

An Analysis of the Content of YouTube Videos Regarding Nutrition and Dental Caries

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Introduction

- Dental caries form when bacteria in the mouth metabolize fermentable carbohydrates to produce acid that degrades tooth structures [1]
- Other diet factors also affect dental caries development (e.g., protein, meal spacing, xylitol) [1]
- Dental caries are the most common chronic disease in children and leading cause of day surgery in Canadian children <6y [2]
- Prior studies have found that the public uses the Internet to seek health information [3,4]; 76% of Canadian consumers use YouTube [5], with 71% using YouTube as their first choice for learning [6]
- Prior health-related YouTube content studies have found a lack of evidence-based info [7, 8, 9, 10]
- Few data exist on the content of YouTube videos regarding nutrition and dental caries.

Objective

- To assess the content of YouTube videos regarding nutrition and dental caries

Methods

Video Selection

- YouTube searches were done on May 17th, 2021
- 6 searches were conducted using keywords related to nutrition and dental caries obtained from Google Key Word software; the top 20 videos were selected from each search
- Duplicates and videos that did not meet selection criteria (i.e., >20mins, no relevant information, not in English) were removed
- Video information was recorded (e.g., publisher, country, view count, date posted, length)

Nutrition Message Scoring

- Videos were scored (scores partially based on Acad of Nutr and Dietetics' position on Oral Health and Nutrition [1]) based on inclusion of information on 17 evidence-based factors (1 point/factor) including:
 - dental caries mechanism
 - dietary factors that elevate the risk of dental caries (e.g., sugar, sugary beverages, sticky foods)
 - dietary factors that reduce the risk of dental caries (e.g., fruits and vegetables, water)
- Higher scores mean that more topics were covered
- All videos were scored by two individuals; discrepancies were discussed, and consensus was reached
- Scorers also made note of tone and other nutrition messages (inc. messages against recommendations)

Results

- 120 videos were considered for inclusion
 - 42 videos were included** after removal of duplicates and those not meeting inclusion criteria
- Videos were sorted into 4 categories based on who posted them and/or who was featured in them:
 - oral health professionals (OHP)
 - other health professionals (RQ)
 - no health professional credentials/unknown (NC)
 - government

Video Characteristics

- Most videos were posted by OHP, followed by NC, RQ, and government (Figure 1).
- Only 1 video featured a dietitian
- Most videos were from the USA; few were Canadian

Figure 1: Percent of Videos Posted by Each Publisher Category

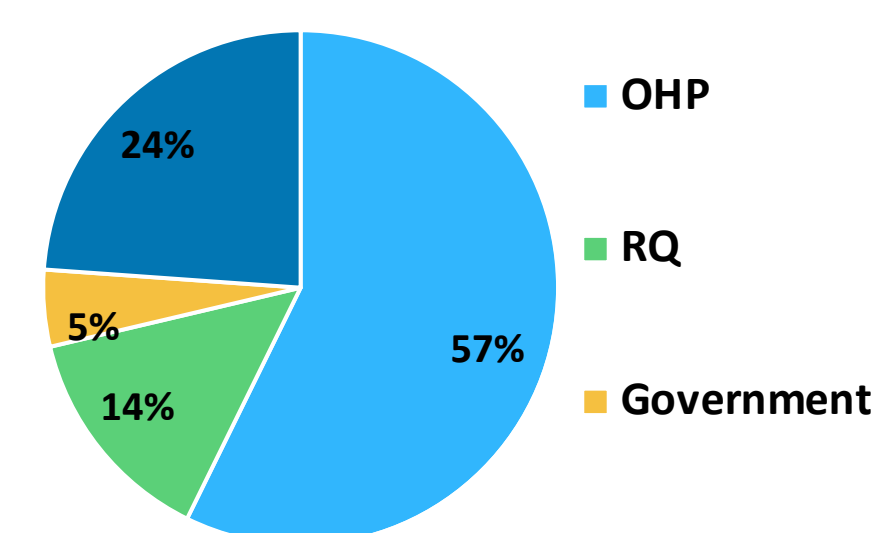
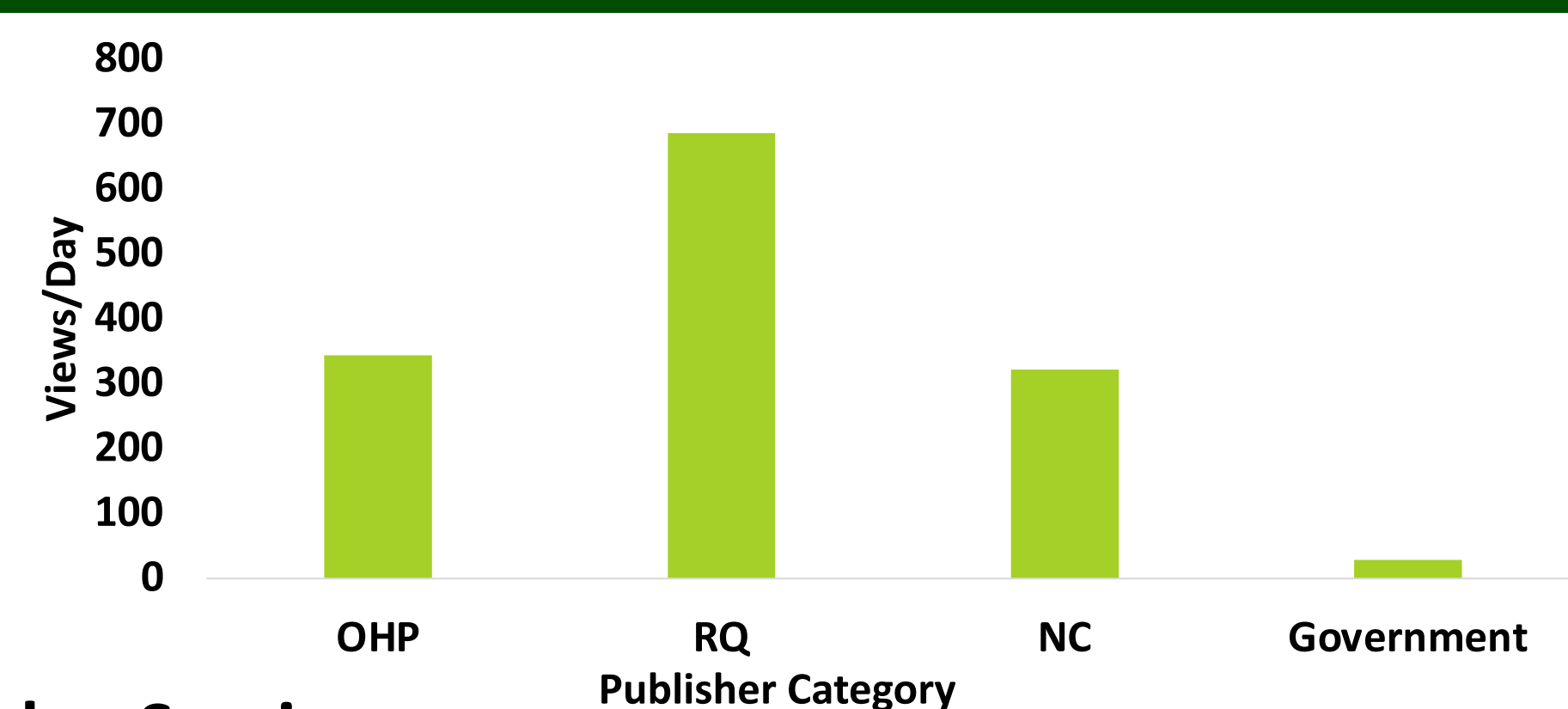


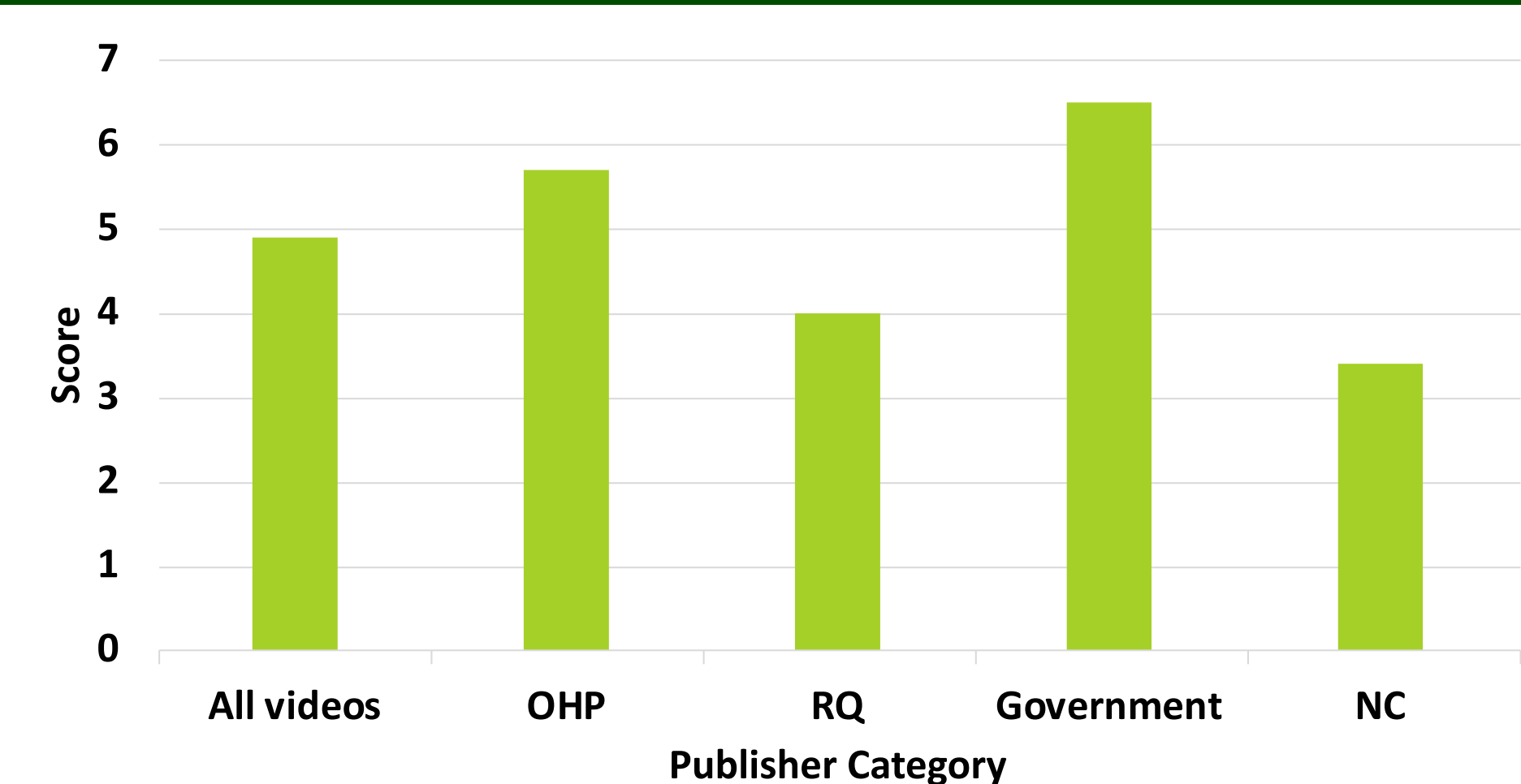
Figure 2: Views/day Since Upload for Each Publishing Category



Video Scoring

- Mean score for all videos = 4.9 ± 3.4 out of 17 points
- 6 videos (14.3%) had a score of zero (n=3 from NC; n=3 OHP)

Figure 3: Average Score of Videos based on Publisher Category

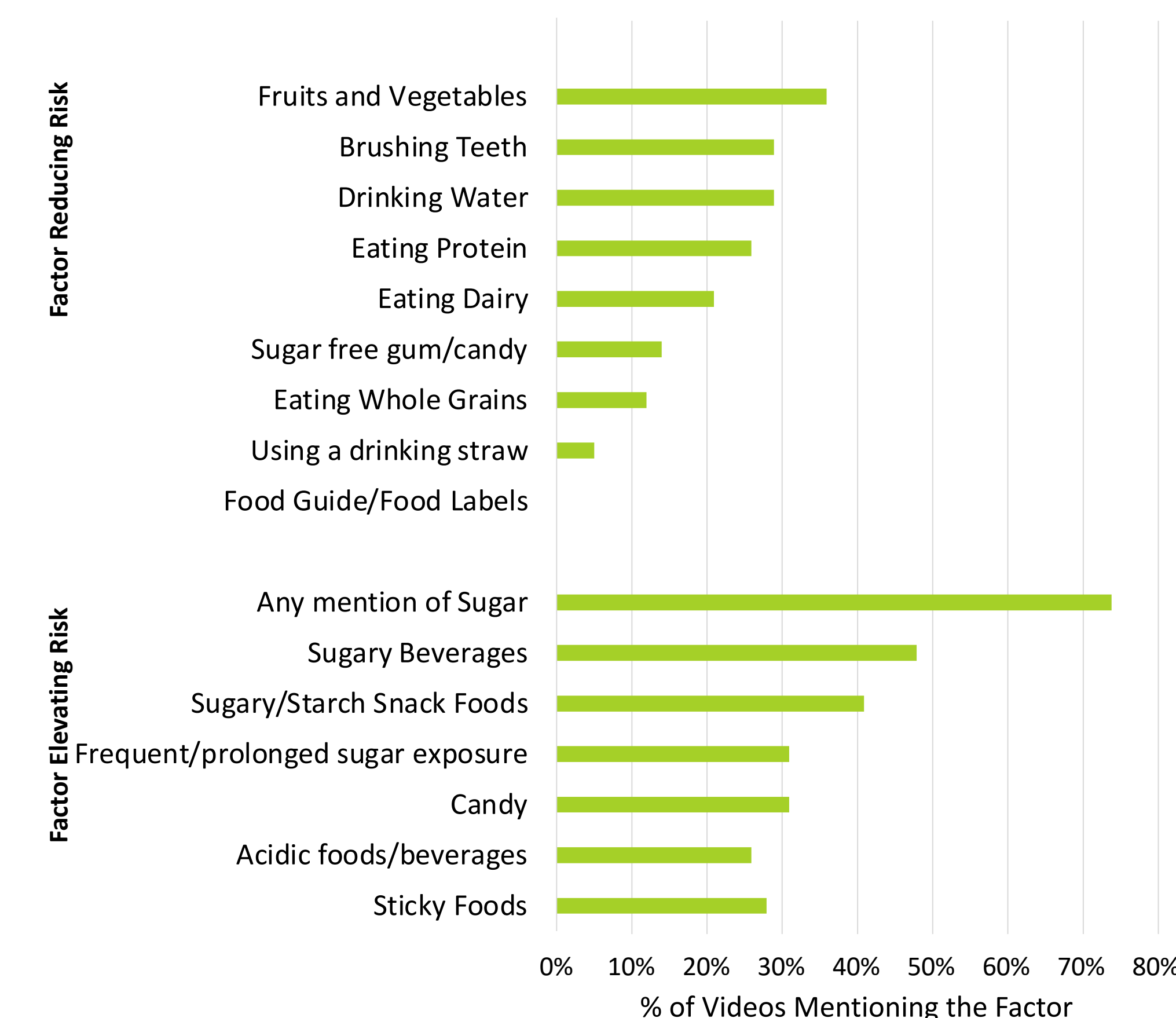


- Government and OHP videos had higher mean scores than RQ or NC videos (Figure 3)
- Videos with higher views/day had lower scores

Results Continued

- 47.6% of videos mentioned the dental caries mechanism
 - Words like “attack”, “fight”, “enemy”, and “destroy” were sometimes used to describe dental caries formation
- 83.3% of videos mentioned harmful factors that elevate dental caries risk
- 47.6% of videos mentioned healthful factors that reduce dental caries risk

Figure 4: Number of Videos Mentioning Each Scoring Factor for Elevated and Reduced Risk of Dental Caries



Other Key Findings

- No videos spoke about amount of sugar to consume
- Some videos implied it was common knowledge that sugar (candy or soft drinks) was linked to dental caries
 - Phrases sometimes used included: “most people know,” and “everyone knows”
- Only 2 videos mentioned drinking fluoridated water
- Confusing/conflicting messages were present both between and within videos. The following factors were both recommended and cautioned against:
 - juice
 - dried fruits
 - honey
 - dairy
 - whole grains
 - carbohydrates in general
- Home remedies to treat dental caries were sometimes recommended; some videos had recipes
- Some videos recommended oil pulling, probiotic supplements/foods, and fad diets (e.g., Paleo diet)

Conclusions

- Overall, the videos had low scores
 - Many evidence-based topics regarding nutrition and dental caries were not covered
- Videos with higher views/day had lower scores
 - Some videos posted by health professionals scored poorly and presented non-evidence-based info
- Sugar was the most consistent topic mentioned (>70% of videos)
 - However, only 31% discussed frequency of sugar consumption and exposure despite this being a key dietary risk factor for dental caries
- Except for sugar, no topics were covered in >50% of included videos
 - These may be topics less well known to the public
- Viewers may be exposed to contradicting/confusing advice which may cause confusion.
 - This finding is useful for health professionals to develop resources to address areas of confusion
- Some videos provided non-evidence-based recommendations (e.g., Paleo Diet) that currently do not have strong evidence towards dental caries prevention
- Only one video featured a RD; oral health is an emerging practice area for RDs
 - ↑ collaboration between RDs, oral health professionals, and other health professionals will allow for the best care
- Determining the types of videos that are most effective and well liked by the public on this topic is an area of future research

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Acknowledgments

This project was funded by a Saskatchewan Health Research Foundation Establishment Grant