

A Media Analysis of “Water Does Wonders”

Measuring Potential Exposure to the Healthy Kids Community Challenge



Evaluation Report
November 2018

Public Health Ontario

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Introduction

Public Health Ontario is undertaking a provincial evaluation of the Healthy Kids Community Challenge (HKCC). This report presents the results from a media analysis designed to measure potential exposure to the HKCC campaign and its second theme, “Water Does Wonders.”

The Healthy Kids Community Challenge (HKCC) was developed by the Ministry of Health and Long-Term Care (MOHLTC) to help Ontario communities create supportive environments to improve the well-being of children and provide them with opportunities to live healthier lives.¹ The MOHLTC provided funding and central coordination to 45 communities across Ontario to develop and implement community-based initiatives that encourage healthy behaviours in children 12 years of age and under.¹ The HKCC had four planned themes, all relating to key factors associated with healthy weights in children; individual themes (and their related behaviours) were promoted through social marketing and local community-based initiatives for a period of approximately nine months before moving on to a new theme.¹ The four themes promoted health behaviours using catchy taglines: “Run. Jump. Play. Every Day.” (physical activity); “Water Does Wonders” (water consumption); “Choose to Boost Veggies and Fruit” (fruit and vegetable consumption); and “Power Off and Play!” (replacing recreational screen time with play).

The HKCC was informed by the Ensemble Prévenons l'Obésité Des Enfants' (EPODE) [*Together Let's Prevent Childhood Obesity*] methodology.³ The EPODE methodology provides a capacity-building approach to the prevention and reduction of childhood obesity, where communities are supported to design and implement locally-relevant interventions.³ EPODE is comprised of four pillars: political commitment, resources, support services and evidence.³ The support services pillar includes the planning, coordination and support for social marketing techniques.³ For the HKCC, the MOHLTC provided resources and consultation services to HKCC communities for the planning and delivery of social marketing content.⁴ For example, the MOHLTC provided communities with toolkits that included social marketing materials that were adaptable to local contexts. HKCC communities were also encouraged to use social media platforms to promote the program and related activities.

Using social media messaging to promote public health interventions can be an effective way to reach a wide audience.^{4,5} As well, using a suitable social media platform to promote program materials towards a specified target audience, encourage engagement and share event information can be used as a strategy for behaviour change.³ Social media marketing has been used to promote similar health initiatives to children and youth.⁴ For example, “VERB: It's what you do!”, launched in 2002 by the Centers for Disease Control and Prevention (CDC), aimed to encourage children between the ages of 9-13 to be active for a minimum of one hour per day.⁷ VERB applied a social marketing approach that involved local community promotion, the internet and multiple partnerships to ensure adequate reach and achieve success.⁷ An evaluation of the VERB campaign between 2002 and 2006 showed that

children who had daily exposure to the campaign were more physically active compared to children who were not exposed to the campaign (62.4% and 68.4%, respectively).⁸

The second theme of the HKCC (“Water Does Wonders”) encouraged children and families to choose water as their preferred beverage of choice as a strategy to reduce consumption of sugary and artificially sweetened beverages. SSBs are calorie-dense, nutrient poor and can contribute to an increased risk of overweight and obesity.² In most places in Ontario, water is free, safe to drink and one of the best choices for hydration.¹³ Through social media platforms, communities promoted HKCC events associated with “Water Does Wonders,” provided information on the health benefits of choosing water over other beverages and promoted the HKCC more broadly to increase awareness of the program.

McGuire’s Hierarchy-of-Effects Model (HOEM) is commonly used to evaluate the impacts of public health social marketing campaigns.¹⁴ The HOEM helps to conceptualize how campaign awareness first impacts proximal factors (i.e., awareness, knowledge, attitudes), which can lead to changes in more distal outcomes (i.e., outcome expectancies and behaviours).⁶ Figure 1 demonstrates the application of the HOEM to the second theme of the HKCC, “Water Does Wonders,” by showing the intermediary steps that would be expected to precede a change in water consumption behaviour. It follows that it is important to consider the ways in which people are exposed to HKCC messaging.

Figure 1. Overview of Water Consumption Behaviour Change Pathway



In an analysis of Theme 1 of the HKCC (“Run. Jump. Play. Everyday.”), a total of 314 sources of online media content and 1,684 tweets were collected and analyzed.⁹ Results from the Theme 1 analysis were useful to identify who was promoting messages about the HKCC and to unpack the content of those messages. For example, the majority of tweets from HKCC communities were being used to promote events, rather than promoting or encouraging behaviour change (e.g., providing strategies for increasing children’s physical activity levels). To build on the analysis of Theme 1 and to gain a greater insight into the evolution of the HKCC social marketing campaign and theme-based messaging, continued analyses of other HKCC themes is warranted.

Objectives

The purpose of this analysis was to measure potential exposure to the second theme of the HKCC campaign (“Water Does Wonders”). Potential exposure is defined as, “the extent to which audience members have potentially encountered specific messages or classes of messages/media content.”¹⁵ We also aimed to assess variation in social media messaging over time and between the 45 HKCC communities.

Methods

To measure potential exposure to HKCC and Theme 2 messaging, we adopted a quantitative approach. Indicators relevant to potential exposure included volume/quantity of messages retrieved through our search strategy, content of messages and potential interaction with messages and/or community social media pages.

A preliminary search suggested that HKCC community Facebook pages, in general, had more followers than HKCC community Twitter pages (mean 360 compared to 233). However, not all content on Facebook was publicly available (i.e., required a subscription) and Facebook does not provide a mechanism for searching for historical posts. Twitter content is publicly available and provides an advanced search function. As such, this analysis is limited to tweets (i.e., online posts on Twitter) about the HKCC program.

Data collection of online social media messaging content began on June 16, 2016, a date corresponding to the submission of Theme 2 Theme-Based Action Plans (TBAPs) to the MOHLTC. In the TBAPs, HKCC communities outline the programs, policies and supportive environment initiatives that they plan to implement over the course of the Theme. Data collection ended on April 30, 2017, the due date of the HKCC community Project Activity Reports (PARs) to the MOHLTC. The PARs include detailed information on the implemented HKCC initiatives and mark the end of the Theme.

A search strategy was developed in consultation with PHO Library Services (see [Appendix A](#)). Search terms included hashtags and key phrases to identify tweets related to the HKCC and Theme 2. A hashtag is used in front of a word or phrase to provide context to the information being presented. A user can use a hashtag to identify a theme or key message within the tweet and provides a way to easily search for a particular topic. All tweets that met established inclusion and exclusion criteria were added to a database in Microsoft Excel and subsequently coded for analysis (Table 1).

Table 1. Tweet Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • English or French language tweet • Tweet is publicly available • Tweet must have been published between June 16, 2016 and April 30, 2017 • Tweet must have been related to and/or mentioned the Healthy Kids Community Challenge and/or the second Theme – “Water Does Wonders” 	<ul style="list-style-type: none"> • Content that is posted on sites that require a subscription or membership (i.e., Facebook) • Tweets in languages other than English or French • Tweets published before June 16, 2016 or after April 30, 2017 • Duplicate tweets, identified through different search terms, or posted on the same day • Job advertisements • Tweets with search terms, but not related to the HKCC or to Theme 2

All of the included tweets were entered into an Excel database and coded by a single coder according to content of the tweet, including date of the tweet, HKCC community, source type, purpose, mention of Theme 2 and/or water consumption, presence of theme integration, interaction with the tweet and inclusion of a quoted tweet and the original source (Table 2).

Table 2. Tweet Content Definitions

Category	Definition
Source Type	HKCC Community
	MOHLTC
	Municipality
	Public Health/Health Unit
	Individual
	News/Information Source
	Political Figure
	Community Centre

Category	Definition
	Community Health Clinic/Aboriginal Health Access Centre External Organizations ^a School/University Library Other ^b
Tweet Purpose	Campaign Awareness Community Input or Feedback Event Advertising Event Coverage/Recap Promotion of Resources Promotion of Social Media Promotion of Water Consumption Recognition Strategies for Increasing Water Consumption
Mention of Theme 2 and/or Water consumption	Information regarding Theme 2 (“Water Does Wonders”) and/or the consumption of water
Presence of Theme Integration	Tweets mentioned Theme 2, “Water Does Wonders,” as well as Theme 1, “Run. Jump. Play. Every Day.” or Theme 3, “Choose to Boost Veggies and Fruit.”
Interaction	The number of retweets, favourites and replies
Quoted Tweet and Original Source of Tweet	Message content also included information from another tweet. If this source was not an individual, it was also noted. The source of these messages aligned with the categories from the previously mentioned list within the Source Type category.

^aSources coded as external organizations included organizations, community groups or HKCC partners promoting the HKCC campaign, events or resources.

^bSources coded as other included businesses, libraries, hospitals, initiatives or programs promoting the HKCC campaign, events, information or resources.

Items related to tweet purpose were categorized as campaign awareness (HKCC and/or “Water does Wonders”), community input/feedback, event advertising, event recap/coverage, promotion of information and resources, promoting social media, promotion of water consumption, recognition and strategies for increasing water consumption. Tweets related to community input/feedback included those seeking feedback about the HKCC and its programming. Promotion of information and/or resources included tweets that promoted resources (e.g., newspaper articles, blog posts, YouTube videos) pertaining to HKCC and/or water consumption. Tweets coded as having content related to promotion of social media contained information on other HKCC-related social media outlets (e.g., HKCC community Facebook page). Tweets coded as having content related to the promotion of water consumption described the benefits of water consumption and the risks associated with consuming SSBs. Tweets coded as having content related to recognition expressed gratitude toward HKCC communities, participants and volunteers, or included information related to HKCC contest/prize winners. Tweets coded as having content related to strategies for increasing water consumption included strategies to increase water consumption and/or decrease the consumption of SSBs. These messages may have included tips to increase water consumption and recipes to enhance the flavour of water.

Information on users’ interaction with tweets was also collected through the number of favourites, tweet replies and retweets. When a Twitter user “favourites” a tweet, it suggests their agreement with the information being presented in a tweet; a “favourite” is represented by a small icon on Twitter. In a reply, a Twitter user responds to the original tweet, with opportunity to provide feedback or opinions to a tweet. Finally, a retweet is a tweet that is reposted or forwarded by a user that is not the individual who originally posted the tweet.

Analysis

To explore differences in the number of tweets, tweet content and mention of Theme 2 across the HKCC period (i.e., time: week and month) and HKCC communities, cross-tabulations were used. All relevant data were coded in Microsoft Excel 2010 and subsequently analyzed with SAS Version 9.3. Descriptive analyses were used to summarize social media page data and for all tweets.

Results

The total number of tweets collected once duplicates were removed was 2,725. Eighty-three tweets (3%) did not have an identifiable HKCC community and were therefore removed from the community-specific analyses. Since tweets were collected using key phrases or hashtags, the source of tweets was not solely from the HKCC-dedicated Twitter pages. Rather, they may have come from other sources' Twitter pages (e.g., Public Health Units, personal accounts, schools). While there are 45 communities participating in the HKCC, the number of communities included in this analysis totaled 46. Four participating communities are within the larger City of Toronto and have independent accounts, but also worked in collaboration and had a shared Twitter account.

Number of Messages

There was an average of 57.3 tweets across all communities (n=46, including the Toronto-wide Twitter account). The standard deviation (62.1) and range (0-243) indicates that there was substantial variation in community tweeting practices (Table 3; Figure 2). Across the period that data were collected, higher frequencies of tweets were published in October, January and February. The fewest were published in April (Figure 3).

Table 3. Descriptive Statistics: Twitter Messaging Across all Communities (n=46)

Twitter Messaging	Statistics (n=2,725)
Minimum	0
Maximum	243
Mean	57.3
Median	36
Standard Deviation	62.1

Figure 2. Number of Tweets Across HKCC Communities, Excluding Those with No Community Reference (n=2,642)

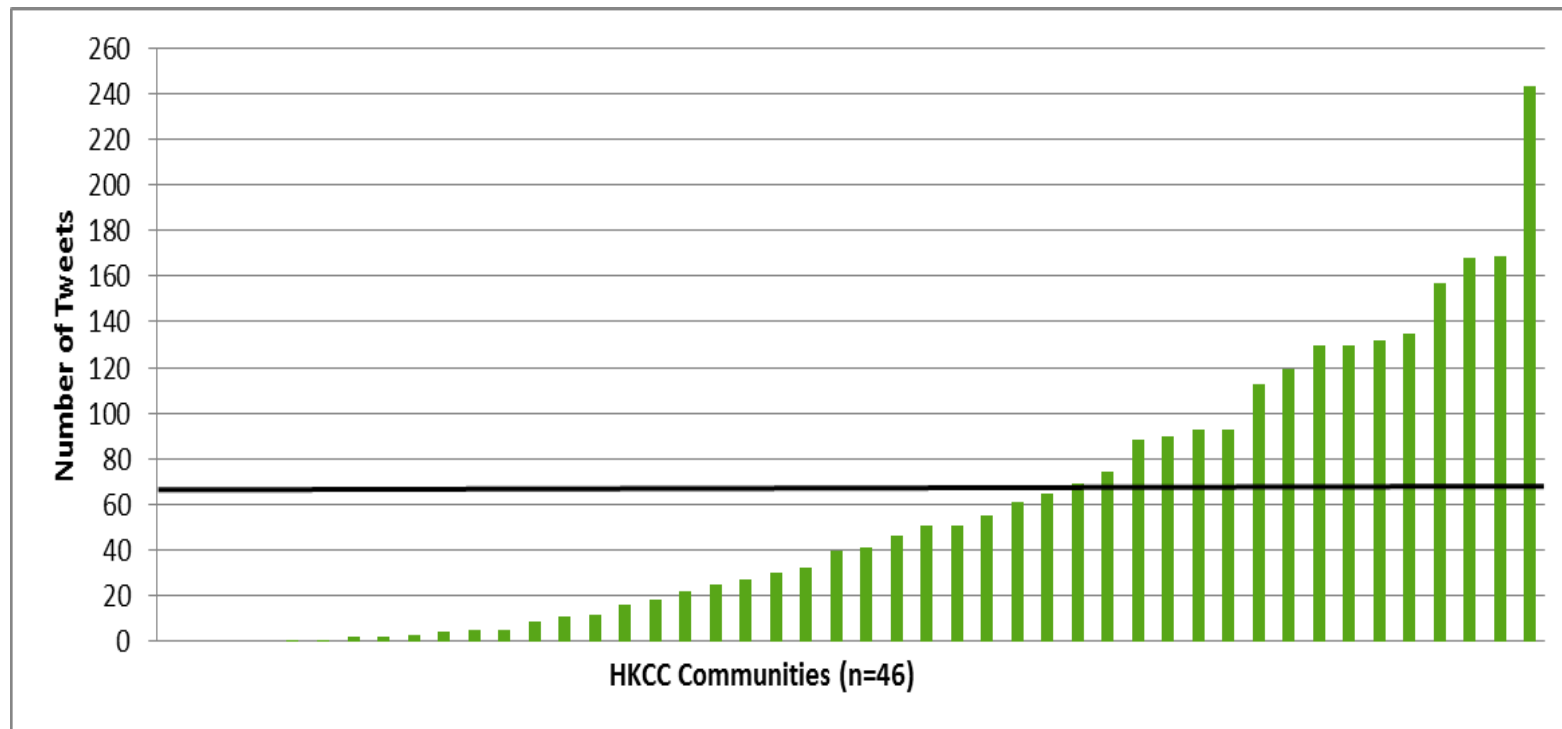
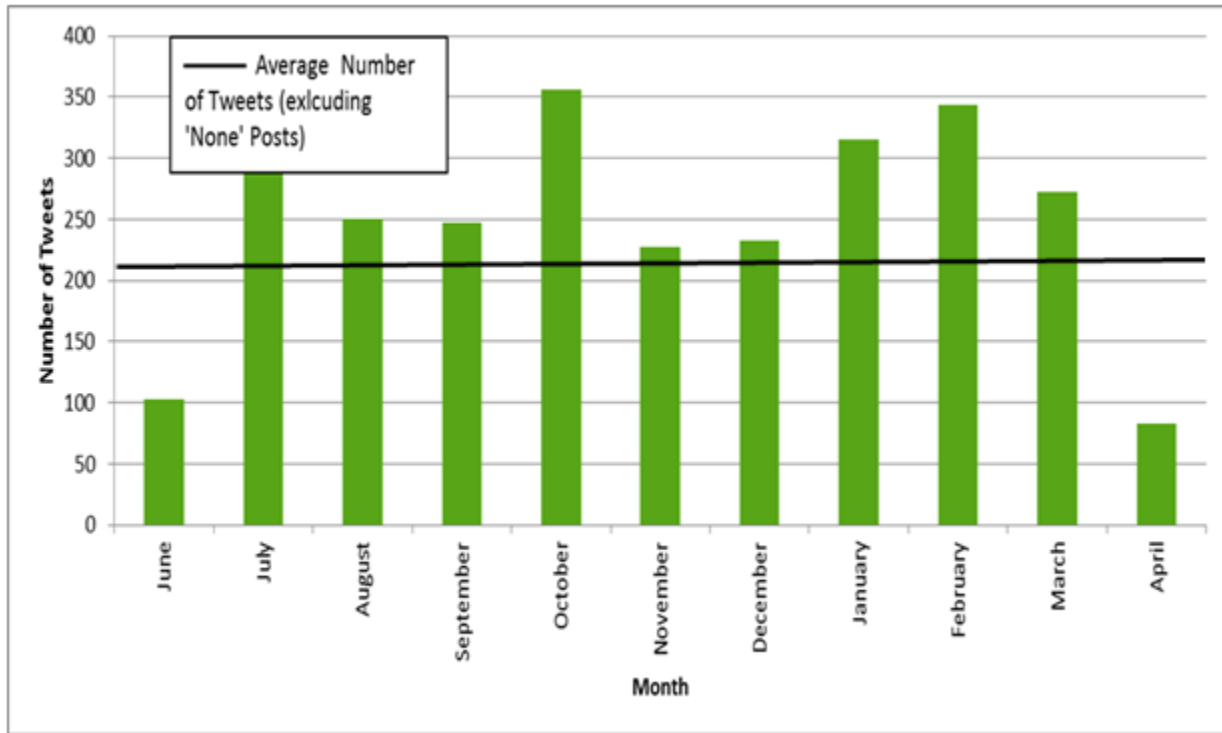


Figure 3. Number of Tweets by Month, Excluding Those with No Community Reference (n=2,642)

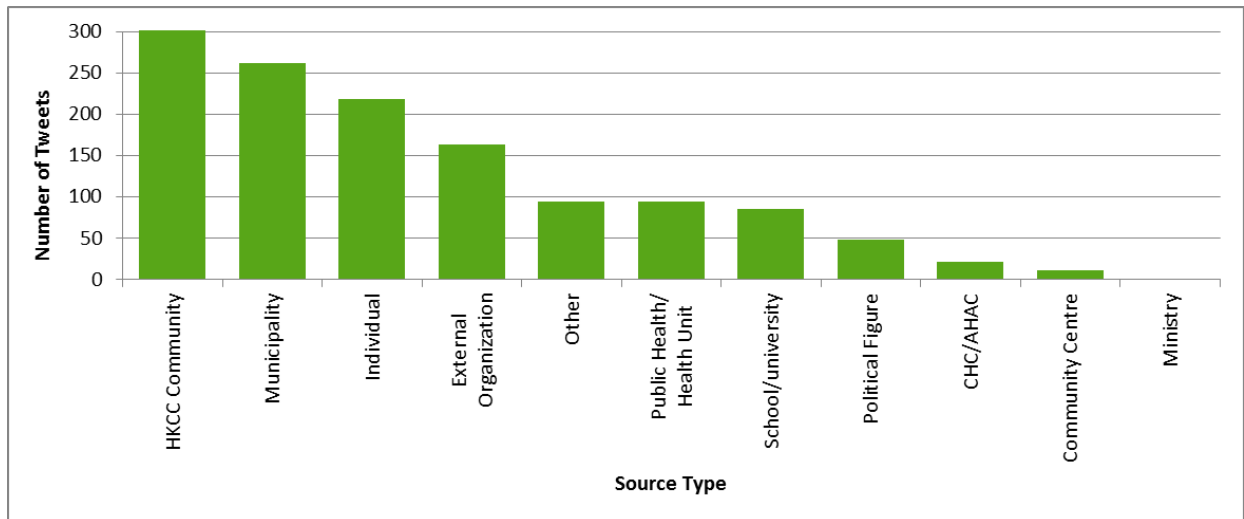


The full month of June was not captured in data collection, as data collection began on June 16, 2016.

Source of Messages

Approximately 61.4% of tweets (n=1,673) were published by HKCC communities (on HKCC-dedicated Twitter pages). The remaining tweets were published by other sources, such as local municipalities and external organizations (Figure 4). Municipalities accounted for the second most frequent source of published tweets (9.6%).

Figure 4. Number of Tweets by Source Type (n=1,052)



Ministry refers to the Ministry of Health and Long Term Care.

Content of Messages

All tweets were categorized into various content types. The highest proportion of tweets were coded as campaign awareness (33.5%), followed by promotion of water consumption (24.5% of tweets) (Figure 5). Examples of tweets in each content category are presented in Table 4.

Figure 5. Number of Messages by Content Type (n=2,725)

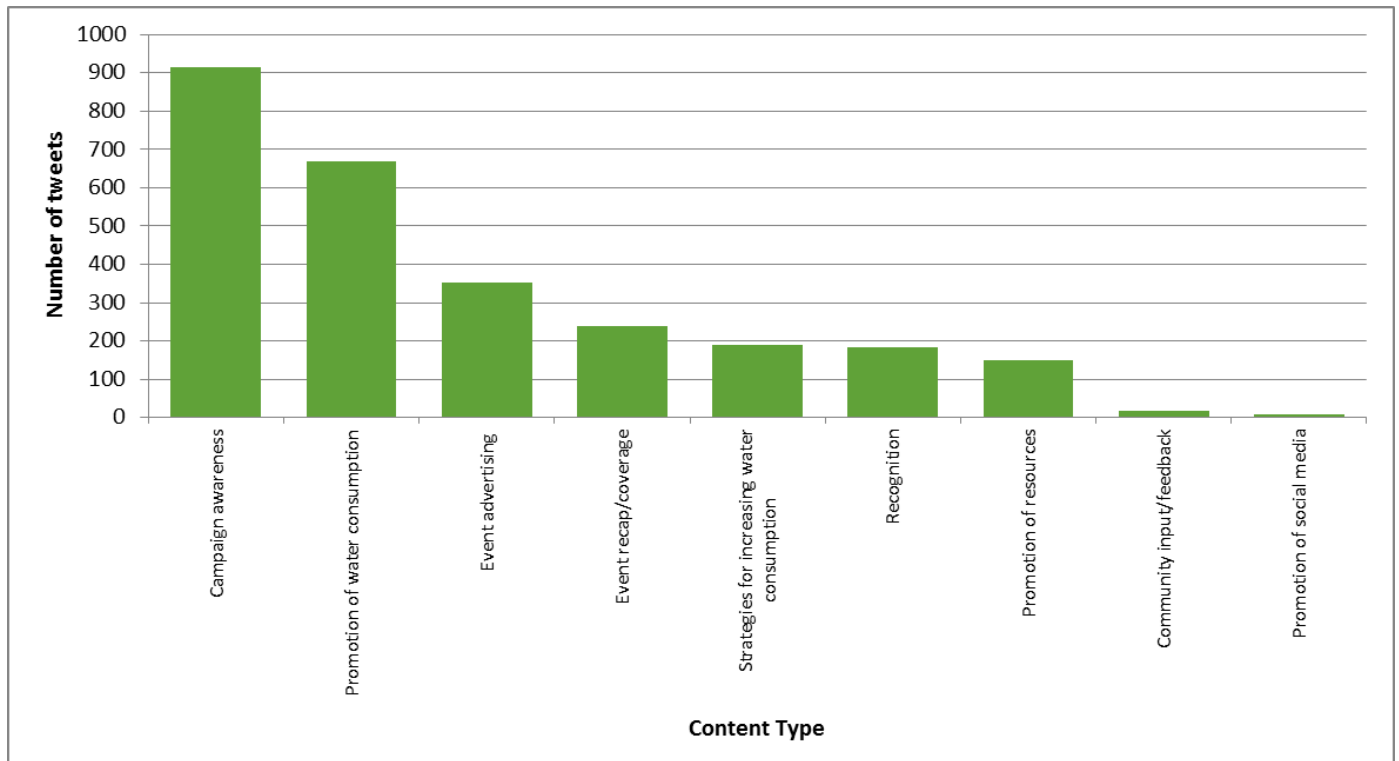


Table 4. Media Messaging Content

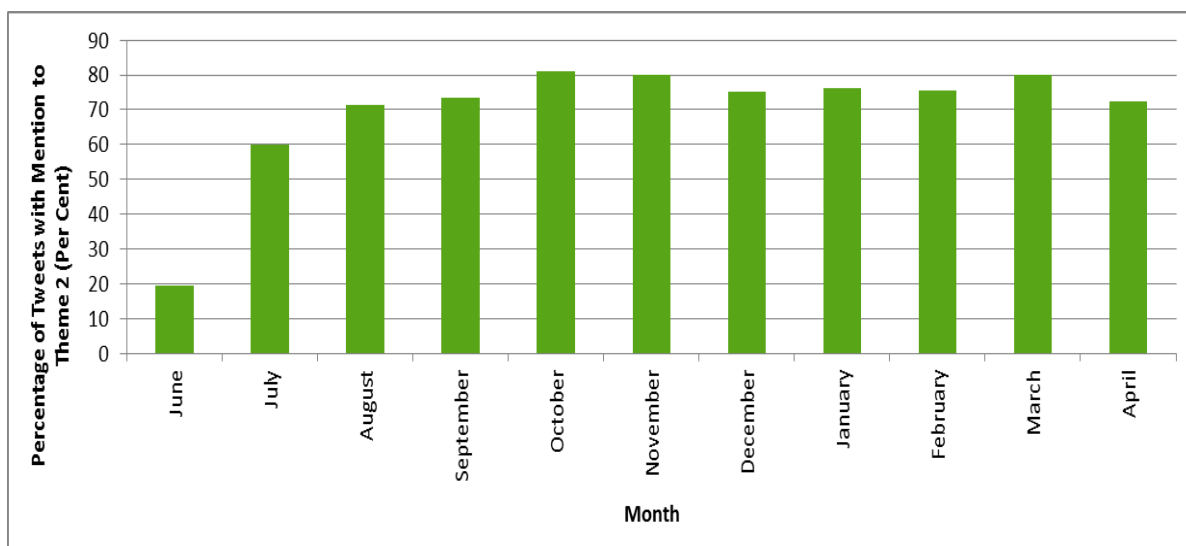
Coding Item	Example Tweet
Campaign awareness (n=913)	@KFLAHealthyKids – “Have you heard about #HealthyKidsON Water does Wonders? Learn more: http://kflahealthykids.ca/water-does-wonders/... ”
Community Input/Feedback (n=19)	@healthykidsburl – “Come and brainstorm with us how you can help make #WaterDoesWonders a lifestyle choice. healthykidsburlon.ca ”
Event Advertising (n=353)	@HKCCEastYork – “Join us next Friday @eastviewcentre Sizzle Fest! Stop by our booth for fun & games about #WaterDoesWonders!”
Event Recap/Coverage (n=239)	@WabanoHealth – “What a wonderful evening at our 'Water Does Wonders' theme launch and Open House!!! Thank you to everyone who... http://fb.me/4h4PcztTN ”
Promotion of Social Media (n=9)	@WabanoHealth – “Are you a parent, grandparent or guardian? If so, 'like' our Healthy Kids Community Challenge (HKCC) - Wabano... http://fb.me/7W5r3Smfy ”

Coding Item	Example Tweet
Promotion of Resources (n=151)	@HKCCPtbo – “Interesting Marketplace episode from 2014. Kids don't need sports drinks! Stick to water #waterdoeswonders”
Promotion of Water Consumption (n=668)	@HealthyKidsHPE – “Not only pop; even 100% fruit or vegetable juice has a lot of sugar in it. Water is always best! #WaterDoesWonders”
Recognition (n=183)	@MiddlesexHKCC – “Thanks to Caradoc North Public School @TVDSB for supporting #waterdoeswonders!”
Strategies for Increasing Water Consumption (n=190)	@MLTeens – “Bored of plain water. Try this recipe for flavoured water http://bit.ly/1szc8dw #waterdoeswonders pic.twitter.com/KweipT5cgO”

Mention of Theme 2 and/or Water Consumption

Nearly three-quarters (72.7%) of tweets mentioned Theme 2 and/or water consumption (Figure 6). The mention of Theme 2 and/or water consumption was the most frequent in October (81.2%).

Figure 6. Percentage of Tweets that Mention Theme 2 and/or Water by Month (n=2,725)



Theme Integration

Although primarily focused on Theme 2, 19 tweets included information from Theme 1, “Run. Jump. Play. Every Day.” Most of the tweets integrating information from Theme 1 were tweeted by HKCC

communities (89.5%) and, 42.1% were used to advertise an event (e.g., “#runjumpplay join us at Legion Park for fun and #waterdoeswonders we will be here until 12:00 noon”).

Quoted Tweets

Quoted tweets that contained information from other sources represented about 14% of all tweets (n=384). The source of the content most frequently quoted was other HKCC communities (28.9%), followed by individuals and external organizations.

Tweet Interaction

The proportion of tweets with any interaction was examined across three categories: retweets, favourites and replies. Approximately half of all tweets were retweeted at least once. HKCC Communities had the highest number of retweets (n=834), with approximately half of their tweets being retweeted at least once. Communities varied in the number of retweets (mean of 28.7%, standard deviation of 34.8%, Minimum: 0, Maximum: 134). More than 60% of tweets were favourited. The mean number of favourited tweets across all communities was 53.7%, with a standard deviation of 26.6% (Table 5). A small proportion of tweets were replied to (4.8%), with 11.6% of the replied to tweets published by schools or universities and 8.7% originally published by individuals. The remaining tweets with replies were published by external organizations, Public Health Units, news/information sources, municipalities, political figures, and HKCC communities.

Table 5. Tweet Interactions

Source Type	Total Number of Tweets	Number of Retweets	Percentage of Tweets Retweeted	Number of Favourites	Percentage of Tweets Favourited
HKCC Community	1673	834	49.9	1064	63.6
Municipality	262	145	55.3	145	55.3
Individual	218	101	46.3	147	67.4
External Organization	164	94	57.3	101	61.6
Public Health/Health Unit	94	45	47.9	59	62.8
School/University	86	47	54.7	73	84.9
News/Information Source	50	17	34.0	18	36.0

Source Type	Total Number of Tweets	Number of Retweets	Percentage of Tweets Retweeted	Number of Favourites	Percentage of Tweets Favourited
Political Figure	49	21	42.9	35	71.4
CHC/AHAC	22	12	54.5	7	31.8
Community Centre	12	5	41.7	6	50.0
MOHLTC	1	1	100.0	1	100.0
Other	94	45	47.9	46	48.9
Total	2725	1367	50.2	1702	62.5

Discussion

Compared to Theme 1 (1,684 tweets), there were 62% more tweets published during Theme 2 (2,725 tweets). This suggests that there was an increase in the use of Twitter for the HKCC campaign in general during Theme 2. Analyses identified HKCC communities as the most active Twitter users and that the majority of quoted tweets were also originally published by HKCC communities (28.9 per cent). As part of the roles and duties of promoting the campaign and themes, it is not surprising that HKCC communities published the most tweets. The growth in the number of tweets indicates that communities might have been more active in the promotion of the campaign during Theme 2, potentially increasing exposure to the HKCC. However, while most communities published at least one tweet during Theme 2, nine communities did not have an associated Twitter account, and there was substantial variation in the number of messages published in the study period across communities (range: 0-243). As such, we might also expect that there is differential exposure to the HKCC through Twitter across communities. It is important to note that these indicators do not directly imply a causal link to changes in awareness or knowledge related to the message, or to the more distal outcomes (e.g., behaviour change).

This analysis revealed that the majority of tweets specifically mentioned Theme 2 and/or water consumption. Compared to Theme 1,⁹ there was a 62.4% increase in tweets that contained information regarding the theme and/or the behavioural component of the theme. There was also a broad range of message types that embedded the theme. While most tweets from Theme 1 focused on event advertisement (50.3%),⁹ the purpose of most of the tweets for Theme 2 was to create awareness of the campaign or promote water consumption (33.5% and 24.6%, respectively). It is possible that the messaging or tagline (“Water does wonders”) associated with Theme 2 was seen by communities as being more useful for directly targeting behaviour change in comparison to Theme 1. Alternatively, this may be

an indication that as the program has matured, the social media strategies used by HKCC communities shifted towards providing information related to strategies for behaviour change.

In general, there was little evidence that communities integrated messages related to Theme 2 with other themes, despite the intuitive nature of combining the ideas of, for example water consumption and physical activity. This could be due to a limitation of Twitter, which limits the length of a tweet with a character count restriction. At the time of data collection, Twitter had a maximum allowance of 140 characters per tweet. Under this restriction, incorporating hashtags belonging to multiple themes would be difficult, as characters in hashtags are included in the character count (e.g., “#waterdoeswonders” and “#runjumpsplayeveryday” totals 37 characters). Future analyses may consider looking at different social media platforms that do not adhere to a character count restriction to more effectively review theme integration.

This analysis also revealed that only 23 communities had HKCC-dedicated Twitter pages. Other communities used other previously existing accounts to promote the campaign (e.g., Public Health Unit’s Twitter page). We note that HKCC-dedicated social media pages could contribute to an overall consistent branding of the campaign. This is identified as an important component of the EPODE methodology that informed the development of the HKCC.³ Other research has shown that consistent branding is important in building awareness of public health campaigns, as the target audience will be more inclined to align with the goals of the campaign.¹⁰

Limitations and Future Research Directions

The search strategy we employed was designed to collect data representative of what was occurring at a provincial level. As such, we only included the overall #HKCC or #HealthyKidsCommunityChallenge as search terms, rather than those created to promote individual communities (e.g., #HKCCCommunityA). This may have caused us to miss some messages as part of our data collection.

Certainly, it is important to note that other social media platforms exist and that HKCC-related messages could be promoted via these platforms. Without examining other social media platforms, potential exposure through online media content is not completely captured. Our preliminary search did show that HKCC community Facebook pages tended to have more page follows and likes in comparison with HKCC community Twitter pages. This might indicate that Facebook is a more commonly used social media platform compared to Twitter or that more users are interacting with the HKCC campaign via Facebook. However, due to difficulties of accessing non-public Facebook pages and lack of an advanced search function for identifying posts containing key words, the scope for this analysis was limited to Twitter. To address this, future studies may implement the use of technological solutions to assist in data collection (e.g., using a web browser extension like NCapture through NVivo software).¹² This may also aid with efficiency of data collection.

Both the collection and coding of data were completed by one single reviewer. This poses a potential limitation, as it decreases the reliability of the methods. Macnamara¹¹ suggests that in order to enhance inter-coder reliability, a reliability sub-sample should be piloted, where two or more coders are used for

a subset of the data to decrease subjectivity. Discussion of a more in-depth and comprehensive coding scheme should be considered.

Conclusions

The results of this media analysis contribute to a better understanding of the potential exposure to the HKCC and Theme 2 (“Water Does Wonders”). This report can also be used to inform ongoing data collection processes that are being undertaken to support the provincial evaluation of the HKCC. Moving forward, the results of HKCC theme-based media analyses will provide an indication of exposure across HKCC communities, which could provide important context for interpreting variation in awareness of the campaign and other outcomes between HKCC communities.

Appendix A

Search Strategy

Purpose

The purpose of the search was to obtain and analyze social media via Twitter, related to the Healthy Kids Community Challenge and Theme 2 (i.e., “Water Does Wonders”), to gain a better understanding of the potential exposure and variation throughout the 45 communities.

Databases and search engines

1. Google search bar
2. Twitter advanced search engine

Search process: Google search

- Identify HKCC Community Twitter pages, and related Twitter pages, through the Google search bar.

Advanced search: all of these words

- Set Twitter’s custom data range to begin June 16, 2016.
- Execute the following search queries and review all results of each query.
 - Healthy Kids Community Challenge
 - Water Does Wonders
 - Enfants En Santé
- Record results in “HKCC Twitter Data Input” document.

Advanced search: hashtags

- Set Twitter’s custom date range to begin June 16, 2016.
- Execute the following search queries and review all results in each query.
 - #HKCC
 - #HealthyKidsON
 - #EnfantsEnSantéON
- Record results in “HKCC Twitter Data Input” document.

Appendix B

HKCC Community Twitter Handles

HKCC Community	Twitter Handle
Aurora	@FitKidsAurora
Burlington	@healthykidsburl
Chatham-Kent	@superkidsck
Chigamik	@HKCCNorthSimcoe
Collingwood	@CollingwoodHKCC
Danforth-East York	@HKCCEastYork
De Dwa De Dehs Nye	@HealthyKidsDAHC
Grey Highlands	@HealthyKidsSEG
Hastings	@HealthyKidsHPE
Kingston	@KFLAHealthyKids
Lambton Shores	@HKCCLambton
Leeds & Grenville	@healthykidslg
Manitoulin Island	@HKCCmanitoulin
Middlesex	@MiddlesexHKCC
Niagara	@NiagaraKids
Peterborough	@HKCCPtbo
Renfrew County	@HealthyKidsCor
Scarborough	@HKCCScarborough
Sudbury	@healthykidsSud

HKCC Community	Twitter Handle
Temiskaming Shores	@HealthyKidsTem
Thunderbay	@healthykidstbay
Timmins-Misiway	@HKCCTimmins
Wabano	@HKCCWabano

General Twitter Handles

City/Town/Region	Twitter Handle
Ajax	@townofajax
Brantford	@CityofBrantford
De Dwa De Dehs Nye	@_DAHC_
Georgina	@georginatown
Guelph	@energizeguelph
Hamilton	@cityofhamilton
Humber-Downsview	@YAAACE_si
Kingston	@cityofkingston
London	@inmotion4life
Oshawa	@oshawacity
Oshawa	@activeoshawa
Ottawa	@OttSchoolBus
Ottawa	@ottawahealth
St. Thomas	@ElginHealth
Uxbridge	@UxCamps

City/Town/Region	Twitter Handle
Waterloo	@CPTwlooregion
Windsor	@CityWindsorON

No Twitter Handles Found

1. Canton D'Alfred Et Plantagenet
2. Huron
3. Kapuskasing
4. Kenora
5. Marathon
6. North Channel
7. Rexdale
8. Sault St Marie
9. Shkagamik-Kwe

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