (double cash)	**N-status + N-ant:** · Lower Hb level (fresh food voucher) · Decreased the odds of being stunted and severely stunted and in mean HAZ (all arms) · Reduced odds of moderate and severe stunting (all arms)	NA	NA	NA	**F-accessibility:** · Improving food security

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Trenouth et al., 2018[62]		2496 household · Control group:632 · Double cash group:600 · Standard cash group:632 · Fresh food voucher group:632	2018	Households with children aged 0.5 to 4 years	SCC-sensitive country	Pakistan	**F-access:** · Cash-based interventions (standard cash, double cash and fresh food voucher with cash)	NA	**N-ant:** · Decreased percentage of wasting (double cash)	NA	NA	NA	**F-access + C-bh + C-aware:** · Blanket food distribution for children · Community-level campaigns
Saleem et al., 2014[63]		194 infants · Intervention:110 · Control:84	2014	10-20 weeks	SCC-sensitive country	Pakistan	**C-aware:** · Maternal educational messages regarding appropriate complementary feeding	NA	**N-ant:** · Increased mean weight, height and MUAC of infants · Decreased the percentage of wasting, stunting, and underweight of infant [b]	NA	NA	NA	**C-aware:** · Educational intervention
Zaman et al., 2008[64]		375 mothers	2008	Mothers with children aged 0.5 to 2 years	SCC-sensitive country	Pakistan	**S-care:** · Training health workers (how to counsel the mother)	**D-qual + D-CF:** · Increased to offer eggs and meat to children · Increased the consumption of liver [b] · Increased the frequency of appropriate	**N-ant:** · Increased the mean SD score for WAZ · Increased WAZ among children	NA	**C-aware:** · Recall correct of advice on feeding delivered during the consultation	NA	**C-bh:** · Mobilising the community and using community or mass media skills

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
								actions (feeding practice) ·					
#10 Dall'Oglio et al., 2020[65]	10 (8) [a]	NA	2008-2019	NA	Natural disaster and conflict	Indonesia, Philippines, Haiti, Palestine, Jordan, Syrian, Kenya	**C-aware + S-care:** · Support and promote appropriate feeding practices · Maternal and IYCF nutrition education	NA	**N-status + N-AM:** · Reduced prevalence of anaemia (1/1) · Reduced prevalence of GAM (1/1)	NA	NA	NA	NA
							S-health/care: · Promote feeding practices · Postnatal care of mothers and newborns	**D-CF:** · Increased breastfeeding (1/4)	NA	NA	**C-aware:** · Increased knowledge on exclusive breastfeeding (1/3)	NA	NA
Mwendwa et al., 2016[66]		NA	2016	NA	Conflict	Kenya	**C-aware + S-care:** Maternal and IYCF nutrition: · Support and promote appropriate feeding practices · Maternal and IYCF nutrition education	NA	**N-AM + N-ant:** · Reduced prevalence of GAM. · Reduced prevalence of anaemia in children aged 6-59 months, as well as in pregnant and lactating women.	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Assefa et al., 2008[67]		247 mothers	2008	Mothers with children aged less than 0.5 year	Natural disaster	Indonesia	**S-care:** · Active support for breastfeeding	**D-CF:** · Increased exclusive breastfeeding [b]	NA	NA	NA	NA	NA
Castillo et al., 2016[68]		40 priority municipalities	2016	NA	Natural disaster	Philippines	**S-care:** Essential Intrapartum and Newborn Care: · Breastfeeding support · Kangaroo mother care · IYCF-E · Partograph use · Basic newborn resuscitation · Correct administration of magnesium sulfate · Postnatal care of mothers and newborns	**D-CF:** · Increased breastfeeding [b]	NA	NA	NA	NA	NA
Ayoya et al., 2013[69]		180499 mother and child pairs	2013	54% (97,469) of the infants enrolled were <6 months old.	Natural disaster	Haiti	**S-care:** · Provide tents to offer a safe place for mothers to breastfeed and for non-breastfed infants to receive ready-to-use infant formula	**D-CF:** · Increased exclusive breastfeeding	NA	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
UNICEF, 2016[70]		16000	2016	NA	Conflict	Palestine	**S-care:** · Promote breastfeeding and IYCF	NA	NA	NA	**C-aware:** · Increase knowledge on exclusive breastfeeding [b]	NA	NA
UNICEF, 2016[71]		31995	2016	NA	Conflict	Jordan	**S-care:** IYCF programme: · Education sessions · Counselling and support for lactating mothers at home · Community volunteers · Monitoring of the Code of Marketing of human milk substitutes · Kind incentives for mothers	**D-CF:** · Increased breastfeeding [b]	NA	NA	NA	NA	NA
UNICEF, 2016[72]		109,779	2016	NA	Natural disaster	Palestine	**S-care:** · IYCF training for pregnant and lactating woman · Mother support groups · One-to-one counselling sessions · Dissemination of messages at community level	NA	NA	NA	**C-aware:** · Increase knowledge on breastfeeding [b]	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Fänder et al., 2015[73]		NA	2015	<5	Conflict	Syrian	**S-health + S-care:** Mobile clinics: · Education and promotion groups · Breastfeeding counselling · IYCF training to health staff Community level: · Community volunteers training · Refugee education on IYCF practices and support group	NA	NA	NA	**C-aware:** · Increased breastfeeding knowledge	NA	NA
#11 Rabbani et al., 2020[74]	56 (3) [a]	NA	2009-2019	NA	Conflict	Algeria, Jordan, Kenya, Lebanon, Pakistan, South Sudan, Ukraine, Yemen, Bosnia-Herzegovina, Iraq, Kosovo, Macedonia, Guinea-Bissau	**F-access + S-care:** · Vouchers transfer · child care practice	**D-diversity + D-qty:** · Increased dietary diversity (0/1) · Increased food consumption (0/1)	NA	NA	NA	NA	**F-access** · Increased access to nutritious food (1)
							S-health/care: · Training health worker · Promote IYCF practice	**D-diversity+ D-qty:** · Increased dietary diversity (1/1) · Increased meal frequency (1/1)	**N-ant:** · Decreased SAM and MAM (0/1)	NA	**C-aware + C-bh:** · Increased knowledge of nutrient-rich food, nutrition (0/1) · Use of local nutritious foods for meal preparation (0/1)	NA	**C-bh:** · Community ownership and demand for services

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Dozio et al., 2016[75]		900 pregnant and lactating women and their babies	2016	NA	Conflict	Central African Republic	**F-access + S-care:** · Distribution of food vouchers · Cooking demonstration · Sensitisation on child care practices · Psychological support	**D-diversity + D-qty:** · Increased IDDS score and the types of food [b] · Increased food consumption score [b]	NA	NA	NA	NA	**F-access:** · Increased access to nutritious food
Sallam et al., 2018[76]		208 villages with a combined population of 312,634	2018	<5	Conflict	Yemen	**S-health:** · Village development committees with the respective District Health Office, were involved in the selection of 770 female community health volunteers, who were trained to provide health and nutrition services	NA	**N-AM:** · Decreased SAM and MAM [b]	NA	**C-bh + C-aware:** · Increased among participating communities in utilising local foods for preparing nutritious meal [b] · Increased maternal/caregiver knowledge on nutritious food [b] · Nutritional education [b]	NA	**C-bh:** · Community ownership and demand for services (further training CHVs)
Ndungu et al., 2017[77]		432 children	2017	0.5~5	Conflict	South Sudan	**S-care:** · IYCF practices · Behaviour-change services	**D-diversity+ D-qty:** · Increased minimum dietary diversity, minimum meal frequency	NA	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
#12 Marshall et al., 2021[78]	39 (14) [a]	NA	1993-2020	children	Conflict, Economic crisis, Natural disaster, Combination	Thirteen were country specific—six Asian, six African, one Caribbean and one Eastern European—while two studies were regional/global studies	**D-intake:** · Supplementary feeding	NA	**N-status + N-ant:** · Increased Hb concentration (2/2) · Decreased the prevalence of anaemia (1/1) · Increased height growth (1/1) · Increased HAZ (3/3), WHZ (1/1) · Decreased wasting (1/1), stunting (1/1) and underweight (1/1)	NA	NA	NA	**F-access + F-env + C-bh + S-health:** · Mechanism: blanket feeding (1) · High coverage and utilization of health services, free health service, high literacy rate, health seeking behaviour (1)
							D-intake + C-aware: · Supplementary feeding · Nutrition education	NA	**N-status + N-ant + N-AM:** · Decreased anaemia (1/1) · Decreased percentage of low WAZ (1/1) and low WHZ (1/1) · Decreased malnutrition (1/1)	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							D-intake + C-aware + S-care: · Supplementary feeding · Health education (focus on child care, iodised salt usage) · Nutrition education (IYCF)	NA	**N-ant + N-AM:** · Decreased the prevalence of under nutrition (0/1), underweigh t (0/1) · Decreased severely malnutrition (0/1)	NA	NA	NA	**C-bh:** · IYCF (1) · Care capacity (1)
							D-intake + S-health/care: · Supplementary feeding · Medical care · Training sessions for staff	NA	**N-AM:** · Decreased malnutrition (1/2)	NA	NA	NA	**C-bh + H-access:** · Seeking health service seeing (1) · Access to health system (1)
							F-access: · Cash transfer · Provide food · Increased employment	**D-diversity + D-qual + D-qty:** · Increased meal frequency (1/1) · Increased dietary diversity (1/1) · Decreased household food insecurity (1/1)	**N-status:** · Decreased anaemia (1/1)	NA	**F-affordability:** · Increased expenditure on nutrient-rich food (1/1)	NA	**F-other:** · Increased access to water resource, household income and non-food expenditure (1)
							F-access + C-aware + S-care: · Cash transfer · Nutrition and health education	**D-CF:** · Increased exclusive breastfeeding (1/1)	· NA	NA	**C-aware:** · Increased knowledge on breastfeeding (1/1)	NA	· NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							C-aware: · Nutrition education	**D-CF:** · Increased the practice of adding cereal-based complementary foods (1/1) · Increased the introduction of meat (1/1) · Increased duration for exclusive breast feeding (1/1)	**N-status:** · Decreased the prevalence of anaemia (1/1)	NA	**C-aware:** · Increased knowledge of complementary food (1/1)	NA	· NA
							S-care: · Promote exclusive breastfeeding · Establish therapeutic/supplementary feeding centers	**D-CF:** · Increased exclusively breast feeding (1/1)	**N-AM + N-mortality:** · Decreased acute malnutrition (1/1) · Decreased mortality rate (1/1)	NA	· NA	NA	**S-health + H-access:** · Increased access to health services (1)
Lopriore et al., 2004[79]		374 children	2004	3~6	Conflict	Algeria	**D-intake:** · Provide micronutrient-fortified supplements	NA	**N-status + N-ant:** · Increased Hb concentration Increased the linear growth · Increased mean height growth · Increased HAZ and WHZ	NA	NA	NA	**F-access +C-bh + S-health:** · High coverage and utilisation of health services · The free health services, good access, high literacy rate of the mothers, and health-seeking behaviour of the mothers · Continuous supply, high ration size, and prevention of

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
													sharing due to blanket feeding with CSB
Giles et al., 2015[80]		7606 children	2015	0.5~5	Economic crisis	Indonesia	**D-intake:** Supplementary feeding programme: · Provide food supplements	NA	**N-ant:** · Increased HAZ	NA	NA	NA	NA
Dong et al., 2013[6]		1019 children	2013	0.5~2	Natural disaster	China	**D-intake:** · Distribute formulated supplementary foods	NA	**N-status + N-ant:** · Decreased the prevalence of anaemia [b] · Increased the average Hb level · Increased LAZ, WAZ and WHZ · Decreased the prevalence of wasting, stunting and underweigh t [b]	NA	NA	NA	**F-env:** · Enhancing distribution channels and improving food quality to infants and young children
Magoni et al., 2008[81]		266 children	2008	0~5	Conflict	Palestine	**D-intake + C-aware:** Supplementary feeding programme: · Provide micronutrient and food supplement · Nutrition education: Conduct health education (feeding practices,	NA	**N-status + N-ant + N-AM:** · Decreased the prevalence of anaemia · Decreased percentage of low WAZ and low WHZ	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							development of counselling skills, and problem-solving regarding feeding issues)		· Decreased the percentage of global chronic malnutrition				
Kumar et al., 2005[10]		3206 children	2005	<5	Natural disaster	India	**D-intake + C-aware + S-care:** Set up Nutrition Care Centers: · Targeted feeding · Nutrition and health education (exclusive breast feeding, complimentary feeding, feeding care of children during illness, use of iodised salt and vitamin A administration in children)	NA	**N-ant + N-AM:** · Decreased the prevalence of under nutrition, underweigh t and severely malnutrition [b]	NA	NA	NA	**C-bh:** · Empowering local women · Child-care practices · Increase knowledge on breastfeeding · Training programme in upgrading their knowledge and skills to identify and manage severely malnourished children
Jayatissa et al., 2012[9]		· Phase I, n=3638 · Phase II, n=38953 · Phase III n=43221 · End line survey n=282	2012	<5	Combinat ion (Conflict + Natural disaster)	Sri Lanka	**D-intake + S-health:** The Nutrition Rehabilitation Programme: · Provide RUTF, HEBs, CSB food · Refer for treatment · Provide health staff with a series of training sessions	NA	**N-AM:** · SAM recovery rates (42.5-93.9%) [b] · MAM recovery rates (32.3-50.5%) [b] · Decreased the prevalence	NA	NA	NA	**C-bh + H-access:** · The availability of free health services, good accessibility, the high literacy rate among mothers, and their proactive health-seeking behaviour. · The continuity of supply, generous ration sizes, and

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
									of GAM and SAM [b]				the prevention of sharing due to the blanket approach to feeding with CSB. · The enhancement of community awareness and emphasis on the importance of breastfeeding. · Proper feeding practices for infants and young children. · Effective child-care practices.
Nielsen et al., 2004[13]		247 children	2004	0.5-5	Conflict	Guinea-Bissau	**D-intake + S-health:** The supplementary feeding programmemes: · Provide micronutrient supplement and flour mixture · Medical treatment	NA	**N-AM:** · GAM recovery rates (59.9%) [b]	NA	NA	NA	NA
Choudhury et al., 1993[82]	v	1232 children	1993	<2	Natural disaster	Bangladesh	**D-intake + S-care:** · Distribute vitamin A supplement · Implement nutrition education · Train in the preparation of oral rehydration therapy.	NA	**N-AM:** · Decreased the proportion of malnutrition	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Grijalva-Eternod et al., 2018[48]		• Intervention group: 111 households • Control group: 117 households	2018	Women and their children aged 6 months to 1 year	Combination (Conflict + Natural disaster)	Somalia	**F-access:** Cash-based interventions: • Transfer monthly unconditional cash. • Distribute once-only a non-food items kit. • Provide piped water free of charge.	**D-diversity + D-qual + D-qty:** • Increased household meal frequency. • Increased household, children, and women dietary diversity. • Decreased household food insecurity. • Increased expenditure on dairy products.	NA	NA	NA	NA	**F-other:** • The inclusion of piped water free of charge • Households increased their non-food expenditure on cooking fuel, health, clothing, debt repayments, and housing, whilst significantly decreasing their expenditure on drinking
Moench-Pfanner et al., 2005[83]	v	• Beneficiary group: 1500 households • Control group: 1500 households	2005	0.5~2.5	Economic crisis	Indonesia	**F-access:** Food for Work: • Provide rice, sometimes combined with oil and/or pinto beans	NA	**N-status:** • Decreased the prevalence of anaemia among children aged 24–59 months from Jakarta • Decreased the prevalence of anaemia in mothers from Central Java.	NA	**F-affordability:** • Increased expenditure on animal foods in Jakarta, East Kalimantan, Central Java • Increased expenditure on foods from plant sources in East Kalimantan, Central Java • Increased expenditure on sugar and oil in East Kalimantan	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Kurdi et al., 2020[34]		1,945 women	2020	Women who had children under 2 years old or were pregnant	Conflict	Yemen	**F-access + C-aware + S-care:** · The cash for nutrition programme: Provide monthly cash transfers · Conduct nutrition and health education sessions (training on EBF, complementary feeding, preparing nutritious meals, handwashing practices, treatment of drinking water, and how to treat diarrhea)	**D-CF:** · Increased initiation of breastfeeding within the first hour after delivery · Increased exclusive breastfeeding	NA	NA	**C-aware:** · Increased knowledge on breastfeeding	NA	NA
Yang et al., 2015[84]		· 13065 children	2015	<5	Natural disaster	China	**C-aware:** · Nutrition education · Concepts in food and nutrition · Basic nutrition knowledge · When and how to add the complementary food · Homemade complementary food · Benefits of breast-feeding preventing common · Diseases such as upper respiratory	**D-CF:** · Increased the practice of adding cereal-based complementary foods between 4 and 6 months. · Increased the introduction of meat at 6 months · Increased duration for exclusive breast feeding	**N-status** · Decreased the prevalence of anaemia	NA	**C-aware:** · Increased knowledge of complementary food	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							infection, diarrhea, and vitamin D deficiency rickets · How to obtain a balance meal.						
Balaluka et al., 2012[39]		· Intervention: 208 children · Comparator: 178 children	2012	<0.5	Conflict	DRC	**S-care:** The community-based nutrition project: · Promote exclusive breastfeeding	**D-CF:** · Increased proportion of infants exclusively breastfed at six months of age.	NA	NA	NA	NA	NA
Rossi et al., 2008[85]		NA	2008	<5	Combination (Conflict + Economic crisis)	Burundi	**S-care:** · Establish therapeutic feeding centers · Establish supplementary feeding centers	NA	**N-AM + N-mortality:** · Decreased mortality rate · Decreased prevalence of acute malnutrition	NA	NA	NA	**S-health:** · Increased access to health services

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
#13 Balhara et al., 2017[86]	31 (20) [a]	NA	1989-2015	<5 (30 studies) >5 (1 study)	Conflict, Natural disaster, Food crisis, seasonal hunger, SCC-sensitive country, Combination	Algeria, Chad, Niger, India, China, Bangladesh, Pakistan, Kenya, Malawi, Guinea-Bissau, Thailand, Palestine, Zambia, Tanzania, El Salvador, Sri Lanka, Ethiopia, Nepal, Myanmar	**D-intake:** · Supplementary feeding	NA	**N-status + N-ant + N-AM + N-mortality:** · Decreased anaemia (2/3) · Increased the average weight gain (2/2) and height gained (3/3) · Increased WHZ (4/4), HAZ (3/3), MUAC (2/2) · Decreased wasting (1/2), stunting (2/3), underweight (0/1) · Decreased malnutrition (1/1) · Reduced mortality (1/1)	NA	NA	NA	**F-access +C-bh + S-health/care:** · Distribution mechanism, RUTF acceptability in place (1) · Supplying quality food to young children (1) · Good health programme coverage and high healthcare utilization (1) · Improved access to nutritious foods (1) · Complementary feeding practice (1) · High coverage and utilisation of health services, free health service, high literacy rate, health seeking behaviour (1) · Mechanism: blanket feeding (1)
							D-intake + F-access: · Supplementary feeding · Cash transfer	NA	**N-AM + N-mortality:** · Decreased the incidence of MAM and SAM (1/1) · Decreased the	NA	NA	NA	**F-affordability + C-bh:** · Purchasing power for nutrient-rich food (1) · Choosing nutrient-rich foods for children (1)

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
									mortality (1/1)				
							D-intake + C-aware + S-health/care: · Supplementary feeding · Health education (focus on child care, iodised salt usage) · Nutrition education (IYCF)	NA	**N-ant + N-AM:** · Decreased malnutrition (1/2) · Decreased the prevalence of under nutrition (0/1), underweigh t (0/1) and severely	NA	NA	NA	**C-bh:** · IYCF (1) · Care capacity (1)
							F-access + S-social: · Food or cash transfer · Productive Safety Net Programme	**D-diversity + D-qual + D-qty:** · Higher consumption of nutrient food (1/1) · Higher household dietary diversity scores (1/1)	NA	NA	**F-other:** · Supporting access to agricultural input resources (0/1)	NA	**F-ava + C-bh:** · Supporting access to agricultural input resources (1) · Community mobilisation (1) · Women's engagement (1)

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							S-care/social/others: · Infant feeding practices · Postwar social and economic assistance programmemes	**D-CF** · Increased the rate of exclusive breastfeeding (1/2)	**N-ant +N-AM + N-mortality:** · Increased WAZ and WHZ (1/1) · Increased the baby's growth and developmen t (1/1) · Decreased the OR ratio for stunting (1/1) · Decreased malnutrition (0/2) · Decreased the mortality rate (1/1)	NA	NA	NA	**F-env:** · Longer periods of PTT land cultivation with greater crop variety and with greater area of land under cultivation (1)
Isanaka et al., 2009[87]		3533 children	2009	0.5~5	SCC-sensitive country	Niger	**D-intake:** · Distribute one packet of RUTF daily, on a monthly basis	NA	**N-ant:** · Increased WHZ · Increased HAZ · Decreased the incidence of wasting and severe wasting	NA	NA	NA	**F-access + S-health:** · RUTF acceptability, the extent of re-sale after distribution, and the adequacy of the public health and nutrition systems in place

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Grellety et al., 2012[88]		2238 children · Intervention:1400 children · Control:838 children	2012	0.5~2	SCC-sensitive country	Niger	**D-intake:** · Distribute RUSF	NA	**N-ant + N-mortality:** · Increased WHZ · Decreased the less of MUAC · Reduced the percentage of mortality	NA	NA	NA	NA
Nackers et al., 2010[89]		· RUTF group: 215 children · CSB pre-mix group: 236 children	2010	0.5~5	Seasonal hunger	Niger	**D-intake:** · Distribute RUSF or CSB	NA	**N-ant:** · Had a better recovery rate (WHM>85% for 2 consecutive weeks) · Decreased the percentage of transferring to inpatient therapeutic feeding center · Increased the average weight gain at the first 2 week	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Amthor et al., 2009[90]		826 severely malnourished children	2009	0.5~5	Food crisis	Malawi	**D-intake:** Outpatient therapeutic programmemes: · Distribute RUTF	NA	**N-ant + N-AM:** · Decreased the percentage of severe malnutrition · Increased the mean weight gained, height gained and MUAC gained	NA	NA	NA	NA
Huybregts et al., 2012[91]		· Intervention group: 784 children · Control group: 440 children	2012	0.5~3	Combination (Conflict + Natural disaster)	Chad	**D-intake:** · Distribute RUSF	NA	**N-status + N-ant:** · Increased Hb concentration · Lower odds of anaemia Higher linear growth velocity · Increased height gain	NA	NA	NA	NA
Dong et al., 2013[6]		1019 children	2013	0.5~2	Natural disaster	China	**D-intake:** · Distribute formulated supplementary foods	NA	**N-status + N-ant:** · Decreased the prevalence of anaemia [b] · Increased the average Hb level	NA	NA	NA	**F-access:** · Increased food supplies/ channels and improving food quality to infants and young children

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
									• Increased HAZ, WAZ and WHZ • Decreased the prevalence of wasting, stunting and underweigh t [b]				
Rah et al., 2011[7]		• 100714 children • 59,439 pregnant or lactating women	2011	• Children:< 5 • Pregnant or lactating women: NA	Natural disaster	Bangladesh	**D-intake:** • Distribute micronutrient powder contained RNI	NA	**N-ant:** • Decreased the prevalence of stunting	NA	NA	NA	NA
Bilukha et al., 2011[92]		• 497 children in 2007 • 502 children in 2008 • 568 children in 2009 • 569 children in 2010	2011	0.5~5	Conflict	Bhutan	**D-intake:** Vita-Mix-It programme: • Distribute micronutrient powder	NA	**N-status + N-ant:** • Lower the anaemia prevalence than 2007 only in 2009 • Decreased the prevalence of moderate anaemia from 2007 to 2010 (especially in young age group:6-23 months) • Decreased the prevalence	NA	NA	NA	**S-health/care + F-access:** • Good health programme coverage and high healthcare utilisation • Improved access to nutritious foods • Complementary feeding practices

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
									of stunting and severe stunting every year from 2007 to 2010 · Increased the mean HAZ				
Lopriore et al., 2004[79]		374 children	2004	3~6	Conflict	Algeria	**D-intake:** · Provide micronutrient-fortified supplements	NA	**N-status + N-ant:** · Increased Hb concentration · Increased the linear growth · Increased mean height growth · Increased HAZ and WHZ	NA	NA	NA	**F-access + C-bh + S-health:** · High coverage and utilisation of health services · The free health services, good access, high literacy rate of the mothers, and health-seeking behaviour of the mothers · Continuous supply, high ration size, and prevention of sharing due to blanket feeding with CSB
Langendorf et al., 2014[4]		5,395 children	2014	0.5~2	seasonal hunger	Niger	**D-intake + F-access:** · HQ-LNS/cash · MQ-LNS/cash · SC+/cash · SC+/food ration · HQ-LNS · SC+	NA	**N-AM + N-mortality:** · Decreased the incidence of MAM and SAM	NA	NA	NA	**F-affordability + C-bh:** · Households used their additional resources to improve the nutritional quality

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							· Cash only		(supplementary food with household support) · Decreased the mortality (HQ-LNS/cash; MQ-LNS/cash)				of the diet of young children · Specific locally available nutritious foods, affordable thanks to cash transfer.
Kumar et al., 2005[10]		3206 children	2005	<5	Natural disaster	India	**D-intake + C-aware + S-care:** Set up Nutrition Care Centers: · Targeted feeding · Nutrition and health education (exclusive breast feeding, complimentary feeding, feeding care of children during illness, use of iodised salt and vitamin A administration in children)	NA	**N-ant + N-AM:** · Decreased the prevalence of under nutrition, underweight and severely malnutrition [b]	NA	NA	NA	**C-bh:** · Empowering local women · Child-care practices · Increase knowledge on breastfeeding · Training programme in upgrading their knowledge and skills to identify and manage severely malnourished children
Choudhury et al., 1993[82]	v	1232 children	1993	<2	Natural disaster	Bangladesh	**D-intake + C-aware + S-care:** · Distribute vitamin A supplement · Implement nutrition education · Train in the preparation of oral	NA	**N-AM:** · Decreased the proportion of malnutrition	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
							rehydration therapy.						
Baye et al., 2014[93]		195 household · Food transfer: 67 household · Cash transfer: 128 household	2014	NA	Food crisis	Ethiopia	**F-access + S-social:** Productive Safety Net Programme · Food or cash transfers	**D-diversity + D-qual + D-qty:** · Higher consumption of oil, fat and vitamin A-rich plan- base food (cash transfer) · Higher household dietary diversity scores	NA	NA	**F-other:** · The cash transfers were used for paying taxes and debts, social obligations, and buying agricultural inputs such as seeds and fertilisers [b]	NA	**F-availability + C-bh:** · Community-based complementary food production · Counting women's engagement in complementary food processing as public work
Aakre et al., 2017[94]		111 mother-infant pairs	2017	NA	Conflict	Algeria	**S-care:** · Infant and children feeding practices	NA	**N-ant:** · Increased WAZ and WHZ	NA	NA	NA	NA
International Medical Corps USAID, 2016[95]		281 women	2016	NA	SCC-sensitive country	Syria	**S-care:** · Breast feeding, feeding their children with iron rich and iron fortified food and other interventions	NA	**N-ant:** · Increased the baby's growth and development [b]	NA	NA	NA	NA
Jakobsen et al., 2003[96]		· 1996 years: 2265 children · 1997 years: 2211 children	2003	9-35 months	Conflict	Guinea-Bissau	**S-care:** · Breast feeding	NA	**N-mortality:** · Decreased the mortality rate	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Lung'aho et al., 2009[97]		NA	2009	NA	Conflict	Ethiopia, Burundi, the DRC and Sudan	**S-care:** CARE's programme: · Capacity-building for IYCF, mother-to-mother groups, and breastfeeding and young child feeding practices.	**D-CF:** · Increased the rate of Exclusive breastfeeding	**N-AM:** · Decreased the percentage of MAM and SAM [b]	NA	NA	NA	NA
Sumanović-Glamuzina, 2013[98]		NA	2013	NA	Conflict	Bosnia and Herzegovina	**S-care:** · Breastfeeding practice	**D-CF:** · Increased the rate of exclusive breastfeeding and predominant breastfeeding [b]	NA	NA	NA	NA	NA
Hejna et al., 2019[99]		NA	2019	target: women, children	Conflict	Sudan	**S-care:** · Promoting Resilience among Community in Darfur Environment I-III · Promoting Greater Kordofan Lifesaving Intervention Package (GKLIP) I-III	NA	**N-AM:** · Decreased the percentage of MAM and SAM [b]	NA	NA	NA	NA

Table S2A. Study characteristics, interventions, effects on food system, and dietary and nutrition outcomes of the included 13 reviews and 96 original studies within the reviews (continued)

Author, Year	No. studies	No. participants	Study year	Age range, y	SCC Situation	Countries	Types of intervention	Dietary and nutrition Outcomes studied		Effects of interventions on food system components studied		Proposed theoretical pathway through	
								Dietary	Nutrition	Food Supply chains	Food environments and consumer behaviour	Food supply chains	Food environments and consumer behaviour
Brentlinger et al., 1999[100]		761 children	1999	<5	Conflict	El Salvador	**S-social + S-others:** · Postwar social and economic assistance programmemes (especially land reform)	NA	**N-ant:** · Decreased the OR ratio for stunting	NA	NA	NA	**F- availability:** · Longer periods of PTT land cultivation with greater crop variety and with greater area of land under cultivation

[a] The number of studies included in the systematic review that are related to nutrition interventions with nutrition/dietary outcomes or food system.

[b] Unknown statistical significance

Yellow background represents the 13 reviews included, white background represents the original study included in them.

The agri-food system encompasses four main components: Supporting (S)- policy/social/health/care/others; Food supply chains (F)- production (prod)/processing/market/ waste; Food environment (F)- availability/accessibility (access)/affordability/utilisation and others (other); Consumer behaviour (C)- behaviour (bh)/preference/ awareness (aware)

The dietary and nutrition outcomes encompass two main categories: Dietary (D)-quality (qual)/quantity (qty)/ child feeding (CF); Nutrition (N)- status/anthropometry (ant)/acute malnutrition (AM)/mortality

In the "Dietary and Nutrition Outcomes Studied" section, "(No./No.)" indicates the number of studies with a significant effect and the total including those without significant statistical analysis.

CF: child feeding; CHVs: community health volunteers; DRC: Democratic Republic of the Congo; GAM: global acute malnutrition; HAZ: height-for-age z-score; Hb: hemoglobin; HQ-LNS: high-quantity lipid-based nutrient supplement; iCCM: integrated community case management; IDPs: internally displaced persons; IYCF: infant and young child feeding; LNS: lipid-based nutrient supplement; MAM: moderate acute malnutrition; MUAC: mid-upper arm circumference; PTT: programa de transferencia de tierras; RNI: recommended nutrient intake; RUSF: ready-to-use supplementary food; RUTF: ready-to-use therapeutic food; SAM: severe acute malnutrition; SC/SC+: Super Cereal/Super Cereal Plus; SQ-LNS: small-quantity lipid-based nutrient supplement; WASH: water, sanitation, and hygiene; WAZ: weight-for-age z score; WHZ: weight-for-height z-score

In the 13 articles included, there are 194 articles that contain nutrition interventions but do not mention dietary and nutrition outcomes or the food system, and therefore are not included in this table. See Table S4 for details.

Table S2B. Additional information of the included 13 reviews

Author, Year	No. studies included	Types of intervention	Situation	Study quality	Summary	Proposed/possible pathways	Further details of the intervention
Pega et al., 2015[1]	3	Unconditional cash transfer	Natural disaster (drought)	Moderate quality	**Objectives of interventions:** Improving health services use, health outcomes, social determinants of health, health care expenditure, and local markets and infrastructure in LMICs. **Key findings:** The studies included in the analysis reported varied impacts of unconditional cash transfers on health services use and outcomes, ranging from no evidence (HAZ) to reported improvements (SAM in one study). Notably, certain crucial factors including food security and equity impacts were not examined.	The review reported that there is no evidence that the intervention affects "local markets and infrastructure" including "cultivated land", "number of crop type grown", "sold millet", and "spent cash transfer at kiosk in village". There is a non-empirical theorised conceptual framework that unconditional cash transfer affects health outcomes via the "income pathway" (enhanced material circumstances, psychosocial factors, and employment) and "direct pathway" (enhanced welfare security).	Governmental, non- governmental or research organisations gave recipients cash handouts worth US$ 145 to US$ 250 (or more, depending on household characteristics) as part of a disaster response.
Pradhan et al., 2016[5]	5	1. Food / micronutrient supplementation 2. Composite programmemes (nutrition, care and health)	Natural disasters (Earthquake, Tsunami, Cyclone, Drought)	Low quality	**Objectives of interventions:** Different types of interventions include food fortification, supplementation, and behavioural and regulatory measures, which impact nutrition outcomes such as wasting, stunting, underweight, and anaemia. **Key findings:** Food supplementation was an integral part of nutritional interventions across all the included studies. The most consistent nutritional outcome observed was a reduced prevalence of wasting in all five studies, followed by a reduction in underweight in four studies, stunting in three, and anaemia in one.	In three composite programmemes from India, Sri Lanka, and Kenya, only the programme in Kenya demonstrated a significant decrease in the incidence of wasting; however, it did not explain the underlying theoretical pathway. Conversely, the studies from India and Sri Lanka suggested that composite programmemes might improve nutrition outcomes by enhancing local women's empowerment, promoting breastfeeding rates, ensuring proper infant and young child feeding practices, and improving child-care practices. Nevertheless, these interventions did not specify whether there was a significant improvement in nutritional status.	1. Two different types of food/micronutrient supplementation were administered: (1) In China, a supplement called Ying Yang Bao was provided. (2) In Bangladesh, a micronutrient powder containing the Recommended Nutrient Intake of various vitamins and minerals served as a food supplement. 2. Composite programmemes were impleme countries, each with distinct components: (1) India established Nutrition Care Centers that provided nutritional interventions and also focused on empowering local women, promoting breastfeeding, ensuring proper infant and young child feeding, child-care practices, and other health improvements.

Table S2B. Additional information of the included 13 reviews (continued)

Author, Year	No. studies included	Types of intervention	Situation	Study quality	Summary	Proposed/possible pathways	Further details of the intervention
							(2) In Kenya, the Blanket Supplementary Feeding Programme included the distribution of corn/soya blend oil, health education, and other health enhancements. (3) Sri Lanka executed a phased nutritional intervention that involved capacity building, raising community awareness, community screening, case finding, and monitoring.
Shah et al., 2021[11]	91	Therapeutic or supplementary feeding	Conflict	Critically low quality	**Objectives of interventions:** To treat acute malnutrition among children under five in conflict settings. **Key findings:** Approximately 53% of the reviewed literature suggests that therapeutic or supplementary feeding can achieve the minimum malnutrition recovery rate standard of 75% as recommended by The Sphere Handbook. Additionally, the majority of therapeutic or targeted supplementary feeding programmemes show higher recovery rates compared to blanket supplementary feeding programmemes.	Therapeutic or supplementary feeding contributes to the recovery from malnutrition.	The interventions can be categorised as follows: 1. Targeted supplementary feeding: high-energy biscuits 2. Therapeutic feeding: F75, F100, RUTF (BP-100) 3. Blanket supplementary feeding: corn-soya blend
Als et al., 2020[17]	58	1. Water quality 2. Sanitation 3. Hygiene	Conflict	Critically Low quality	**Objectives of Interventions:** Access to safe water and sanitation facilities, coupled with the adoption of effective hygiene practices, is crucial for reducing morbidity and	NA	1. Water: Provide clean water and treat water at both household and source levels. 2. Sanitation: Install latrines or alternative sanitation solutions.

Table S2B. Additional information of the included 13 reviews (continued)

Author, Year	No. studies included	Types of intervention	Situation	Study quality	Summary	Proposed/possible pathways	Further details of the intervention
					mortality among mothers and children worldwide. **Key Findings:** This review included 58 publications on WASH interventions aimed at women and children in conflict-affected regions, primarily focusing on Sub-Saharan Africa. Most interventions involved the distribution of hygiene kits, hygiene promotion activities, and the provision of clean water and latrines. However, quantitative evidence of effectiveness was limited, with only one publication showing a significant decrease in the incidence of diarrhea among refugee children under five in Malawi, attributed to improved water storage containers.		3. Hygiene: Distribute soap or hygiene kits and promote hygiene practices. 4. Other: Implement bans on certain sales, inspect shops for hygiene, provide water storage kits to facilities, and enhance water/sanitation infrastructure.
Munyuzangabo et al., 2020[19]	115	Antenatal care, obstetric care, postnatal care and general maternal and neonatal health	Conflict	Critically Low quality	**Objectives of interventions:** To focus on the most effective means of delivering interventions in crisis contexts, it is essential to determine the best approach for delivering recommended interventions for pregnant women and newborns in humanitarian settings. **Key findings:** The most commonly reported nutritional interventions were micronutrient supplementation and behavioural education activities in antenatal care. Other reported obstetric care interventions included educational activities and micronutrient supplementation. However, very few studies focused on newborn care. Only	NA	Nutritional interventions: Multiple micronutrient supplementation, behaviour education, supplementary food ration provision, nutritional support and breastfeeding promotion and education.

Table S2B. Additional information of the included 13 reviews (continued)

Author, Year	No. studies included	Types of intervention	Situation	Study quality	Summary	Proposed/possible pathways	Further details of the intervention
					one study reported that nutritional interventions could reduce the incidence of small gestational age in neonates. The results indicate a continued high burden of neonatal mortality in crisis settings. The delivery of newborn health interventions in conflict settings still does not appear to be sufficiently prioritised. This urgently needs to change.		
Bridge et al., 2024[23]	25	Community health worker models	1. Natural disaster (drought) 2. Conflict 3. Political and economic crisis 4. Other fragile settings	Low quality	**Objectives of interventions:** Community health worker models enhance healthcare coverage and facilitate the identification and treatment of illnesses, thereby improving access to medical care in diverse settings. **Key findings:** This study reviewed 25 studies involving Community health worker models, which included behaviour change communication, supplementary foods, nutrition counselling, and integrated health programmemes. The analysis found that all nine studies focused on behaviour change communication demonstrated its effectiveness in enhancing child feeding practices, breastfeeding, exclusive breastfeeding, diet diversity, and anthropometric measures, though the impacts varied. In contrast, community health worker -led nutrition counselling alone did not result in significant improvements in child growth, dietary diversity, or malnutrition prevention. However, when	1. Behaviour Change Communication: This approach effectively enhanced child feeding practices, breastfeeding, exclusive breastfeeding, diet diversity, and anthropometric measures, although the extent of improvement varied. Specifically, intensive behaviour change communication interventions were significantly associated with increased egg consumption, which contributed to enhanced dietary diversity and was linked to improved HAZ. 2. Supplementary Food Provision: The provision of supplementary foods was shown to significantly boost anthropometric measures, indicating improvements in physical growth. 3. Combination of Nutrition Counselling and Supplementary Foods: This combined approach was particularly effective in enhancing anthropometric measures, demonstrating a synergistic effect when both strategies were applied together.	Community health worker models: 1. Behaviour Change Communication: Promotes nutrition-sensitive agriculture, optimal feeding, hygiene, exclusive breastfeeding, and IYCF practices. 2. Supplementary Foods: Distributes nutritional supplements such as micronutrients, RUTF, and SQ-LNS. 3. Nutrition Counselling: Provides guidance on IYCF and related nutritional practices. Cash Transfers: Offers financial support to enhance family welfare.

Table S2B. Additional information of the included 13 reviews (continued)

Author, Year	No. studies included	Types of intervention	Situation	Study quality	Summary	Proposed/possible pathways	Further details of the intervention
					nutrition counselling was combined with supplementary food interventions, it proved to be effective. supplementary food interventions proved to be effective.		
van Daalen et al., 2022[41]	23	1. Conditional 2. Unconditional cash transfers	1. Conflict, 2. Natural disasters (food crisis, drought, flooding), 3. COVID-19 pandemic	Low quality	**Objectives of Interventions:** To utilise cash transfers to improve health outcomes and healthcare service utilisation in humanitarian settings. **Key Findings:** Most studies reported that cash transfers increased dietary diversity, meal frequency, and improved nutritional status among children and households. Several programmemes also demonstrated that these interventions could enhance food security and prevent malnutrition.	Conditional and unconditional cash transfers can increase households' access to basic food and non-food needs, which in turn could enhance their dietary diversity and improve nutritional status.	1. Unconditional Cash Transfers: These were disbursed monthly, typically over a period of 3 to 6 months, or provided as a one-time payment. The amounts varied from US$5 to $450 and could also include in-kind food and electronic vouchers. 2. Conditional Cash Transfers: These transfers required participants to attend health and nutrition education sessions beforehand.
Kim et al., 2020[55]	63	1. Nutrition awareness and health promotion activities 2. Micronutrient deficiency treatment or prevention 3. Malnutrition treatment or prevention 4. Delivery or modelling of a package of community and facility-based interventions	Conflict	Critically Low quality	**Objectives of interventions:** Improving child stunting and malnutrition rates in Afghanistan. **Key findings:** From 2004 to 2013, political will to enhance household nutrition was evident through increased government and donor investments in nutrition-focused programmemes, employing both small- and large-scale interventions. However, evidence of these interventions significantly reducing stunting prevalence remains limited	1. Nutrition awareness and health promotion activities result in improved knowledge levels. 2. Micronutrient deficiency treatment or prevention leads to reduced occurrences of pneumonia and decreased incidence of diarrhea. 3. Malnutrition treatment or prevention results in significant and continuous improvements in both weight and height. 4. A package of community and facility-based interventions results in improved child health and nutrition outcomes.	1. Nutrition awareness and health promotion activities: Includes group education on breastfeeding, hygiene, and complementary feeding, plus agricultural training for households. 2. Micronutrient deficiency treatment or prevention: Involves diversifying food, supplementing micronutrients, and fortifying foods. 3. Malnutrition treatment or prevention: Implements strategies for managing and preventing malnutrition. 4. Delivery or modelling of a package of community and facility-based interventions: Provides a mix of specific nutritional support (e.g., IYCF, CMAM) and broad health-enhancing initiatives

Table S2B. Additional information of the included 13 reviews (continued)

Author, Year	No. studies included	Types of intervention	Situation	Study quality	Summary	Proposed/possible pathways	Further details of the intervention
							(e.g., agricultural resources, improved sanitation).
Ghodsi et al., 2021[58]	8	Community Nutrition-Specific Interventions (Nutrition education/consultation and cash-based interventions)	SCC-sensitive country	Critically Low quality	**Objectives of interventions:** Implement large-scale nutritional and non-nutritional interventions and programmemes based on community initiatives to alleviate poverty and improve the nutritional status of children. **Key Findings:** Nutrition education/consultation and cash-based interventions were the most common nutrition-specific strategies used to manage child malnutrition in Eastern Mediterranean Region countries. When pooling the different interventions, they resulted in significant improvements in the development of children and a reduction in stunting and underweight.	1. To provide maternal education and nutritional counselling to breastfeeding mothers, focusing on good nutrition and health improvement. This approach aims to encourage mothers to offer more diverse food options and ensure proper breastfeeding practices for their children. Additionally, using various food distribution modalities, such as monthly cash-based distribution or in-kind/voucher distributions for specified food items, could enhance food diversity. 2. Most studies indicated that community-based nutritional interventions could promote children's development and increase dietary diversity. The study also mentioned the need to invest in proper strategies to empower mothers and communities to be more actively involved in such interventions.	1. Trained community lady health workers or volunteers provided education and counselling to lactating women. They taught proper breastfeeding techniques and offered knowledge on good nutrition and health practices. 2. Vouchers were distributed to participants, which could be exchanged for specified fresh foods—including fruits, vegetables, milk, meat, cheese, honey, spaghetti, oil, sugar, beans, lentils, eggs, and chicken—from nominated shops.
Dall'Oglio et al., 2020[65]	10	Protect, promote, and support breastfeeding	1. Conflicts, 2. Natural disasters (earthquakes, super typhoons, and droughts)	Critically Low quality	**Objectives of interventions:** To enhance the initiation, exclusivity, and duration of breastfeeding, ultimately leading to improvements for both mothers and their infants/children. **Key findings:** Four (40%) papers reported improved breastfeeding outcomes, and three (30%) observed behavioural changes in infant and young child feeding practices post-intervention. Eight (80%) papers noted increased knowledge on proper	Protecting, promoting, and supporting breastfeeding boosts IYCF knowledge among mothers and pregnant women and improves IYCF practices	1. Staff training on breastfeeding support and best practices 2. Providing breastfeeding counselling 3. Facilitating wet nursing, and mother-to-mother support groups. 4. Creating baby-friendly spaces 5. Implementing and evaluating the Baby-Friendly Hospital and Community Initiative

Table S2B. Additional information of the included 13 reviews (continued)

Author, Year	No. studies included	Types of intervention	Situation	Study quality	Summary	Proposed/possible pathways	Further details of the intervention
					feeding practices among mothers and humanitarian/health staff.		
Rabbani et al., 2020[74]	56	Infant and young child feeding (IYCF)	Conflict	Critically Low quality	**Objectives of interventions:** To enhance breastfeeding skills and protect infants and young children from malnutrition and infection through improved IYCF practices. **Key findings:** In conflict settings, IYCF practices were generally poor. However, after IYCF interventions, most of the intervention areas experienced an increase in the percentage of breastfeeding, knowledge of proper feeding, continued breastfeeding at 2 years, and preparation of diverse foods for children's dietary needs. Additionally, there was a decrease in the percentage of bottle feeding, as well as in the prevalence of wasting, stunting, and underweight.	1. The coverage of IYCF practices is low in conflict settings, so there should be early dissemination of policies to all concerned agencies and healthcare workers to improve IYCF practices. Various communication platforms and women support groups could be used to disseminate relevant messages. Feeding tents could provide personal space for women to breastfeed, seek support from peers, and practice skin-to-skin care for preterm and low birthweight infants. Both of the above-mentioned measures could make women more willing to breastfeed. If using bottle feeding, ensuring clean and hygienic utensils and providing safe drinking water are essential for food safety. 2. Due to IYCF interventions, mothers in the intervention areas increased their knowledge of breastfeeding, became more aware of nutritious foods, and utilised local foods for preparing nutritious meals for infants. All of these effects could increase children's dietary diversity and prevent malnutrition	Several strategies were implemented to enhance IYCF practices: 1. Training of health workers 2. Educating mothers 3. Community networking and mobilisation 4. Lactation support services 5. Baby friendly hospital initiative 6. Mother-baby friendly spaces 7. Support groups
Marshall et al., 2021[78]	39	1. Cash-for-nutrition programmemes 2. Food-for-work programme 3. Nutrition education interventions 4. Malnutrition screening 5. Nutrition policy 6. Supplementary feeding programmemes 7. Combination interventions	1. Economic crises 2. Natural disasters (cyclones, earthquakes, flooding and drought)	Critically Low quality	**Objectives of interventions:** Improving the nutritional status of children in crisis settings **Key findings:** Supplementary feeding and food aid interventions effectively reduce nutritional and anthropometric failures. Educational programmemes increase knowledge and practices related to food intake but show no direct impact on nutritional status. Notably, the success of community-led interventions underscores the critical role of community health	Cash-for-nutrition programmemes boost women's knowledge and feeding practices without directly improving child nutrition. Breastfeeding education significantly enhances breastfeeding rates. Supplementary feeding and food aid markedly improve nutritional outcomes, reducing acute malnutrition and underweight in children, evidenced by better linear growth. The effectiveness of these interventions hinges on community health volunteers, who are closely acquainted with the participants.	1. Cash-for-nutrition programmemes: cash transfer 2. Food-for-work programme 3. Nutrition education interventions: breast feeding, anaemia 4. Malnutrition screening 5. Nutrition policy 6. Supplementary feeding programmemes: meals, micronutrient supplements, snacks, high-energy biscuits 7. Combination interventions

Table S2B. Additional information of the included 13 reviews (continued)

Author, Year	No. studies included	Types of intervention	Situation	Study quality	Summary	Proposed/possible pathways	Further details of the intervention
					volunteers in driving intervention outcomes.		
Balhara et al., 2017[86]	31	1. Selective feeding 2. Blanket distribution of food 3. Micronutrient or vitamin supplementation 4. Transfers of cash, land or food 5. Education 6. Food-for-work programmemes 7. Cooking utensil distribution	1. Humanitarian emergencies (war, conflict and displaced persons) 2. Natural disasters (drought, famine, earthquake and tropical storm)	Low quality	**Objectives of Interventions:** This review categorises seven types of interventions and examines their effects on pediatric mortality, anthropometric measures (including stunting, wasting, and underweight), and serum nutrition markers (including hemoglobin concentration). **Key Findings:** Several studies have demonstrated the positive impact of fortified spreads, ready-to-use therapeutic foods, micronutrient supplementation, and food and cash transfers. Five studies indicated that selective feeding, ready-to-use therapeutic food, and micronutrient supplementation could reduce mortality. One study showed that preventive food supplementation could reduce the prevalence of wasting and severe wasting. Three studies found that nutrient supplementation could improve conditions of wasting and stunting. However, one study suggested that while iron supplementation did not affect stunting, it could decrease the prevalence of underweight and wasting. Additionally, a high-quality study reported that children receiving fortified spreads experienced faster linear growth.	Cash transfers may improve nutritional outcomes by increasing the food supply, the amount of money spent on groceries, and the quality of food consumed. Targeted health and nutrition education has led to a reduction in the prevalence of anaemia; however, the study did not discuss the proposed theoretical pathways. There were no significant impacts observed from the distribution of stainless-steel cooking pots or food-for-work programmemes	1. Selective Feeding: Targeted feeding involving multiple interventions. 2. Blanket Distribution of Food: Distribution of locally produced "Thriposha." 3. Micronutrient or Vitamin Supplementation: Provision of vitamins A, B, D, iron, or mixed types. 4. Transfers of Cash, Land, or Food: Various forms of material support. 5. Education: Programmemes focused on enhancing knowledge and skills. 6. Food-for-Work Programmemes: Participants engage in activities like infrastructure rehabilitation, skills training, health/nutrition education, and agriculture/fishing. 7. Cooking Utensil Distribution: Distribution of stainless-steel cooking pots (one 5L pot per household).

Table S2B. Additional information of the included 13 reviews (continued)

Table S2C. Study characteristics, types of interventions, effects on food system, dietary and nutrition outcomes of the included 3 reviews and original studies

Review Characteristics	Types of intervention	Intervention	Effects of interventions on food system components studied		Dietary and nutrition outcomes studied	
			Food Supply chains	Food environments and consumer behaviour	Dietary	Nutrition
#1 · **First Author:** Yosef[101] · **Year of publication:** 2015 · **No. studies included:** 60 · **No. participants included:** NA · **Year of publication of the included studies:** NA · **Age range (years old):** NA · **SCC Situation:** SCC-sensitive country · **Countries:** Bangladesh	Agriculture as a Source of Food (29; 6/17)	**F-prod:** · Homestead food production model (1)	NA	NA	**D-qual + D-qty:** · Increased liver and egg consumption (1)	**N-status:** · Decreased prevalence of child anaemia (1)
		F-prod + C-aware: · Nutrition education and seed distribution project (1)	NA	NA	**D-qual + D-qty:** · Increased proportion of preschool-age children consuming green leafy vegetables (1)	**N-status:** · Decreased prevalence of night blindness (1)
		F-prod: · Ricefield-based fish seed production (1)	NA	NA	**D-qual + D-qty:** · Increased fish consumption, specifically large size fingerlings, providing nutrient-dense food sources during the hungry months (1)	NA
		F-prod: · Vegetable production programme (1)	NA	NA	**D-qual + D-qty:** · Increased vitamin A consumption (1)	**N-ant:** · Increased average WAZ in children. (1) · Increased BMI in women (1) · Decreased proportion of stunting in girls (1) · Decreased proportion of underweight in boys (1)
		F-prod: · Crop production & diversification (1)	**F-prod:** Increased crop production & diversification at household level (1)	NA	**D-qual + D-qty:** · Increased individual intakes of essential nutrients (1)	NA
		F-prod: · Large-scale, crop-diversification project (1)	**F-prod:** Increased production of nutritious foods (1)	NA	**D-qual + D-qty:** · Increased consumption of nutritious foods (1)	NA
	Agriculture as a source of income for food and	**F-prod + F-other:** · Farmer training and dissemination of low-	**F-prod:** Increased fish production (1)	NA	**D-qual D-qty:** · Increased fish consumption (1)	NA

Table S2C. Study characteristics, types of interventions, effects on food system, dietary and nutrition outcomes of the included 3 reviews and original studies (continued)

Review Characteristics	Types of intervention	Intervention	Effects of interventions on food system components studied		Dietary and nutrition outcomes studied	
			Food Supply chains	Food environments and consumer behaviour	Dietary	Nutrition
	nonfood expenditures (16; 5/10)	cost aquaculture technologies (1)				
		F-prod: ・Integrate fish and vegetable production into aquaculture systems (1)	NA	**F-access:** Provided the biggest source of income for most households (1)	**D-qual + D-qty:** ・Provided half of the fish and vegetables consumed by the household (1)	NA
		F-prod: ・Backyard poultry raising (1)	**F-prod:** Income used to purchase agricultural seeds (1)	**F-access + C-bh:** Income used to purchase food (1)	**D-qual + D-qty:** ・Increased consumption of poultry, eggs, and meat (1)	NA
		F-access: ・Agricultural employment for HH income (2)	NA	**F-affordability + C-bh:** Increased household spending on non-rice foods and decreased spending on rice (1)	**D-diversity:** ・Increased dietary diversity (1)	**N-ant:** ・Decreased prevalence of stunting in children aged 5 to 59 months (1) ・Decreased rates of maternal underweight (1)
	Agriculture policy and food prices affecting food consumption (10; 5/7)	**S-policy + F-access:** ・Bangladesh's targeted food programmemes (1)	NA	**F-access:** Increased in-kind wheat deliveries (1)	**D-qty:** ・Increased wheat and calorie consumption (compared to an equivalent cash transfer) (1)	NA
		S-policy + F-access: ・Bangladesh's targeted food programmemes (1)	NA	**F-access:** Increased income (1)	**D-qty:** ・Increased consumption of potatoes (1)	NA
		S-policy: ・Rice expenditure (1)	NA	**F-affordability + C-bh:** Decreased expenditure on rice and increased spending on other (nutritious) foods (1)	**D-diversity:** ・Increased dietary diversity (1)	**N-ant:** ・Decreased percentage of underweight children (1)
		S-policy: ・Food price volatility (1)	NA	**F- affordability:** Increased food price volatility (1)	**D-qty:**	NA

Table S2C. Study characteristics, types of interventions, effects on food system, dietary and nutrition outcomes of the included 3 reviews and original studies (continued)

Review Characteristics	Types of intervention	Intervention	Effects of interventions on food system components studied		Dietary and nutrition outcomes studied	
			Food Supply chains	Food environments and consumer behaviour	Dietary	Nutrition
					· Less vulnerable to calorie volatility (households self-employed in agriculture) (1)	
		S-policy: · Trade liberalisation (1)	**F-prod:** Increased rice production (1)	**F-affordability:** Decreased rice prices (1)	NA	NA
	Women empowerment in intrahousehold decision making and resource allocation for health and nutrition (3; 1/1)	**F-prod + C-aware:** · Women empowerment/ training in horticultural programmemes (1)	**F-prod:** Increased vegetable production (1)	**C-bh:** Increased women's influence in household decision-making (1)	**D-qual + D-qty:** · Increased vegetable consumption (1)	NA
		F-prod + C-aware: · Vegetable gardens and nutrition education (1)	NA	**C-bh:** Increased role of women in deciding the distribution of garden produce for household consumption or sale (1)	**D-qty:** · Increased consumption among households (1)	**N-status:** · Decreased vitamin A deficiency (1)
		F-prod+ C-aware: · Women's empowerment/ training in using agricultural technologies (1)	NA	**C-bh:** Increased adoption by households of a vitamin A- and iron-rich vegetable intervention, with a strong emphasis on women's empowerment (1)	NA	**N-ant:** · Increased women's BMI (1)
	Female employment in agriculture in relation to child care and feeding (1; 0/0)	**F-other:** · Mothers serving as agricultural workers (1)	NA	NA	**D-CF: (N effect)** · Decreased breast feeding frequency (1)	NA
	Women in agriculture and maternal nutrition and health status and agriculture-associated health hazards (18;6 /10)	**F-other:** · Mothers serving as pluckers in tea plantations (1)	NA	NA	**D-qty:** · Increased food intake (1)	NA
		F-other + D-intake + S-health:	**F-prod:**	NA	NA	NA

Table S2C. Study characteristics, types of interventions, effects on food system, dietary and nutrition outcomes of the included 3 reviews and original studies (continued)

Review Characteristics	Types of intervention	Intervention	Effects of interventions on food system components studied		Dietary and nutrition outcomes studied	
			Food Supply chains	Food environments and consumer behaviour	Dietary	Nutrition
		· Iron supplementation and anthelmintic treatments provided to female tea pluckers (1)	Increased productivity among nonanemic pluckers compared to anemic workers (1)			
		No intervention	NA	**F-env** Arsenic contamination (1)	NA	**N-ant:** · Lowered IQ in adolescents (1)
		No intervention	NA	**F-env:** Dietary patterns under arsenic exposure (1)	**D-diversity:** · Increased diversity in diets heavy in gourd and root vegetables (1)	**N-status:** · Reduce the risk of arsenical skin lesions (1)
		No intervention	NA	**F-env:** 58% of mothers had recent or ongoing DDT exposure (1)	**D-CF:** · Increased levels of the insecticide compounds DDT and DDE in breast milk (1)	NA
		No intervention	NA	**F-env:** Cadmium concentrations detected in maternal breast milk, saliva, and urine (1)	**D-CF: (N effect)** · Increased cadmium concentrations in maternal breast milk (1)	**N-status: (N effect)** · Increased cadmium concentrations in infants' urine (1)
#2 · **First Author:** Kadiyala[102] · **Year of publication:** 2014 · **No. studies included:** 78 · **No. participants included:** NA · **Year of publication of the included studies:** NA · **Age range (years old):** NA · **SCC Situation:** SCC-sensitive country · **Countries:** India	Agriculture as a source of food (22; 3/5)	**F-prod:** · Crop production & diversification (1)	**F-prod:** · Increased crop diversification (1) Growing nonfood as well as food crops (1)	NA	**D-diversity:** · Increased dietary diversity (1)	NA
		F-prod: · crop production & diversity (1)	NA	NA	**D-diversity:** · Increased dietary diversity (1)	**N-ant:** · Recovery from growth faltering (1)
		F-prod: · Irrigation and farm size (1)	**F-prod:** Improved irrigation and farm size (1)	NA	**D-diversity:** · Increased dietary diversity (1)	NA

Table S2C. Study characteristics, types of interventions, effects on food system, dietary and nutrition outcomes of the included 3 reviews and original studies (continued)

Review Characteristics	Types of intervention	Intervention	Effects of interventions on food system components studied		Dietary and nutrition outcomes studied	
			Food Supply chains	Food environments and consumer behaviour	Dietary	Nutrition
		F-prod: ・Cow and buffalo production & ownership (3)	**F-prod:** Increased cow and buffalo production (3)	NA	**D-qual + D-qty:** ・Increased household milk consumption (3)	NA
		F-prod: ・Dairy production and joining cooperatives (1)	**F-prod:** Increased milk production (1)	**F-market:** Increased milk sales (1)	**D-qual:** ・Increased milk consumption (1)	NA
	Agriculture as a source of income (28; 3/9)	**F-access:** ・Income from agricultural activities (5)	NA	**F-access:** Increased income (5)	**D-diversity+ D-qty:** ・Increased dietary diversity (2) ・Increased calorie intake (3)	NA
	Agriculture policy including food prices (30; 3/11)	**S-policy:** ・Rice or wheat prices (1)	NA	**F- affordability + F-access:** ・Increased rice or wheat prices (1) ・Larger rural wage growth (1)	NA	NA
		S-policy: ・Rice or wheat prices (2)	NA	**F- affordability:** Increased rice or wheat prices (2)	**D-qual + D-qty: (N effect)** ・Decreased consumption of more expensive micronutrient-rich foods (particularly eggs) (1) ・Increased protein consumption (1)	NA
		S-policy: ・Coarse grain prices (1)	NA	**F-access: (N/P effect)** Steep rise in coarse grain prices relative to other foods, particularly rice and wheat (1)	**D-qty: (N/P effect)** ・Decline in coarse grain consumption (1)	NA
		S-policy: ・Trade liberalisation (2)	NA	**F-affordability (N effect):** Price increases for a number of nutrition-relevant goods (1)	**D-qty: (N effect)** ・Reduction in protein and calorie intake for the poorest 30% in both urban and rural areas of India (1)	NA

Table S2C. Study characteristics, types of interventions, effects on food system, dietary and nutrition outcomes of the included 3 reviews and original studies (continued)

Review Characteristics	Types of intervention	Intervention	Effects of interventions on food system components studied		Dietary and nutrition outcomes studied	
			Food Supply chains	Food environments and consumer behaviour	Dietary	Nutrition
	Women empowerment in intrahousehold decision making and resource allocation for health and nutrition (7; 0/2)	**C-bh:** · Women empowerment (2)	NA	**C-bh:** Increased mothers' decision-making power (2)	**D-diversity:** · Increased household dietary diversity (1)	**N-status:** · Children had better nutritional status (1)
	Maternal employment in agriculture in relation to child care and feeding (9; 1/2)	**F-other:** · Mothers engaged in agricultural activities (2)	NA	**C-bh: (N effect)** Decreased health care seeking (1)	NA	**N-AM: (N effect)** · Increased infant mortality by 50% (1)
	Women employment in agriculture in relation to energy expenditure and maternal nutrition and health status (11; 0/5)	**F-other:** · Women engaged in agricultural activities (1)	NA	**C-bh: (N/P effect)** · Poor women engaged in agricultural activities in the lean season leading to body weight loss (1) (N effect) · Women engaged in agricultural activities during harvest time in late gestation (with lower maternal activity) leading to increased birth weight (1) (P effect)	**D-qty: (N effect)** · Decreased energy expenditure and food intake (lean season) (1)	**N-ant: (N/P effect)** · Loss in body fat, body weight (lean season) (1) (N effect) · Increased birth weight (harvest season) (1) (P effect)
		F-other: · Women employment in agriculture (1)	NA	**C-bh: (N effect)** Excessive maternal activity (such as farm work) (1)	NA	**N-ant: (N effect)** · Smaller fetal size (1)
#3 · **First Author:** Bakker[103] · **Year of publication:** 2021 · **No. studies included:** 131 · **No. participants included:** NA · **Year of publication of the included studies:** 2014-2020 · **Age range (years old):** NA	Resilient livestock breeds for animal-source foods (10; 4)	**F-prod:** · Production of the improved small ruminant breeds (1)	**F-prod + F-market:** · Increased meat and dairy production (compared to cattle) (1) Created opportunities for farmers to participate in new markets, such as goat auctions	**C-bh:** Empowered women with greater control over these animals and the income they generate (1)	**D-qual + D-qty:** · Increased consumption of goat milk (1)	**N-status**: · Enhanced household nutrition (1)
		F-prod:	**F-prod:**	**F-availability:**	NA	NA

Table S2C. Study characteristics, types of interventions, effects on food system, dietary and nutrition outcomes of the included 3 reviews and original studies (continued)

Review Characteristics	Types of intervention	Intervention	Effects of interventions on food system components studied		Dietary and nutrition outcomes studied	
			Food Supply chains	Food environments and consumer behaviour	Dietary	Nutrition
· **SCC Situation:** Climate change · **Countries:** NA		· Camel management (as an adaptation strategy to climate change) (2)	Remaining productive under harsh environmental conditions (1)	Providing reliable sources of milk for pastoralists (1)		
	Biofortification (richer in essential micronutrients than traditional varieties) (7; 4)	**F-prod:** · Biofortification programmemes (4)	**F-prod:** Vitamin A-fortified orange maize and high-iron beans are characterised by its high yield, resistance to diseases and viruses, and tolerance to drought conditions (3)	**F- access:** High-iron beans contribute to the development of healthy processed products (1)	**D-qual:** · Increased intake of vitamin A (1)	**N-status**: · Improved vitamin A status (1)
	Use of climate change adaptation to minimise nutrient loss at production stage (6; 1)	**F-prod:** · Climate-smart agriculture (an approach for transforming and reorienting agricultural systems to support food security under the new realities of climate change) (1)	**F-prod:** · Increased agricultural productivity (objectives) Enhanced adaptive capacity at various levels (from the farm to the national scale) (objectives)	**F- access:** · Increased incomes, food security and development (objectives) · Decreased greenhouse gas emissions while simultaneously increasing carbon sinks (objectives)	NA	NA
	Conservation agriculture (6; 2)	**F-prod + C-aware:** · Nutrition-sensitive conservation agriculture (2)	**F-prod:** Increased production of livestock products and vegetables, benefiting (from the additional time available) (1)	**F-availability + F-access + C-aware:** · Enhanced maize security (1) · Purchased additional foods with surplus income (1) · Improved the nutritional quality of food from enhanced soils (1) · Promotion of nutritious crops (1)	**D-qual + D-qty +D-CF:** · Increased consumption of conservation agriculture crops (cereals and legumes) (1) · Improved infant and young-child feeding practices were achieved (due to increased time availability and agricultural diversity) (1)	NA
		F-prod:	**F-prod:**	**F- availability:**	**D-diversity:**	NA

Table S2C. Study characteristics, types of interventions, effects on food system, dietary and nutrition outcomes of the included 3 reviews and original studies (continued)

Review Characteristics	Types of intervention	Intervention	Effects of interventions on food system components studied		Dietary and nutrition outcomes studied	
			Food Supply chains	Food environments and consumer behaviour	Dietary	Nutrition
	Crop and livestock diversification (12; 7)	· Farm diversity (6)	Increased on-farm production diversity (1)	Provided protection against heat, water stress, pests, and diseases, enhancing climate resilience (5)	· Increased dietary diversity (When production diversity is already high, the association is not significant or even can be negative, due to foregone revenue benefits from specialisation) (1)	
		F-prod: · Seed and voucher fairs (1)	NA	**F- availability:** Provided farmers with diverse seed options for nutrient-rich foods, increasing resilience to climatic shocks (1)	NA	**N-status**: · Improved household nutrition (1)
	Irrigation addressing water shortage and dietary diversity (2; 1)	**F-prod:** · Solar-powered drip irrigation technology (1)	NA	**F- availability:** Increased income used to enhance dietary diversity through purchases of fish and beans (1)	**D-qual + D-qty:** · Increased consumption of fruits and vegetables (1)	NA
	Nutrition-sensitive agriculture (2; 3)	**F-prod + C-aware:** · Nutrition-sensitive agriculture (1)	NA	NA	**D-qual + D-qty + D-diversity:** · Increased micronutrient intake (1) · Increased dietary diversity (1)	**N-status**: · Reduced anaemia (1) · Reduced micronutrient deficiencies (1)
		F-prod: · Livestock ownership (1)	**F-prod:** Increased diversity in livestock production (1)	NA	**D-qual + D-qty:** · Increased animal-source food intake (particularly milk in young children) (1)	NA
		F-prod + C-aware: · Women's empowerment (1)	**F-prod:** Increased diversity in livestock production (1)	NA	**D-diversity:** · Increased dietary diversity (1)	NA
	Reducing food waste and losses along the value chain (7; 3)	**F-waste** · Reducing post-harvest losses and food waste (2)	NA	**F- availability:** Mitigating gaps in the food value (2)	NA	NA

Table S2C. Study characteristics, types of interventions, effects on food system, dietary and nutrition outcomes of the included 3 reviews and original studies (continued)

Review Characteristics	Types of intervention	Intervention	Effects of interventions on food system components studied		Dietary and nutrition outcomes studied	
			Food Supply chains	Food environments and consumer behaviour	Dietary	Nutrition
		F-waste: ・Targeting women in campaigns to reduce food loss and waste (1)	**F-waste:** Reduced food waste (1)		NA	NA
	Social protection (3; 1)	**F-access:** ・Cash transfer (1)	NA	NA	**D-qty:** ・Increased food consumption (1)	NA

The agri-food system encompasses four main components: Supporting (S)- policy/social/health/care/others; Food supply chains (F)- production (prod)/processing/market/ waste; Food environment (F)- availability/accessibility (access)/affordability/utilisation and others (other); Consumer behaviour (C)- behaviour (bh)/preference/ awareness (aware)

The dietary and nutrition outcomes encompass two main categories: Dietary (D)-quality (qual)/quantity (qty)/ child feeding (CF); Nutrition (N)- status/anthropometry (ant)/acute malnutrition (AM)/mortality

In the "Types of Intervention" section, the notation "(A; B/C)" signifies the following: "A" represents the number of studies related to the type of intervention; "B" represents studies related to dietary and nutrition outcomes or food system, and these studies are of moderate or high quality. "C" indicates all moderate or high-quality studies in the study of Kadiyala et al. and Yosef et al. However, in the study by Bakker et al., the quality of included studies was not assessed, hence only "B" is displayed.

DDE: dichlorodiphenyldichloroethylene; DDT: dichlorodiphenyltrichloroethane; IQ: intelligence quotient

Table S3. AMSTAR 2 checklist

	Pega (2015) [1]	Pradhan (2016) [5]	Shah (2021) [11]	Als (2020) [17]	Munyuzangabo (2020) [19]	Bridge (2024) [23]	van Daalen (2022) [41]	Kim (2020) [55]	Ghodsi (2021) [58]	Dall'Oglio (2020) [65]	Rabbani (2020) [74]	Marshall (2021) [78]	Balhara (2017) [86]
1. Did the research questions and inclusion criteria for the review include the components of PICO?	Yes	Yes	No	Yes	No	No	Yes	No	No	No	No	No	Yes
2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?	Yes	Yes	No	No	No	Yes	Partial Yes	No	Yes	No	Yes	No	Yes
3. Did the review authors explain their selection of the study designs for inclusion in the review?	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
4. Did the review authors use a comprehensive literature search strategy?	Yes	Yes	Yes	Yes	Partial Yes	Partial Yes	Partial Yes	Partial Yes	Partial Yes	Partial Yes	Partial Yes	Partial Yes	Partial Yes
5. Did the review authors perform study selection in duplicate?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6. Did the review authors perform data extraction in duplicate?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7. Did the review authors provide a list of excluded studies and justify the exclusions?	Yes	No	No	No	No	No	No	No	No	No	No	No	No
8. Did the review authors describe the included studies in adequate detail?	Partial Yes	Yes	Partial Yes	Partial Yes	Partial Yes	Yes	Partial Yes	Partial Yes	Partial Yes	No	Partial Yes	Partial Yes	Partial Yes
9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review? **RCT**	Partial Yes	NA	No	NA	NA	Partial Yes	NA	No	NA	No	NA	No	Partial Yes
NRSI	Partial Yes	Partial Yes	Partial Yes	Partial Yes	No	Partial Yes	Partial Yes	Partial Yes	Yes	Partial Yes	No	No	Partial Yes
10. Did the review authors report on the sources of funding for the studies included in the review?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes
11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results? **RCT**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NRSI	Yes	NA	NA	NA	NA	NA	NA	NA	Yes	NA	NA	NA	NA
12. If meta-analysis was performed, did the review authors assess the potential impact of RoB unindividual studies on the results of the meta-analysis or other evidence synthesis?	NA	NA	NA	NA	NA	NA	NA	NA	Yes	NA	NA	NA	NA
13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?	Yes	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	Yes

Table S3. AMSTAR 2 checklist (continued)

	Pega (2015) [1]	Pradhan (2016) [5]	Shah (2021) [11]	Als (2020) [17]	Munyuzangabo (2020) [19]	Bridge (2024) [23]	van Daalen (2022) [41]	Kim (2020) [55]	Ghodsi (2021) [58]	Dall'Oglio (2020) [65]	Rabbani (2020) [74]	Marshall (2021) [78]	Balhara (2017) [86]
14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?	NA	NA	NA	NA	NA	NA	Yes	NA	No	NA	NA	NA	NA
16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quality	Moderate	Low	Critically Low	Critically Low	Critically Low	Low	Low	Critically Low	Critically Low	Critically Low	Critically Low	Critically Low	Low

NRSI: non-randomised studies on intervention

Table S4. Interventions without reported nutritional outcomes in the included reviews

Author, Year	Intervention
Pega et al., 2015[1]	NA
Pradhan et al., 2016[5]	NA
Shah et al., 2021[11]	(1) nutrition assessment[76,104–125] (2) breastfeeding and appropriate infant and young child feeding[20,70,76,77,92,105,113,116,117,119,121,123,126–135] (3) disease prevention and management[76,92,105–107,109,122,127,130,131,136–141] (4) food fortification[142–144] (5) micronutrient supplementation[20,22,76,79,81,92,112,113,119,122,127,130,136,137,139,142,145–152] (6) general food distribution[20,22,79,104,106,107,110,111,125,126,128,137,138,144,148–150,153–169] (7) SAM/MAM treatment and management[105,112,113,119–121,123,124,127,133,135,141,170–172] (8) supplementary feeding[81,92,112,113,119–121,123,130,133,145,146,152,163,173] (9) nutrition education[76,77,81,113,117,119,121,124,127,128,131–136,140,146,173–175]
Als et al., 2020[17]	water, sanitation and hygiene (WASH)[18,85,105,113,116,124,138,163,165,170,175–221]
Munyuzangabo et al., 2020[19]	(1) antenatal care[20,222–226] (2) HIV prevention, treatment and follow- up care[227,228] (3) labour and delivery: malaria treatment/prevention[224,229], screening for referral[132,222], sexually transmitted infection prevention[227,228,230], vaccinations[222,224], emergency obstetric care[224,231–238], health insurance provision[239], safe delivery[225,236,240,241] (4) postnatal care[241,242] (5) behavioural education[226,242,243] (6) essential neonatal care[244] (7) training of healthcare workers[245,246]
Bridge et al., 2024[23]	community health worker (CHW)[24,29,247–250]
van Daalen et al., 2022[41]	cash transfer[251–260]
Kim et al., 2020[55]	awareness[261,262], micronutrient[146,263–266], package of interventions[263,267,268], malnutrition prevention and treatment[269–272], modelling package of interventions[273,274]
Ghodsi et al., 2021[58]	community-based nutrition-specific interventions[275,276]
Dall'Oglio et al., 2020[65]	breastfeeding support[277], course on breastfeeding[132]
Rabbani et al., 2020[74]	infant young child feeding (IYCF) practices[73,105,133,134,175,278–281]
Marshall et al., 2021[78]	(1) overall[86,282] (including: micronutrient supplementation, selective feeding, fortified spreads, ready-to-use therapeutic foods, food and cash transfers, medical care and vaccination and wider economic and food security management) (2) nutrition education[283]
Balhara et al., 2017[86]	NA

Table S5. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 87 relevant studies in the 13 review articles

Review	Original study	Types of intervention	No. of pathway	Effects of interventions on the food system	Proposed theoretical pathway	Dietary and nutrition outcomes	SCC Situation
D-intake (16): There are a total of 16 studies specifically focusing on D-intake, with 15 of them showing improved nutrition outcomes. However, none of the studies measured the effects on the food system. The proposed pathways in 4 studies primarily involved increasing physical food accessibility, supporting systems, and enhancing consumer awareness and behaviour.							
Shah et al., 2021[11]	Vautier et al., 1999[12]	**D-intake:** · Supplementary feeding (food ration)	Ⅰ-1	NA	NA	**N-acute malnutrition**	Conflict
Munyuzangabo et al., 2020[19]	Carrara et al., 2017[20]	**D-intake:** · Supplementary feeding (food ration)	Ⅰ-1	NA	NA	**N-anthropometry**	Conflict
Munyuzangabo et al., 2020[19]	Shrimpton et al., 2009[21]	**D-intake:** · Supplementary feeding (food ration)	Ⅰ-1	NA	NA	**N-anthropometry**	Conflict
Kim et al., 2020[55]	Morikawa et al., 2013[56]	**D-intake:** · Provide supplementary feeding	Ⅰ-1	NA	NA	**N-anthropometry**	Conflict
Marshall et al., 2021[78]	Giles et al., 2015[80]	**D-intake:** · Supplementary feeding (food supplements)	Ⅰ-1	NA	NA	**N-anthropometry**	Economic crisis
Balhara et al., 2017[86]	Amthor et al., 2009[90]	**D-intake:** · Supplementary feeding (RUTF)	Ⅰ-1	NA	NA	**N-anthropometry** **N-acute malnutrition**	Food crisis
Pradhan et al., 2016[5] Balhara et al., 2017[86]	Rah et al., 2011[7]	**D-intake:** · Supplementary feeding (micronutrient powder)	Ⅰ-1	NA	NA	**N-anthropometry**	Natural disaster
Balhara et al., 2017[86]	Nackers et al., 2010[89]	**D-intake:** · Supplementary feeding (RUTF, CSB)	Ⅰ-1	NA	NA	**N-anthropometry**	Seasonal hunger
Bridge et al., 2024[23]	Isanaka et al., 2019[24]	**D-intake:** · Supplementary feeding (RUSF, CSB + + , Misola, Locally milled flour mixture)	Ⅰ-1	NA	NA	**N-mortality**	SCC-sensitive country
Balhara et al., 2017[86]	Grellety et al., 2012[88]	**D-intake:** · Supplementary feeding (RUTF)	Ⅰ-1	NA	NA	**N-anthropometry** **N- mortality**	SCC-sensitive country
Balhara et al., 2017[86]	Huybregts et al., 2012[91]	**D-intake:** · Supplementary feeding (RUTF, CSB)	Ⅰ-1	NA	NA	**N-malnutrition status** **N-anthropometry**	Combination
Balhara et al., 2017[86]	Bilukha et al., 2011[92]	**D-intake:** · Supplementary feeding (micronutrient powder)	Ⅰ-2	NA	**F-accessibility** **S-health/care**	**N-malnutrition status** **N-anthropometry**	Conflict
Marshall et al., 2021[78] Balhara et al., 2017[86]	Lopriore et al., 2004[79]	**D-intake:** · Supplementary feeding (micronutrient-fortified supplements)	Ⅰ-2	NA	**F-accessibility** **C-behaviour** **S-health**	**N-malnutrition status** **N-anthropometry**	Conflict
Pradhan et al., 2016[5] Marshall et al., 2021[78]	Dong et al., 2013[6]	**D-intake:** · Supplementary feeding (supplementary foods)	Ⅰ-2	NA	**F-accessibility**	**N-malnutrition status** **N-anthropometry**	Natural disaster

Table S5. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 87 relevant studies in the 13 review articles (continued)

Review	Original study	Types of intervention	No. of pathway	Effects of interventions on the food system	Proposed theoretical pathway	Dietary and nutrition outcomes	SCC Situation
Balhara et al., 2017[86]							
Balhara et al., 2017[86]	Isanaka et al., 2009[87]	**D-intake:** · Supplementary feeding (RUTF)	Ⅰ-2	NA	**F-accessibility** **S-health**	**N-anthropometry**	SCC-sensitive country
Munyuzangabo et al., 2020[19]	McGready et al., 2001[22]	**D-intake:** · Supplementary feeding (thiamine hydrochloride, polished rice, fish)	-	NA	**C-awareness**	NA	Conflict
Composite D-intake (D-intake ++) (20): There are a total of 20 studies involving composite D-intake, with 4 showing improved dietary outcomes and 17 showing improved nutrition outcomes. However, only 2 studies measured the effects on the food system, suggesting that increased consumer awareness mediated the intervention's effects on outcomes. An additional 4 studies proposed that enhanced consumer behaviour mediated the intervention's effects.							
Marshall et al., 2021[78]	Magoni et al., 2008[81]	**D-intake + C-awareness:** · Supplementary feeding (micronutrient and food supplement) · Nutrition education: · Conduct health education (feeding practices, development of counselling skills, and problem-solving regarding feeding issues)	Ⅰ-3	NA	NA	**N-malnutrition status** **N-anthropometry** **N-acute malnutrition**	Conflict
Shah et al., 2021[11] Marshall et al., 2021[78]	Nielsen et al., 2004[13]	**D-intake + S-health:** · Supplementary feeding (micronutrient supplement and flour mixture) · Medical treatment	Ⅰ-3	NA	NA	**N-acute malnutrition**	Conflict
Shah et al., 2021[11]	Tappis et al., 2012[14]	**D-intake + S-health:** · Supplementary feeding (fortified blended foods, oil, and sugar) · Refer for treatment	Ⅰ-3	NA	NA	**N-acute malnutrition**	Conflict
Shah et al., 2021[11]	Dureab et al., 2017[15]	**D-intake + S-health:** · Supplementary feeding (therapeutic milks and RUTF) · Hold training courses on SAM management · Provision of maternal education and counselling · Referral for treatment	Ⅰ-3	NA	NA	**N-acute malnutrition** **N-mortality**	Conflict
Pradhan et al., 2016[5]	US Centers for Disease Control and Prevention, 2012[8]	**D-intake + S-health:** · Supplementary feeding (CSB, vitamin A and oil) · Health education	Ⅰ-3	NA	NA	**N-anthropometry**	Natural disaster
Bridge et al., 2024[23]	Stewart et al., 2020[27]	**D-intake + S-care:** · Supplementary feeding (LNS) · Standard Madagascan growth monitoring · Nutrition education · Intensive nutrition counselling	Ⅰ-3	NA	NA	**N-malnutrition status**	Economic crisis

Table S5. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 87 relevant studies in the 13 review articles (continued)

Review	Original study	Types of intervention	No. of pathway	Effects of interventions on the food system	Proposed theoretical pathway	Dietary and nutrition outcomes	SCC Situation
		· Early childhood stimulation and parenting messages					
Bridge et al., 2024[23]	Rajabi et al., 2022[28]	**D-intake + S-care:** · Supplementary feeding (CSB, and super cereal plus) · Provide counselling (feeding optimisation, hygiene instruction, and a cooking demonstration)	Ⅰ-3	NA	NA	**N-anthropometry** **N-acute malnutrition** **N-mortality**	Economic crisis
Marshall et al., 2021[78] Balhara et al., 2017[86]	Choudhury et al., 1993[82]	**D-intake + S-care:** · Supplementary feeding (vitamin A supplement) · Implement nutrition education · Train in the preparation of oral rehydration therapy.	Ⅰ-3	NA	NA	**N-acute malnutrition**	Natural disaster
Bridge et al., 2024[23]	Charle-Cuéllar et al., 2021[26]	**D-intake + S-care:** · Supplementary feeding (RUTF) · Provide supportive supervision for Integrated iCCM. · Implement nutrition-specific supervision.	Ⅰ-3	NA	NA	**N-acute malnutrition**	SCC-sensitive country
Bridge et al., 2024[23]	Addo et al., 2020[33]	**D-intake + C-awareness + S-care:** · Supplementary feeding (SQ-LNS) · Provide counselling on IYCF. · Implement community-based nutrition education for mothers and pregnant women.	Ⅰ-3	NA	NA	**N-malnutrition status** **N-anthropometry**	Conflict
Ghodsi et al., 2021[58]	Yousafzai et al., 2014[59]	**D-intake + C-awareness + S-care:** · Enhanced nutrition (nutritional education and micronutrient supplement) · Responsive stimulation training for children	Ⅰ-3	NA	NA	**N-anthropometry**	SCC-sensitive country
Shah et al., 2021[11]	Hammoud, 2015[16]	**D-intake + S-health + S-care:** · Supplementary feeding (RUSF, RUTF, micronutrients and protein-rich biscuits) · Conduct pediatric consultations · Deliver health education · Refer for treatment	Ⅰ-3	NA	NA	**N-acute malnutrition**	Conflict
Bridge et al., 2024[23]	Lelijveld et al., 2021[25]	**D-intake + C-awareness + S-health + S-care** · Supplementary feeding (RUTF) · Hold nutrition sessions (IYCF, cooking, WASH, health care seeking, child development) · Attend clinic · Offer nutrition counselling	Ⅰ-3	NA	NA	**N-anthropometry** **N-acute malnutrition** **N-mortality**	SCC-sensitive country

Table S5. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 87 relevant studies in the 13 review articles (continued)

Review	Original study	Types of intervention	No. of pathway	Effects of interventions on the food system	Proposed theoretical pathway	Dietary and nutrition outcomes	SCC Situation
Bridge et al., 2024[23]	Paul et al., 2012[31]	**D-intake + S-health + S-care:** · Supplementary feeding (LNS) · Improve infant feeding practices · Improve sanitation/hygiene practices	Ⅰ-4	NA	NA	**D-child feeding** **D-quality** **D-quantity**	Natural disaster
Pega et al., 2015[1] Balhara et al., 2017[86]	Langendorf et al., 2014[4]	**D-intake + F-accessibility:** · Supplementary feeding (LNS, Super cereal) · Cash transfer	Ⅰ-6	NA	**F-affordability** **C-behaviour**	**N-acute malnutrition** **N-mortality**	Seasonal hunger
Bridge et al., 2024[23]	Desai et al., 2015[32]	**D-intake + S-health + S-care:** · Supplementary feeding (LNS) · Provide lessons on WASH, IYCF, or a combined approach of WASH + IYCF.	Ⅰ-7	**C-awareness**	NA	**D-quality** **D-quantity**	SCC-sensitive country
Bridge et al., 2024[23]	Locks et al., 2019[30]	**D-intake + S-health + S-care:** · Supplementary feeding (micronutrient and food supplements) · Conduct community- and facility-based counselling (handwashing, SQ-LNS, IYCF practices) · Administer vaccinations	Ⅰ-7	**C-awareness**	NA	**D-child feeding**	SCC-sensitive country
Pradhan et al., 2016[5] Shah et al., 2021[11] Marshall et al., 2021[78]	Jayatissa et al., 2012[9]	**D-intake + S-health:** · Supplementary feeding (RUTF, HEBs, CSB) · Refer for treatment · Provide health staff with a series of training sessions	Ⅰ-8	NA	**C-behaviour**	**N-acute malnutrition**	Combination
Pradhan et al., 2016[5] Marshall et al., 2021[78] Balhara et al., 2017[86]	Kumar et al., 2005[10]	**D-intake + C-awareness + S-care:** Set up Nutrition Care Centers: · Targeted feeding · Nutrition and health education	Ⅰ-8	NA	**C-behaviour**	**N-anthropometry** **N-acute malnutrition**	Natural disaster
Bridge et al., 2024[23]	Maust et al., 2015[29]	**D-intake + S-health + S-care:** · Supplementary feeding (RUTF, nutrient supplements) · Provide insecticide-treated bed net and a package of oral rehydration salts · Nutrition counselling	Ⅰ-8	NA	**C-behaviour**	**D-child feeding** **N-anthropometry** **N-acute malnutrition**	Conflict
F-accessibility (19): There are a total of 19 studies specifically focusing on F-accessibility, with 14 studies showing improved dietary outcomes and 7 studies showing improved nutrition outcomes. 12and 6 studies show that the interventions affected dietary and nutrition outcomes through food environment dimensions (including increasing food availability, food-accessibility, and food affordability) and enhanced consumer awareness and behaviour, respectively.							

Table S5. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 87 relevant studies in the 13 review articles (continued)

Review	Original study	Types of intervention	No. of pathway	Effects of interventions on the food system	Proposed theoretical pathway	Dietary and nutrition outcomes	SCC Situation
Ghodsi et al., 2021[58]	Trenouth et al., 2018[62]	**F-accessibility:** · Cash-based interventions (standard cash, double cash and fresh food voucher with cash)	Ⅱ-1	NA	**F-accessibility** **C-behaviour** **C-awareness**	**N-anthropometry**	SCC-sensitive country
Ghodsi et al., 2021[58]	Ghodsi et al., 2018[60]	**F-accessibility:** · Distribute food/voucher/cash transfers to electronic cards	Ⅱ-1	NA	**F-accessibility** **C-behaviour** **C-awareness**	**N-anthropometry**	SCC-sensitive country
van Daalen et al., 2022[41]	Falb et al., 2020[47]	**F-accessibility:** · Unconditional cash transfers	Ⅱ-1	**F-affordability** **C-behaviour**	**F-affordability** **S-social**	**D-quantity**	Conflict
van Daalen et al., 2022[41]	Bliss et al., 2018[44]	**F-accessibility:** · Conditional emergency cash transfer programme	Ⅱ-1	NA	**C-awareness**	**D-quality** **D-quantity** **N-anthropometry** **N-acute malnutrition**	Food crisis
van Daalen et al., 2022[41]	Kurdi, 2021[54]	**F-accessibility:** · Provides monthly cash transfers to households	Ⅱ-1	**C-behaviour** **C-awareness**	**C-awareness**	**D-diversity** **D-quality**	Conflict
van Daalen et al., 2022[41]	Schwab, 2020[52]	**F-accessibility:** · Food or cash transfer	Ⅱ-1	**C-behaviour**	**C-behaviour**	**D-diversity** **D-quantity**	Combination
van Daalen et al., 2022[41]	Hidrobo et al., 2014[49]	**F-accessibility:** · Cash transfers, food vouchers, or food transfers	Ⅱ-2	NA	**F-market** **C-behaviour** **C-awareness**	**D-diversity** **D-quality** **D-quantity**	Conflict
Pega et al., 2015[1]	Aker et al., 2011[2]	**F-accessibility:** · Unconditional Cash Transfer	Ⅱ-2	**F-production** **F-affordability**	**F-production**	**D-diversity**	Combination
van Daalen et al., 2022[41]	Sibson et al., 2018[53]	**F-accessibility:** · Unconditional cash transfers	Ⅱ-3	**F-accessibility**	NA	**D-diversity** **D-quantity**	Food crisis
van Daalen et al., 2022[41]	Hou, 2010[50]	**F-accessibility:** · Conditional cash transfer programme	Ⅱ-3	**F-affordability**	**F-availability**	**D-diversity**	Natural disaster
Marshall et al., 2021[78]	Moench-Pfanner et al., 2005[83]	**F-accessibility:** Food for Work: · Provide rice, sometimes combined with oil and/or pinto beans · Increased employment	Ⅱ-4	**F-affordability**	NA	**N-malnutrition status**	Economic crisis
Ghodsi et al., 2021[58]	Fenn et al., 2017[61]	**F-accessibility:** · Cash-based interventions (standard cash, double cash and fresh food voucher with cash)	Ⅱ-4	NA	**F-accessibility**	**D-diversity** **D-quality** **D-quantity** **N-malnutrition status** **N-anthropometry**	SCC-sensitive country
van Daalen et al., 2022[41]	Doocy et al., 2020[45]	**F-accessibility:** · Food provision, food vouchers, and cash transfers	Ⅱ-4	NA	**F-accessibility**	**D-diversity** **D-quantity** **N-anthropometry**	Food crisis
van Daalen et al., 2022[41]	Doocy et al., 2020[46]	**F-accessibility:** · Cash and voucher assistance	Ⅱ-4	NA	NA	**D-diversity** **D-quantity** **N-anthropometry** **N-acute malnutrition**	Food crisis
van Daalen et al., 2022[41]	Aker, 2017[42]	**F-accessibility:** · Cash and voucher transfer	Ⅱ-5	**F-affordability** **F-accessibility**	**F-other**	**D-diversity** **D-quantity**	Conflict
van Daalen et al., 2022[41] Marshall et al., 2021[78]	Grijalva-Eternod et al., 2018[48]	**F-accessibility:** · Transfer monthly unconditional cash.	Ⅱ-5	NA	**F-other**	**D-diversity** **D-quality** **D-quantity**	Combination

Table S5. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 87 relevant studies in the 13 review articles (continued)

Review	Original study	Types of intervention	No. of pathway	Effects of interventions on the food system	Proposed theoretical pathway	Dietary and nutrition outcomes	SCC Situation
		· Distribute once-only a non-food items kit. · Provide piped water free of charge.					
van Daalen et al., 2022[41]	MacPherson et al., 2021[51]	**F-accessibility:** · Income-generating activities · Cash transfers	Ⅱ-6	**F-availability**	**F-accessibility**	**D-diversity** **D-quality** **D-quantity**	Conflict
van Daalen et al., 2022[41]	Bliss et al., 2016[43]	**F-accessibility**: · Cash transfer programmemes	-	NA	**F-affordability**	NA	Food crisis
Pega et al., 2015[1]	Macours et al., 2012[3]	**F-accessibility:** · Conditional cash transfer	-	**F-affordability**	NA	NA	SCC-sensitive country
Composite F-accessibility (F-accessibility ++) (3): There are a total of 3 studies involving composite F-accessibility, all of which show improved dietary outcomes, mediated through increased food availability, food accessibility, and enhanced consumer awareness and behaviour.							
Rabbani et al., 2020[74]	Dozio et al., 2016[75]	**F-accessibility + S-care:** · Distribution of food vouchers · Cooking demonstration · Sensitisation on child care practices · Psychological support	Ⅱ-7	NA	**F-accessibility**	**D-diversity** **D-quantity**	Conflict
Bridge et al., 2024[23] Marshall et al., 2021[78]	Kurdi et al., 2020[34]	**F-accessibility + C-awareness + S-care:** · Provide monthly cash transfers · Conduct nutrition and health education sessions (training on EBF, complementary feeding, preparing nutritious meals, handwashing practices, treatment of drinking water, and how to treat diarrhea)	Ⅱ-8	**C-awareness**	NA	**D-child feeding**	Conflict
Balhara et al., 2017[86]	Baye et al., 2014[93]	**F-accessibility + S-social:** · Food or cash transfers	Ⅱ-9	**F-other**	**F-availability** **C-behaviour**	**D-diversity** **D-quality** **D-quantity**	Food crisis
C-awareness (2): Only 2 studies specifically focus on C-awareness, with 1 study showing improved dietary outcomes and 2 studies showing improved nutrition outcomes, both mediated through increased consumer awareness.							
Marshall et al., 2021[78]	Yang et al., 2015[84]	**C-awareness:** · Nutrition education · Concepts in food and nutrition · When and how to add the complementary food · Homemade complementary food · Benefits of breast-feeding preventing common	Ⅲ-1	**C-awareness**	NA	**D-child feeding** **N-malnutrition status**	Natural disaster
Ghodsi et al., 2021[58]	Saleem et al., 2014[63]	**C-awareness:** · Maternal educational messages regarding appropriate complementary feeding	Ⅲ-1	NA	**C-awareness**	**N-anthropometry**	SCC-sensitive country
Composite C-awareness (C-awareness ++) (6): There are a total of 6 studies involving composite C-awareness, with 1 demonstrating improved dietary outcomes, showing positive effects on nutrition outcomes, and 2 showing that enhanced consumer awareness and behaviour were the food system components through which the intervention affected the dietary and nutrition outcomes.							
Bridge et al., 2024[23]	Mayhew et al., 2014[35]	**C-awareness + S-care:** · Monitor the weights of children	Ⅲ-2	NA	NA	**N-anthropometry**	Conflict

Table S5. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 87 relevant studies in the 13 review articles (continued)

Review	Original study	Types of intervention	No. of pathway	Effects of interventions on the food system	Proposed theoretical pathway	Dietary and nutrition outcomes	SCC Situation
Kim et al., 2020[55]		· Promote feeding practices					
Bridge et al., 2024[23]	Bisimwa et al., 2009[37]	**C-awareness + S-care:** · Launch a public awareness campaign. · Recruit and train community volunteers. · Arrange monthly community weighing sessions.	Ⅲ-2	NA	NA	**N-anthropometry**	Conflict
Dall'Oglio et al., 2020[65]	Mwendwa et al., 2016[66]	**C-awareness + S-care:** · Support and promote appropriate feeding practices · Maternal and IYCF nutrition education	Ⅲ-2	NA	NA	**N-acute malnutrition** **N-anthropometry**	Conflict
Bridge et al., 2024[23]	Ayalew et al., 2021[38]	**C-awareness + S-care:** · Conduct training sessions (cooking demonstrations focused on complementary feeding practices) · Provide individual counselling and support for feeding practices and to demonstrate cooking procedures	Ⅲ-2	NA	**C-behaviour**	**N-anthropometry**	SCC-sensitive country
Bridge et al., 2024[23]	Kim et al., 2019[36]	**C-awareness + S-care:** · Promote nutrition-sensitive agricultural activities. · Conduct interpersonal communication activities focused on IYCF. · Implement a mass media campaign on IYCF practices	Ⅲ-3	**F-production** **C-awareness**	NA	**D-diversity** **D-quality** **D-quantity** **N-anthropometry**	SCC-sensitive country
Kim et al., 2020[55]	Kim et al., 2008[57]	**C-awareness + S-care:** · Provide an electronic picture book to communicate public health messages (micronutrients, WASH, diet, breastfeeding and peripartum care)	-	**C-awareness**	NA	NA	Conflict
S-health/care (19): There are a total of 19 studies specifically focusing on S-health or care, with 10 demonstrating improvements in dietary outcomes, 8 showing positive effects on nutrition outcomes, and 3 showing that enhanced consumer awareness and behaviour as the intervention impact pathway through food system.							
Rabbani et al., 2020[74]	Sallam et al., 2018[104]	**S-health:** · Trained female community health volunteers provide health and nutrition services	Ⅳ-6	**C-behaviour** **C-awareness**	**C-behaviour**	**N-acute malnutrition**	Conflict
Als et al., 2020[17]	Roberts et al., 2001[18]	**S-health:** · Use the improved container for water collection	-	**S-other**	NA	NA	Conflict
Balhara et al., 2017[86]	Aakre et al., 2017[94]	**S-care:** · Infant and children feeding practices	Ⅳ-7	NA	NA	**N-anthropometry**	Conflict
Balhara et al., 2017[86]	Hejna et al., 2019[99]	**S-care:**	Ⅳ-7	NA	NA	**N-acute malnutrition**	Conflict

Table S5. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 87 relevant studies in the 13 review articles (continued)

Review	Original study	Types of intervention	No. of pathway	Effects of interventions on the food system	Proposed theoretical pathway	Dietary and nutrition outcomes	SCC Situation
		· Diagnosis and treatment of SAM and MAM. · Promotion of WASH practices · Establish nutrition centers					
Balhara et al., 2017[86]	Jakobsen et al., 2003[96]	**S-care:** · Breast feeding practice	Ⅳ-7	NA	NA	**N-mortality**	Conflict
Balhara et al., 2017[86]	Lung'aho et al., 2009[97]	**S-care:** · Capacity-building for IYCF, mother-to-mother groups, and breastfeeding and young child feeding practices.	Ⅳ-7	NA	NA	**D-child feeding** **N-acute malnutrition**	Conflict
Balhara et al., 2017[86]	International Medical Corps USAID, 2016[95]	**S-care:** · Breast feeding, feeding their children with iron rich and iron fortified food and other interventions	Ⅳ-7	NA	NA	**N-anthropometry**	SCC-sensitive country
Marshall et al., 2021[78]	Rossi et al., 2008[85]	**S-care:** · Establish therapeutic feeding centers · Establish supplementary feeding centers	Ⅳ-7	NA	**S-health**	**N-acute malnutrition** **N-mortality**	Combination
Bridge et al., 2024[23] Marshall et al., 2021[78]	Balaluka et al., 2012[39]	**S-care:** · Promote exclusive breastfeeding	Ⅳ-8	NA	NA	**D-child feeding**	Conflict
Dall'Oglio et al., 2020[65]	UNICEF, 2016[71]	**S-care:** IYCF programme: · Education sessions · Counselling and support for lactating mothers at home	Ⅳ-8	NA	NA	**D-child feeding**	Conflict
Balhara et al., 2017[86]	Sumanović-Glamuzina, 2013[98]	**S-care:** · Breastfeeding practice	Ⅳ-8	NA	NA	**D-child feeding**	Conflict
Rabbani et al., 2020[74]	Ndungu et al., 2017[77]	**S-care:** · IYCF practices · Behaviour-change services	Ⅳ-8	NA	NA	**D-diversity** **D-quantity**	Conflict
Dall'Oglio et al., 2020[65]	Assefa et al., 2008[67]	**S-care:** · Active support for breastfeeding	Ⅳ-8	NA	NA	**D-child feeding**	Natural disaster
Dall'Oglio et al., 2020[65]	Castillo et al., 2016[68]	**S-care:** · Breastfeeding support · Kangaroo mother care · IYCF · Postnatal care of mothers and newborns	Ⅳ-8	NA	NA	**D-child feeding**	Natural disaster
Dall'Oglio et al., 2020[65]	Ayoya et al., 2013[69]	**S-care:** · Provide tents to offer a safe place for mothers to breastfeed	Ⅳ-8	NA	NA	**D-child feeding**	Natural disaster
Bridge et al., 2024[23]	Worku et al., 2020[40]	**S-care:** · Enhance community-based nutrition (focus on IYCF)	Ⅳ-8	NA	**C-behaviour** **C-awareness**	**D-diversity**	SCC-sensitive country

Table S5. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 87 relevant studies in the 13 review articles (continued)

Review	Original study	Types of intervention	No. of pathway	Effects of interventions on the food system	Proposed theoretical pathway	Dietary and nutrition outcomes	SCC Situation
		· Familiarise with nutrition-sensitive agriculture.					
Ghodsi et al., 2021[58]	Zaman et al., 2008[64]	**S-care:** · Training health workers (how to counsel the mother)	Ⅳ-9	**C-awareness**	**C-behaviour**	**D-quality** **D-child feeding** **N-anthropometry**	SCC-sensitive country
Dall'Oglio et al., 2020[65]	UNICEF, 2016[70]	**S-care:** · Promote breastfeeding and IYCF	-	**C-awareness**	NA	NA	Conflict
Dall'Oglio et al., 2020[65]	UNICEF, 2016[72]	**S-care:** · IYCF training for pregnant and lactating woman · Mother support groups · One-to-one counselling sessions	-	**C-awareness**	NA	NA	Natural disaster
Composite S-health/care/social/others (2): There are a total of 2 studies involving composite S-health/care/social/others, with 1 showing improved nutrition outcome and the other demonstrating enhanced consumer awareness.							
Balhara et al., 2017[86]	Brentlinger et al., 1999[100]	**S-social + S-others:** · Postwar social and economic assistance programmemes	Ⅳ-5	NA	**F-availability**	**N-anthropometry**	Conflict
Dall'Oglio et al., 2020[65]	Fänder et al., 2015[73]	**S-health + S-care:** · Breastfeeding counselling · IYCF training to health staff · Community volunteers training · Refugee education on IYCF practices and support group	Ⅳ-6	**C-awareness**	NA	NA	Conflict

The food system encompasses four main components: Supporting (S)- policy/social/health/care/others; Food supply chains (F)- production /processing/market/waste; Food environment (F)- availability/accessibility/affordability/utilisation and others; Consumer behaviour (C)- behaviour/preference/ awareness

The dietary and nutrition outcomes encompass two main categories: Dietary (D)-quality/quantity/diversity/child feeding; Nutrition (N)- status/anthropometry /acute malnutrition/mortality

In the "No. of pathway" section, the notation "(Ⅰ ; Ⅱ ; Ⅲ; Ⅳ; Ⅴ)" signifies the following: " Ⅰ " represents interventions at the consumption stage; " Ⅱ " represents interventions targeting accessibility and other food environmental factors; "Ⅲ" represents interventions aimed at raising consumer awareness and behaviour changes; "Ⅳ" represents interventions with supporting systems; " Ⅴ " represents interventions at the food production stage. The accompanying numbers indicate specific pathways within each notation.

CSB: corn-soya blend; HEB: high-energy biscuits; iCCM: integrated community case management; IYCF: infant and young child feeding; LNS: lipid-based nutrient supplement; MAM: moderate acute malnutrition; RUSF: ready-to-use supplementary food; RUTF: ready-to-use therapeutic food; SAM: severe acute malnutrition; WASH: water, sanitation, and hygiene

Table S6. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 71 interventions discussed in the 3 additional review articles

Types of intervention	No. of pathway	Effects of interventions on food system	Dietary and nutrition outcomes
Review #1: Yosef et al., 2015 (SCC-sensitive country) [101]			
Agriculture as a Source of Food			
F-production: · Ricefield-based fish seed production (1)	Ⅴ-1	NA	**D-quality (1)** **D-quantity (1)**
F-production: • Large-scale, crop-diversification project (1)	Ⅴ-1	**F-production (1)**	**D-quality (1)** **D-quantity (1)**
F-production: • Crop production & diversification (1)	Ⅴ-1	**F-production (1)**	**D-quality (1)** **D-quantity (1)**
F-production: • Homestead food production model (1)	Ⅴ-2	NA	**D-quality (1)** **D-quantity (1)** **N-malnutrition status (1)**
F-production: • Vegetable production programme (1)	Ⅴ-2	NA	**D-quality (1)** **D-quantity (1)** **N-anthropometry (1)**
F-production + C-awareness: • Nutrition education and seed distribution project (1)	Ⅴ-10	NA	**D-quality (1)** **D-quantity (1)** **N-malnutrition status (1)**
Agriculture as a source of income for food and non-food expenditures			
F-accessibility: • Agricultural employment for household income (2)	Ⅱ-1	**F-affordability (1)** **C-behaviour (1)**	**D-diversity (1)** **N-anthropometry (1)**
F-production: • Integrate fish and vegetable production into aquaculture systems (1)	Ⅴ-6	**F-accessibility (1)**	**D-quality (1)** **D-quantity (1)**
F-production: • Backyard poultry raising (1)	Ⅴ-6	**F-accessibility (1)** **F-production (1)** **C-behaviour (1)**	**D-quality (1)** **D-quantity (1)**
F-production + F-other: • Farmer training and dissemination of low-cost aquaculture technologies (1)	Ⅴ-11	**F-production (1)**	**D-quality (1)** **D-quantity (1)**
Agriculture policy and food prices affecting food consumption			
F-accessibility + S-policy: • Bangladesh's targeted food programmemes (1)	Ⅱ-7	**F-accessibility (1)**	**D-quantity (1)**
F-accessibility + S-policy: • Bangladesh's targeted food programmemes (1)	Ⅱ-7	**F-accessibility (1)**	**D-quantity (1)**
S-policy: • Rice expenditure (1)	Ⅳ-1	**F-affordability (1)** **C-behaviour (1)**	**D-diversity (1)** **N-anthropometry (1)**
S-policy: • Food price volatility (1)	Ⅳ-2	**F-affordability (1)**	**D-quantity (1)**
S-policy: • Trade liberalisation (1)	Ⅳ-4	**F-production (1)** **F-affordability (1)**	NA
Women empowerment in intrahousehold decision making and resource allocation for health and nutrition			
F-production + C-awareness: • Vegetable gardens and nutrition education (1)	Ⅴ-10	**C-behaviour (1)**	**D-quantity (1)** **N-malnutrition status (1)**

Table S6. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 71 interventions discussed in the 3 additional review articles (continued)

Types of intervention	No. of pathway	Effects of interventions on food system	Dietary and nutrition outcomes
F-production + C-awareness: • Women's empowerment/ training in using agricultural technologies (1)	Ⅴ-10	**C-behaviour (1)**	**N-anthropometry (1)**
F-production + C-awareness: • Women empowerment/ training in horticultural programmemes (1)	Ⅴ-11	**F-production (1)** **C-behaviour (1)**	**D-quality (1)** **D-quantity (1)**
Female employment in agriculture in relation to child care and feeding			
F-other: • Mothers serving as agricultural workers (1)	-	NA	**D-child feeding [b] (1)**
Women in agriculture and maternal nutrition and health status and agriculture-associated health hazards			
D-intake + F-other + S-health: • Iron supplementation and anthelmintic treatments provided to female tea pluckers (1)	Ⅰ-5	**F-production (1)**	NA
F-other: • Mothers serving as pluckers in tea plantations (1)	Ⅱ-6	NA	**D-quantity (1)**
Review #2: Kadiyala et al., 2014 (SCC-sensitive country) [102]			
Agriculture as a source of food			
F-production: • Crop production & diversification (1)	Ⅴ-1	**F-production (1)**	**D-diversity (1)**
F-production: • Irrigation and farm size (1)	Ⅴ-1	**F-production (1)**	**D-diversity (1)**
F-production: • Cow and buffalo production & ownership (3)	Ⅴ-1	**F-production (3)**	**D-quality (3)** **D-quantity (3)**
F-production: • Crop production & diversity (1)	Ⅴ-2	NA	**D-diversity (1)** **N-anthropometry (1)**
F-production: • Dairy production and joining cooperatives (1)	Ⅴ-4	**F-production (1)** **F-market (1)**	**D-quality (1)**
Agriculture as a source of income			
F-accessibility: • Income from agricultural activities (5)	Ⅱ-3	**F-accessibility (5)**	**D-diversity (2)** **D-quantity (3)**
Agriculture policy including food prices			
S-policy: • Rice or wheat prices (1)	Ⅳ-3	**F-accessibility (1)** **F-affordability (1)**	NA
S-policy: • Rice or wheat prices (2)	-	**F-affordability (2)**	**D-quality [b] (1)** **D-quantity [b] (1)**
S-policy: • Coarse grain prices (1)	-	**F-accessibility [a] (1)**	**D-quantity [a] (1)**
S-policy: • Trade liberalisation (2)	-	**F-affordability [b] (1)**	**D-quantity [b] (1)**
Women empowerment in intrahousehold decision making and resource allocation for health and nutrition			
C-behaviour: • Women empowerment (2)	Ⅲ-1	**C-behaviour (2)**	**D-diversity (1)** **N-malnutrition status (1)**
Maternal employment in agriculture in relation to child care and feeding			
F-other: • Mothers engaged in agricultural activities (2)	-	**C-behaviour [b] (1)**	**N-acute malnutrition [b] (1)**
Women employment in agriculture in relation to energy expenditure and maternal nutrition and health status			

Table S6. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 71 interventions discussed in the 3 additional review articles (continued)

Types of intervention	No. of pathway	Effects of interventions on food system	Dietary and nutrition outcomes
F-other: • Women engaged in agricultural activities (1)	-	**C-behaviour [a] (1)**	**D-quantity [b] (1)** **N-anthropometry [a] (1)**
F-other: • Women employment in agriculture (1)	-	**C-behaviour [b] (1)**	**N-anthropometry [b] (1)**
Review #3: Bakker et al., 2021 (Climate change) [103]			
Resilient livestock breeds for animal-source foods			
F-production: • Production of the improved small ruminant breeds (1)	V-3	**F-production (1)** **F-market (1)** **C-behaviour (1)**	**D-quality (1)** **D-quantity (1)** **N-malnutrition status (1)**
F-production: • Camel management (as an adaptation strategy to climate change) (2)	V-5	**F-production (1)** **F-availability (1)**	NA
Biofortification (richer in essential micronutrients than traditional varieties)			
F-production: • Biofortification programmemes (4)	V-6	**F-production (3)** **F-accessibility (1)**	**D-quality (1)** **N-malnutrition status (1)**
Use of climate change adaptation to minimise nutrient loss at production stage			
F-production: • Climate-smart agriculture (an approach for transforming and reorienting agricultural systems to support food security under the new realities of climate change) (1)	V-7	**F-production (1)** **F-accessibility (1)**	NA
Conservation agriculture			
F-production + C-awareness: • Nutrition-sensitive conservation agriculture (2)	V-11	**F-production (1)** **F-availability (1)** **F-accessibility (1)** **C-awareness (1)**	**D-quality (1)** **D-quantity (1)** **D-child feeding (1)**
Crop and livestock diversification			
F-production: • Farm diversity (6)	V-8	**F-production (1)** **F-availability (5)**	**D-diversity (1)**
F-production: • Seed and voucher fairs (1)	V-9	**F-availability (1)**	**N-malnutrition status (1)**
Irrigation addressing water shortage and dietary diversity			
F-production: • Solar-powered drip irrigation technology (1)	V-8	**F- availability (1)**	**D-quality (1)** **D-quantity (1)**
Nutrition-sensitive agriculture			
F-production: • Livestock ownership (1)	V-1	**F-production (1)**	**D-quality (1)** **D-quantity (1)**
F-production + C-awareness: • Nutrition-sensitive agriculture (1)	V-10	NA	**D-quality (1)** **D-quantity (1)** **D-diversity (1)** **N-malnutrition status (1)**
F-production + C-awareness: • Women's empowerment (1)	V-11	**F-production (1)**	**D-diversity (1)**
Reducing food waste and losses along the value chain			
F-waste: • Reducing post-harvest losses and food waste (2)	-	**F-availability (2)**	NA
F-waste:	-	**F-waste (1)**	NA

Table S6. Summary of impact pathways of different types of nutrition interventions on dietary/nutrition outcomes through food systems, data retrieved from the 71 interventions discussed in the 3 additional review articles (continued)

Types of intervention	No. of pathway	Effects of interventions on food system	Dietary and nutrition outcomes
• Targeting women in campaigns to reduce food loss and waste (1)			
Social protection			
F-accessibility: • Cash transfer (1)	Ⅱ-3	NA	**D-quantity (1)**

[a] No positive effect; [b] Negative effect

The food system encompasses four main components: Supporting (S)- policy/social/health/care/others; Food supply chains (F)- production /processing/market/waste; Food environment (F)- availability/accessibility/affordability/utilisation and others; Consumer behaviour (C)- behaviour/preference/ awareness.

The dietary and nutrition outcomes encompass two main categories: Dietary (D)-quality/quantity/diversity/child feeding; Nutrition (N)- status/anthropometry /acute malnutrition/mortality.

In the "No. of pathway" section, the notation "(Ⅰ; Ⅱ; Ⅲ; Ⅳ; Ⅴ)" signifies the following: " Ⅰ " represents interventions at the consumption stage; " Ⅱ " represents interventions targeting accessibility and other food environmental factors; " Ⅲ " represents interventions aimed at raising consumer awareness and behaviour changes; " Ⅳ " represents interventions with supporting systems; " Ⅴ " represents interventions at the food production stage. The accompanying numbers indicate specific pathways within each notation.

CSB: corn-soya blend; HEB: high-energy biscuits; iCCM: integrated community case management; IYCF: infant and young child feeding; LNS: lipid-based nutrient supplement; MAM: moderate acute malnutrition; RUSF: ready-to-use supplementary food; RUTF: ready-to-use therapeutic food; SAM: severe acute malnutrition; WASH: water, sanitation, and hygiene

Text S1. Further details of the three other relevant studies

In the review study conducted in Bangladesh[101], home food production emerges as a vital source of animal products, vegetables, and essential nutrients (pathway 1). This leads to higher consumption of these nutritious foods, resulting in improved dietary diversity and nutritional status. Consequently, there is a decrease in the prevalence of conditions such as child anaemia and stunting, along with an increase in women's BMI. Similar observation was noted for livestock ownership and crop diversification. Agriculture also serves as a significant source of income (pathway 2), enabling households to afford a more diverse diet and invest in health and education. For example, backyard poultry raising not only increased consumption of poultry meats and eggs but also supported both food and non-food expenditures, including children's schooling, through the generated income. Some studies have found that higher expenditure on non-rice foods is associated with a reduced prevalence of stunting and maternal underweight, suggesting that agricultural interventions leading to increased income may have a positive impact. Evidence surrounding the influence of agricultural policies and food prices affecting food consumption (pathway 3) is more mixed and mainly theorised. The authors of a study on rice expenditure hypothesised that macroeconomic food policies aimed at keeping staple food prices low may positively impact nutrition outcomes such as reducing the percentage of underweight children. Employment in agriculture also seems to mitigate the impact of food price volatility on calorie intake. A modelling study suggests that increased income from sources other than rice improved household welfare, as indicated by factors such as land size and income share from agriculture. Evidence is scarcer for pathway 4-6 involving women's empowerment. Compared to control households, interventions that included vegetable gardens and nutrition education resulted in a higher likelihood of women choosing to allocate garden produce for household consumption or sale (pathway 4), ultimately leading to increased household consumption and decreased prevalence of vitamin A deficiency. However, there is concern that female employment in agriculture may also lead to undesirable outcomes, such as reduced breastfeeding and suboptimal childcare (pathway 5) and exposure to agricultural hazards (pathway 6), such as arsenic contamination. This underscore the need for comprehensive approaches to address agricultural-associated health risks and ensure the well-being of agricultural communities.

The findings from the review study in India[102] mirror those in Bangladesh. In pathway 1, which focuses on food production, crop diversification is associated with increased dietary diversity and decreased growth faltering, while ownership of livestock correlates with higher milk production, sales, and consumption. In India, evidence for pathway 2, concerning income, is less robust, primarily focusing on the correlation between higher household income and increased calorie intake or dietary diversity, with less emphasis on the connection with agricultural interventions. For pathway 3, there are reflections on whether relative food price (grain and non-grain) or higher agricultural income is more important. The relationship between relative food prices and the consumption of nutrient-rich foods appears complex, with indications that the net income effect may be more influential than relative food prices overall. Child anthropometry remained unaffected even during a sudden price rise of rice supplied by the Public Distribution System (PDS), which subsidises rice and wheat consumption. This casts doubt on the effectiveness of the PDS in improving nutrition outcomes, despite its

demonstrated impact on reducing poverty. For pathway 4-6, results from India similarly indicated that while higher maternal autonomy in household decision can improve household dietary diversity and nutritional status. Some studies have suggested that female labour force participation in agriculture may lead to undesirable outcomes, including decreased immunisation rates, reduced healthcare seeking behaviour, and lower child survival rates. Additionally, it may increase the risk of contracting diarrheal and respiratory diseases, possibly due to lower maternal availability. Increased maternal activity, including farm work, has been associated with smaller foetal size and lower birth weight. However, not all studies have observed these unintended consequences of female employment in agriculture. One limitation of the review conducted in India, compared to that in Bangladesh, is the scarcity of measurements related to nutrition outcomes, such as anthropometry or micronutrient status. Instead, calorie intake and food expenditure are often used as proxies for nutrition.

The last relevant review is a report[103] concerning food-system interventions with co-benefits for climate change and nutrition. The authors recommended various interventions targeting different domains of the food system: 1) food supply chain; 2) food environment; 3) consumer behaviour and diet.

For interventions targeting food supply chain, the following interventions were recommended:

- Breeding resilient livestock breeds that can withstand climate change-induced challenges, such as heat stress and limited feed availability, can ensure a stable supply of animal-source foods.
- Enhancing the nutritional quality of staple crops through biofortification to address hidden hunger and micronutrient deficiencies, particularly in regions facing reduced crop nutritional quality due to climate change.
- Utilisation of neglected and traditional species that are resilient to climate change can promote nutritional diversity in the food supply chain.
- Implementing climate change adaptation strategies (climate smart agriculture) at the production stage can minimise nutrient loss and enhance resilience to climate-related challenges.
- Conservation agriculture, which enhance biodiversity and natural biological processes, leading to improved water and nutrient use efficiency and sustained crop production.
- Crop and livestock diversification to increase resilience to climate stressors (e.g., heat, water, and pests) and contributes to a more resilient food system and crop production.
- Improve irrigation to address water shortages and enhance dietary diversity.
- Nutrition-sensitive agriculture integrating nutrition-sensitive approaches into agriculture programmemes can improve dietary diversity, micronutrient intake, and reduce malnutrition, particularly when combined with behaviour change communication and women's empowerment interventions.
- Reducing food waste and loss, particularly during post-harvest stage is essential for increasing food availability, reducing nutritional gaps, and mitigating climate change while improving farmers' livelihoods.

The authors think that the abovementioned interventions targeting food supply chains will also impact on food environment eventually, and further recommended additional interventions for food environment, including

- Strengthening national food safety standards and surveillance.

- Regulating health claims and adopting front-of-pack food labeling.
- Implementing policies to make healthy foods more accessible and restrict advertising of unhealthy foods.
- Institutionalising policies to support breastfeeding.
- Improving transportation infrastructure to ensure access to markets.
- Enhancing retailer access to essential resources like water, electricity, and cold storage.
- Promoting increased incomes to improve household access to nutritious food.
- Creating networks of food producers to increase market access and reduce food waste.
- Increasing transparency of information about nutrition and environmental impact on labels.
- Complementing income-generation interventions with awareness-raising activities to ensure improvements in both nutrition and adaptive capacity, with a focus on empowering women.

Finally, three key interventions targeting consumer behaviour in the context of climate change were suggested:

- Developing guidelines for healthy and sustainable diets involves aligning dietary recommendations with sustainability goals and integrating them with other food policies and interventions, e.g., food reformulations and food marketing.
- Implementing energy-efficient cook stoves to reduce biomass use and greenhouse gas emissions, contributing to both human well-being and climate change mitigation.
- Social protection measures, such as school feeding programmemes and cash transfers, help households cope with climate-related shocks and sustain food security, especially for vulnerable farming communities lacking access to resources for adaptation.

The review also acknowledges that efforts to address poverty, climate change, and nutrition through gender and youth-focused interventions within food systems are crucial for enhanced effectiveness and equity. This requires proactive policy actions and empowerment programmemes tailored to the specific needs of marginalised groups, ultimately leading to more resilient and sustainable food systems.

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