Presentation 4

Are parental feeding practices relevant targets in web-based nutritional interventions? A systematic review and meta-analysis

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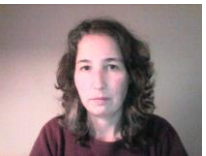

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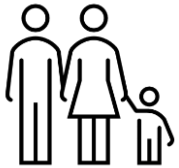
Introduction



What we have learned about **interventions that study parental feeding practices**?

Role of **parents** on the development of children's dietary patterns

Technological-based programs are promising on changing health-related parenting behaviors.

How they impact on parental feeding practices?

Introduction

Purpose of the current work

To conduct a systematic review and meta-analysis of parental web-based interventions that promote children's healthy diet through parental feeding practices:

1. Which parental feeding practices do the interventions aim to promote or modify?
2. Which behavioral change techniques are used to promote changes in parental feeding practices?
3. What is the effectiveness of the interventions on changing the different parental feeding practices?

Methods

Inclusion criteria:

a) parents of children between 0 and 12 years old;

b) the intervention aimed to promote children's healthy diet and/or to prevent nutrition-related problems both in healthy or clinical populations;

c) is a web-based, stand-alone intervention for parents;

d) parental feeding practices were one of the outcomes;

e) the parental feeding behaviors were assessed through quantitative measures;

f) used a RCT design.

PICOS	Search items
Population, patient or problem	Parent* OR mother* OR father* OR caregiver* OR caretaker* OR family AND Child* OR preschool* OR toddlers OR infants AND Obesity prevention OR healthy eating promotion OR fruit* OR vegetable* OR sugar* OR meal* NOT Adolescence OR adolescents OR teens OR secondary students OR secondary school
Intervention	Online OR web OR mHealth OR eHealth OR mobile OR application OR computer OR smartphone
Comparator	Control group OR treatment as usual
Outcome	(parent* OR mother* OR father* OR caretaker*) AND feeding practices OR (parent* OR mother* OR father* OR caretaker*) AND feeding strategies OR (parent* OR mother* OR father* OR caretaker*) AND feeding habit* OR (parent* OR mother* OR father* OR caretaker*) AND feeding behav*
Study design	Intervention OR trial OR program* OR effectiveness OR efficacy OR randomized controlled trial OR RCT NOT Review OR meta-analysis OR systematic review

SCOPUS, Web of Science, EBSCO, CENTRAL

Search:

December 9th 2019
(updated on February 13th 2020)

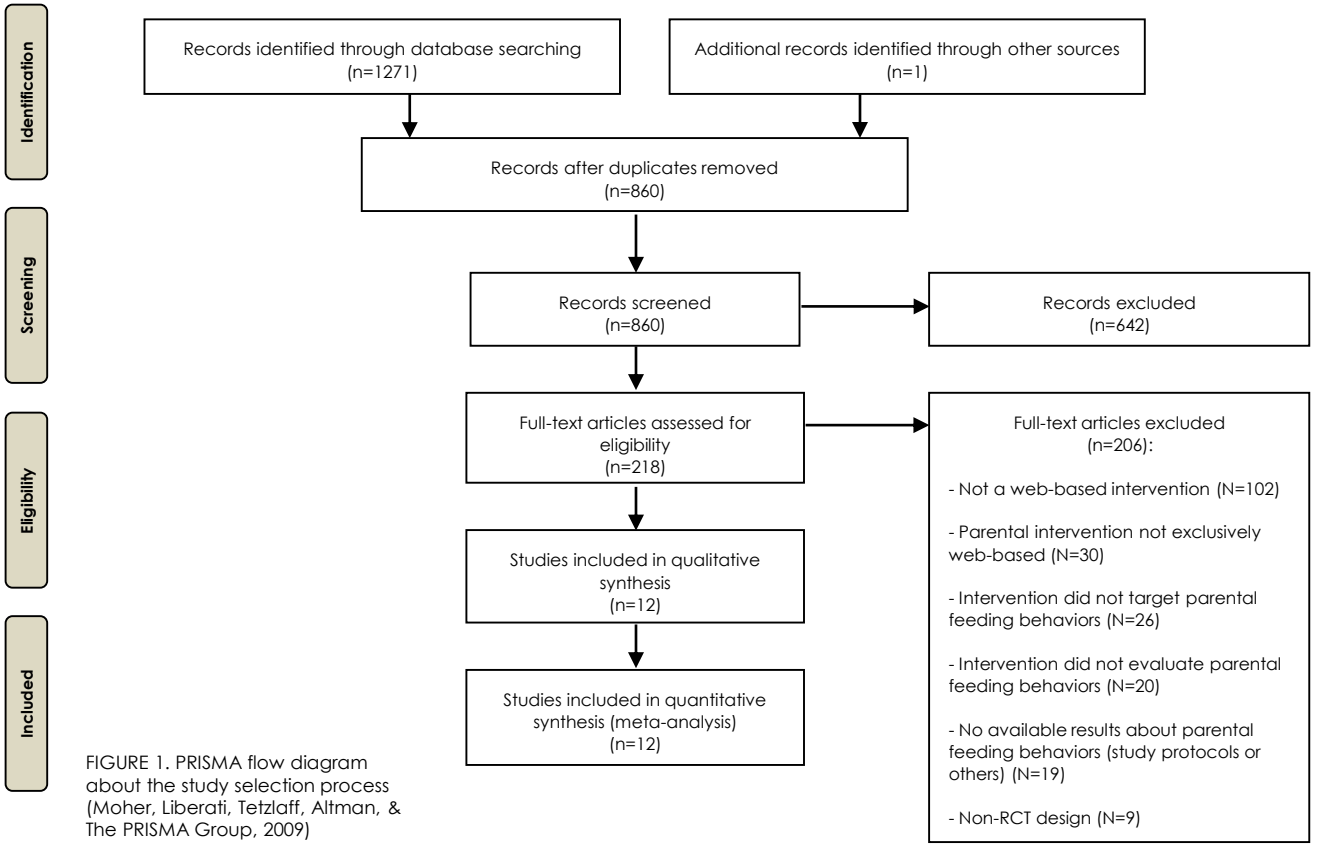


FIGURE 1. PRISMA flow diagram about the study selection process (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009)

Data extration and analysis:

- **Information about study characteristics** (e.g., objectives, intervention contents, variables of the study)
- **Risk of bias assessment:** RoB Cochrane tool: *1. Bias arising from the randomization process; 2. Bias due to deviations from intended interventions; 3. Bias due to missing outcome data; 4. Bias in the measurement of the outcome; and 5. Bias in the selection of the reported result* **(RoB Cochrane tool, Sterne et al., 2019)**
- **Parental feeding practices categorization:** *Coercive control*, *Structure*, and *Autonomy support and promotion* **(O'Connor et al., 2017; Vaughn et al., 2016)**
- **Behavior change techniques codification:** 93 BTCs and 16 clusters. *Target behavior*: parental feeding practices; *population*: parents **(Mitchie's et al (2013) taxonomy, BCTTv1)**
- **Meta-analysis**: *Restriction*, *Pressure to eat*, *Food to control negative emotions*, *Meal and snack routines*, *Modeling*, *Food availability and accessibility*, *Food preparation* and *Encouraging healthy eating* (T2, all timepoints)

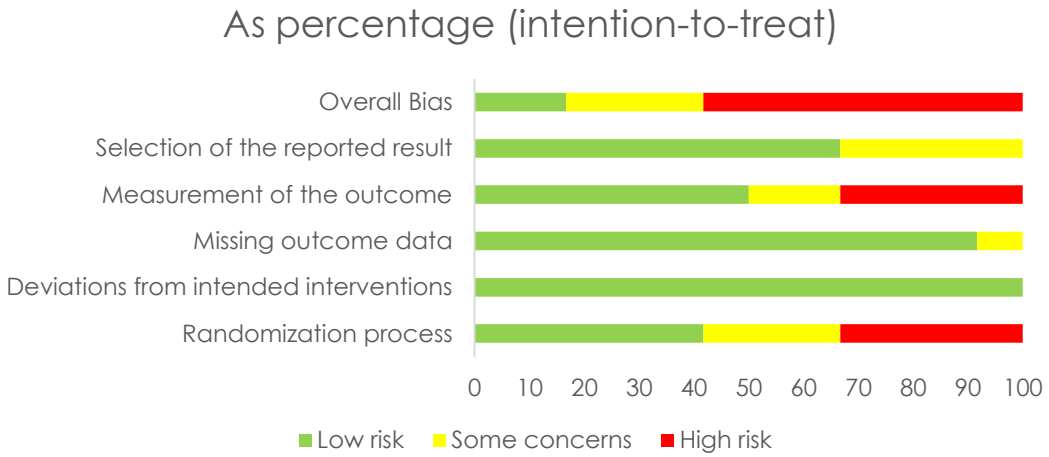
Results

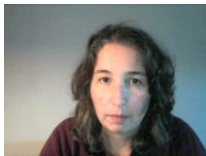
Main characteristics of the interventions (12 studies, 9 programs):

- articles published in 2018 or 2019 (6 articles)
- interventions based on Social Cognitive Theory (6 programs)
- focused other topics besides children's nutrition (e.g., physical activity, screen time, sleep) (5 programs): percentage of sessions dedicated to nutritional issues ranged from 33.3% to 83.3% (M=58.04, SD=18.37)
- targeted parents of preschool children exclusively (2-6 years old) (6 programs) on community samples (7 programs); mothers (97.3%) with mean age of 33.96 years (SD=2.41)
- duration of the intervention: 1 to 36 weeks (M=14.44; SD=12.85)
- RCT: two-arm design (8 programs), with control condition as active comparator (3), minimal intervention (4) or treatment as usual (1); two post-intervention follow-up measurements (6 programs)

When was the risk of bias considered high or raised some concerns?

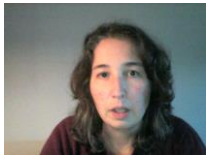
- Concealment of the allocation sequence
- Knowledge about the conditions (in non-blinded or lack of information about blinding) could influence parent's answers (parents as outcome assessors)
- Absence of pre-specified intentions and analysis plan, flow chart and/or documented reasons for withdrawal





Question 1:

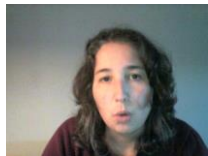
Which parental feeding practices do the interventions aim to promote or modify?



	HomeStyles	Family Eats	Feeding Healthy Food to Kids	Project FUN	EMPOWER	Time2bHealthy	Early Food For Future Health	Happier Meals	5-4-3-2-1-0 Program	Sum
1. Coercive control practices			X	X		X	X	X	X	6
Restriction			x	X		x	x	x	x	6
Pressure to eat			x	x		x	x	x	x	6
Threats and bribes								x		1
Using food to control negative emotions							x	x		2
Intrusive control								x		1
2. Structure practices	X	X	X	X	X	X	X	X	X	9
Prompt to eat				x				x		2
Monitoring			x	x				x	x	4
Meal and snack routines	x						x		x	3
Modeling	x	x		x		x				4
Food availability/accessibility	x	x		x	x			x	x	6
Food preparation	x	x								2
3. Autonomy support practices				X			X		X	3
Encourage healthy eating							x		x	2
Praise				x						1
Sum (of the feeding practices categories)	1	1	2	3	1	2	3	2	3	18
Sum (of the specific feeding practices)	4	3	3	7	1	3	5	8	6	40

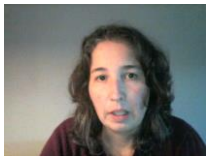
Parental feeding practices:

- All the interventions evaluated one or more structure feeding practices
- 14 of the 19 practices: from 1 to 8, average 4.44 practices (SD=2.24) evaluated per intervention
- *Restriction, Pressure to eat,* and *Food availability and accessibility* were the parental practices most often measured
- The *Autonomy support and promotion* category was the least frequently evaluated



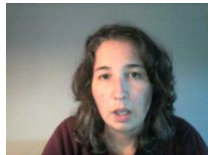
Structure feeding practices and food availability and accessibility were most assessed as outcomes:

- Important changes on home food environment when parents provide more healthy foods: facilitate the adoption of other effective feeding practices **(Vaughn et al., 2016)**
- Practices that promote children's autonomy and support are rarely assessed: importance of children's self-regulation of food intake



Question 2:

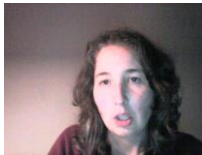
Which behavioral change techniques are used to promote changes in parental feeding practices?



	HomeStyles	Family Eats	Feeding Healthy Food to Kids	Project FUN	EMPOWER	Time2bHealthy	Early Food For Future Health	Happier Meals	5-4-3-2-1-0 Program	Sum
1. Goals and planning	X	X			X	X				4
2. Feedback and monitoring	X	X			X	X				4
3. Social support	X			X	X	X				4
4. Shaping knowledge	X	X	X	X	X	X	X	X	X	9
5. Natural consequences	X			X	X	X	X		X	6
6. Comparison of behavior	X	X		X	X	X	X	X	X	8
7. Associations	X									1
8. Repetition and substitution				X	X	X			X	4
9. Comparison of outcomes	X				X	X			X	4
10. Reward and threat					X					1
11. Regulation	X				X					2
12. Antecedents	X	X			X		X	X		5
13. Identity	X	X		X	X		X	X		6
Sum (of the categories of BCT used)	11	6	1	6	12	8	5	4	5	58
Sum (of the specific BCT used)	18	10	1	6	22	14	8	5	5	89

BCTs and clusters:

- 13 of the 16 BCTs clusters: from 1 to 12, average 6.45 clusters (SD=3.43) per intervention. Not included: *Scheduled consequences*, *Self-belief*, and *Covert learning*
- 30 of the 96 BCTs: from 1 to 22, average 9.89 BCTs (SD=6.85) per intervention
- BCTs most used (> 50%): *Instruction on how to perform the behavior*, *Demonstration of the behavior*, *Identification of self as role model*, *Information about social and environmental consequences*, and *Restructuring the physical environment*



Interventions focused on the demonstration of the behavior and parents as role models:

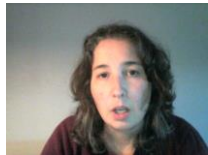
- Videos and vignettes about how to apply specific feeding practices; first-person reports of parents regarding feeding challenges and decisions

Goals and planning and *Feedback and monitoring* used less often:

- Inclusion of self-regulatory strategies can improve efficacy of dietary interventions **(Michie et al., 2009)**

Question 3:

What is the effectiveness of the interventions on changing the different parental feeding practices?



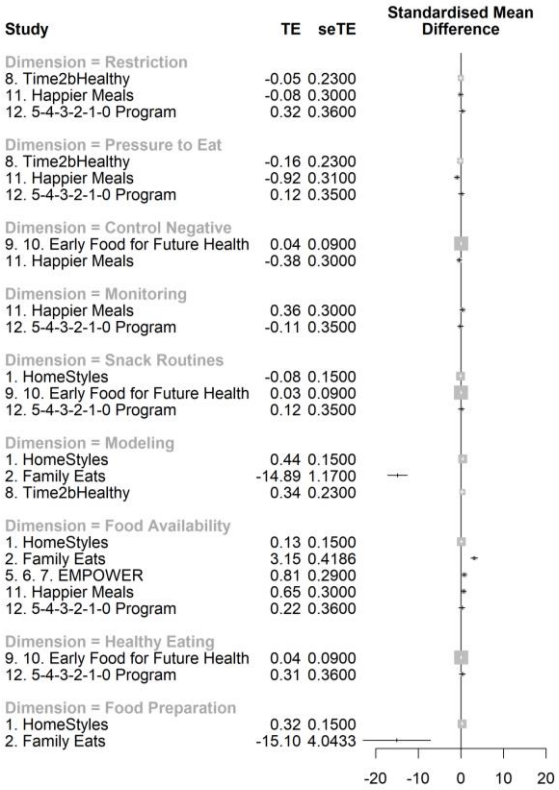


FIGURE 2. Forest plot of the effects of technological-based interventions on parental feeding practices, estimated at T2

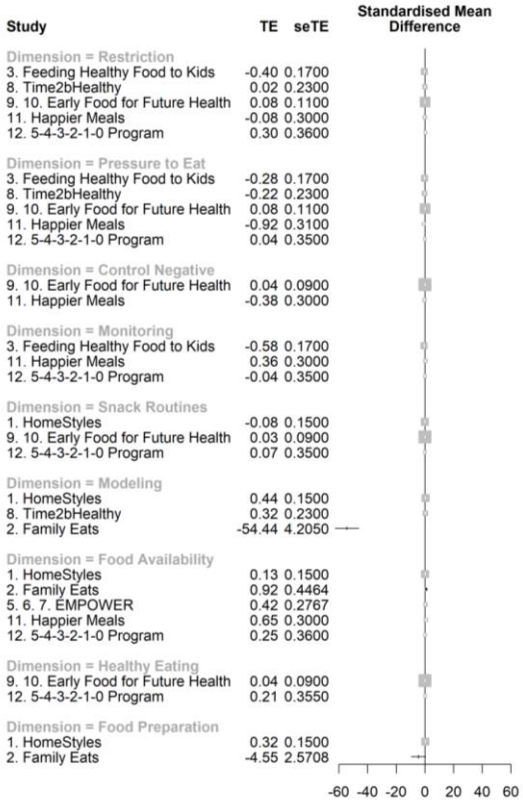
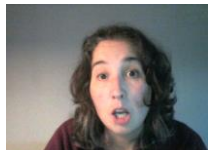


FIGURE 3. Forest plot of the effects of technological-based interventions on parental feeding practices, estimated for all time points

Meta-analysis:

- ***All time points***: non-significant effects were identified for all dimensions, except for *Food availability* (benefited the intervention group). Narrower non-significant effect: availability of healthy food (*p* = .080)
- ***T2***: no significant effects

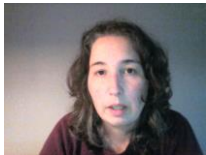


Effects of most programs were small and non-significant, except for the *Food availability and accessibility*:

- Promotion of a healthy food environment as an objective of the interventions

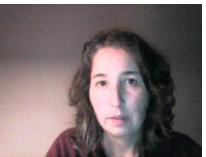
Effect close to significance on availability of healthy foods:

- Reduction of children's exposure to unhealthy foods can be more challenging; children's higher demandingness regarding their preferred foods



Conclusions

- Parental web-based interventions to promote children's healthy eating habits through changing parental feeding practices are promising but scarce
- Small effects of programs on parent feeding practices except for food availability and accessibility: more RCTs with larger samples are needed
- Higher focus on feeding practices that promote autonomy and support children´s healthy relationship with food
- More inclusion of self-regulation strategies, taking advantage of technological resources



smart feeding 4KIDs

Food Parenting: study of a new web-based parent intervention

Fundação para a Ciência e Tecnologia
(PTDC/PSI-GER/30432/2017)

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