Community Dental Health (2018) **35,** 81–88
Received 9 May 2017; Accepted 24 September 2017

doi:10.1922/CDH_4188Abuhaloob08

Community-based nutrition intervention to promote oral health and restore healthy body weight in refugee children: A scoping review

Abuhaloob L,[1] Carson S,[2] Richards D,[3] and Freeman R[4]

[1]Oral and Dental School Health, Ministry of Health Palestine; Dental Health Services Research Unit, Dundee Dental School, University of Dundee, Dundee, DD1 4HN, United Kingdom; [2]Dental Health Services Research Unit, Dundee Dental School, University of Dundee, Public Health, NHS Tayside, Dundee, DD1 4HN, United Kingdom; [3]Centre for Evidence-Based Dentistry, Dundee Dental School, University of Dundee; Dental Public Health, NHS Forth Valley, Dundee, DD1 4HN, United Kingdom; [4]Dental Health Services Research Unit, Dundee Dental School, University of Dundee, Public Health, NHS Tayside, Dundee, DD1 4HN, United Kingdom.

Objective: To determine the scope and quality of evidence on the effectiveness of community-based nutrition interventions to promote oral health and restore healthy body weight in school-aged refugee children. ***Basic research design:*** Scoping review using a systematic approach. ***Main outcome measures:*** Oral health and body weight. ***Results:*** Four primary studies, two evaluation studies and one systematic review met the inclusion criteria. No nutrition interventions or reviews to promote oral health in school-aged refugee children were found. There is limited weak evidence for the effectiveness of community-based nutrition interventions to restore healthy body weight in refugee settings. A systematic review also reported weak evidence of correction of child body weight as a result of community-based nutrition interventions in refugee camps. ***Conclusion:*** This scoping review found no community-based nutrition interventions for school-aged refugee children to promote oral health and restore healthy body weight. There is limited and weak evidence for the effectiveness of community-based nutrition interventions to restore healthy body weight in refugee settings. There is a need to conduct an early phase study to develop and co-produce community-based nutrition interventions to promote oral health and healthy body weight for children residing in long-term refugee situations and to investigate the feasibility for their implementation.

Key words: *Children, refugees, nutrition, oral health, body weight*

Introduction

Refugees are people who are forcibly displaced from their homes into another part of their country of origin or displaced into another hosting country as a result of conflict, and/or violence (UNHCR, 2014). In 2014, the United Nations High Commission for Refugees (UNHCR) showed that 86% of the world's refugees were living in developing countries and 54% were trapped in protracted refugee situations. By December 2015, the number of displaced people worldwide had increased to 65 million; 21.3 million were refugees; with over half of these being children (UNHCR, 2014).

Oral diseases are highly prevalent among refugees and generally, higher than in the indigenous populations in the host countries (Keboa *et al*., 2016). In Canada, African refugee children have high experience of dental caries (dmfs = 7.2), 63.7% of which is untreated (Amin *et al*., 2015). A study of refugee children in the USA found that of 51.3% with caries, 48.7% was untreated, compared with 22.8% of the 49.3% of US children had dental caries (Cote *et al.*, 2004).

Living in an area suffering from long lasting political conflict, such as those in Palestine, is known to have a detrimental effect upon children's health both before and after resettlement. In Gaza refugee camps, United Nations Relief and Works Agency for Palestine Refugees in the Near East Department of Health (UNRWA) reported that 18% of adolescents are obese due to over-nutrition; 10% of adolescents and 46% of primary school-aged children are stunted in their growth as a result of malnutrition (UNRWA, 2012). Eighty-seven percent of children have untreated decay and 12% of their dietary intake is composed of free sugars (Abuhaloob *et al.*, 2015). This situation is exacerbated by erratic changes in dietary availability and behaviours and imposes a 'double burden' of malnutrition and obesity within these populations, which is seen in both affluent and less-affluent countries (Black *et al.*, 2013). The double burden results from the nutrition transition that follows rapid economic development, characterised by rapid trends towards urbanisation which can lead to low levels of physical activity and a high consumption of refined, energy-dense foods, in the absence of the full elimination of under-nutrition. In contrast, two Arab countries (Iraq and Syria) measured the impact of change in sugar intake on dental caries experience before and after war, attributing a drop in sugar intake with a post-war decline in dental caries children (Jamel *et al.*, 2004; Joury *et al.*, 2016). While, most recent reviews demonstrate that many factors contribute to the continued increase in dental caries and oral diseases among refugee populations worldwide, in addition

Correspondence to: Dr Lamis Abuhaloob, Dental Health Services Research Unit, 9th Floor, Dundee Dental School, University of Dundee, Dundee, DD1 4HN, United Kingdom. Email: l.abuhaloob@dundee.ac.uk.

to the increase in sugar consumption (Keboa *et al.*, 2016). The UNRWA reported an increased prevalence of dental caries in long lasting refugee settings in Palestinian camps in Arabic countries (UNRWA, 2016) associated with a high intake of sugars among children (Abuhaloob and Abed, 2013; Humphris and Abuhaloob, 2015).

A recent report on refugee children (Dawson-Hahn *et al.*, 2016) has pointed to their various nutritional needs. Pursuing health-related research in prolonged refugee situations is applicable not only for such protracted refugee situations, but also for other populations undergoing nutrition transition. Inclusive and collaborative community-based interventions (Scaling Up Nutrition, 2012) have been used to tackle nutrition and health issues, by addressing food insecurity and quality in African countries. Despite reports of success, there has been no formal evaluation of such community-based interventions.

Therefore, a need exists to provide appropriate and acceptable nutrition interventions to prevent and manage non-communicable diseases (such as dental caries) within refugee camps. Thus, the aim of this scoping review was to determine the scope and quality of evidence on the effectiveness of community-based nutrition interventions to promote oral health and restore healthy body weight in school-aged refugee children.

Method

A scoping review of peer-reviewed publications and grey literature of the use and effectiveness of community-based (including school-based settings) nutrition interventions to promote oral health and restore healthy body weight in refugee school-aged children was conducted. The review followed the 5 steps for conducting scoping studies (Levac *et al.*, 2010):

(i) Defining the research question and inclusion criteria;
(ii) Determining the search strategy;
(iii) Selecting the literature and study quality assessments;
(iv) Charting and synthesizing the data;
(v) Analysing the data and generating results and recommendations.

(i) Research question and criteria for inclusion:

The research question for this review is: 'What is the quality of evidence on the effectiveness of community-based health nutrition interventions (including school-based interventions) to promote oral health and restore healthy body weight in school-aged refugee children?'

The criteria for including studies were:

- The populations were primary school children and adolescents in secondary, and/or high schools in refugee settings;
- Interventions focused on nutrition implemented in refugee community or school-based settings to promote oral health and/or restore healthy body weight in refugee school-aged children. Interventions were identified using the WHO clarification of methods of intervention (World Health Organisation, 2016). They included: behavioural interventions, adding of nutrients, providing food supplementation, regulating nutrition-related activities or behaviours which would have an impact on health outcomes.
- Study designs were selected based upon the recommendations from the 'Effective Practice and Organization of Care group' (Effective Practice and Organisation of Care, 2015). These included randomized controlled trials (RCT), cluster-RCT, controlled before-after (CBA) studies and interrupted time series. Studies included at least one measure of intervention impact and wereprimary articles or systematic reviews.
- Systematic reviews were included if all the included studies met the inclusion criteria.

(ii) Search strategy:

Searches were conducted using the following databases: MEDLINE (EMBASE), CINHAL, Education Resources Information Centre (ERIC) and the Cochrane library. In addition, the websites of World Health Organization (WHO), the International Union for Health Promotion and Education (IUHPE), the United Nations Children's Fund (UNICEF), United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) and the United Nations Refugee Agency (UNHCR) were searched to identify published reports, non-peer reviewed papers and review articles related to the research question. The search included MeSH terms and free text and was conducted in January 2017. The keywords used in searching database were:

- Nutrition, diet, dietary, food;
- Community or school-based interventions;
- Nutrition interventions, nutrition prevention, nutrition control;
- Health education, behaviour and/or behavioural interventions;
- Refugees, immigrants, migrants;
- Children, adolescent, adults;
- Primary school, secondary school;
- Preventive dentistry, oral and/or dental health;
- Weight.

There were no limitations placed on publication year or language.

(iii) Selecting the literature

The search strategy identified 3,325 records. Two reviewers (LA and RF) screened the titles, abstracts and key words, identifying 119 records for which full texts were retrieved and assessed for eligibility. Nine reports were from WHO, UNRWA, UNICEF and UNCHR websites and 110 from database searches. One hundred and twelve studies were excluded (Figure 1). The remaining seven articles fulfilled the inclusion criteria and represent the total data set for this review.

No community-based nutrition interventions or reviews that aimed to promote oral health and restore healthy body weight in school-aged refugee or school-aged refugee immigrant children were identified.

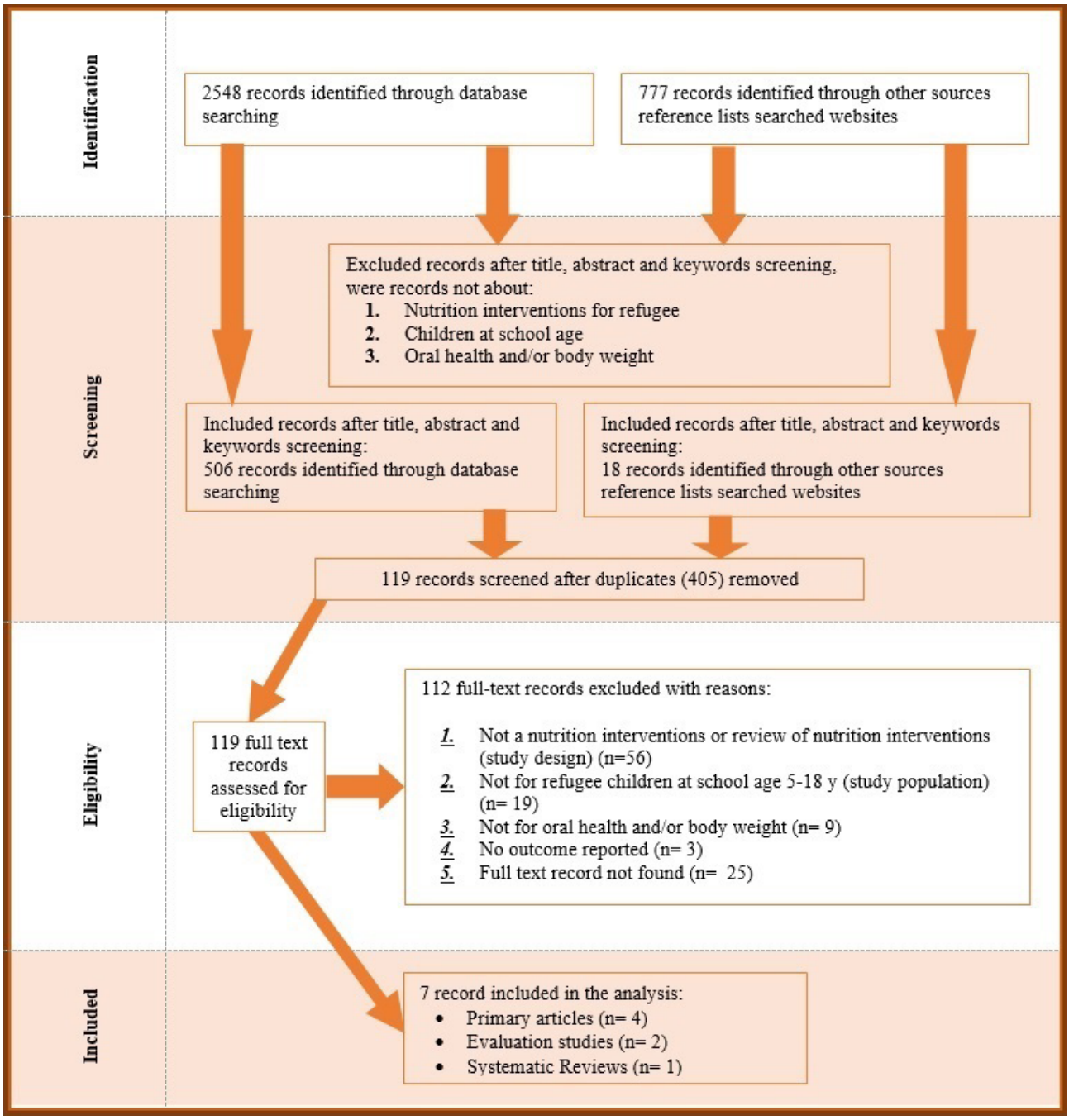

Figure 1. Flowchart for literature selection

(iv) Quality assessment

The 27-item in StaRI checklist was used to assess the quality of intervention studies (Pinnock *et al.*, 2017), while the quality of Randomised Control Trial was assessed using the 25-item checklist stated in CONSORT (Schulz *et al.*, 2010). The quality of two evaluation of nutrition interventions (Vautier *et al.*, 1999; Renzaho, 2002) was assessed using the Newcastle-Ottawa scale (Wells *et al.*, 2014). The Assessment of Multiple Systematic Reviews (AMSTAR) (Shea *et al.*, 2007) was used to evaluate the quality of systematic reviews based on 11 criteria. However, the inclusion of the studies was not determined by their quality.

(iv) Charting and synthesizing the data

The research team met to chart data to facilitate the extraction and summary for each source together and its outcomes. The extracted data were reviewed again by two reviewers.

(v) Analysing the data, generating results and recommendations

The descriptive analytical method allowed gaps to be identified in the literature and evidence-base and for recommendations to emerge (Levac *et al.*, 2010).

Results

(i) Study characteristics

Seven studies met the inclusion criteria, four community-based nutrition interventions (Duerr *et al.*, 2003; Lopriore *et al.*, 2004; Gronbaek *et al.*, 2009; Kilanowski and Gordon, 2015), two evaluation studies (Vautier *et al.*, 1999; Renzaho, 2002) and one systematic review (Renzaho *et al.*, 2010).

The community-based nutrition interventions were tailored to children aged 5-18 years old living in Mugunga refugee camps in Congo (Duerr *et al.*, 2003), northwest of Copenhagen (Gronbaek *et al.*, 2009) and Latino immigrant refugee communities (Kilanowski and Gordon, 2015) and Saharawi refugee camps in America (Lopriore *et al.*, 2004). The studies included evaluations of framework protocols in food centres for those with acute malnutrition (Renzaho, 2002) and the effectiveness of supplementary feeding programmes (Vautier *et al.*, 1999). The systematic review assessed programmes for the prevention of obesity and chronic diseases among child refugee immigrants in hosting countries (Renzaho *et al.*, 2010).

(iii) Studies quality assessment

None of the intervention studies fulfilled all the items required by the Quality Assessment tool Checklists. Generally, there was lack of detail in their titles and objectives; in their methods for resource use, costs, economic outcomes, analysis for the intervention strategy, sample sizes, contextual changes, harms or unintended effects in each group and trial limitations. The included systematic review (Renzaho *et al.*, 2010) had good methodological quality and met the eleven AMSTAR criteria. The study evaluating the effectiveness of feeding programmes (Renzaho, 2002) was considered good based on the Newcastle-Ottawa scale, as it used appropriate sample size and outcome measures and considered confounding factors that may impact on feeding programmes. The study evaluating the effectiveness of supplementary feeding programmes in crisis situations in Liberia, Burundi and Goma (Congo) (Vautier *et al.*, 1999) was rated low because it did not provide information on non-exposed cohorts and the methods used to control for bias resulting from loss of participants during follow up.

(ii) Nutrition interventions in refugee settings to restore healthy body weight (Table 1)

The reviewed studies showed inconsistent results for the improvement in weight gain during nutrition interventions (Vautier *et al.*, 1999; Renzaho, 2002; Duerr *et al.*, 2003; Lopriore *et al.*, 2004),

The food supplementation programme (Duerr *et al.*, 2003), for instance, as part of a wider social system programme, aimed to prevent abandonment of children by their biological families or to assist displaced, separated or orphaned children who were placed with foster families. Families were supplied with food from the World Food Programme every 2 to 7 days, blankets, soaps, information about services, agencies, and medical and nutritional programmes. After 7 weeks a health assessment, including measurement of body weight found non-significant (P=0.68) differences in the weight gain for foster (0.36 kg/month) and biological children (0.41 kg/month).

It was not clear from the evaluation by Renzaho (2002), which assessed the effectiveness of selective feeding programmes for refugee children with acute malnutrition, whether the reduction of malnutrition prevalence was a result of feeding programmes. This was due to a weak framework and the practices of selective feeding programs centres in refugee settings. An earlier evaluation study (Vautier *et al.*, 1999) for the effectiveness of supplementary feeding programmes in crisis situations provided immediate relief in food by the nongovernmental organization to refugee children who had wasting. The authors concluded that securing recovery and weight for 23-48% of children from supplementary feeding programmes was not a valid indicator that the nutritional status of refugee children had improved.

The only community-based intervention that reported a significant effect was conducted among Saharawi refugee children (aged 3–6 years, n = 374) in the United States. The children received a highly nutrient-dense spread fortified with vitamins and minerals, with or without anti-parasitic metronidazole treatment. A significant improvement in weight-for-height (z score = 0.54-0.45) was observed among all study children and a 90% reduction in anaemia was secured (Lopriore *et al.*, 2004).

Interventions correcting overweight (obesity) (Table 1)

The two most recent community-based interventions that reported significant weight loss among obese resettled refugee children were conducted in host communities in Denmark and America.

A trial in northwest Copenhagen used an intensive family psychological and nutrition intervention providing physical exercise, nutritional guidance, family psychotherapy and child group sessions. A significant decrease (P<0.003) was detected in the Body Mass Index Z score (from 2.6 to 2.4) among children of immigrant families who completed the intervention (Gronbaek *et al.*, 2009).

Kilanowski and Gordon (2015) evaluated an intervention to promote healthy weight among refugee immigrant Latino children attending a Migrant Education Program in USA. The intervention provided information on food variety and choice andencouraged participants to eat fruit and vegetables, reduce the consumption of sugar-sweetened drinks, eat healthy breakfasts, have more family meals together, takemore physical activity and reduce television and electronic game time. A significant (P = 0.02) decrease in BMI percentile was detected in the intervention group (t= 2.325, effect size = 0.24).

A systematic review (Renzaho *et al.*, 2010) for prevention programmes for obesity and chronic diseases among refugee immigrant children from developing to developed countries found that although the earlier interventions targeting refugee children (Davis *et al.*, 2007) had showed a reduction in weight gain as a result of physical activity and healthy eating, the interventions were poor in quality with a small sample size.

Discussion

This review was conducted to determine the scope and quality of evidence on the effectiveness of community-based nutrition interventions to promote oral health and restore healthy body weight of school-aged refugee children. Similar to previous reviews (Sawaya *et al.*, 2003), this scoping review has shown a paucity of research undertaken within refugee settings with few formal evaluations published.

Table 1. Nutrition interventions and relevant reviews

Studies	*Study design*	*Country*	*Population*	*Sample*	*Data collection*	*Results*
(Duerr *et al.*, 2003)	Non-randomized controlled study - 7 weeks follow up Social systems programme including Food supplementation programme: To Prevent abandonment of children by their families and placing separated or orphaned children with foster families.	Congo	Refugees in Mugunga camp	**Intervention group:** children (9.0 years) with foster families, who received food supplementation programme (n = 784) **Control group:** children (7.2 years) with biological families, who received food supplementation programme (n = 971)	Weight and height	Rates of weight gain: foster children = 0.36 kg/month. biological children = 0.41 kg/month. Differencesnot significant (P=0.68)
(Gronbaek *et al.*, 2009)	Prospective trail - 18 months follow up Family psychological intervention involved the action areas of physical activity and nutrition: To assess the impacts of a family-based childhood obesity treatment on anthropometry and predictors of dropout and successful weight loss	Denmark	Refugees in the Northwest area of Copenhagen	Children (10 - 12 years), Weighing more than 40% above the median Danish weight-for-height reference Group A: child immigrants and non-immigrant who completed follow up period (n = 49) Group B: child immigrants and non-immigrant who attended intensive period but withdrewduring follow up (n = 81)	BMI Z score	Decrease (p<0.001) in BMI Z score from 2.9 to 2.6 in intensive period Further (p=0.003) decrease during follow-up period 2.6 to 2.4. Weight loss in immigrant children of i non- European origin was approximately half that observed in families of European origin.
(Kilanowski and Gordon, 2015)	Two-group pre-post quasi-experimental study - 7 weeks follow up Healthy Weight Intervention in Summer School: To evaluate the effectiveness of a healthy weight intervention designed for children of migrant	USA	Latino refugee children in grades one through eight	**Intervention group:** n = 138 **Comparison group:** n = 33	Weight gain and BMI percentile	I ncreased mean weight only in the comparison group (P=0.02) . Reduced BMI percentile in the intervention group ((P = 0.02, effect size = 0.24), Improvement in the knowledge score in intervention students was not significant.
(Lopriore *et al.*, 2004)	Randomized, double-blind, placebo-controlled supplementation trial - 6 months follow up Micronutrient-fortified supplements intervention: To assess the effect of a highly nutrient-dense spread fortified with vitamins and minerals, with or without antiparasitic metronidazole treatment, in correcting retarded linear growth and reducing anemia in stunted children.	USA	Saharawi refugee	374 stunted children (3–6 years) assigned to 1 of 5 groups: fortified spread (FS), fortified spread plus metronidazole (FS_M), unfortified spread (US), unfortified spread plus metronidazole (US_M), or control.	Weight, height, knee-heel length, hematologic indexes, parasitic infections, and morbidity	Significant improvement in Weight for Height Z score (0.54-0.45) overall across all groups Hemoglobin concentrations in the FS group (37±40 g/L) was significantly (P<0.0001) higher than that in the US (19±15 g/L) and control (16±17 g/L) groups. Anaemia reduced by nearly 90%.

table 1 continued overleaf...

...table 1 continued

Studies	*Study design*	*Country*	*Population*	*Sample*	*Data collection*	*Results*
(Renzaho, 2002)	Review the current approach being used to evaluate the effectiveness of feeding programmes.	-	Children attending centres for the treatment of persons suffering from acute malnutrition in refugee settings	-	Malnutrition prevalence and crude mortality rates determined through nutritional and mortality surveys.	No clear practice, goals, objectives and loss framework was detected in the feeding programmes. No evidence confirms that the reduction of malnutrition prevalence is a result of feeding programs. Alternative approach to evaluating feeding centres proposed.
(Vautier et al., 1999)	Review of the effectiveness of supplementary feeding programmes in crisis situations in Liberia, Burundi and Goma (Congo)	Refugee camps in Liberia, Burundi – and Goma (Congo)	Children in two rural frontiers– Liberia and Burundi – and in refugee camps in Goma (Congo) or (RDC) with weight for height index (w/h) ≤ 80% of the median (NCHS, CDC, WHO Reference Table 1982)	40,223 children	Discharge outcomes of three supplementary feeding programmes implemented during a food crisis The programmes, distributed a dry take-home ration, were managed by the non-governmental organization in Médecins Sans Frontières.	23-84% of children enrolled in supplementary feeding programmes showed recovery and weight gain. The results could not been used as indicator for the effectiveness of these programmes because the number of monthly admissions children did not decrease despite good results and the prevalence of acute malnutrition in all areas did not improve significantly
(Renzaho et al., 2010)	Systematic review Prevention programmes for obesity and chronic diseases among immigrants to developed countries: To determine whether interventions tailored specifically to particular immigrant groups from developing to developed countries decrease the risk of obesity and obesity-related diseases.	Developing counties	Immigrants from developing to developed countries	-	Narrative synthesis, describing the target population, report of type and impact of the intervention and the effect size.	Only two interventions targeted children < 12 years (Simmons et al, 1998; Davis et al, 2007) Both interviews assessed as poor quality General outcomeshowed that physical activity and healthy eating are good ways to minimise weight gain and diabetes-related outcomes

table 1 continued overleaf...

In general, the evidence on the effectiveness of community based nutrition interventions to restore healthy body weight in school-age refugee children is poor in quality. The findings here suggest that it is not the change in food provision, per se, but additional elements such as the use of anti-parasitic medication or reduced television watching in conjunction with healthier food regimens, at the community level which are important in the restoration of healthy body weight in school-aged refugee children. Therefore because of a lack of high quality, community-based nutrition interventions there is weak evidence for the role of such interventions in refugee settings to restore healthy body weight of school-aged refugee children.

Despite the the lack of a requirement for quality assessment of included studies in scoping reviews (Grant and Booth, 2009), this review conducted this assessment to give insight to policy makers on the quality of results when considered for policy and practice contexts. Thus, while the studies were assessed using methodological/reporting tools and the type of studies reported scored relatively well, there is still a fundamental issue with regard to the quality of the available evidence. Consequently, we report a lack of high quality, community-based nutrition interventions to promote healthy body weight in school-aged refugee children and this was supported by Renzaho *et al.* (2010), Grijalva-Eternod *et al.* (2012) and Tyrer and Fazel (2014) in refugee settings.

Considering the importance of adopting a Common Risk Factor Approach (CRFA) (Sheiham and Watt, 2000), at one level it seemed disappointing that no records were retrieved that contained a community-based intervention which promoted both oral health and restored a healthy body weight in school-aged refugee children. Nonetheless, in the spirit of the CRFA, is it necessary to have an oral health component? The relationship between the increased consumption of sugar-sweetened beverages in both dental caries and obesity could be cited as a reason for their mutual inclusion in a community-based nutrition intervention to promote health and reduce the oral health-health inequality gap between refugee immigrant and non-immigrant children (Black *et al.*, 2013; Humphris and Abuhaloob, 2015). This has some merit, although there is a lack of high quality research for community-based interventions for school-aged children in refugee settings to healthier dietary habits. Anecdotal evidence suggests that multi-sectorial, community-based nutrition-specific (direct causes of poor diets) and nutrition-sensitive (underlying causes of poor nutrition by mobilising environmental resources) interventions can build capacity and help sustain healthier behaviours. There is also evidence that they can improve food security and assist in establishing general health. Evidence from SUN interventions (Scaling Up Nutrition, 2012) that use multi-sectorial approaches to scale-up nutrition suggest that multi-sectoral approaches to enhance nutrition are successful in providing sustainable food security and healthier diets for children residing in Middle East and North Africa (MENA) countries (Black *et al.*, 2013).

The absence of oral health outcomes in nutrition interventions suggests that international organizations do not prioritize oral health. UNRWA operates oral health curative and prevention programme for Palestinian Refugees, but, this programme is unable to meet their oral health needs (UNRWA, 2016).

Nutrition interventions that enhanced the reduction of non-milk extrinsic sugar intake in preschool and nursery were associated with reduction in dental caries (Sheiham and Watt, 2000). In addition, WHO has highlighted the effectiveness of school-based oral health programmes in providing access to large numbers of children worldwide (Petersen, 2004). Thus, developing co-produced nutrition and oral health community and school-based interventions is proposed to secure a healthy environment and enhance positive oral health and dietary behaviours.

Conclusions

Overall, this scoping review identified no community-based nutrition interventions for school-aged refugee children to promote oral health and restore health body weight. It confirms that the included few studies which scored well on the methodological and reporting tools, provide limited weak evidence for the effectiveness of community-based nutrition interventions to restore healthy body weight in refugee settings.

Although children within protracted refugee situations experience a 'triple burden' of dental caries, malnutrition and obesity (Humphris and Abuhaloob, 2015), little has been done to address this issue. There is a need to conduct and co-produce a community-based, multi-sectoral nutrition and oral health intervention for children and their families residing in long-term and protracted refugee situations. There also remains a need to develop and test the feasibility of carrying out such complex interventions in partnership with informed stakeholders. Only then can we begin to realise any potential for such interventions to reduce child refugee obvious decay experience and maintain healthy body weight prior to resettlement.

References

Abuhaloob, L. and Abed, Y. (2013): Dietary behaviours and dental fluorosis among Gaza Strip children. *Eastern Mediterranean Health Journal* **19,** 657-663.

Abuhaloob, L., Maguire, A. and Moynihan, P. (2015): Total daily fluoride intake and the relative contributions of foods, drinks and toothpaste by 3- to 4-year-old children in the Gaza Strip – Palestine. *International Journal of Paediatric Dentistry* **25,** 127-135.

Amin, M.S., Perez, A. and Nyachhyon, P. (2015): Parental awareness and dental attendance of children among African immigrants. *J Immigr Minor Health* **17,** 132-8.

Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., de Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., Martorell, R. and Uauy, R. (2013): Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet* **382,** 427-51.

Cote, S., Geltman, P., Nunn, M., Lituri, K., Henshaw, M. and Garcia, R.I. (2004): Dental caries of refugee children compared with US children. *Pediatrics* **114,** e733-40.

Davis, J.N., Ventura, E.E., Alexander, K.E., Salguero, L.E., Weigensberg, M.J., Crespo, N.C., Spruijt-Metz, D. and Goran, M.I. (2007): Feasibility of a home-based versus classroom-based nutrition intervention to reduce obesity and type 2 diabetes in Latino youth. *International Journal of Pediatric Obesity* **2,** 22-30.

Dawson-Hahn, E., Pak-Gorstein, S., Hoopes, A.J. and Matheson, J. (2016): *The Nutritional Health of Young Refugee Children Resettling in Washington State.* Washington DC: Migration Policy Institute.

Duerr, A., Posner, S.F. and Gilbert, M. (2003): Evidence in support of foster care during acute refugee crises. *American Journal of Public Health* **93,** 1904-1909.

Effective Practice and Organisation of Care (2015): [*EPOC Resources for review authors*]. Oslo: Norwegian Knowledge Centre for the Health Services. http://epoc.cochrane.org/epoc-specific-resources-review-authors

Grant, M.J. and Booth, A. (2009): A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal* **26,** 91-108.

Grijalva-Eternod, C.S., Wells, J.C.K., Cortina-Borja, M., Salse-Ubach, N., Tondeur, M.C., Dolan, C., Meziani, C., Wilkinson, C., Spiegel, P. and Seal, A.J. (2012): The double burden of obesity and malnutrition in a protracted emergency setting: a cross-sectional study of Western Sahara refugees. *Plos Medicine* **9,** e1001320-e1001320.

Gronbaek, H.N., Madsen, S.A. and Michaelsen, K.F. (2009): Family involvement in the treatment of childhood obesity: the Copenhagen approach. *European Journal of Pediatric Surgery* **168,** 1437-1447.

Humphris, R. and Abuhaloob, L. (2015): A Double or Triple Burden for Palestinian Children Residing in Gaza Refugee Camps? Exploring the role of diet in malnutrition, obesity and dental caries. *Journal of Palestinian Refugee Studies* **4/5,** 89 - 93.

Jamel, H., Plasschaert, A. and Sheiham, A. (2004): Dental caries experience and availability of sugars in Iraqi children before and after the United Nations sanctions. *Int Dent J* **54,** 21-5.

Joury, E., Alghadban, M., Elias, K. and Bedi, R. (2016): Impact of providing free preventive dental products without health workers' counselling on infants' tooth-brushing and bottle-feeding termination practices: a randomised controlled trial. *Community Dental Health* **33,** 213-217.

Keboa, M.T., Hiles, N. and Macdonald, M.E. (2016): The oral health of refugees and asylum seekers: a scoping review. *Globalization And Health* **12,** 59-59.

Kilanowski, J.F. and Gordon, N.H. (2015): Making a Difference in Migrant Summer School: Testing a Healthy Weight Intervention. *Public Health Nursing* **32,** 421-429.

Levac, D., Colquhoun, H. and O'Brien, K.K. (2010): Scoping studies: advancing the methodology. *Implementation Science* **5,** 69-69.

Lopriore, C., Guidoum, Y., Briend, A. and Branca, F. (2004): Spread fortified with vitamins and minerals induces catch-up growth and eradicates severe anemia in stunted refugee children aged 3-6 y. *Amrican Journal of Clinical Nutrition* **80,** 973-981.

Petersen, P.E. (2004): Challenges to improvement of oral health in the 21st century--the approach of the WHO Global Oral Health Programme. *Int Dent J* **54,** 329-43.

Pinnock, H., Barwick, M., Carpenter, C.R., Eldridge, S., Grandes, G., Griffiths, C.J., Rycroft-Malone, J., Meissner, P., Murray, E., Patel, A., Sheikh, A. and Taylor, S.J.C. (2017): Standards for Reporting Implementation Studies (StaRI) Statement. *BMJ* **356**.

Renzaho, A.M.N. (2002): Selective feeding centres in refugee settings: evaluation framework protocol. *Asia Pacific Journal of Clinical Nutrition* **11,** 237-245.

Renzaho, A.M.N., Mellor, D., Boulton, K. and Swinburn, B. (2010): Effectiveness of prevention programmes for obesity and chronic diseases among immigrants to developed countries - a systematic review. *Public Health Nutrition* **13,** 438-450.

Sawaya, A.L., Martins, P., Hoffman, D. and Roberts, S.B. (2003): The link between childhood undernutrition and risk of chronic diseases in adulthood: a case study of Brazil. *Nutrition Reviews* **61,** 168-75.

Scaling Up Nutrition (2012): *SUN movement: Revised road map.* SUN movement: SUN movement.

Schulz, K.F., Altman, D.G. and Moher, D. (2010): CONSORT 2010 statement: updated guidelines for reporting parallel group randomized trials. *Annals of Internal Medicine* **152,** 726-32.

Shea, B.J., Grimshaw, J.M., Wells, G.A., Boers, M., Andersson, N., Hamel, C., Porter, A.C., Tugwell, P., Moher, D. and Bouter, L.M. (2007): Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. *BMC Medical Research Methodology* **7,** 10.

Sheiham, A. and Watt, R.G. (2000): The common risk factor approach: a rational basis for promoting oral health. *Community Dentistry and Oral Epidemiology* **28,** 399-406.

Tyrer, R.A. and Fazel, M. (2014): School and Community-Based Interventions for Refugee and Asylum Seeking Children: A Systematic Review. *Plos One* **9,** e89359.

UNHCR (2014): [*Global Trends 2013: War's Human Cost.*]. Geneva, Switzerland: United Nations High Commission for Refugees (UNHCR). http://reliefweb.int/sites/reliefweb.int/files/resources/Global_Trends_report_2013_V07_web_embargo_2014-06-20.pdf

UNRWA (2012): *The Annual Report of the Department of Health 2011.* United Nations Relief and Works Agency for Palestine Refugees in the Near East Department of Health (UNRWA): UNRWA.

UNRWA (2016): *Health Department: Annual Report 2015.* United Nations Relief and Works Agency for Palestine Refugees in the Near East Department of Health (UNRWA): UNRWA.

Vautier, F., Hildebrand, K., Dedeurwaeder, M. and Herp, M. (1999): Dry supplementary feeding programmes: an effective short-term strategy in food crisis situations. *Tropical Medicine and International Health* **4,** 875-879.

Wells, G., Shea, B., O'Connell, J., Robertson, J., Peterson, V., Welch, V., Losos, M. and Tugwell, P. (2014): *The Newcastle-Ottawa scale (NOS) for assessing the quality of nonrandomised studies in meta-analysis.* Canada: Department of Epidemiology and Community Medicine, University of Ottawa.

World Health Organisation (2016): [*Nutrition interventions*]. Geneva: World Health Organisation http://www.who.int/elena/intervention/en/