

How Healthy is the Doc? A content analysis Of the Doc McStuffin show

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Abstract

This study sought to determine and quantify what if any healthy behavioral cue exists in preschool shows. Past research has shown that unhealthy behaviors developed in early childhood are strongly associated with health-related problems later in life. It has also shown that establishing behaviors that promote and maintain health during early childhood is very important. Bandura's Social Learning Theory states that people learn by observing behaviors and attitudes modeled by others. Modeling is often used as a behavioral guide among young children. A larger study used Common Sense Media and Parent Magazine as a guide, to determine the highest rated pre-schools show. A content analysis was conducted of the top five preschool shows found on the Disney, Nickelodeon and PBS networks. The shows were assessed to determine if there were cues linked to health behaviors and whether the cues were positive or negative. This article focuses on the results of the content analysis of the Doc McStuffin television show. The results showed that there were cues to healthy behaviors in every Doc McStuffin episode analyzed. The data showed that due to the format of the show, physical fitness cues were found in 100% of the episodes while only 65% of the episodes analyzed had nutritional cues. The cues were not all positive; some episodes had cues to negative behaviors. Despite this the Doc McStuffin show may be a resource health educators could use to improve healthy behaviors amongst children and their parents.

Key Words: children, television, content, health, behaviors

Introduction

A plethora of research examining the health outcomes of adolescents and television has been conducted but little research has been done on preschoolers and television. Previous research has looked at the content of food advertising (commercials) aimed towards children. Borzekowski & Robinson, (2001) found that "Watching food advertisement has been shown to impact food preference in preschool." One published study looked at cues in actual children television programs. Radnitz, (2009) looked at several PBS television programs that were identified as appropriate for children aged 1 to 4. The authors only looked for food cues in the program. This study examined not only food cues but also cues to other healthy behaviors.

Research has shown that health attitudes and behavior formed during childhood predict adult health patterns. For example Hancox (2004) showed that children's food preferences and media behaviors were

significantly related to them being overweight or at risk for obesity in adulthood.

Young children can recognize icons and images that convey healthy behaviors. According to Borzekowski (2009) "when health concepts and behaviors are culturally relevant and part of the child's environment a child may understand their importance at an earlier-than expected age."

Establishing behaviors that promote and maintain health during early childhood is very important. Bandura's Social Learning Theory states that people learn by observing the behaviors and attitudes modeled by others. Modeling is often used as a behavioral guide among young children.

Studies have shown that modeling is a very effective public health tool. Modeling of healthy eating by television characters (Tapper, Horne & Lowe, 2003) and parents (Young, Fors & Hayes, 2004) has been shown to increase fruit and vegetable consumption. Similarly, reports of children's general snacking and snacking on

unhealthy food are correlated with those of their parents suggesting that modeling has an impact on snacking.

Since television has become a very important part of today's life for most families even young children are spending their time watching television, though the American Academy of pediatricians "recommends no more than two hours a day of high-quality screen time" which includes TV, DVD and computers for children aged 2 and up. Several studies have found that this recommendation is often not followed. Television particular preschool shows have been used to help prepare students for school. Through socialization and early childhood education children are exposed to ABC and colors etc.

Even the American Academy of Pediatrician (2001) has found that "there are potential benefits from viewing some television shows, such as the promotion of positive aspects of social behavior e.g., sharing, manners, and cooperation. Children and adolescents are particularly vulnerable to the messages conveyed through television, which influence their perceptions and behaviors". So understanding what our preschoolers are being exposed to via the television is very important. The premises of this study were to investigate what healthy information (cues) if any are found in various preschool shows, whether directly or indirectly and are the cues positive or negative. Using Commonsense Media and Parent Magazine as a guide the top five preschool shows found on the Disney channel, Nickelodeon or the PBS stations were identified and analyzed. This pilot study focuses on the Disney Junior Show, Doc McStuffin, based on the name of the show "Doc McStuffin". It was hypothesized that:

H1: *There will be cues to healthy behaviors in every episode of the Doc McStuffin Show.*

H2: *There will only be positive cues to healthy behaviors in the show.*

H3: *The cues will focus on Nutrition.*

Methods

A content analysis of episodes from the Doc McStuffin show was conducted. Conducting a content analysis was determined to be the best method of evaluation to examine the preschool shows because content analysis is appropriate for analyzing written, verbal or visual communication messages (Elo, 2008, Hsieh 2005). Content analysis as a research method is a systematic and objective means of describing and quantifying phenomena. It allows the researcher to test theoretical issues to enhance the understanding of the data (Elo, 2008). Content analysis is a research method for making replicable and valid inferences from data to their content, with the purpose of providing

knowledgeable new insights, and representation of facts and a practical guide to action (Elo, 2008).

Replicating Stemier (2001) findings for dealing with prior coding, the categories to be analyzed were established prior to analysis. The researches agreed on the categories: physical fitness and nutrition to be analyzed and a coding system was applied to the data.

Sample

The Disney Junior television show Doc McStuffin debuted in 2012. The series chronicles a young African American girl named Dottie "Doc" McStuffin who aspires to become a doctor like her mother. She pretends to be a doctor by fixing toys and dolls. When she puts on her stethoscope, toys, dolls, and stuffed animals come to life and she can communicate with them. With help from her stuffed animal friends – Stuffie the Dragon, Hallie the Hippo, Lambie the Lamb, and Chilly the Snowman – Doc helps toys "feel better" by giving them check-ups and diagnosing their illnesses. These diagnoses are recorded in the "The Big Book of Boo Boos". Each thirty-minute show is comprised of two short episodes, which includes original songs and the "Time for a Checkup song". During ending credits in Season 1, Doc gives advice to viewers about staying healthy. Seasons 1, 2 and 3 have the original intro for the theme song. Season 4 episodes started in March of 2015. Due to the success of the show, Disney now airs multiple episodes of the show at least three times a day.

For consistency, only the first show that aired each weekday for two weeks during the Fall 2014 television series season was recorded and later viewed. A total of 300 minutes of the show was viewed and analyzed as part of this pilot study.

The show was examined to determine if there were any cues to healthy behavior relating to nutrition and/or physical fitness. The types of cues were also analyzed to determine if the cues present were positive or negative. Cues are defined as a direct or an indirect verbal mention of common healthy behaviors (e.g. injury prevention, oral hygiene, emotional health, proper sanitary practices, eating healthy foods and exercising) by any of the show's characters. Visual presentations of the character's health behaviors was also analyzed and coded as cues. The cues were categorized as positive, negative or neutral. Only cues pertaining to physical fitness or nutrition were analyzed.

Unit of analysis

Nutritional Cues

Cues were classified as Nutritional cues if any of the characters verbally named the food, if a visual of the food was shown in the episode or if any of the

characters mentioned eating or mealtime. The cues were later coded as either negative, positive or neutral and assigned a value (0, 1, or 2) based on the coding.

Physical Cues

Cues were classified as physical fitness cues where any verbal mentioning or visual images of any type of movement. The cues were labeled negative, positive or neutral and assigned a value (0, 1 or 2) based on the coding.

Other

Cues were classified as other when verbal communication or visually image of any other form of healthy behavior outside of nutrition or physical fitness was exhibited during the episode. These cues were recorded by not analyzed.

Data Analysis

Descriptive statistics were used to describe the health cues found in the episodes. The data was analyzed to identify trends rather than quantify the degree of differences between behaviors.

Coding

A 0-2 scale will be used to rate the behaviors. If the show's character during the specific episode exhibits positive healthy cues each instance will be given a 2 rating. If the character exhibits or references a negative health behavior during the episode, the instance will be given a 1- rating. If there was no health inference made during the episode a 0 rating was given for that episode. Two coders completed coding sheets individually and results were compared for consistency. Inconsistencies were resolved between coders.

Reliability

According to De Wever (2006), percent agreement is the result if the ratio between the numbers of codes which is agreed upon and the total number (agree+ disagree) of codes. It is by far the most simple and most popular reliability index. It can accommodate any number of coders. The Holstios method is a variation of this percent agreement index. However, it takes situations into account in which the two coders evaluate different units.

Reliability analyses were conducted on 20% (n=4) episodes. These episodes were doubled coded by the authors to obtain inter-coder reliability. The variables coded were non categorical, instead of placing units into categories we noted the frequency of activities related to nutrition or physical fitness or other health related behavior. Inter-coder reliability was also determined using the Holsti formula (Holsti 1968; Neeley& Schumann, 2004) and resulted in 92% agreement of cues.

1. Reliability = $2M/N1 + N2$
2. M=total number of coding decisions on which both coders agree
3. N= number of coding decisions

Results

During two weeks in Fall 2014, the first aired weekday episodes of the Doc McStuffin show were recorded and later viewed. Recording the episodes allowed the researchers to review any cues where there was a discrepancy in coding. Twenty episodes of the show (See table 1) for a total of 300 minutes were analyzed. The episodes were all from the first three seasons of the show.

Table 1 List of Episodes Viewed

Episode	Original Air Date
A Bad Case of the Pricklethorns	3/23/12
A Whale of A Time	4/13/12
Blazer's Bike	4/24/14
Bubble Monkey, Blow Your Nose	11/15/13
Doc to the Rescue	2/26/13
Don't Knock the Noggins	2/26/13
Gulpy, Gulpy Gator	3/28/12
Kirby and the King	11/15/13
Knight Time	3/23/12
No Sweeteh Cheetah	1/10/14
One NoteWonder	3/28/12
Out in the Wild	4/13/12
Out of the Box	3/22/12
Righty-on-Lefty	5/30/12

Run Down Race Car	3/22/12
Take A Stroller	7/25/14
Take Your Doc to Work Day	4/24/14
The Big Sleepover	1/10/14
The Wicked King and the Mean queen	7/25/14
Un-burr-able	5/30/12

H1: *There will be cues to healthy behaviors in every episode of the Doc McStuffin episode.*

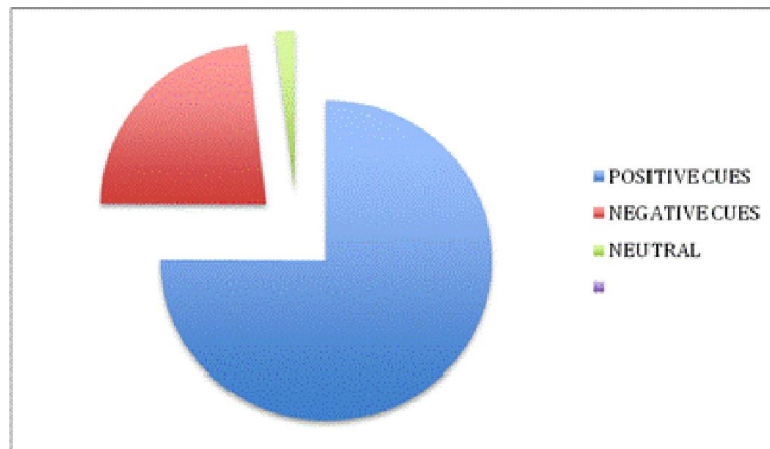
The results showed 100% (n=20) of the episodes had cues to healthy the behaviors. Each episode had a particular theme that was carried through the episodes. Thereby proving the hypothesis true. Though there were cues to healthy behaviors in every episode, the cues based on the episode's theme may have been classified as other, ex. The importance of first aid was emphasized during the "Doc to the Rescue" episode.

H2: *There will only positive cues to healthy behaviors in the episodes*

The results found that the episodes contained both positive and negative cues to health behaviors. Overall the majority of the cues were positive cues. An example of an negative cue was in the "No Sweeteh Cheetah" episode, when Doc said everyone let's go play while the other toys wanted to go play, Chilli said he would rather not play or when Doc asks her mom for a smoothie with whip cream "Take Doc to work Day" episode. Data for the nutritional and physical fitness cues found a total of 62 (23%) negative cues were found compare to the 202(76%) positive cues and 5 neutral cues (1% - See figure 1).

The results found this hypothesis to be false.

Figure 1 *Nutritional and Physical Fitness Cues*



H3: *The cues will focus on Nutrition.*

The results found that thirteen (13) 65% of the episodes had nutritional cues while all (100%) episodes had physical fitness cues (See figure 2). A list of the shows with the nutritional and physical fitness cues is shown below (See tables 2 and 3). All of the episodes had cues to physical fitness due to the format of the

show. In each of the episode the characters would sing and dance to the "time for a checkup song" and the song pertaining to the episode's theme. The amount of cues in each episode differed based on the episode's focus. The episodes that focused on other health behaviors such as oral hygiene or self-esteem were not included in the analysis.

Table 2 *Frequency of Physical Fitness Cues per episode*

Episode	Number of Cues
A Whale of A Time	10
Blazer's Bike	17
Bubble Monkey, Blow Your Nose	12
Doc to the Rescue	12
Don't Knock the Noggins	18
Gulpy, Gulpy Gator	12
Kirby and the King	11
No Sweeteh Cheetah	17
One Note Wonder	8
Out in the Wild	13
Out of the Box	7
Righty-on-Lefty	10
Take A Stroller	21
Take Your Doc to Work Day	10
The Big Sleepover	4
The Wicked King and the Mean queen	10
Un-burr-able	13

Table 3 *Frequency of Nutritional Cues per episode*

Episode	Number of Cues
A Whale of A Time	1
Blazer's Bike	1
Doc to the Rescue	4
Gulpy, Gulpy Gator	7
Kirby and the King	3
No Sweeteh Cheetah	1
One Note Wonder	2
Out in the Wild	4
Righty-on-Lefty	2
Take A Stroller	4
Take Your Doc to Work Day	2
The Big Sleepover	7
Un-burr-able	1

Discussion

Childhood obesity is one of the nation's most pressing problems. Finding innovating and meaningfully ways to address this problem is of the utmost importance. Past research has shown that unhealthy behaviors developed in early childhood are strongly associated with health-related problems later on in life. It has also shown that establishing behaviors that promote and maintain health during early childhood is very important. Bandura's Social Learning Theory states that people learn by observing behaviors and attitudes

modeled by others. Modeling is often used as a behavioral guide among young children. "Popular characters bring media programming alive to children. These whimsical characters are crucial components of movies, television shows and touchscreen apps. Children develop para-social relationships, (i.e. emotionally -tinged, non-reciprocal relationships) with onscreen characters (Calvert & Richards, 2014). Currently Doc McStuffin is one of the characters children want to not only watch but to also follow.

According to Buffington (2013):

"In the United States the groups with a disproportionate health risk include Hispanics and African-Americans. These groups experience more challenges with regard to health literacy and access to care, and watch more TV shows".

Beck, Huang, Pollard and Johnson (2003) found that these adults consistently report more effects after viewing health storylines - whether it was discussing a health topic, calling for more information, visiting a clinic or taking preventive measure. Doc McStuffin is a young African American girl who aspires to become a physician. This character is one of the few characters that the African American community can identify with.

In addition to breaking racial stereotypes, the Doc McStuffin character also breaks gender stereotypes. Doc McStuffin not only exhibits characteristic that are usually found only in the male cartoon characters but also the exhibits some of the characteristics commonly found in female cartoon characters.

Previous content analysis around cartoons (Aubrey & Harrison 2004) found that earlier content analyses observed that there were more male characters than female characters in cartoons (Levinson 1975; streicher 1974), and when present the female charter made fewer appearances; played few lead roles, were less active and occupied fewer positions of responsibilities or engage in problem-solving activities (McArthur & Eisen, 1976). Further analyses (Thompson and Zerbino 1995) found similar findings. Male characters were more independent and assertive while female characters were more emotional, and affectionate. Female characters were least likely to show leadership, asking questions, expressing opinions and expressing interest in task - related activities. Unlike other female characters, Doc is an independent and very assertive young lady. She is clearly the leader in every episode, not only does she express her opinions she is also very affectionate.

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Note

The faculty development grant did not provide any input on the design or execution of the study, nor on the collection, analysis, or interpretation of data, nor on the preparation, review, or approval of the manuscript. The views herein are those of the authors and not necessarily those of the Borough of Manhattan Community College.

Human Participant Protection

No human participants were involved in this study.

This study differs from previous studies in that this study actually looked at the cues that were found in the show rather than the advertisements, brands or behaviors found in the commercials that were shown during the time period. Previous studies (Renk&Stern, 1977) also focused on the characteristics and gender of the character rather than the character's health or behaviors that might affect the character's health.

Conclusion

Television, movies and emerging media are among the most powerful tools available for communicating health messages to the public. A growing body of research in to adult shows indicated that storylines in entertainment shows could affect outcomes, including awareness of health risks, attitudes toward prevention measures, policy priorities and behavioral changes (Buffington 2013). It is reasonable to estimate that the same correlation could be drawn with children shows, such as Doc McStuffin.

The analysis showed that there were cues to healthy behaviors in every Doc McStuffin episode analyzed. The results found that due to the format of the show, physical fitness cues were found in 100% of the episodes while only 65% of the episodes analyzed had nutritional cues. The cues were not all positive; some episodes had cues to negative behaviors. Data for the nutritional and physical fitness cues found a total of 62 (23%) negative cues compared to the 202(76%) positive cues and 5 neutral cues. After reviewing the results we can conclude that despite the appearance of negative or neutral cues the Doc McStuffin show has shown that it is an excellent resource for health educators. Health Educators are constantly looking for new and engaging ways to educate people about health and increase health literacy among children and their parents.

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