

A Needs Assessment Study of What Health Care Consumers Want from Social Media & Social Networking

Joe Cangelosi, joec@uca.edu

Ed Ranelli, eranelli@uwf.edu

Ken Griffin, keng@uca.edu

David Kim, davidk@uca.edu

Introduction

Prevention is the key to a long high quality life, and is also the key to curbing escalating health care costs, which are estimated at \$3.0 trillion in 2014, and consuming 17.5% of Gross Domestic Product. This also means a staggering \$9,523 per capita (*National Center for Health Statistics, 2016*). Prevention requires a fundamental change in the way individuals perceive and access the healthcare system, as well as the way it is delivered. To upstage the role of preventive health care (PHC), it is estimated that 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. Sixty-nine percent of total health care costs are heavily influenced by consumer behaviors, so more must be done to reorient health systems toward prevention (McKinsey & Associates, 2012).

Preventive Health Care 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 & Markham, 1994). At the broadest level, PHC includes everything from over-the-counter products to helping users curb smoking or overeating, to advanced genetic testing to identify a predisposition to certain cancers and other health problems, as well as innovative products such as watches to track biometric data. Prevention must be the cornerstone of the healthcare system rather than the traditional reactive or symptomatic approach that currently prevails (BCC Research, 2009; Gagnon, K. and Sabus, C., 2015).

For a PHC system to work, preventive health care information (PHCI) must be readily available. Although such information is available, the U.S. ranks 34th (World Health Organization) or 43rd (United Nations) in life expectancy (*Wikipedia: The Free Encyclopedia, 2015*). 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 &

Higginbotham, 2008). In addition, consumers respond differently to the various ways in which PHCI is delivered (Bloch, 1984; Cline & Hayes, 2001; Dutta-Bergman, 2004; Thomas, 2009).

The Internet is rated as the single most important means of accessing PHCI (Cangelosi, Ranelli, & Kim, 2012). Although most health-related information acquired from the Web is to address symptomatic issues, the quest for PHCI is becoming increasingly more prevalent (Freudenheim, 2011). When one considers that almost 89% of the population in the U.S. is now online, the power for delivering PHCI electronically cannot be underestimated (Internet Live Stats, 2016).

Traditional Internet search and browsing have been greatly facilitated and expanded by social media (SM). Social media 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, & 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 (Direct Marketing News, 2011). The implication for SM is that it brings people closer together, especially those who would not be part of a relationship if not for SM.

Past studies have examined the ability of health consumers to access and apply PHCI in their lives (Cangelosi, Ranelli & Markham, 2009), various delivery systems for symptomatic issues (Cangelosi, Ranelli & Kim, 2013), and more specifically, which social media and networking (SM&N) channels are preferred by health consumers (Cangelosi, Ranelli & Kim, 2015). This study focuses on the needs that health consumers perceive concerning using SM&N for securing health care (HC) and PHCI. This particular study doesn't address preferences for specific SM platforms available to health consumers.

Background Information

Social media is defined as a group of Internet-based applications that build upon and utilize the technological foundations of Web 2.0 (Kaplan, A. M. and Haenlein, M., 2010). 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. It is a departure from the traditional Web 1.0, which was read-only content (Gagnon, K. and Sabus, C., 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, Twitter, etc.,

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 & Prochaska, 2012). A number of benefits have been reported by persons using various health-related SM&N platforms (PatientsLikeMe, etc.), including gaining a better understanding of their medical condition, feeling more in control in managing their health, and improving treatment adherence. It is estimated that it costs the U.S. health industry \$100 billion extra per year because patients do not follow their treatment protocol (Osterberg, L. & Blaschke, T., 2005).

The goal of this study is to provide insights into the specific SM&N needs of the health consumer. The following are some issues based on earlier research, which are addressed in this research effort, in an attempt to assess the general SM needs of the health care consumer. The SM&N research questions that are addressed are as follows:

- Do health consumers have a need for support and community in dealing with their health condition? 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, C., & Quigley, D., 2012).
- How great is the need for health consumers to use online technologies to manage their health. Assisting the health care consumer with online technologies can assist them in the management their health (Hawn, C., 2009).
- With the vast majority of internet users looking for health care information online, to what extent can social media assist health consumers in finding information so they can make a self-diagnosis or to diagnose someone else (Gagnon, K. and Sabus, C., 2015).
- To what extent are health consumers finding social networking, participation, openness and collaboration within and between user groups. Social networking approaches can possibly revolutionize the way people collaborate, identify potential collaborators or friends, communicate with each other, and identify information that is relevant to them. Social media can assist modern medicine as it moves away from hospital-based medicine and the other closed structures and systems within healthcare and medicine (Eysenbach, G., 2008).
- What level of need exists for technological aids to help health consumers track their physical activity, biometric information, and sharing of health-related information (Gagnon, K. and Sabus, C., 2015)?
- Are health consumers willing to share their health information via SM&N? Social media can assist health consumers who are willing to share their health data to improve the care of future patients. There is research that estimates that 94% of American social media users would share their health data anonymously. Other research indicates that sharing data among members of an online community may be correlated with better management of their health issues (Grajales, F., et al., 2014).
- How important are Smartphone APPs as part of the health consumer's social networking possibilities? Smartphone-based applications are a type of social

media, which are changing how people interact with healthcare and public health systems. 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, health consumers could use mobile apps to track caloric intake and physical activities, which might help persons lose weight (Carter et al., 2013).

- What level of need is there for health consumers to create online spaces where they can interact directly with clinicians and share experiences with other patients (Coiera, 2013)? A survey of more than 4,000 physicians found that 90% of physicians use social media for personal activities, whereas 65% use social media for professional reasons. Both personal and professional use by physicians is increasing (Ventola, C. L., 2014).
- How important is it for health consumers to be able to better self-diagnose their health issues and to be able to monitor and track their biometric information (Steinhubl, et al., 2013).
- Do patients have the desire to arrive for their medical appointments better prepared and informed about their health condition (Alsughayr, S., 2015)?

With the healthcare culture rapidly changing, and patients being part of the healthcare system rather than the object of it, all of the preceding point to potential needs that are assessed in this research effort, as to their attractiveness to today's HC consumer. Hence, SM is a conversation, and can empower patients to take an active role in their health, by providing a venue for them to learn and share experiences and information (Alsughayr, S., 2015).

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.

National online panels use pre-recruited respondents, who provide demographic information in an initial survey, so that their participation in subsequent surveys considers only questions pertaining to a particular project (Luth Research, 2007). Some researchers contend that online panels lack the size that provides a truly representative sample frame (Dréze, 2002). Online panels will continue to increase in importance, and increased internet access and technology will continue to produce sample frames that are increasingly representative of the populations they represent (Smith, 2006; Harris Interactive, 2007).

A comprehensive questionnaire consisting of almost 200 questions, dealing with PHCI and various SM&N as delivery systems for the information was developed. This study looked at 27 possible needs assessment variables dealing with 4 general areas of need by HC consumers searching for preventive and general health information. In addition, several demographic variables will be used to classify the responses.

The data analysis consists of frequencies, means, factor analysis and ANOVA analysis of the 27 SM&N need variables. The SM&N need variables analyzed fall into 4 groups as indicated in Table 1. Frequency distributions will highlight the need assessment variables that health consumers deem most important. The groups of needs that co-vary together will be determined via factor analysis. Then analysis of various demographic characteristics via analysis of variance will illustrate for which needs there was a significant difference in the particular demographic groups. Table 1 summarizes the 4 SM&N groups and the number of variables associated with each group before they were factor analyzed.

Table 1: Social Media & Networking Needs Analysis Variable Groups

SM & Networking Need Variable Groups	Number of Variables
Group 1: To educate and increase awareness of and access to PHCI	8
Group 2: The importance of health care tracking APPS	5
Group 3: Facilitating access to PHCI via social networks and support groups	10
Group 4: Likelihood of sharing information about various health conditions	4

Results

A summary of the demographics of the survey indicate a sample balanced closely to the demographics of the US. To highlight, the survey consisted of over 90% having health insurance of some kind, 42% having an employer with a health promotion or wellness program; about 51% female; 51% employed full time; Caucasian 67%, African-American 12%, and Hispanic 13%; almost 60% married or cohabitating; 42% with an associates or bachelor’s degree; and 41% with incomes less than \$50,000.

Table 2 details the SM&N needs variables tested in this research and summarizes all 27 variables by the health consumer’s mean response, and the percentage of respondents indicating SM&N need was “very important.”

Table 2: Importance of Social Media Needs: Mean Value & Percent “Very Important”

Social Media Needs Variable	Mean	Percent Very Important
Group 1: Educate & increase awareness of the need for PHCI		
Q9.2-To educate yourself concerning a health condition that might affect you at the moment.	2.00	41.2
Q9.3-To connect with a support group of persons with health conditions like your own.	2.01	35.5
Q9.8-To facilitate your ability to understand the implications of a Preventive Health Care cancer screening (mammogram, PSA blood test, etc.).	2.03	39.4
Q9.6-To introduce and promote new opportunities for Preventive Health Care.	2.05	34.1
Q9.7-To better communicate with your primary care physician during Preventive Health Care visits.	2.06	40.1
Q9.4-To meet the need of getting Preventive Health Care information immediately.	2.11	34.6
Q9.1-To educate yourself concerning a health condition that might affect you sometime in the future.	2.13	32.9
Q9.5-To facilitate your ability to make a self-diagnosis.	2.30	27.0
Group 2: The Importance of health care tracking APPS		
Q10.5-To facilitate your ability to track your physical activity	2.05	38.2
Q10.4-To facilitate your ability to collect Preventive Health Care Information	2.16	30.4
Q10.3-To enable you to download Healthcare APPS in the future	2.22	28.9
Q10.1-In the overall management of your health	2.23	28.0
Q10.2-As a tool to remind you to take your medications	2.23	31.7
Group 3: Awareness & ability to link with support groups to facilitate better access to PHCI		
Q11.3-Facilitates support groups and related blogs that allow patients to share their disease struggles and achievements	2.07	34.1
Q11.8-Provides information so that Health Care consumers become more aware of unhealthy lifestyles and ways to discontinue such practices	2.08	35.5
Q11.7-Allows the Health Care consumer to interact with preventive health care providers	2.09	34.2
Q11.4-Allows Health Care consumers to better understand their own health care problems	2.09	35.9
Q11.9-Facilitates the health care consumer's efforts to become part of a wellness program	2.10	32.6
Q11.6-Helps empower the Health Care consumer to take responsibility for their own health	2.11	34.7
Q11.5-Helps Health Care consumers to rank and ultimately select a health care provider for a given situation	2.13	35.4
Q11.10-Allows the Health Care consumer to share health concerns directly with an online community	2.13	32.1
Q11.2-Allows Health Care consumers quicker access to symptomatic and preventive health care information for themselves or somebody else	2.14	32.6
Q11.1-Allows Health Care providers to communicate directly with Health Care consumers	2.19	31.0

Table 2: Continued

Group 4: Likelihood of sharing information about various health conditions	Mean	Percent Very Important
Q12.3-information about preventive health care options, especially those that help me to stay healthy	2.33	28.2
Q12.2-information about exercising	2.38	27.2
Q12.1-Information about dieting or losing weight	2.52	22.4
Q12.4-To facilitate my joining a health forum	2.58	19.0

NOTE: Scale for Groups 1, 2, and 3: 1=very important; 2=somewhat important; 3=somewhat unimportant; and 4=very unimportant. **Scale for Group 4:** 1=very likely; 2=somewhat likely; 3=somewhat unlikely; and 4=very unlikely. Hence, lower means indicate greater importance or higher likelihood. For both scales, the scale midpoint would be 2.5.

The 10 SM&N variables that health consumers need the most are indicated in Table 3. The results indicate that education about health issues, connecting to a support group, knowing the implications of a health condition, opportunities and understanding of PHC, tracking physical activity, better physician relations, blogs that allow patients to anonymously share their health struggles, information about unhealthy lifestyles, and a better understanding of personal health care problems, as the most important SM&N needs. The mean scores ranged from 2.00 to 2.09 for the top ten needs that could be met by SM&N, indicating a “somewhat important” average response.

Table 3: The 10 Most Important SM&N Variables indicated by HC Consumers

10 Most Important SM&N Variables	Mean	Percent Very Important
Q9.2-To educate yourself concerning a health condition that might affect you at the moment.	2.00	41.2
Q9.3-To connect with a support group of persons with health conditions like your own.	2.01	35.5
Q9.8-To facilitate your ability to understand the implications of a Preventive Health Care cancer screening (mammogram, PSA blood test, etc.).	2.03	39.4
Q9.6-To introduce and promote new opportunities for Preventive Health Care.	2.05	34.1
Q10.5-To facilitate your ability to track your physical activity	2.05	38.2
Q9.7-To better communicate with your primary care physician during Preventive Health Care visits.	2.06	40.1
Q11.3-Facilitates support groups and related blogs that allow patients to share their disease struggles and achievements	2.07	34.1
Q11.8-Provides information so that Health Care consumers become more aware of unhealthy lifestyles and ways to discontinue such practices	2.08	35.5
Q11.7-Allows the Health Care consumer to interact with preventive health care providers	2.09	34.2
Q11.4-Allows Health Care consumers to better understand their own health care problems	2.09	35.9

Table 4 reveals that the group of questions indicating the greatest need (importance) was Group 1, followed by Group 3 and Group 2. Group 4, likelihood of sharing information, utilized a different scale, and had the highest scores. Considering that both scales had scale midpoints of 2.5, it seems that health consumers are more resistant or less likely to share information about their health conditions, relative to their responses for the importance of SM&N variables (Groups 1, 2, and 3). All of the mean scores for the 4 groups were to the left of the midpoint of the 2 scales utilized, indicating some degree of importance or likelihood.

Table 4: Averages for the 4 SM&N Category Groups

Averages for Question Groups 1, 2, 3, 4	Mean	Rank
Group 1: Educate & Increase awareness of the need for PHCI	2.07	6.5
Group 2: Importance of health care tracking APPS	2.18	17.2
Group 3: Awareness & ability to link with support groups to better facilitate access to PHCI	2.11	12.3
Group 4: Likelihood of sharing information about various health conditions	2.45	25.5

Table 5: Composite Factored Variables and their Components

4 COMPOSITE FACTORED VARIABLES (component variable, factor loading)	Composite Factor Loading
CFV1: Provides information so that Health Care consumers become more aware of unhealthy lifestyles and ways to discontinue such practices; interaction among PHCI health consumers; facilitating wellness programs; sharing health concerns online via blogs and support groups; empowering the health consumer to take charge of their health; and allows health consumer to make a quicker self-diagnosis. (Q11.8-.724, Q11.3-.723, Q11.7-.721, Q11.4-.717, Q11.9-.710, Q11.10-.706, Q11.6-.693, Q11.5-.692, Q11.2-.681, Q11.1-.651, Q9.3-.467)	.680
CFV2: Educating via SM&N concerning health conditions present and future, facilitating an understanding of PHCI, better communication with physicians, facilitating self-diagnosis, and being on the cutting edge of new PHCI. (Q9.2-.800, Q9.8-.786, Q9.7-.779, Q9.4-.768, Q9.1-.747, Q9.5-.745, Q9.6-.732)	.765
CFV3: The importance of health care tracking APPS for physical activity, to collect PHCI, downloading HC APPS in the future, overall health management, including medication reminders. (Q10.3-.803, Q10.4-.795, Q10.5-.793, Q10.2-.767)	.790
CFV4: Likelihood of sharing information about health conditions including various options, information about exercising, dieting, losing weight and joining a health forum. Likelihood responses to this question imply not being anonymous. (Q12.1-.793, Q12.2-.793, Q12.4-.755, Q12.3-.733)	.768

NOTE: Table contains each of the 4 composite factored variables (CFV#) include the variable, a description of the CFV, the component variables by variable name for each CFV and factor loading for each component variable.

With 27 variables to analyze against 8 demographic characteristics, it became apparent that the data needed to be classified into meaningful groups for further analysis. To reduce the number of dimensions that will be associated with the demographic variables, factor analysis with the varimax rotation was utilized. In the initial stages of the factor analysis, the KMO and Bartlett tests revealed a group of variables with correlations adequate for factor analysis (KMO=.978) and a significant Bartlett's test of sphericity (Probability of Insignificance=.000). The 4 original groups of SM&N (see Table 2) variables clustered into 4 identical composite factored variables with the exception of one variable from Group 1 (Q9.3) aligning with the Group 3 SM&N variables. The variables for each composite factored variable (CFV) are in Table 5.

As indicated above, there was only 1 difference between the composition of the 4 original groups of variables and the factor analyzed 4 composite factored variables, that being the inclusion of variable Q9.3 (a variable dealing with the importance of connecting with a support group via SM&N) in CFV1, a composite factored variable consisting of the need for SM&N to facilitate the awareness of unhealthy lifestyles, anonymous sharing online of health problems and the empowering of the health consumer to take charge of their health. CFV2 consisted of the need for health consumers to be more educated about PHCI, have better communication with physicians, and aware of new PHCI. CFV3 consisted of the importance of health care tracking apps for physical activity and overall health management. CFV4 utilized a different scale, measuring the likelihood that health consumers would share information about their health conditions on a personal (not anonymous) basis.

With the 4 factored variables identified, the next step was to attempt to classify the 4 CFV's by demographics. Since the demographic variables consisted of nominal and ordinal data, 1-way analysis of variance (ANOVA) was chosen to possibly provide some unique classification for the 4 composite factored variables. The results are depicted in Table 6.

The results in Table 6 reveal some interesting trends. Remembering that the context of the responses had to do with the perceived importance of 23 SM&N needs and 4 likelihood statements concerning the sharing of health information, 3 of the demographic variables, health insurance, educational attainment and income level had no significant differences in respondents at the 95% level of confidence. Traditionally, income and educational attainment have been fairly strong correlates of health consumers being more or less PHC oriented (Cangelosi, Kim, Ranelli (2012, 2013, 2015). However, it must be remembered that the issue in this research is perceived need, and not past behavior. The demographic variables showing the most differences were employer offering health/wellness programs, age categories and ethnic background. For each of these 3 demographics, there were significant differences for each of the 4 CFV's. Regarding employer health/wellness programs, the need was most important to respondents who worked for an employer offering such amenities. Hence, simple awareness seems to be the key here.

Table 6: Significant (SIG) Associations between Demographic Variables & Composite Factored Variables (CFV's)

Demographic Variable	SIG CFV's	Demographic with Greater SM&N Need or Likelihood	Mean Value	ANOVA F-Value	Prob of Insignif
Health Insurance (Yes/No)	NONE				
Employer offer health/wellness programs (Yes/No) Comments: in all 4 instances, respondents indicating more important/likely worked where employers had health/wellness programs.	CFV1	Yes, 42.2% (offers wellness/health programs)	1.97	13.52	0.000
	CFV2	Yes, 42.6% (offers wellness/health programs)	1.99	7.52	0.006
	CFV3	Yes, 42.5% (offers wellness/health programs)	1.99	30.17	0.000
	CFV4	Yes, 42.4% (offers wellness/health programs)	2.31	12.78	0.000
Age Categories Comments: Results are linear, hence, the older the less important or less likely and vice-versa	CFV1	younger (19-24)	1.75	16.69	0.000
	CFV2	younger (19-24) younger (25-34)	1.88 1.88	7.41	0.000
	CFV3	younger (25-34) younger (19-24)	1.84 1.78	27.95	0.000
	CFV4 CFV4	younger (25-34) younger (19-24)	2.14 2.15	18.27	0.000
Gender Comments: females dominate as in past studies	CFV1	female	2.00	12.32	0.000
	CFV4	female	2.39	4.06	0.044
Ethnic Group Comments: Caucasians indicated the least importance and less likely for all SM&N needs	CFV1	African-American	1.59	11.01	0.000
	CFV2	African-American	1.59	10.06	0.000
	CFV3	African-American	1.53	20.60	0.000
	CFV4	African-American	1.84	15.54	0.000
Marital Status Comments: single, never married considered more important or more likely, others are mixed	CFV1	single, never married	2.00	5.69	0.001
	CFV3	single, never married	2.12	7.23	0.000
	CFV4	single, never married	2.37	3.29	0.020

Table 6: Continued

Demographic Variable	SIG CFV's	Demographic with Greater SM&N Need or Likelihood	Mean Value	ANOVA F-Value	Prob of Insignif
Educational Attainment Level	NONE				
Occupational Status Comments: Retired indicated less importance and less likely for all SM&N needs	CFV1	Homemaker	2.00	5.77	0.000
	CFV3	Employed Full-time	2.02	17.97	0.000
	CFV4	Employed Full-time	2.33	8.24	0.000
Household Income Level (higher incomes)	CFV3	\$25,000-\$34,999	1.98	1.87	0.082*

Absolutes

The health consumers in the sample for this study considered all of the groups of SM&N needs with some degree of importance, and some likelihood that they would be willing to share information about their personal health. The areas of most importance are the education and awareness of the access and need for PHCI, i.e., Group 1 & CFV2. The differences were significant in the frequencies, ranking, and mean values of the responses to this group of SM&N variables (see Table 4). Providing information about unhealthy lifestyles, access to support groups via blogs, and facilitating the health consumer to take charge of their health (CFV1 & Group 2) was the second most important SM&N need group. The need for health tracking apps (Group 3 & CFV3) was encouraging, even though this technology is relatively new, and the devices used to track such data can be expensive. However, average responses were still in the “somewhat important” range consistently. The likelihood of sharing personal health information can best be explained by the results in Table 2, which shows that health consumers are “most” willing to share information about PHC options that relate directly to them, as over 28% of the respondents indicated “very important.” Close behind was a willingness to share personal information about exercising. Sharing information about losing weight, dieting, and facilitating joining a health forum had higher percentages of “less likely” responses.

Individually, Table 3 reveals that among the top 10 SM&N needs, 5 variables came from Group 1, 4 from Group 2, and 1 from Group 3. SM&N needs dealing with education the health consumer about a symptomatic health condition was the most important need, followed by a closely related need, connecting with a support group concerning current health issues, and being able to understand the importance and implications of critical PHC tests, were the top 3 SM&N needs. Table 3 details the other “top-10” SM&N needs.

Differences by Demographics

The results can be best summarized by looking at each of the CFV's and apply the significant demographics. Hence, Table 7.

Table 7: Composite Factored Variables & Significant Demographics

4 COMPOSITE FACTORED VARIABLES	Significant Demographics
CFV1: Provides information so that Health Care consumers become more aware of unhealthy lifestyles and ways to discontinue such practices; interaction among PHCI health consumers; facilitating wellness programs; sharing health concerns online via blogs and support groups; empowering the health consumer to take charge of their health; and allows health consumer to make a quicker self-diagnosis.	More importance: employers with health/wellness programs; younger (19-24) health consumers; females; African-Americans; single, never married, and homemakers.
CFV2: Educating via SM&N concerning health conditions present and future, facilitating an understanding of PHCI, better communication with physicians, facilitating self-diagnosis, and being on the cutting edge of new PHCI.	More importance: employers with health/wellness programs; younger (19-24 & 25-34) health consumers; and African-Americans.
CFV3: The importance of health care tracking APPS for physical activity, to collect PHCI, downloading HC APPS in the future, overall health management, including medication reminders.	More importance: employers with health/wellness programs; younger (19-24 & 25-34) health consumers, African-Americans, single, never married, and employed full time.
CFV4: Likelihood of sharing information about health conditions including various options, information about exercising, dieting, losing weight and joining a health forum. Likelihood responses to this question imply not being anonymous.	Greater Likelihood: employers with health/wellness programs; younger (19-24 & 25-34); females, African-Americans, single, never married, and employed full time.

Conclusion

This study attempted to identify which social media & networking needs were most important to health consumers. It also sought to classify the respondents by demographics. To those ends this study was successful. It is safe to say that this effort is almost entirely exploratory, although there was a theoretical basis for most of the health consumer needs. Additional study perhaps using a more limited group of variables needs to be undertaken, so as to provide a clear focus for evaluating the research results.

More specifically, the following can be gleaned from this study:

- Probably the conclusion that is more conjecture than fact is that assessing needs is different than collecting information about health consumer behavior or predispositions toward PHCI. Two of the demographic variables that are strongly associated with being more PHC oriented (better educated and higher income), did not have any significances across categories of educational attainment or income.
- Females, who traditionally are more PHCI oriented than males, also had stronger needs for SM&N, especially networking for insights about unhealthy lifestyles, wellness programs, blogs, support groups, and making self-diagnoses. Females also indicated a greater likelihood of sharing personal health information.
- Age has been a predictor of certain types of PHCI seeking. In this SM&N study, health consumers in the 2 youngest age categories indicated greater importance for the SM&N variables in all of the CFV's. The same was true for African-American health consumers. Traditionally, African-Americans have had stronger predispositions toward PHCI, but have had more health problems for diseases like colon and prostate cancer, and breast cancer.
- Another surprise finding came in the marital status demographic, as single, never married health consumers indicated greater importance for SM&N about healthier lifestyles, knowing more about PHCI, utilizing blogs and online support groups; greater importance concerning health care tracking apps, and more likely to share personal health information.
- The other demographic of some interest was employment status. Those employed full time were more likely to share personal health information, and have a great need for health tracking apps. However, homemakers place greater importance on SM&N for purposes of support groups, blogs, anonymous information sharing, health and unhealthy lifestyles, and making quicker self-diagnoses.
- Concerning the individual SM&N need variables, those of greatest importance dealt with education about healthy and unhealthy lifestyles, blogs and support groups, the implications of PHC tests common for males and females, learning more about PHCI, tracking one's physical activity, and better communication with physicians (Table 3).
- Health consumers indicate wanting to blog and discuss PHC anonymously, but the level of interest in sharing personal information online with a group is not nearly as important or likely to happen.

Needs assessment is a complex topic, and more ways of looking at the current set of variables could provide some additional insights.

References

Alsughayr, Abdul (2015) Social Media in Healthcare: Uses, Risks, and Barriers. *Saudi Journal of Medicine and Medical Sciences*, May-August, vol. 3, issue 2, 105-112.

BCC Research (2009) *Preventive Health Care Technologies, Products and Markets*. Available from: <http://www.bccresearch.com/report/preventive-healthcare-technologies'hlc070a.html>, [Accessed 10th May 2012].

Bhatt, C., & Quigley, D. (2012) Healthcare & Social Media: A Winning Formula. *PharmaVoice*, January.

Bloch P. (1984) The Wellness Movement: Imperatives for Health Care Marketers. *Journal of Health Care Marketing* 4, 9-16.

Brenner, J. (2013) *Pew Internet: Social Networking*. Pew Internet & American Life Project. Available from: <http://pewinternet.org/Commentary/2012/March/Pew-Internet-Social-Networking-full-detail.aspx>, [Accessed 30th April 2013].

Cangelosi, J. D., & Markham, F. S. (1994) A Descriptive Study of Personal, Institutional, and Media Sources of Preventive Health Care Information. *Health Marketing Quarterly* 12(1), 23-36.

Cangelosi, J. D., Ranelli, E., & Kim, D. (2012) Delivering Preventive Health Care Information to More versus Less Health-Oriented Consumer: A Comparative Demographic Analysis. *Atlantic Marketing Journal*, 1(1), 65-78.

Cangelosi, J. D., Ranelli, E., & Kim, D. (2013) Preventive Health Care Information Delivery Systems: Is Social Media Relevant? *Atlantic Marketing Journal* 2(2), 1-13.

Cangelosi, Joseph D., Kim, David & Ranelli, Edward (2015) An Attitudinal Analysis of Preventive Health Care Information Users: With Insights from Social Media. *Atlantic Marketing Journal* 4(2) article 4, 59-72.

Carter, M. C., Burley, V. J., Nykjaer, C., and Cade, J. E. (2013) Adherence to a Smartphone Application for Weight Loss Compared to website and paper diary; pilot randomized controlled trial. *Journal of Medical Internet Research* 15, e32. Doi: 10.2196/jmir.2283.

Cline, R. J. W. & Haynes, K. M. (2001) Consumer Health Information Seeking on the Internet: The State of the Art. *Health Education Research* 16(6), 671-692.

Coiera, E. (2013) Social Networks, Social Media and Social Diseases. *BMJ* 346:f3007.doi: 10.1136/bmj.f3007.

Direct Marketing News (2011) *Maximizing Social Commerce: How to Merge Social Media and Customer Information*. Available from: <https://rapidrequest.emediausa.com/4/Redirect.aspx?11885088.XKZPGNWS.116997> [Accessed 21st May 2013].

Dutta-Bergman, M. J. (2004) Health Attitudes, Health Cognitions, and Health Behaviors Among Internet Information Seekers: Population-based survey. *Journal of Medical Internet Research*. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1550593>. [Accessed 25th May 2013].

Dutta-Bergman, M. J. (2005) The Relationship between Health-Orientation, Provider-Patient Communication and Satisfaction: An Individual-Difference Approach. *Health Communication* 18(3), 291-303.

Eysenbach, Gunther. (2008) Medicine 2.0: Social Networking, Collaboration, Participation, Apomediation and Openness. *Journal of Medical Internet Research* Jul-Sep; 10(3):1-14.

Fox, S., and Duggan, M. (2013) *Health Online 2013*. Pew Internet & American Life Project. Available from: <http://pewinternet.org/Reports/2013/Health-Online-.aspx>. [Accessed 30th April 2013].

Freudenheim, M. (2011) Health Care is High Among Web Searches. *New York Times*. [Online]. Available from: <http://prescriptions.blogs.nytimes.com/2011/02/01/health-care-is-high-among-web-searches/> [Accessed 10th May 2012].

Gagon, Kendra, and Sabus, Carla (2015) Professionalism in a digital age: Opportunities and considerations for social media in health care, *Physical Therapy*, March 2015, vol. 95, issue 3, 406-9.

Grajales, Francisco, Clifford, David, Loupos, Peter, Okun, Sally, Quattrone, Samantha, Simon, Melissa, Wicks, Paul, and Henderson, Dietra (2014) Social Networking Sites and the Continuously Learning Health System: A Survey, *Institute of Medicine of the National Academies*, January 23rd.

Hawn, Carleen (2009) Take Two Aspirin and Tweet Me in the Morning: How Twitter, Facebook, and other Social Media are Reshaping Health Care, *Health Affairs*, 28,no.2 (2009):361-368.

Internet World Stats (2016), "Internet World Penetration Rates by Geographic Regions," June, *Miniwatts Marketing Group*. [Accessed 21st July 2016].

Kaplan A. M. and Haenlein, M. (2010) Users of the World, Unite! The Challenges and Opportunities of Social Media. *Business Horizons*, vol. 53:59-68.

McKinsey & Associates (2012) Changing Patient Behavior: The Next Frontier in Healthcare Value. *McKinsey's Healthcare Systems & Services Practice*, 64-73.

Osterberg, L. & Blaschke, T., (2005) Adherence to Medication, *New England Journal of Medicine*, 2005:353:487-97.

Santoro, E. (2013) Social Media and Medical Apps: How They can change health communication, education and care. *Recenti Progressive Medicine* 104, 179-180.

Satcher, D. & Higginbotham, E. J. (2008) The Public Health Approach to Eliminating Disparities in Health. *American Journal of Public Health* 98, 400-403.

Scott, D. M. (2013) *The New Rules of Marketing & PR: How to Use Social Media, Online Video, Mobile Applications, Blogs, News Releases, and Viral Marketing to Reach Buyers Directly*, 4th ed., Hoboken, N.J., John Wiley & Sons, Inc.

Steinhubl, S. R., Muse, E. D., and Topol, E. J. (2013) Can Mobile Technologies transform health care? *JAMA* 3310, 2395-2396.

Thomas, R. K. (2009) *Marketing Health Care Services*, 2nd ed, Chicago, Health Administration Press.

U.S. Department of Health & Human Services: National Center for Health Statistics (2016). "Health Expenditures in the U.S. in 2015." Available from: <http://www.cdc.gov/nchs/fastats/health-expenditures.htm>, [Accessed 29th May 2016].

Velasco, Jessica (2013) The Future of Social Media and Healthcare. *Medical Practice Insider: Business & Technology Intelligence for Physician Practices*, July 17, 2013. Available from: <http://www.medicalpracticeinsider.com/blog/technology/future-social-media-healthcare>. [Accessed 31st May 2016].

Ventola, C. Lee (2014) Social Media and Health Care Professionals: Benefits, Risks, and Best Practices. *P&T*, vol. 39, no. 7, July, pp. 491-520.

Wikipedia: The Free Encyclopedia: List of Countries by Life Expectancy (2015). Available from: https://en.wikipedia.org/wiki/List_of_countries_by_life_expectancy [Accessed 29th May 2016].

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

Joe Cangelosi is a Professor of Marketing at the University of Central Arkansas.

Ed Ranelli is *Dean Emeritus* and Professor at the University of West Florida.

Ken Griffin is Associate Dean and Professor of MIS at the University of Central Arkansas

David Kim is a Associate Professor of Marketing at the University of Central Arkansas

TRACK: Health Care Marketing