Impact evaluation: Reach and effectiveness of a mass media campaign promoting family meal planning to Canadian parents

MELISSA A. FERNANDEZ, PHD(C), MSC, RD

UNIVERSITÉ LAVAL

Background: Mass media campaigns

Health education mass media campaign

- Communication tool used by public health organizations
- Reach large proportions of the population
- Exert small to moderate effects on health attitudes and behaviors

Limitations

- Complex messages
- Specific population segments

(Noar et al. 2010; Rudov et al. 2017; Wakefield et al. 2009; Noar 2006; Head et al. 2015)

Background: Eat Well Campaign (EWC)

Developed by Health Canada

- Collaboration with multi-sector partners (food retailers, media, and health organizations)
- Promote meal planning and other healthy eating messages
- Mass media used to communicate messages to the public
  - Included, but not limited to, social marketing

Bilingual multichannel campaign

- Print: magazines (Coup de Pouce and Canadian Living), grocery store flyers, receipts, posters
- Online: blogs, dedicated websites, Twitter, Facebook
- TV: Cable TV networks (e.g. W Channel and Canal Vie)

Background: Evaluation research

❑ Provide evidence of effectiveness and monitor potential adverse effects

❑ Keep decision makers accountable

❑ Inform public health organizations

❑ Find out what works, for whom, and in which context

(WHO, 2001; Bartholomew 2011; Glasgow 1999; Sobelson et al. 2013; Atkin and Charles 2010)

SKILLS study: RE-AIM Evaluation Framework

R : Reach (parents)

E : Effectiveness (parents)

Impact evaluation

A : Adoption (partners)

I : Implementation (partners)

Process evaluation

M : Maintenance
- ◦ N/A: one-off campaign

(Glasgow 1999)

Objectives

General: Evaluate the impacts of the Eat Well Campaign on Canadian parents

Specific aims were to examine:

1. the **exposure, intensity and frequency** of the EWC;

2. **differences in exposure** according to parents' sociodemographic characteristics;

3. the **effects of campaign intensity and frequency** on perceived effectiveness

4. the **impact of the campaign** on meal planning attitudes, behaviors and self-efficacy.
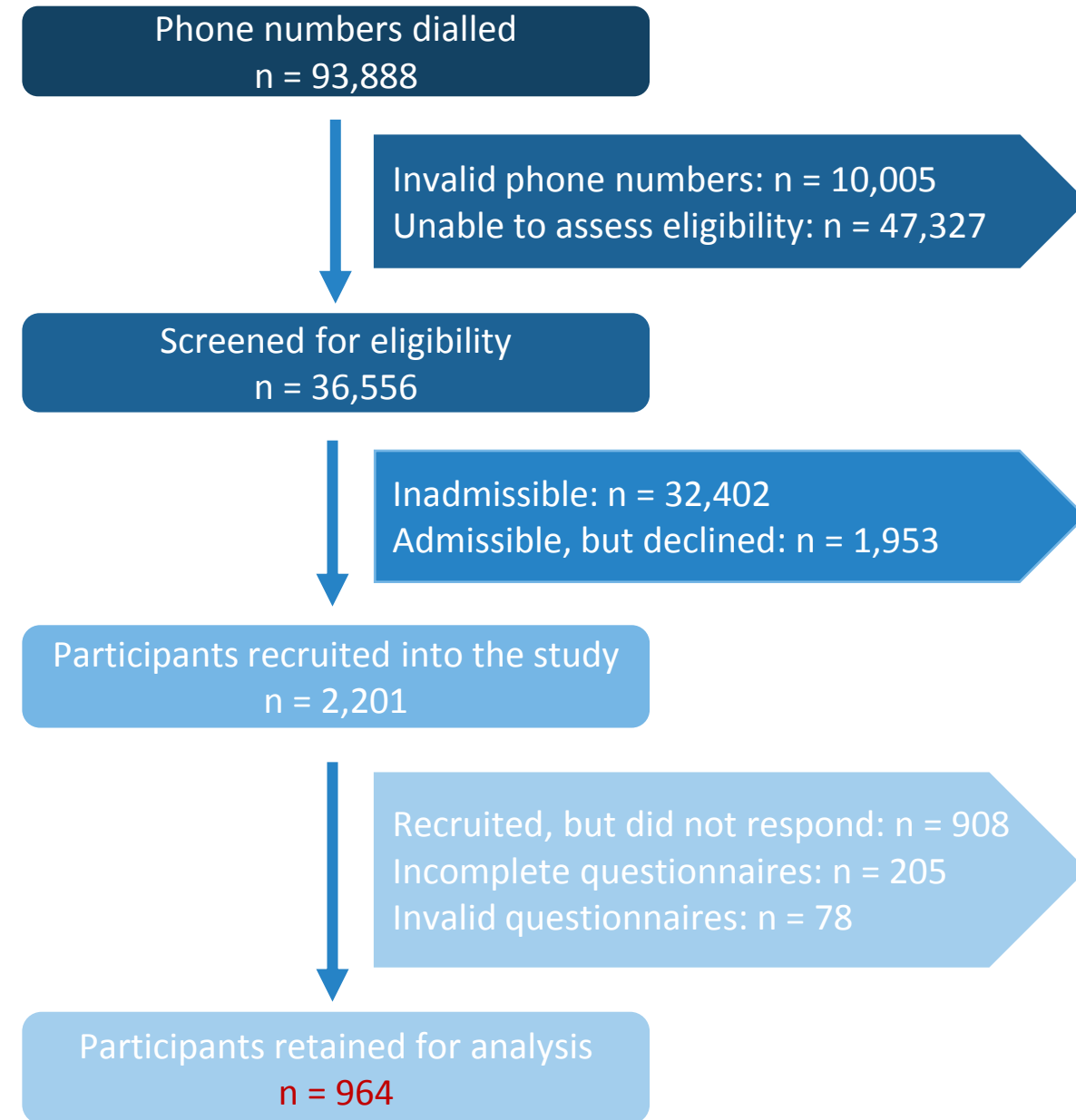
Methods

Recruitment: Random digit dialing
- ≥ 18 years old;
- ≥ 1 child 2-12 years;
- Living with child(ren) ≥ 50%;
- Responsible for ≥ 50% of food preparation;
- Understanding English or French;
- Valid email address and access to the internet;
- Canadian citizen.

Tools: Web-based survey
I. 13-item questionnaire: sociodemographic variables
II. 26-item questionnaire: key EWC items and perceptions about the campaign messages (26 Q)
III. 50-item food literacy questionnaire (3 meal planning items)
- attitudes
- behaviors
- self-efficacy

Phone numbers dialled
n = 93,888

Invalid phone numbers: n = 10,005
Unable to assess eligibility: n = 47,327

Screened for eligibility
n = 36,556

Inadmissible: n = 32,402
Admissible, but declined: n = 1,953

Participants recruited into the study
n = 2,201

Recruited, but did not respond: n = 908
Incomplete questionnaires: n = 205
Invalid questionnaires: n = 78

Participants retained for analysis
n = 964

Definitions

Key campaign elements:
- 1. Mr. Zucchini cartoon character
- 2. Magazine editorials (Canadian Living and Coup de Pouce)
- 3. TV Vignettes (The Wilsons, Saskia Thuot)
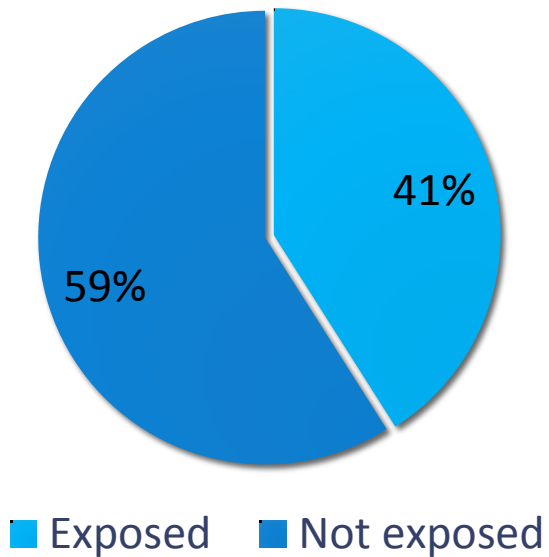- 4. Spokeswomen (Isabelle Huot, Christine Cushing)
- 5. Web content

Campaign exposure: recall of at least 1 of the 5 key campaign elements

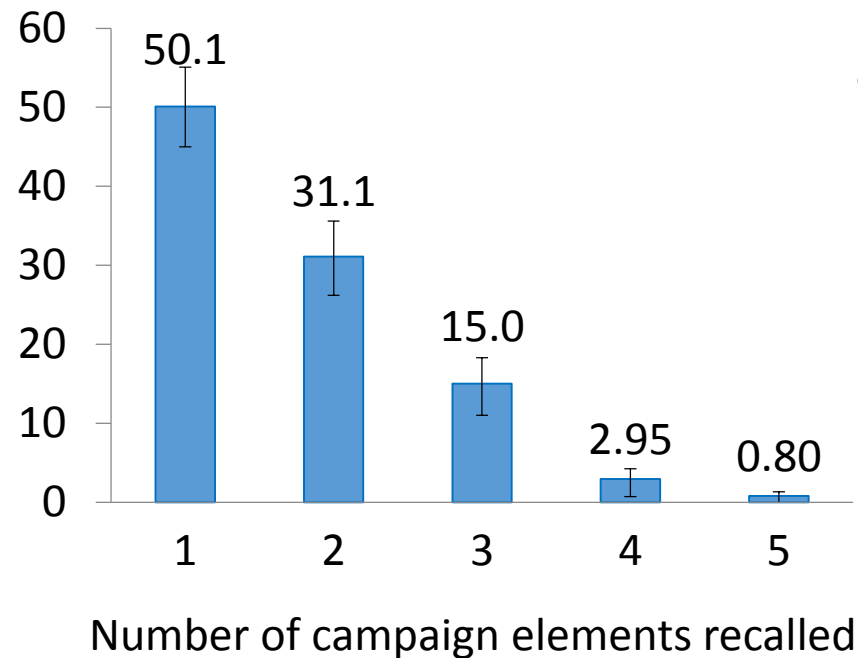**Campaign intensity:** number of key campaign elements recalled

Campaign frequency: number of times per month parents were exposed to the campaign

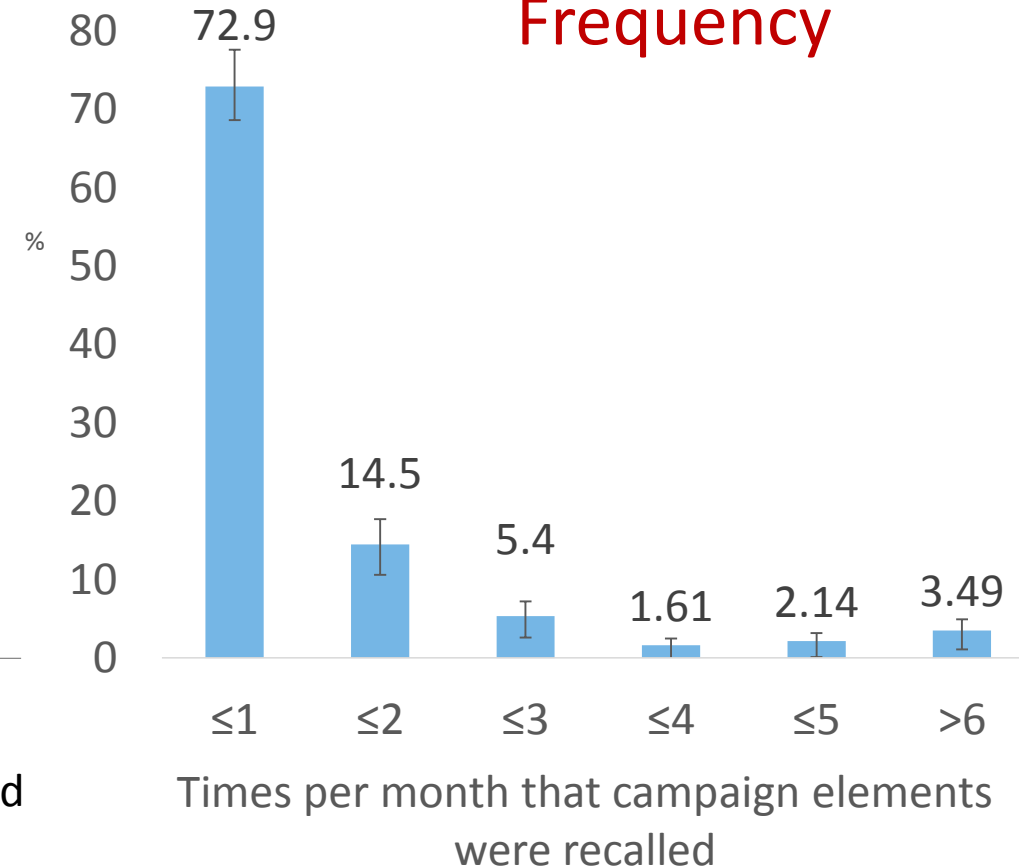# Obj. 1: Reach, intensity, and frequency

Reach

- Exposed
- Not exposed

41%
59%

Intensity

50.1
31.1
15.0
2.95
0.80

Number of campaign elements recalled

Frequency

72.9
14.5
5.4
1.61
2.14
3.49

Times per month that campaign elements were recalled

Obj. 2: Sociodemographic differences in total exposure and exposure to key campaign elements

	Total	Mr. Zucchini (30.3 %)	Magazines (41.6 %)	Vignettes (51.7 %)	Champions (33.5 %)	Web (16.4 %)
	OR	OR	OR	OR	OR	OR
Language (Ref = English)						
French	***3.58	***2.65	*1.54	***3.74	***9.77	*0.44
Region (Ref = Ontario)						
British Columbia	*0.623	1.18	0.62	0.60	0.42	0.69
Prairies	0.73	0.79	0.79	0.88	*0.36	0.82
Quebec	***3.28	**2.36	1.17	***3.73	***7.27	*0.42
Ethnicity (Ref = Caucasian)						
Other	0.78	*0.47	1.18	0.80	0.91	0.95
Income (Ref = ≥ 80 000)						
< 40 000	**2.26	*1.97	*1.91	*1.76	**2.44	*2.39
40 000 to 79 999	1.14	0.71	0.96	1.44	1.29	0.62
Level of education completed (Ref = University)						
Primary or high school	**1.90	1.60	1.00	**2.08	**2.26	1.38
College	**1.64	0.82	1.27	***2.11	**2.26	1.45
Religious affiliation (Ref = Christian)						
Other faiths or no religious beliefs	**0.60	*0.64	0.78	*0.64	*0.54	0.69

* p < 0.05, ** p < 0.005, *** p < 0.0001

Obj. 3: Influence of campaign intensity and frequency on measures of perceived effectiveness

	Campaign Intensity	Campaign Frequency
	OR	OR
Believed it was more important to plan as a result of the EWC	**1.77	1.21
Believed it was more important to include family as a result of the EWC	***1.73	1.17
Felt more knowledgeable about meal planning as a result of the EWC	***1.67	1.17
Planned meals more as a result of the EWC	***1.79	*1.32
Cooked more family meals as a result of the EWC	***1.97	**1.42
Felt campaign messages were relevant for planning family's meals	*1.36	**1.37
Felt campaign messages were relevant for preparing family meals	**1.47	*1.29
Felt campaign was useful for planning my family's meals	*1.39	**1.40
Felt campaign was useful for preparing family meals	**1.49	***1.45
Discussed the campaign with friends and family	***2.10	***1.64

Controlled for age, sex, month survey was completed, dominant official language, region, ethnicity, income, education and religious affiliation. * $p < 0.05$, ** $p < 0.005$, *** $p < 0.0001$

Obj. 4: Impacts of campaign exposure on meal planning attitudes, behaviors and self-efficacy

	Crude model OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)
Attitudes (meal planning makes is possible to eat well)	*1.68 (1.07, 2.65)	*1.66 (1.05, 2.63)	*1.68 (1.03, 2.74)
Behaviors (I plan our family meals)	1.41 (0.96, 2.07)	1.35 (0.91, 1.99)	*1.66 (1.03, 2.54)
Self-efficacy (I feel very competent in planning our meals)	1.12 (0.82, 1.55)	1.09 (0.79, 1.50)	1.21 (0.86, 1.71)
Model 1, adjusted for age, sex and month of survey completion; Model 2, adjusted for age, sex, language, region, ethnicity, family type, employment, ses, education and month survey was completed; * $p < 0.05$			

Conclusions

➢ While the EWC did not reach the majority of Canadian parents, it did reach parents with lower income (< $40,000 / year) and without a university education.

  ➢ TV vignettes most recalled campaign channel

➢ Higher campaign intensity and frequency influenced campaign message uptake, reinforcing the importance of repeated exposure and using multiple media channels.

➢ The EWC appeared to be effective in improving attitudes towards meal planning, but not self-efficacy, and effects on long-term behavior change are not known.

Implications for practice

➢ Formative research is needed

➢ Behavior change needs to be primary focus

➢ Framed within a larger health promotion strategy

Acknowledgements

SKILLS team

Véronique Provencher, PhD, RD (PI)

Sophie Desroches, PhD, RD (Co-PI)

Marie Marquis, PhD, RD (Co-PI)

Alexandre Lebel, PhD (Collaborator)

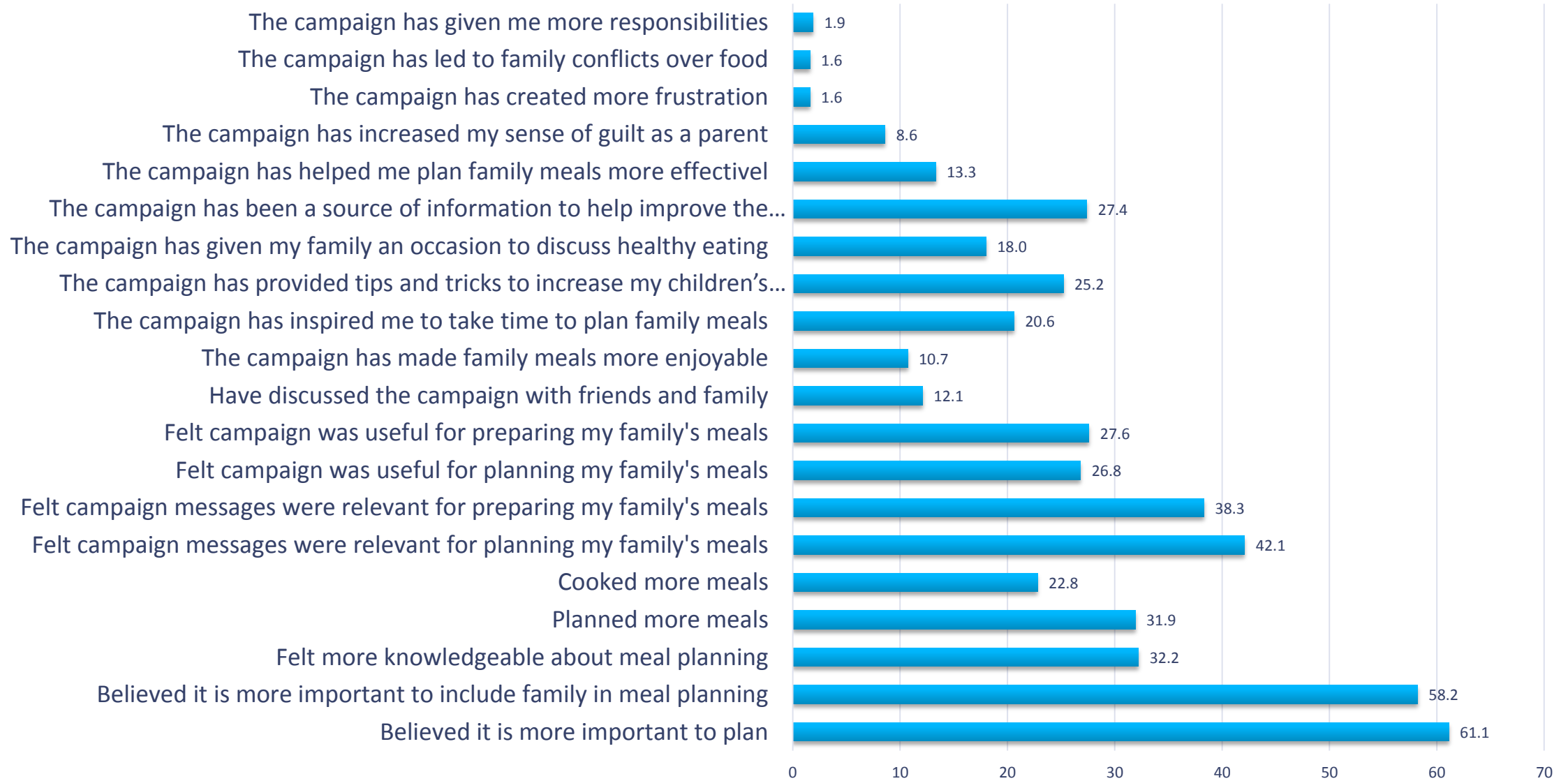Mylène Turcotte, M.Sc, RD (Research coordinator)

Partners
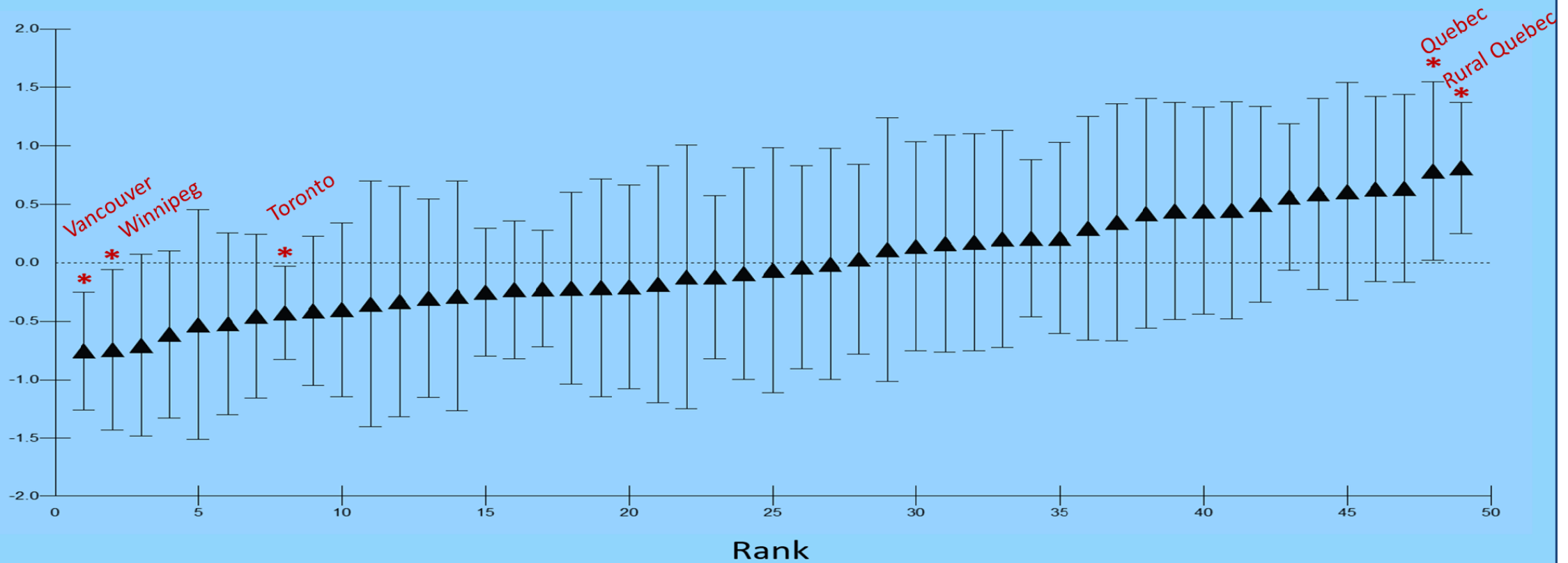
Health Canada

@melfernandezrd

Figure 1. Caterpillar plot of Canadian census metropolitan, agglomeration and rural areas ranked by exposure to the EWC

From left to right, the 10 least exposed places in Canada were: Vancouver, BC (n = 64)*, Winnipeg, MB (n = 25)*, rural Alberta (n = 16), Hamilton, ON (n = 22), Saskatoon, SK (n = 16), rural British Columbia (n = 23), Toronto, ON (n = 141)*, Calgary, AB (n = 31) and Halifax, NS (n = 19). From right to left, the 10 most exposed places in Canada were: Rural Quebec (n = 47)*, Quebec City, QC (n = 17)*, London, ON (n = 14), Laval, QC (n = 15), Gatineau, QC (n = 7), Terrebonne, QC (n = 13), Montérégie, QC (n = 33), Sudbury, ON (n = 12), rural Manitoba (n = 7), rural New Brunswick (n = 9) and Peterborough, ON (n = 7). * Places with significantly different exposure than the Canadian average ($p < 0.05$). Conditional on age, sex, education level and income, 9.8 % of the total variation in EWC exposure is accounted for by place of residence ($p < 0.05$).
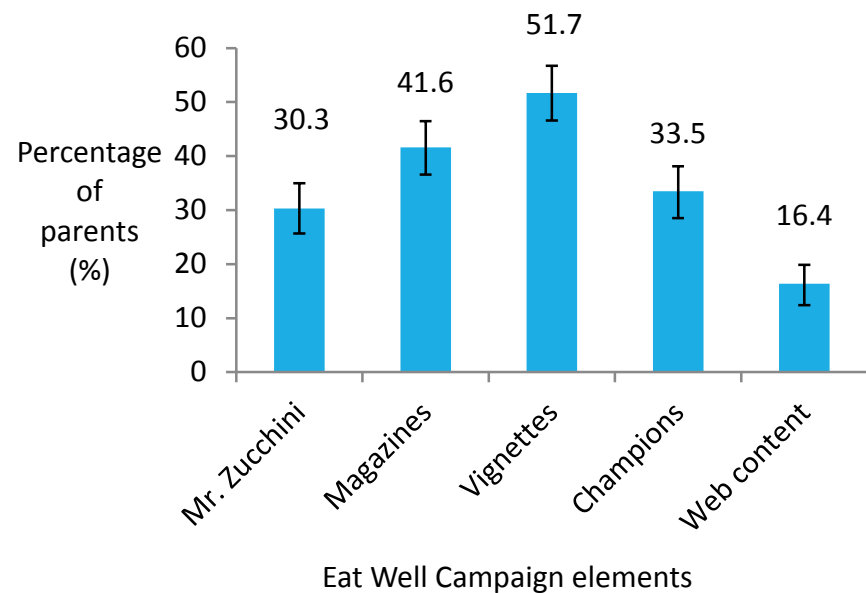
Figure 1. Recall of different Eat Well Campaign (EWC) elements among exposed parents (n = 390).

Supplemental table 1. Question about the effects and perceptions of the Eat Well Campaign (EWC) in terms of parental beliefs, knowledge, attitudes and behaviors about meal planning, family meals and EWC messages

Beliefs

1. As a result of the campaign, I have believed it more important to plan meals in order to make healthier food choices.

2. As a result of the campaign, I have believed it more important to involve my family in meal planning in order to make healthier food choices.

Knowledge

3. As a result of the campaign, I feel more knowledgeable about how to plan meals in order to make healthier food choices.

Behaviors

4. As a result of the campaign, I have planned more of our family meals in order to make healthier choices.

5. As a result of the campaign, I have cooked more of our family meals.

Attitudes

6. How relevant do you find the messages of the "Eat Well" campaign for planning your family meals?

7. How relevant do you find the messages of the "Eat Well" campaign in order to prepare your family meals?

8. How have the messages disseminated during the "Eat Well" campaign been useful for planning your family meals?

9. How have the messages disseminated during the "Eat Well" campaign been useful for preparation your family meals?

10. Have you discussed the "Eat Well" campaign with friends and family?

Positive campaign effects

11. For me and my family, the "Eat Well" campaign has made family meals more enjoyable.

12. For me and my family, the "Eat Well" campaign has inspired me to take time to plan family meals.

13. For me and my family, the "Eat Well" campaign has provided tips and tricks to increase my children's involvement in mealtime activities.

14. For me and my family, the "Eat Well" campaign has given my family an occasion to discuss healthy eating.

15. For me and my family, the "Eat Well" campaign has been a source of information to help improve the quality of our meals.

16. For me and my family, the "Eat Well" campaign has helped me plan family meals more effective.

Negative campaign effects

17. For me and my family, the "Eat Well" campaign has increased my sense of guilt as a parent.

18. For me and my family, the "Eat Well" campaign has created more frustration.

19. For me and my family, the "Eat Well" campaign has led to family conflicts over food.

Strengths and weaknesses

Strengths

o Geographic representation

o Rapid digit dialing (random)

o Large sample size
  o Control for multiple covariates

Weaknesses

o Recall

o Not all campaign channels were evaluated

o Cross-sectional post-campaign evaluation

o Potential sample bias
  o ↑ Educated parents
  o ↑ Traditional / two-parent families
  o ↓ Visible minorities

Results

Sociodemographic characteristics of parents according to EWC exposure

Variable	Total (%)	Exposed (%)	Non-exposed (%)	P-value
	n = 964	n = 394 (40.9)	n = 576 (59.1)	
Sex				0.46
Female	775 (80.4)	318 (41.0)	457 (58.8)	
Male	189 (19.6)	72 (38.1)	117 (61.9)	
Age (mean, SD)				0.51
Years	39.3 (6.00)	39.2 (6.26)	39.4 (5.83)	
Language				<0.0001
English	749 (77.2)	252 (33.6)	497 (66.4)	
French	221 (22.3)	142 (64.3)	80 (35.8)	
Provinces / Territories				<0.0001
British Columbia	121 (12.5)	33 (27.3)	88 (72.7)	
Alberta	108 (11.1)	34 (31.5)	74 (68.5)	
Saskatchewan	27 (2.78)	8 (29.6)	19 (70.4)	
Manitoba	33 (3.40)	9 (27.3)	24 (72.7)	
Ontario	390 (40.5)	144 (36.9)	246 (63.1)	
Quebec	204 (21.2)	134 (65.7)	70 (34.3)	
New Brunswick	26 (2.70)	9 (34.6)	17 (65.4)	
Nova Scotia	27 (2.80)	9 (33.3)	18 (66.7)	
PEI	4 (0.41)	1 (25.0)	3 (75.0)	
Newfoundland	17 (1.76)	5 (29.4)	12 (70.6)	
Territories	7 (0.73)	4 (57.1)	3 (42.9)	
Ethnicity or culture				0.02
Caucasien	836 (86.7)	349 (41.5)	492 (58.5)	
Black	16 (1.66)	11 (68.8)	5 (31.3)	
First Nations	21 (2.18)	8 (38.1)	13 (61.9)	
Asian	46 (4.77)	10 (21.7)	36 (78.3)	
Arab	15 (1.56)	5 (33.3)	10 (66.7)	
Other	30 (3.11)	11 (35.5)	20 (64.5)	

Continued

Variable	Total (%)	Exposed (%)	Non-exposed (%)	P-value
	n = 964	n = 394 (40.9)	n = 576 (59.1)	
Number of children				0.06
1	184 (19.1)	66 (35.9)	118 (64.1)	
2	504 (52.3)	199 (39.5)	305 (60.5)	
3	199 (20.6)	84 (42.2)	115 (57.8)	
≥ 4	77 (7.99)	41 (53.3)	36 (46.8)	
Family stucture				0.19
Two parent	845 (87.7)	338 (40.0)	507 (60.0)	
Single parent	76 (7.88)	29 (38.2)	47 (61.8)	
Step-family	43 (4.46)	23 (53.5)	20 (46.5)	
Employment status				0.17
Full-time	583 (60.4)	242 (41.5)	341 (58.5)	
Part-time	167 (17.3)	54 (32.3)	113 (67.7)	
Stay at home	152 (15.7)	65 (42.8)	87 (57.2)	
Unemployed	24 (2.49)	12 (50.0)	12 (50.0)	
Other/no answer	38 (3.94)	17 (44.7)	21 (55.3)	
Income				0.006
< 40 000	81 (8.40)	47 (58.0)	34 (42.0)	
40 000 to 79 999	228 (23.7)	94 (41.2)	134 (58.8)	
> 80 000	528 (54.8)	197 (37.3)	331 (62.7)	
no answer	127 (13.2)	52 (40.94)	75 (59.1)	
Level of education				<0.0001
Primary/secondary	156 (16.2)	79 (50.6)	77 (49.4)	
College	252 (26.1)	118 (46.8)	134 (53.2)	
University	556 (57.7)	193 (34.7)	363 (65.3)	
Religious affiliation				0.002
Christian	619 (64.2)	278 (44.9)	341 (55.1)	
Other faith	57 (5.91)	18 (31.6)	39 (68.4)	
None	244 (25.3)	82 (33.6)	162 (66.4)	
No answer	44 (4.56)	12 (27.3)	32 (72.3)	