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## Is News Surveillance Related to Cancer Knowledge in Underserved Adults? Testing Three Versions of the Cognitive Mediation Model

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#### ABSTRACT

The cognitive mediation model (CMM) proposes indirect paths to news learning such that news surveillance increases news learning through attention to the news and elaboration about the news. But there is a need for additional research that tests key postulates of the CMM especially for media targeting underserved populations. The present study tested three versions of the CMM to model ethnic newspaper learning within a low-income, Spanish-speaking population (N = 150). The original CMM was not supported by the data as elaboration was not related to knowledge; however, a simplified version of the CMM (surveillance  $\rightarrow$  attention  $\rightarrow$  knowledge) was supported. Moreover, a serial mediation model that included a measure of health maven was supported such that news surveillance was positively related to knowledge through maven-ness and attention.

#### **KEYWORDS**

Ethnic newspapers; cognitive mediation model; Spanishspeaking adults; cancer prevention; health maven; serial mediation model

Theorizing if and how people learn from news media has long been an important focus of communication research (e.g., Eveland 2001; Oeldorf-Hirsch 2018). Yet, exposure to news media does not guarantee an increase in knowledge acquisition and behavioral change. In fact, research has suggested that exposure to information results in change only for particularly engaged and attentive audiences (Jensen 2011). It appears that messages contained in news media often need to be actively consumed by an audience in order to have an effect on their opinions and consequently on their behaviors. Consistent with this idea, Eveland's (2001) cognitive mediation model (CMM) stipulates that audiences require engaged consumption of a message, and reflection upon the message, in order to be impacted by the content.

The CMM initially tested the ways in which political information in the news translates to knowledge acquisition (Eveland 2001), but the framework is intended to model news learning across a diverse array of contexts. One particularly consequential context is health news. News organizations are expanding their coverage of health-related news, especially cancer information (Viswanath 2005), and thus have considerable potential to

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provide the public with a valuable means of learning about healthy behaviors. In this context, the CMM might provide needed insights into how health messages in news coverage can lead to health-behavior knowledge and healthy behaviors.

In thinking about the potential for health news to influence audiences, it is important to keep in mind that such content is unlikely to benefit everyone equally. In particular, underserved populations are often harder for media to reach, and these populations may not receive comparable benefits from health-related news and media advocacy efforts (Viswanath et al. 2006). Such gaps in knowledge may ultimately maintain or even increase concerning health disparities across populations. There are, however, ways in which news media can work to overcome these knowledge gaps. Specialized news media, such as ethnic newspapers—which are a low cost and trusted means of communication for many minority communities in the United States (Wilkin and Ball-Rokeach 2006)—can become an effective vehicle for transmitting health messages and communicating concerns of the target population (Yu 2018a; Walter et al. 2019).

Several features make ethnic news media an ideal vessel for health messages aimed at subpopulations. Ethnic news organizations tend to be smaller than their mainstream counterparts, are locally managed, and are sustained through local advertising (Close et al. 2006; Lau and Lee 2018). Consequently, they are more likely to engage in community-building and promote protective behaviors (Viswanath and Arora 2000; Walter et al. 2019). Additionally, for linguistic minorities, newspapers written in the community's first language provide a means of delivering important information that would be otherwise inaccessible. These types of media thus offer one potential avenue to bridge gaps in health knowledge across populations (Viswanath and Lee 2007). It is important to note, however, that concerns have been raised about ethnic media shifting away from local stories (Yu 2018b) and the evolution of ethnic media in the digital age (Yu and Matsaganis 2019).

Past work has examined the effects of ethnic news media on the preventive health behaviors of underserved populations, notably low-income, Spanish speaking adults (King et al. 2018). In that study, the authors tested the relationship between consumption of ethnic newspapers and education, acculturation, and adherence to cancer screening behaviors. The findings demonstrated a correlation between consumption of the newspapers and a likelihood of partaking in health behaviors for those individuals with high health motivation.

The present study continues this line of research by testing the CMM as a framework for modeling news learning in an underserved population. Following the CMM, we test the roles of surveillance motivation, attention, and elaboration as potential drivers of learning. Next, we adapted the CMM to explain news learning within an ethnic and linguistic sub-population rather than a general population. This research thus has both practical and theoretical implications as it not only provides valuable insights into news learning, but also offers health communication practitioners a better understanding of how to target at-risk populations.

## **Ethnic News Media**

#### **Reaching Underserved Groups**

Newspapers have long been regarded as an effective means of conveying information to the public (Eveland 2001). Although this is the primary function of any newspaper,

specialized newspapers have become particularly valuable channels of communication for underserved populations—populations that might not have regular access to mainstream media, or whose first language might differ from that used in a mainstream source (Viswanath and Lee 2007). Underserved populations may benefit from news sources that cater to their specific needs, whether through culturally relevant content, a familiar language, or by providing a platform to communicate concerns of the population to society as a whole (Yu 2017; Yu 2018a; Walter et al. 2019; Yu and Matsaganis 2019). For instance, Spanishlanguage newspapers provide useful information to recent immigrants and those who are not proficient in English, while at the same time offering news from a culturally congruent perspective. Further, ethnic media often act as a watchdog for the communities they serve by providing information on immigrants' rights, welfare, and other topics related to the wellbeing of the population that they serve (Viswanath and Arora 2000; Yu 2018b). Taking all of this into account, it is no surprise that research has shown culturally specific news media can be effective and persuasive for these populations (Kreuter and McClure 2004; Hoffman-Goetz and Friedman 2005; Walter et al. 2019).

Health news coverage is commonplace in ethnic news media. In fact, research has shown that ethnic news media are more likely to provide health-related news stories and promote healthy behaviors than are their mainstream counterparts (Stryker, Emmons, and Viswanath 2007). Thus, it is possible that increased exposure to ethnic news media could cultivate increased knowledge about disease prevention behaviors. Comparative studies have examined the health information coverage in newspapers targeted to ethnic populations and the general public. In separate studies, Cohen et al. (2008) and Stryker, Emmons, and Viswanath (2007) both found ethnic newspapers to contain more information about cancer prevention than did mainstream papers. Ethnic newspapers may also facilitate access with lower literacy levels than do their mainstream counterparts (Stryker, Emmons, and Viswanath 2007). Consequently, these news sources tend to be more accessible for populations with lower education levels, as well as those with limited English proficiency. Moreover, rather than adhering strictly to the role of objective informer, ethnic news media often pursue media advocacy initiatives that engage their communities and attempt to narrow knowledge gaps and health disparities (Freimuth and Quin 2004).

#### Learning from Ethnic News Media

It is clear, then, that ethnic newspapers hold promise for health information delivery. Nevertheless, health communication practitioners should be cautious of the possible implications of delivering simplified health information. For instance, a content analysis of Jewish and provincial newspapers in Canada found that ethnic newspapers offered considerably more information regarding the genetic risks of breast cancer, but also that the information was often unclear and confusing (Donelle, Hoffman-Goetz, and Clarke 2008). Similarly, Stryker et al. (2009) found that, due in part to a lack of resources and a desire to accommodate traditionally undereducated minorities, ethnic newspapers sometimes struggled to communicate cancer risks accurately. These types of newspapers are small and sustained by limited local resources, which can sometimes lead to information distortions (Close et al. 2006) or the absence of local stories (Yu 2018b).

Such distortions have the potential to limit learning from news coverage. However, despite growing literature examining the content of newspaper coverage, there is a

lack of research on the effects that such coverage has on news learning (King et al. 2018), especially for ethnic subpopulations (Stryker, Emmons, and Viswanath 2007). Given this, it is important for researchers to continue to unpack the complex relationship between news exposure and news learning, examining processes that may mediate this pathway. Toward this end, in a previous study the Author (2018) conducted a study aimed at explicating the relationships between motivations, surveillance, and news learning within an ethnic subpopulation. The findings revealed that the interaction between news consumption and health motivation was related to cancer screening behaviors.

## **Cognitive Mediation Model**

First articulated by Eveland (1998, 2001), the cognitive mediation model seeks to explain the relationship between the audience's motivations, engagement with news content, and news learning. The model states that news learning is predicted by three distinct elements: news surveillance motivation, attention, and elaboration. News surveillance motivation refers to scanning and searching information sources for potentially relevant material. According to the model, this motivation will be indirectly related to news learning by increasing an individual's attention to information as well as the amount of time that the individual will spend reflecting upon the message he or she received—a process referred to as elaboration. The CMM provides a useful theoretical framework for understanding the relationship between engagement with news stories, news learning, and ultimately, behavioral change. And while the CMM has been tested in a variety of contexts and populations with various degrees of success (e.g., Eveland 2002; 2004; Oeldorf-Hirsch 2018), there is still a clear need to clarify (a) the relationships between these variables and (b) the moderators and mediators that affect these relationships. This is particularly so for ethnic subpopulations, given the realities of ethnic news media discussed above.

In a test of the CMM, Eveland and Dunwoody (2010) compared web-based and traditional (print) media exposure and found that both elaboration and selective scanning act as mediators of news learning. Using an experiment crafted to determine the difference between learning through print and digital media, the researchers found that web-based media encouraged higher levels of reflection upon the message. At the same time, however, using digital media also decreased learning through increased selective scanning. Thus, elaboration mediated the interaction between exposure to the news and news learning—a valuable insight when determining the variables that influence how news is consumed by different populations, how those populations learn from news, and how news learning among those populations might be increased.

Similarly, Jensen (2011) found evidence supporting the model within the context of cancer news coverage and learning. In that study, news surveillance motivation was positively related to story comprehension but was not related to recall of specific facts, supporting the notion that being able to recall facts does not result in actual comprehension. Jensen also found that elaboration mediated the relationship between news surveillance motivation and story comprehension, thus providing evidence that surveillance motivation stimulates greater reflection (i.e., elaboration), which in turn predicts news comprehension. Finally, the study provided evidence that attention to health news stories acted as a moderator for the indirect relationships. Taken together, then, these results support continued examination of variables and interactions that constitute the CMM, specifically the role that motivation and attention play in news learning. Thus, our first hypothesis is as follows:

H1: The relationship between news surveillance motivation and knowledge will be serially mediated by attention and elaboration.

Notably, the CMM was formulated to explicate the process of knowledge acquisition in general audiences exposed to mainstream media (Eveland 2001). As a result, this model may need refinement in order to explain the same process in different target populations exposed to different types of media. Indeed, testing alternative variables within the CMM, related to the population or content area at hand, is an emerging theme within CMM research (see, e.g., King et al. 2015; Kim, Chadha, and Gil de Zúñiga 2018). With this in mind, we refined the model by including variables that provide an approach better suited to our sample population.

One of the driving components of the cognitive mediation model is attention to news media. In order to learn from news media, the model suggests, an individual must be interested in the information presented. However, for English as a second language (ESL) populations, measuring attention to news in general may not adequately operationalize the concept because individuals may not be able to access or understand mainstream news written in English. Thus, a more context-specific variable offers an optimal substitution for attention. In the CMM, attention is operationalized as how interested an individual is in news media; in the present study, we substitute attention to ethnic news media. For this subpopulation, readership of ethnic news sources such as *La Raza*, which are specifically targeted to this community, can provide a better approximation of attention to news. Thus, our first research question is as follows:

RQ1: For the target readership, is a context-specific variable for attention such as consumption of *La Raza* an optimal substitute for news media attention in the CMM?

Further, the CMM was created to explain news learning for general information rather than learning in a specific context. Given that, another intriguing alternative is replacing surveillance motivation with health maven. First identified in marketing research, mavens were explicated as "subject matter experts across broad categories" or "generalized opinion leader(s)" (Boster et al. 2011, 181). Mavens are individuals that others go to for information and assistance across a wide-range of topics. Boster et al. (2011) transferred the construct from marketing to research on health behavior, and redefined mavens as health mavens. Health mavens "have knowledge of a broad range of health behavior and health topics" and "enjoy volunteering health information to others" (182). Subsequent research validated their measurement approach and demonstrated that they are sought after and valued sources of health information (Boster, Carpenter, and Kotowski 2015). To date, studies have examined health mavens in college student populations (Boster et al. 2011; Boster, Carpenter, and Kotowski 2015), professional staff at a high school (Boster, Carpenter, and Kotowski 2015), and a nationally representative U.S. sample (Sun, Liu, and Krakow 2016). The current study extends this research by exploring health mavens in the context of a low-income, Spanish-speaking Latino sample.

Health maven could replace surveillance, attention, or elaboration in the CMM. However, health maven-ness seems most akin to a motivation, a reason for engaging a

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particular content area or source of information. Moreover, health mavens may be more meaningful in lower income populations where access barriers and information hurdles could lead individuals to identify more as generalized health information acquirers rather than just news surveyors. Thus, in the current study, we investigate whether health maven is a viable replacement for surveillance motivation in the CMM.

RQ2: Is maven an optimal substitute for surveillance motivation in the CMM?

## Method

## **Participants**

Participants (N = 150) for this study were low-income, Spanish-speaking, Latino adults from a Northwestern Indiana county. All individuals participating in the program were at or below 200% of the poverty line, a threshold routinely utilized by the state of Indiana to identify individuals needing assistance. The sample consisted of mostly women (n = 126) with an average age of 38 years (M = 38, SD = 13.08) and ranging from 18 to 79. On average, participants had completed the seventh or eighth grade (M =3.85, SD = 2.11) and ranged from *no formal education* (n = 12) to completed college (n =7). Most of the participants reported not having health insurance (n = 90).

## Procedure

Two bilingual university extension employees, who regularly work with low-income Latino populations, assisted in identifying participants in Lake County, an impoverished county in Indiana. As context, university extension employees meet with approximately 20 clients per day, 5 days a week. The purpose of the meetings is to provide low-income residents with information about assistance programs and to help them apply for those programs. Participants were recruited during regularly scheduled home visits. Thus, all data collection occurred in the participants' homes using pen and paper survey instruments. The extension employees were trained by the research team to administer the surveys. Participants were invited to ask the survey administrator to read any section of the questionnaire, as well as the response options. It took approximately 20 min for participants to complete the survey instrument. Participants received \$10 in cash as compensation for their time.

Researchers provided a consent form (in Spanish) to participants. After gaining informed consent, the participants were given a four-page survey written in Spanish. A professional translation service, with certification for medical and legal translation, translated all documents and scales from English to Spanish.

## **Measures: CMM Variables**

Measurement remains a challenge for CMM research. Eveland (1998, 2001) provided measurement options for surveillance, attention, elaboration, and knowledge, but also acknowledged that, surveillance aside, significant psychometric research was needed. That still remains the case. The current study followed Eveland's recommendation, and past measurement practice (e.g., Jensen 2011; King et al. 2015). That yields a mixture of different measurement approaches and scale lengths.

Surveillance Motivation. Participants completed an 11-item measure of surveillance motivation (5 items from Eveland, Shah, and Kwak 2003; 6 items from Levy 1978). This scale measures the respondents' drive to regularly remain informed through news consumption and asks questions such as: "I follow the news because I like to get the news first so I can pass it on to other people." Participants responded using a 5-point scale ranging from strongly disagree to strongly agree ( $\alpha = .93$ , M = 2.76, SD = .88).

Attention to Health News. Attention to health news was measured using two items. The first is an item from the National Cancer Institute's Health Information National Trends Survey (HINTS) that has been utilized in past research with the CMM (Jensen 2011): "In general, how much attention do you pay to health or information related to health on the news?" The respondents answered using a 4-point scale: *none, a little, some, a lot.* The second was an item taken from a larger eight-item index that asked participants, "When you read news, what type of stories tend to catch your eye?" with eight categories to respond to (local news, international news, sports news, health news, home and garden, business, opinion/editorial, entertainment) on a four-point scale: *never read, sometimes read, usually read, always read.* The health news item was combined with the HINTS item to form a measure of attention to health news (two item scale: r = .39, Spearman-Brown = .56, M = 2.86, SD = .78).

*Elaboration.* Elaboration or reflecting on information gathered from the media was measured using a three-item scale developed by Beaudoin and Thorson (2004) for their test of CMM. Items include "Often when I learned about something in the news, I will recall it later and think about it", "I often interpret news stories in a way that helps me make sense of them," and "I rarely spend time thinking about the news stories that I read or heard earlier." The latter significantly hindered the reliability of the scale ( $\alpha = .63$ ), and so it was dropped. Participants responded via a 4-point scale ranging from *strongly disagree* to *strongly agree* (two item scale: r = .63, Spearman-Brown = .77, M = 2.95, SD = .78).

*Cancer Prevention Knowledge.* There is no validated measure of cancer prevention knowledge. Thus, a new index was created consisting of five items designed to assess knowledge of cancer prevention. The items were developed to assess basic cancer prevention facts that appeared in *La Raza* in the prior 6 months: "Assuming a person has no family history of cancer, at what age should they first be screened for colorectal/colon cancer?" "What three behaviors account for at least 50% of all cancers?" "What are the five most common cancers in the United States?" "Human Pamplona Virus (HPV) causes what type of cancer?" "What are warning signs of cancer?" Responses to the items were coded as *correct* (0) or *incorrect* (1) (Kuder-Richardson 20 = .61; M = 1.05, SD = 1.26).

#### **Measures: Alternative Constructs for CMM**

Ethnic Newspaper Consumption. Ethnic newspaper consumption focused on La Raza, a Spanish-language newspaper published in Chicago, IL. Participants reported having never seen nor heard of the paper = 0, having seen the paper = 1, occasionally reading the paper = 2, or regularly reading the paper = 3. The categories for ethnic newspaper consumption were based on interviews with the target population. If they had read the newspaper once or twice, it was typical for participants to describe that as "having seen it" as compared to reading it on a more routine basis which they labeled as "occasionally read the paper" or, if they read it frequently, as "regularly reading the paper." The average

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participant reported having seen the newspaper (M = 1.85, SD = .90). It is important to note that *La Raza* was selected for this study for two reasons: (1) consumption of *La Raza* has been related to health behaviors in the past (King et al. 2018) and (2) *La Raza* was running a series of stories on health issues facing the community with a focus on cancer.

*Health Maven*. Health maven was measured using five items from Boster et al. (2011), including "When I know something about a healthy lifestyle topic, I feel it is important to share that information with others," "I like to be aware of the most up-to-date health lifestyle information so I can help others by sharing when it is relevant," and "If someone asked me about a healthy lifestyle issue that I was unsure of, I would know how to help them find the answer." Participants responded on a five-point scale from strongly disagree (1) to strongly agree (5) ( $\alpha$  = .80, M = 4.08, SD = 1.03).

## Analysis

PROCESS is a path analysis tool that allows researchers to test both direct and indirect effects (Hayes 2013). PROCESS model 6 was utilized in the current study as it tests a serial mediation model consistent with the theoretical model outlined by Eveland (2001). Model 6 tests multiple indirect paths at the same time (e.g., surveillance  $\rightarrow$  attention  $\rightarrow$  elaboration  $\rightarrow$  knowledge, and surveillance  $\rightarrow$  attention  $\rightarrow$  knowledge) and quantifies the direction, significant, size, and confidence of the result.

## Results

## **Bivariate Correlations**

Bivariate correlations were calculated between all variables (see Table 1). Consistent with the basic logic of the CMM, surveillance, attention, and elaboration were all positively related. Only attention was positively related to knowledge. Consumption of *La Raza* was positively related to surveillance, elaboration, and maven. Maven was also correlated with surveillance, attention, elaboration, knowledge, and gender. education and negatively related to elaboration. Health motivation was positively related to surveillance motivation, elaboration, and age.

## Test of the Original CMM (H1)

The CMM posits that the relationship between news surveillance motivation and knowledge will be serially mediated by attention and elaboration (Figure 1). PROCESS model

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Surveillance	_								
2. Attention	.21*	_							
3. Elaboration	.48***	.41***	_						
4. Knowledge	.03	.22**	.03	_					
5. La Raza	.50***	.11	.23**	.07					
6. Maven	.52***	.23**	.31***	.16†	.27***	_			
7. Age	.23**	.07	.05	.06	.07	.09	_		
8. Gender	.05	.11	07	.18*	.05	.21**	.05	_	
9. Education	11	.13	.02	.19*	01	.10	11	.03	_

Table 1. Bivariate	Correlation	Matrix
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Note. Bivariate correlations between all study variables. †p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .01



Figure 1. Original CMM.

6 was utilized to test a serial mediation model with news surveillance as the independent variable, cancer prevention knowledge as the dependent variable, and attention and elaboration as mediators. The serial mediation model was not significant, B = -.01 (.01), 95% Cl: -.0376, .0094 (see Figure 2). An examination of the model revealed that elaboration was not significantly related to knowledge. Thus, H1 was not supported.

Notably, however, there was a significant indirect effect through attention, B = .08 (.04), 95% Cl: .0162, .1745. News surveillance was related to increased attention which was positively related to cancer prevention knowledge.

## Test of Modified CMM (RQ1 and RQ2)

Though the original CMM was not supported, RQ1 and RQ2 queried whether contextspecific variables (i.e., consumption of *La Raza*, maven) would be optimal replacements of attention and surveillance, given the population and outcome of interest. To examine these possibilities, two serial mediation models were tested replacing attention with *La Raza* consumption or maven.

The model with *La Raza* replacing attention did no yield significant mediation: B = -.00 (.01), 95% CI: -.0146, .0117 (see Figure 3). The model with maven replacing surveillance did not yield significant serial mediation, B = -.01 (.01), 95% CI: -.0448, .0050 (see Figure 4), but there was a significant indirect path through attention, B = .06 (.03), 95% CI: .0190, .1537. Health maven was positively related to attention which, in turn, was positively related to knowledge.

## Follow-up Analysis

Given the results, a fourth serial model was tested with surveillance motivation as the independent variable, knowledge as the dependent variable, and maven and attention as serial mediators. The model explores whether individuals who are high in news surveillance are



**Figure 2.** Original CMM. N = 150. Indirect path through attention is significant: B = .08, Boot SE = .04, Boot 95% CI: .0162, .1745. \*p < .05.

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**Figure 3.** Modified CMM – La Raza consumption replaces Attention. N = 150. No significant indirect path. \*p < .05.



**Figure 4.** Modified CMM – Maven replaces Surveillance. N = 150. Indirect path through attention is significant: B = .06, Boot SE = .03, Boot 95% CI: .0190, .1537. \*p < .05.



**Figure 5.** Modified CMM – Surveillance and Maven both in the model. N = 150. Serial path through maven and attention is significant: B = .03, Boot SE = .02, Boot 95% CI: .0036, .0761. p < .10, p < .05.

also drawn to health maven-ness which, in turn, influences attention to health news and knowledge. Serial mediation was supported for that model, B = .03 (.02), 95% CI: .0036, .0761 (see Figure 5). Surveillance was positively related to maven, which was positively related to attention, and attention was positively related to knowledge.

## Discussion

The current study examined health news learning in the context of a sample of lowincome, Spanish-speaking Latino adults in the state of Indiana. While the full CMM was not supported, a significant indirect relationship emerged between news surveillance motivation and cancer prevention knowledge through attention. News surveillance increased attention, which in turn was positively related to cancer prevention knowledge. Put another way, high surveillance motivation may be enough to elicit attention and have an effect on knowledge, apparently without requiring elaboration of the information presented. Of course, the latter point raises questions about elaboration as an ambiguous concept within CMM research (Jensen 2011). Even though the CMM builds on past elaboration-focused research – for example, the elaboration likelihood model (Petty and Briñol 2012; Briñol and Petty 2015) – measurement issues remain. Specifically, how can researchers accurately measure the construct of elaboration in a cross-sectional survey, and does that operationalization have meaning within news learning models? Future research should continue to examine the theoretical underpinnings of the concept and explore a reliable means of measuring it consistent with the explication provided in the CMM. As a starting point, a reliable measure of elaboration can be found in Gil de Zúñiga (2017).

While the CMM did not yield significant results in its original form, we hypothesized that this might be because the model was originally created to understand the relationship between news consumption and news learning for general information and a general audience. For this study, we tried to find optimal substitutes for these variables. The model was modified by substituting consumption of an ethnic newspaper, namely *La Raza*, with attention, and surveillance motivation with health maven. Similar to surveillance motivation, the relationship between health maven and knowledge was mediated by attention. This suggests that a viable basic model may be motivation  $\rightarrow$  attention  $\rightarrow$  knowledge as both surveillance motivation and health maven have underlying motivational qualities (and similar result patterns). Future research should continue to examine substitutes in the model to explicate news learning for linguistic minorities rather than general audiences.

A viable serial mediation model did emerge, namely surveillance  $\rightarrow$  maven  $\rightarrow$  attention  $\rightarrow$  knowledge. A case could be made for a slightly different ordering: maven  $\rightarrow$  surveillance  $\rightarrow$  attention  $\rightarrow$  knowledge as health maven-ness might drive surveillance motivation (rather than the other way around). In the current data, variable ordering is relatively arbitrary because the data were all collected at a single point in time. However, future research could investigate variable ordering with longitudinal data. In a larger sense, the supported serial mediation model hints at an intriguing possibility: might news learning be driven more by external motivations (i.e., opinion leadership) than internal processes (i.e., elaboration)? It is possible that this is true for news learning in general, or perhaps just for the population at hand. Continued investigation of health maven, as a construct and variable within a news learning model, is of import.

Finally, future research should consider the evolving nature of ethnic news media (Yu and Matsaganis 2019). Concerns have been raised about the decline in local stories, a situation that could alter or minimize the impact of ethnic media on local populations (Yu 2018b). Scholars have also noted the challenges and opportunities facing ethnic media in a digital age (Yu and Matsaganis 2019). These shifts underlie a need to conceptualize news learning models within the shifting landscape of ethnic media as well as to account for deepening understanding of the audience (Yu 2017) and news learning in digital contexts (Oeldorf-Hirsch 2018).

## Limitations

One of the limitations of this study is the operationalization of elaboration. Past research has identified it as an ambiguous concept (Jensen 2011) and although we used Beaudoin and Thorson's (2004) three-item scale, it is still unclear if that measure adequately captures the concept. Like the measure of elaboration, the utilized attention measure has limitations as it only contains two items. Because this study focused on Spanish-speaking, low-income Latinos, the generalizability of our results is limited. Other ethnic and linguistic

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minorities within the United States might process and engage with ethnic news media differently. For this test, we modified the CMM to explain the ways in which health information in news media can affect health knowledge, specifically cancer. Consequently, these results cannot be generalized to include other types of information.

## Conclusion

News media have become a rich source of health information. However, research shows that some groups benefit more from such coverage than do others (Viswanath et al. 2006). Thus, understanding the ways in which target populations consume, process, and engage with health information is essential to promoting healthy behaviors within these populations. By testing the CMM within a health news context and with a linguistic and ethnic minority sample, we sought to extend the generalizability of the model. Further research should focus on trying to understand how these populations consume news and the ways in which media consumption can promote healthy behaviors.

If researchers and practitioners want to communicate effectively with diverse populations, more research should be conducted in order to understand the relationship between consumption of news media and news learning. In the context of health in particular, it is essential to understand the ways in which individuals can learn from ethnic news media because these sources offer an opportunity to address traditionally underserved populations. Health communication practitioners should understand how individuals learn from the news, in order to encourage healthy behaviors and transmit valuable health information. This understanding may go at least some distance toward overcoming problematic disparities in health and knowledge that characterize many segments of the U.S. populace.

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