

# **The Role of Social Media and Social Networking as Marketing Delivery Systems for Preventative Health Care Information**

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## **Introduction**

Prevention must be the cornerstone of the healthcare system rather than the traditional reactive or symptomatic approach that currently prevails (BCC Research 2009; Gagnon and Sabus 2015). Preventive Health Care (PHC) is care resulting from the awareness and efforts a person undertakes to enhance and preserve physical, mental, and emotional health for today and the future (Cangelosi and Markham 1994). At the broadest level, PHC includes care such as over-the-counter prescription, programs to curb smoking or overeating, and advanced genetic testing to identify a predisposition to certain cancers and other health issues. It also includes innovative products such as wrist watches to track biometric data. The implications of the need and importance of PHCI are evidenced by escalating health care costs, which were an estimated \$3.0 trillion in 2014, while consuming 17.5% of Gross Domestic Product. This staggering cost is the equivalent of \$9,523 per capita (*National Center for Health Statistics* 2016).

For a PHC system to work, preventive health care information (PHCI) must be readily available. Several factors account for why persons may seek or ignore PHCI. These include attitudes about preventive health, differences in age, income and educational level, and cultural background (Dutta-Bergman 2005; Satcher and Higginbotham 2008). In addition, consumers respond differently to the various ways in which PHCI is delivered (Bloch 1984; Cline and Hayes 2001; Dutta-Bergman 2004; Thomas 2009).

Prevention requires a fundamental change in the way individuals perceive and access the healthcare system, and the way healthcare is delivered. An estimated 75% of health care costs are related to preventable illnesses (Velasco 2013). Hence, changing behavior is increasingly at the heart of healthcare. The old model of healthcare, a reactive system that treats illnesses after the fact, is evolving into one more centered on patients and prevention. 69% of total health care costs are heavily influenced by consumer behaviors, pointing to the need to reorient health systems toward prevention (McKinsey and Associates 2012).

For the last 5-10 years, the internet has been and continues to be rated as the single most important means of accessing PHCI (Cangelosi, Ranelli, and Kim 2012). Although most health-related information acquired from the Web addresses symptomatic issues, the quest for PHCI is becoming increasingly more prevalent (Freudenheim 2011). When one considers that almost 89% of the U.S. population is online, the power for delivering PHCI electronically cannot be underestimated (Internet World Stats, 2016).

Traditional internet search and browsing have been greatly facilitated and expanded by social media. Social media (SM) is a vehicle for people to share ideas, content, thoughts, and relationships online. It differs from traditional print, audio and video media in that anyone can create, comment on, and add to SM content (Scott 2013). Even though early efforts to document the impact of SM have not been encouraging, the potential for SM to deliver PHCI cannot be overlooked (Cangelosi, Ranelli, and Kim 2013). Long before the arrival of SM, research had suggested that purchase preferences would be affected much more by recommendations from personal networks (family, friends and peers) than by traditional advertising. SM draws people closer together, especially those who would not be part of a relationship if not for SM. As such, it may effectively deliver PHCI (Direct Marketing News 2011; Hawn 2013).

Past studies have examined the tendencies of health consumers to access and apply PHCI in their lives (Cangelosi,

Ranelli, and Markham 2009), the various delivery systems for symptomatic issues (Cangelosi, Ranelli, and Kim 2013), and social media and networking (SM&N) channels preferred by health consumers (Cangelosi, Ranelli, and Kim 2015). Because individuals respond differently to health information, producers and distributors of PHCI must have a better understanding of what health consumers seek in using SM&N. Also, to deliver PHCI to different target markets requires what people seek in SM&N. To this end this study examines which SM&N platforms are most important to health consumers identified by demographics.

### **Background Information**

The spread of SM use can widely be understood as a bottom up, consumer-driven process that is changing the demand for access to health information, including PHCI. Web 2.0 or the read-write web gave the ability to accommodate internet users desiring to use, create, share, edit, and interact with online content. This aspect of Web 2.0 made possible the development of SM&N sites (Kaplan and Haenlein 2010). It is a departure from the traditional Web 1.0, which was read-only content (Gagnon and Sabus 2015).

The use of SM&N in healthcare is widespread. At the end of 2012, 67% of American adults with Internet access had used some form of SM, and 59% had used the Internet to look for health-related information (Brenner 2013; Fox and Duggan 2013). In addition to the traditional SM platforms such as Facebook and Twitter, Americans use a number of SM platforms that permit them to connect and collaborate with other people who have the same health issues or may want to participate in a research study (Ramo and Prochaska 2012). Reported benefits of using various health-related SM&N platforms (e.g., PatientsLikeMe) include a better understanding of one's medical condition, better sense of control in managing one's health, and improvement of treatment adherence. It should be noted that the U.S. health industry incurs an estimated \$100 billion extra per year because patients do not follow their treatment protocol (Osterberg and Blaschke 2005).

The goal of this study is to assess the importance of various SM&N platforms and sources as delivery systems to access PHCI. The various SM&N sources are analyzed through different demographic groups that have been researched earlier (Cangelosi, Ranelli, and Kim 2015). The SM&N platform research questions that are addressed are as follows:

- 1) In the aggregate, how important are the various SM&N platforms as delivery systems of PHCI?
- 2) Which of the various SM&N alternatives or combinations of alternatives are considered most important by health consumers?
- 3) More specifically, and for gaining insights into health consumer preferences, what are the demographics of health consumers that consider SM&N more important?

The importance of this research emanates from the growing body of knowledge of how social networking technologies can be used by health consumers. Some of the possibilities and applications are as follows:

- 1) Social networking technologies can provide patients with the ability to seek support, community, and second opinions in dealing with the ups and downs of their health condition (Bhatt and Quigley 2012).
- 2) Assisting health care consumers with online technologies helps in the management their health (Hawn 2009).
- 3) Technological aids to help track physical activity, biometric information, and sharing of health-related information (Gagnon and Sabus 2015).
- 4) Research indicates that SM can better prepare patients for medical appointments and for informing patients about their health condition (Alsughayr 2015).
- 5) With the vast majority of internet users looking for health care information online, which SM&N Alternatives best assist health consumers in finding information for self-diagnosis or diagnosis for others (Gagnon and Sabus 2015).
- 6) Social networking approaches have the potential to revolutionize the way people collaborate, identify potential collaborators or friends, communicate with each other, and identify information that is relevant

to them.

- 7) Social media can assist modern medicine as it moves away from being hospital-based and other closed structures and systems within healthcare and medicine (Eysenbach 2008). Social media platforms with their interactive nature, allow for information to be shared in a viral fashion to change behaviors and fight against unhealthy lifestyles (Santoro 2013). In addition, mobile apps can track caloric intake and physical activities aiding weight loss (Carter et al. 2013). Hence, digital technology helps health consumers engage in social networking, participation, openness and collaboration within and between health user groups?
- 8) A survey of more than 4,000 physicians found that 90% of physicians use SM for personal activities, whereas 65% use SM for professional reasons. Both personal and professional use by physicians is increasing (Ventola 2014).

## **Methodology**

The target population for this study was the United States. The sample frame consisted of a two million member online consumer panel owned by an online database vendor. The process involved three entities: the researcher, an online host for questionnaires, and the online consumer panel vendor that leases email addresses to researchers for a specified amount per usable response. The questionnaire was posted by the online host, and the online database vendor downloaded the email addresses. For this particular study, the survey resulted in 930 usable responses.

A comprehensive questionnaire consisting of 200 questions, dealing with PHCI and various SM&N as delivery systems for the information was developed.

- The questionnaire utilized 9 demographic characteristics and 28 possible social media and networking platform variables, for those seeking preventive and general health information.
- The itemized rating scale used to measure the importance of each SM&N variables for finding PHCI ranged from 1 to 4 where 1=very important, 2=somewhat important, 3=somewhat unimportant, and 4=very unimportant, with 2.5 being the scale midpoint.

## **Data Analysis**

A summary of the demographics of the survey indicate a sample balanced closely to the demographics of the US. To highlight, the survey indicated the following: 90% had some sort of health insurance, 42% had an employer with a health promotion or wellness program, 51% were women, 51% were employed full time, 67% were Caucasian, 12% were African American, and 13% were Hispanic, 60% were married or cohabitating, 42% had an associates or bachelor's degree, and 41% had annual incomes less than \$50,000.

Table 1 details the SM&N platforms tested in this research. It summarizes all 28 SM&N variables by the health consumer's mean response, and the percentage of respondents indicating the SM&N platform was a "very important" source of PHCI. The five (5) SM&N platforms that health consumers considered most important are indicated in the darker shaded area of Table 1. Additional platforms that were considered indifferent or of some importance are in the lighter shaded area. The rest of the platforms in the non-shaded area were considered to some degree not important.

The five SM&N's of greatest importance were also those (except for Facebook) that had more respondents acknowledging, were a mix of traditional search engines (Google, Yahoo, etc), hybrid medical sites (WebMD, Mayo Clinic, John Hopkins) and Health Insurance Provider Websites. The lighter shaded group consisted of several hybrid sites, such as Cleveland Clinic, MD Anderson and "Other Hospital Websites," as well as health forums, blogs, public health and employer provided healthcare websites. Additionally, several sites indicate a movement toward a greater tendency to share health concerns via social media, as 24.3% of the respondents considered Facebook a very important source of PHCI. Previous studies including Facebook as a PHCI source were not encouraging (Cangelosi, Ranelli, and Kim, 2013). In fact, Facebook was evaluated as a potential platform for PHCI more than any of the other SM&N platforms, being cited by 896 of 930 total respondents.

Another movement evolving is the increasing importance placed on health webinars and YouTube. Finally, the last new source being considered with increased importance is Smartphone APPS.

The SM&N platforms of less importance included healthcare podcasts and listserv’s, some of the popular social media platforms (Twitter, Pinterest, Instagram, Tumblr, Flickr) comprised five of the six least important sources of PHCI. Platforms which had higher levels of importance, but still mean values less than the scale midpoint were newer health websites such as Microsoft Vault, Apple’s Health Kit, and WhatsApp Messenger. All of the Mean Importance values and the percent of “very important” responses are in Table 1.

**Table 1: Importance of Social Media & Networking Platforms: Mean Value and Percent “Very Important”**

<b>SOCIAL MEDIA &amp; NETWORKING PLATFORMS</b>	<b>No. of Responses</b>	<b>Mean Scores</b>	<b>% Very Important</b>
Q16.27-Internet Search Engines/Browsers (Yahoo, Google, etc.)	891	1.78	<b>45.0%</b>
Q16.10-WebMD Website	863	1.79	<b>46.2%</b>
Q16.9-Mayo Clinic Website	785	1.92	<b>42.5%</b>
Q16.28-Health Insurance Provider Website	834	2.04	<b>32.9%</b>
Q16.13-John Hopkins Website	693	2.06	<b>39.0%</b>
Q16.11-Cleveland Clinic Website	652	2.21	<b>32.4%</b>
Q16.5-Health-Related Weblogs or blogs	815	2.23	<b>29.0%</b>
Q16.18-Health Forums	727	2.29	<b>25.9%</b>
Q16.15-Wikipedia	850	2.33	<b>25.1%</b>
Q16.12-MD Anderson Website	607	2.34	<b>28.7%</b>
Q16.23-Online Public Health Service Publications	711	2.35	<b>23.2%</b>
Q16.19-Health Webinars	690	2.38	<b>24.6%</b>
Q16.22-Smartphone Apps	775	2.39	<b>24.0%</b>
Q16.20-Other Hospital Social Media Websites	682	2.40	<b>24.2%</b>
Q16.14-YouTube	841	2.46	<b>24.3%</b>
Q16.1-Facebook	896	2.47	<b>24.3%</b>
Q16.26-Employer Provided Websites	741	2.50	<b>19.6%</b>
Q16.25-Health-Related Podcasts	671	2.53	<b>20.9%</b>
Q16.7-PatientsLikeMe	603	2.64	<b>19.4%</b>
Q16.24-Health-Related Listserv’s	584	2.66	<b>17.8%</b>
Q16.21-Apple’s Health Kit	595	2.66	<b>19.8%</b>
Q16.17-Microsoft Health Vault	575	2.67	<b>18.3%</b>
Q16.2-Twitter	807	2.79	<b>16.4%</b>
Q16.6-Pinterest	785	2.81	<b>15.4%</b>
Q16.4-Instagram	772	2.90	<b>14.5%</b>
Q16.16-WhatsApp Messenger	640	3.03	<b>10.3%</b>
Q16.3-Tumblr	708	3.08	<b>9.5%</b>
Q16.8-Flickr	654	3.19	<b>6.6%</b>
NOTE: Lower Values indicate <b>greater</b> importance as a delivery system for or source to find PHCI			
SCALE: 1=very important, 2=somewhat important 3=somewhat unimportant, 4=very unimportant <b>2.5=scale midpoint or point of indifference</b>			

The next step in the analysis was to look at the 28 SM&N platforms to see if respondents evaluated them in a pattern in which they co-vary together, and could be placed into groupings of a general type of platform. Hence, factor analysis would examine the underlying dimensions of the 28 SM&N platforms and create a more manageable set of measures.

To test the data for its suitability for factor analysis, the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and Bartlett's test of sphericity were run. The KMO test had a value of .973, which is well above the minimum of .7, regarding the data's suitability for principle component analysis. Bartlett's test was significant (chi-square value=14088/429, degrees of freedom=378, Sig.=.000) which suggests sufficient correlation among the variables for factor analysis (Meyers, Gamst, and Guarino 2006).

The varimax rotation of factor analysis produced 3 significant components: SM&N1, SM&N2, and SM&N3. Table 3 provides details for the 3 composite factored variables (CFV's). Table 4 summarizes each of the CFV's; SM&N1, SM&N2, and SM&N3, by the description of the composite factor loading, percent of variance explained, and mean response score.

The descriptions of each of the CFV's (SM&N1-3) are contained in Table 2, which has the individual variables in each CFV, and in Table 3, which has the CFV label for each SM&N, as well as the average factor loading, percent of variance explained and mean score. These are all averages for each of the 3 composite SM&N's. The results of Tables 2 and 3 clearly indicate that health consumers consider traditional digital sources (SM&N3) the most important. This CFV was evaluated more (855 respondents) and had a mean score (2.03) indicating greater importance to the health consumer. It did not account for as much variance, having only 4 variables in its composite, and had the lowest average factor loading, due to the variable Health-Related Weblogs or Blogs, which had a very low factor loading (.494), and whose factor loadings were almost as high for the other 2 CFV's (.483 and .440). This variable could have been deleted from the analysis, but was kept as it was the 7th most important SM&N (2.23) of the 28 individual SM&N variables. The hybrid digital sites, including prestigious hospital websites (Mayo Clinic, John Hopkins, etc.), health forums, employee and insurance websites, Listservs and podcasts comprised SM&N1, which on average was 2nd most important to health consumers (2.36), and explained almost 32% of the variance.

**Table 2: Factor Analysis with the Varimax Rotation for SM&N Platforms and Networks**

Social Media Platform or Network	SM&N1	SM&N2	SM&N3
Q16.9-Mayo Clinic Website	.671	.131	.501
Q16.11-Cleveland Clinic Website	.797	.213	.238
Q16.12-MD Anderson Website	.826	.301	.209
Q16.13-John Hopkins Website	.794	.216	.298
Q16.17-Microsoft Health Vault	.676	.559	.171
Q16.18-Health Forums	.731	.368	.341
Q16.19-Health Webinars	.780	.392	.272
Q16.20-Other Hospital Social Media Websites	.691	.434	.330
Q16.21-Apple's Health Kit	.647	.553	.198
Q16.23-Online Public Health Service Publications	.704	.421	.355
Q16.24-Health-Related Listserv's	.709	.510	.245
Q16.25-Health-Related Podcasts	.696	.476	.303
Q16.26-Employer Provided Websites	.626	.427	.313
Q16.28-Health Insurance Provider Website	.581	.258	.450
Q16.1-Facebook	.138	.701	.454
Q16.2-Twitter	.298	.788	.234

Q16.3-Tumblr	.313	.836	.083
Q16.4-Instagram	.220	.857	.198
Q16.6-Pinterest	.292	.752	.270
Q16.8-Flickr	.336	.832	.058
Q16.16-WhatsApp Messenger	.374	.734	.095
Q16.22-Smartphone Apps	.390	.563	.478
Q16.7-PatientsLikeMe	.524	.597	.276
Q16.14-YouTube	.278	.570	.544
Q16.10-WebMD Website	.479	.050	.689
Q16.15-Wikipedia	.331	.422	.591
Q16.27-Internet Search Engines/Browsers (Yahoo, Google, Bing, etc.)	.299	.167	.785
Q16.5-Health-Related Weblogs or blogs	.483	.440	.494
Variance Explained/Total Variance Explained=74.6%	31.70%	28.40%	14.50%
Average Factor for each Composite Factored Variable	0.709	0.723	0.639
Mean Response for each Composite Factored Variable	2.36	2.78	2.03
Average Number of Responses for each Composite Factored Variable	682	748	855

**Table 3: Composite Factored Variables and their Components**

Composite Variable	Generalized Description of SM&N Composite Variable	Composite Factor Loading	Percent of Variance Explained	Mean Score
SM&N1	Hybrid Electronic Sites including hospitals, webinars, employer, insurance and public health websites, listservs, and podcasts	.709	31.7%	2.36
SM&N2	Contemporary SM&N Platforms such as Facebook, Twitter, etc., YouTube, and specialized interactive sites such as WhatsApp Messenger, PatientsLikeMe, and Smartphone APPS	.723	28.4%	2.78
SM&N3	Traditional Digital Sources including WebMD, Wikipedia, Internet Search Engines, and Health-Related Blogs	.639	14.5%	2.03

Hence, prestigious hospitals that just a few years ago maintained only Web 1.0 sites (one-way information provision), are now interactive Web 2.0 sites, in which health consumers can acquire information, but also interact with via questions and second opinions. These sites are labeled “hybrid sites” for this study. The CFV considered least important to health consumers was SM&N2, which is comprised of contemporary social media platforms, such as Facebook, Twitter, Tumblr, Instagram and 6 more. It had the highest average factor loading, meaning health consumers were more like-minded in their evaluation of these social media platforms, but an average scale response of 2.78, which indicates a response that is not indicating any importance. However, while this finding is consistent with some previous studies (Cangelosi, Ranelli and Kim, 2013) individually, Facebook and YouTube had average responses (2.47, 2.46) indicating some degree of importance to health consumers. Hence, compared

to previous studies, one would have to conclude that the use of social media is increasing in the acquisition of PHCI, as evidenced by an average of 748 of 930 respondents evaluating the importance of SM&N2 social media platforms.

To examine and classify the 3 CFV's (SM&N's) by respondent demographics, ANOVA (Analysis of Variance) was invoked. The ANOVA process determined if there are any significant differences within each the groups of the demographic characteristics, for each of the SM&N's. In this study, 9 demographic characteristics were measured and are: Do you have (any type) health insurance; Employer Offers Health Promotion and Wellness Programs; Gender; Occupational Status; Age Category; Ethnic Category; Marital Status; Educational Attainment; and Household Income Category. The results of the ANOVA analysis for demographic variables with significant differences are contained in Table 4. Noticeably absent from the table are 3 variables, which did not have any significant differences between their demographic groups: 1) Do you have health; 2) Educational Attainment; and 3) Household Income Category.

The table contains the demographic variables with significant differences with the demographic groupings in each. Those demographic groups placing greater importance on the various SM&N possibilities are as follows:

- Those that place greater importance on SM&N1 (Hybrid Electronic Sites, including hospitals, webinars, employer and public health websites): persons with employers offering health promotion and wellness programs; those employed part-time or presently unemployed; persons aged 19-24; African-Americans; and those single-never married.
- For SM&N2, demographic groups indicating greater importance were persons with employers offering health insurance; those employed full-time or part-time; persons aged 19-24; African-Americans; and those single-never married.
- For SM&N3, demographic groups indicating greater importance were persons with employers offering health promotion and wellness programs; females; those employed part-time or presently unemployed; persons aged 19-24, 25-34, and 35-44; African-Americans; and those single-never married. The significant differences in demographic groups were very similar for the 3 CFV's (SM&N1-3), with gender (females) being significant for SM&N3, full-time employees being significant for SM&N2, and 3 age groups (19-24, 25-34- 35-44) indicating significantly more importance for SM&N3.
- Demographic groups indicating greater importance for all 3 SM&N's were those whose employers offer health insurance, being employed part-time, the 19-24 age group, African-Americans, and those single-never married.

Also, for demographic characteristics with significant differences regarding the importance of SM&N's, those showing more interest were much younger, African-American, single-never married and employed at least part-time. This might point directly to college students, who characteristically, work part-time, and are more likely not to be married. The greater interest shown by African-Americans is consistent with previous PHCI studies (Cangelosi, Ranelli and Kim, 2013).

**Table 4: ANOVA - Composite SM&N Platforms/Networks and Demographic Variables**

<b>Demographic Variable</b>	<b>SM&amp;N 1: Hybrid Electronic Sites: hospitals, webinars, employer websites</b>	<b>SM&amp;N 2: Contemporary SM&amp;N Platforms &amp; Networks</b>	<b>SM&amp;N 3: Traditional (WebMD, Wiki's, etc.) Digital Sources</b>
<b>Q21: Your employer offers health promotion or wellness programs</b>	Those responding YES Mean = 2.27 Confidence Level: 99.9%	Those responding Yes Mean = 2.60 Confidence Level: 100.0%	Those responding YES Mean = 1.97 Confidence Level: 99.5%

<b>Q23: Gender</b>	Not significant	Not significant	Female Mean = 1.99 Confidence Level: 97.7%
<b>Q27: Occupational Status</b>	Employed Part time, Mean = 2.27; Unemployed, Mean = 2.29; Confidence Level: 99.9%	Employed full time, Mean = 2.67; Employed part time Mean = 2.63; Confidence Level: 100.0%	Employed part time, Mean = 1.97; Unemployed, Mean = 1.95; Confidence Level: 96.4%
<b>Q22: Age Class</b>	Age 19-24 Mean = 2.02 Confidence Level: 100.0%	Age 19-24 Mean = 2.19 Confidence Level: 100.0%	Age 19-24, Mean = 1.76; Age 25-34, Mean = 1.92; Age 35-44, Mean = 1.97; Confidence Level: 100.0%
<b>Q24: Ethnic Background</b>	African-American Mean = 2.09 Confidence Level: 100.0%	African-American Mean = 2.37 Confidence Level: 100.0%	African-American Mean = 1.72 Confidence Level: 100.0%
<b>Q25: Marital Status</b>	Single, never married Mean = 2.18 Confidence Level: 100.0%	Single, never married Mean = 2.51 Confidence Level: 100.0%	Single, never married Mean = 1.94 Confidence Level: 100.0%

NOTE: lower mean values indicate greater overall importance for the SM&N Composite Factored Variables

## Discussion and Summary

With the growth in health consumers' usage of SM&N as a means for collecting PHCI relevant to them, this study sought to identify sources considered most important, group the health consumer responses that co-vary together, and classify the groups of SM&N's by respondent demographics.

The most important SM&N's are traditional internet search engines (Google, Yahoo, etc.), WebMD website, Mayo Clinic Website, Health Insurance Provider website, the John Hopkins website, the Cleveland Clinic website, and the MD Anderson website. Hence 5 of the 10 top websites were once Web 1.0 sites, in which the health consumer would merely input a key word and receive information. Now these websites have evolved to Web 2.0, whereby health consumers can obtain (even second opinions) information, but also interact by providing the own content to the website and respond to website blogs. Other important delivery systems for PHCI are health forums, Wikipedia, Public Health Service Online Publications, Health Webinars, other (additional) hospital websites, YouTube, Facebook, and employer provided websites. Whereas Facebook was considered an important vehicle for accessing PHCI, other contemporary SM platforms, such as Twitter, Flickr, Tumblr, Instagram and Pinterest, were not. Also of less importance, at this point in time, were Apple's Health Kit and Microsoft's Health Vault.

The factor analysis of the 28 SM&N's produced 3 composite factored variables, SM&N1, SM&N2, and SM&N3. SM&N1 was comprised of the hybrid prestigious hospital websites (Mayo Clinic, etc.), health forums, listserv's, webinars and podcasts, public health, employer and health insurance websites, as well as couple of new platforms including Apple's Health Kit and the Microsoft Health Vault. SM&N2 consisted of the contemporary social media platforms, YouTube, the interactive PatientslikeMe website, and a couple of APP-related sites. SM&N3 consisted of only 4 platforms, but included WebMD, Wikipedia, traditional internet search engines, and health-related healthblogs and blogs.

Previous studies dealing with PHCI and demographics have utilized the idea of the importance of electronic



delivery systems. In a previous study, the most important PHCI delivery systems have been online health forums, health-related blogs, Wiki's, health-related listserv's and podcasts (Cangelosi, Ranelli & Kim, 2015). In another study, internet search engines, WebMD, online health forums, health insurance websites, public service online publications, hospital websites and health-related blogs were important delivery systems of PHCI (Cangelosi, Ranelli & Kim, 2013). This present study, with a larger and newer database, cites many of the same delivery systems, but more SM&N platforms, 28 of them, so that respondents could be more precise in indicating the PHCI delivery systems most important to them. In addition to WebMD, Wiki's, and traditional internet search engines, five prestigious hospital sites were in the 10 most important SM&N's. Facebook emerged as an increasingly important platform for health consumers.

At this point in time, other contemporary social media platforms such as Twitter and Instagram, and new corporate sites such as Microsoft Vault and Apple Health Kit, were not considered important delivery systems. Given the increasing importance of Facebook, it might be a matter of time before some of the other social media platforms are considered more important by health consumers.

Regarding demographics, Table 5 details the specifics of significant demographic groups in this study. To reiterate, traditionally strong correlates of the use of PHCI, income and educational attainment, were not significantly different across groupings. Making comparisons with earlier studies is complicated by the inclusion of a larger number of SM&N's in the present study. However, it is evident that SM&N's are increasing in importance as PHCI delivery systems. Likewise, the demographics indicate some similarities with recent studies. More specifically, females considered traditional digital delivery systems more important than males. In previous studies, females have consistently been more PHC oriented than males. In addition, demographic groups indicating greater importance for PHCI via digital technology tend to be African-American, younger, and single-never married (Cangelosi, Ranelli & Kim, 2015; Cangelosi, Ranelli & Kim, 2013; Cangelosi, Ranelli & Kim, 2010; Cangelosi, Ranelli & Voss, 2009; Cangelosi, Ranelli & Markham, 2009). African Americans and other minority groups in general receive lower-quality interpersonal care and therefore rely less on direct clinical care professionals (Musa et al. 2009). As such, SM&N may be substantially more important in obtaining PHCI.

**Table 5: Demographic Groups with Significant Differences in Importance for SM&N's**

Significant Demographic Variable Group	Significantly Different Response & Mean	Response Mean SM&N1	Response Mean SM&N2	Response Mean SM&N3
Does your employer offer health promotion or wellness programs?	YES	2.27	2.6	1.97
Gender	Female			1.99
Occupational Status	employed full-time		2.67	
	employed part-time	2.27	2.63	1.97
	presently unemployed	2.29		1.95
Age Class	19-24	2.02	2.19	1.76
	25-34			1.92
	35-44			1.97
Ethnic Background	African-American	2.09	2.37	1.72
Marital Status	Single, never married	2.18	2.51	1.94
Mean Response for Composite Factored Variable		2.36	2.78	2.03

**Future Research**

The future will only increase the application of digital technology for obtaining PHCI. By knowing the SM&N

preferences of health consumers, health care marketers can do a better job of making PHCI available to those who desire it the most, but also the demographic groups that are most at risk without it. With health consumers becoming more skilled at securing PHCI, and often being more knowledgeable about their personal condition than their primary physician, a study into the types of health consumers who would look for nontraditional alternatives to meet their health and preventive health care needs is needed (Munn 2010).

In sum, demographic studies that warrant further examination include (1) how and why reliance in SM&N is developed vs. ignored, (2) why certain SM&N delivery systems are more important than others, and (3) how health care professionals can use SM&N to enhance interaction and engagement with health consumers.

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**Keywords:** *preventive health care information, social media, social networks*

**Relevance to Marketing Educators, Researchers and Practitioners:** Given that prevention is crucial to a long healthy life, as well as restraining escalating health care costs, this study offers insights into the types of social media and networking platforms that health care consumers consider most important, especially with regard to obtaining Preventive Health Care Information (PHCI). Further, it goes on to identify the demographics of persons who consider social media and social networking platforms as most important.

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