

# Behavior Change Communication Using Social Media: A Review

**Emmanuel Olorunleke Adewuyi**

Department of Epidemiology and Biostatistics, School of Public Health, Curtin University  
e.adewuyi@student.curtin.edu.au

**Kazeem Adefemi**

Program Manager  
Health & Social Relief Initiatives  
Ilorin, Kwara State, Nigeria  
femikazeem@gmail.com

## Abstract

*The emergence of social media introduced a new dimension to communication. The media is increasingly being used in almost every aspect of human endeavor – from marketing and brand promotion to information sharing and relationship building. In view of the participatory nature of social media and its potential for expansive reach of audience, public health professionals are enthusiastic about employing it for communicating behavior change interventions. While evidence indicates the potential benefits of social media to behavior change communication, this paper, drawing on current literature, emphasizes the need for a strategic deployment of the media. The review highlights some of the challenges of using social media for behavior change communication purposes. Many of the challenges can, however, be mitigated, and this paper highlights strategies that could enhance the value of social media for behavior change communication. The paper stresses the need for a two-way communication using social media, working with the audience in developing appropriate communication strategies, and the need for effective evaluation.*

**Key-words:** behavior change, communication, social media, health communication, internet.

## Introduction

The advent of social media has transformed every facet of human life, facilitating information sharing and building ties across social, demographic and geographic divides (Luo & Smith, 2015). With a remarkable capacity for a widespread public engagement, social media is perhaps the fastest and most cost-effective means of connecting with any desired audience. The media is increasingly being used in all manners of communication ranging from personal and academic communications (Campbell & Craig, 2014) to professional, health and wellbeing-related communications (Shaffer-Hudkins, Johnson, Melton, & Wingert, 2014). Social media is not only important for creating an online presence, it has become a veritable platform for marketing and relationship building (Manfred, Verena, & Daniela, 2012). Individuals and organizations now interact with their clients, consumers, friends and/or fans using social media platforms. Notwithstanding the several millions (over a billion) already on the media, available data reveals that more people are embracing it on a daily basis, and the majority of

users operate accounts on multiple platforms (eMarketer, 2013; PewResearch, 2015).

Given the unique benefits in social media for expansive and targeted audience reach, and the promises it holds for the future of communication, public health professionals are keen on adopting the media for the delivery of health promotion and behavior change intervention programs (Freeman, Potente, Rock, & McIver, 2015). However, as noted by Freeman et al. (2015), the current body of knowledge on the appropriate use of social media for public health purposes is limited. While social media is believed to hold a considerable potential for behavior change communication [BCC] (Freeman et al., 2015; Korda & Itani, 2013), there is evidence that the media is limited and may not always be suitable for achieving the objectives of BCC (Korda & Itani, 2013). These observations underscore the necessity for this study which aims to highlight how social media may be strategically applied towards achieving BCC objectives. Accordingly, this paper discusses the use of social media in BCC with a particular focus on its benefits, limitations, and ways to better harness the media for BCC purposes. Stimulating academic discussions

through such analysis of the potential benefits and challenges is critically important if social media is to be effectively deployed towards communicating behavior change interventions.

### Method

A search of the literature was conducted using the online databases of PubMed, Science Direct, Google Scholars, E-book library, and Willey online library, between July and October, 2015. Several terms and combination of terms relevant to the topic were used, including but not limited to 'social media', 'behavior change', 'behavior change communication', 'health communication', 'social media and health communication', 'behavior change communication using social media', 'limitation of social media' and 'benefits of social media'. Journal articles reviewed were only those published in English language, relevant to the topic and with complete text availability. These included original researches, reviews, commentaries and other academic papers. Relevant webpages on social media and health communication were visited for data and reports. A few studies were obtained by searching the reference lists of some of the high quality publications. Similarly, appropriate e-books were searched and information extracted from them where deemed relevant. Lastly, a purposeful search of the website of 'The International Journal of Communication and Health' was carried out for relevant publications.

### Social Media: The Overview

The introduction of web 2.0 – Internet technologies that enable collaborative and expansive communication – led to the emergence of online platforms for interactive engagement (Cheung & Lee, 2009). These innovative technologies were harnessed in social media for a consumer-generated information sharing and a multi-way communication system (Kaplan & Haenlein, 2010). Social media, also known as 'participative internet communication' (Fox, 2011) represents a group of Internet-based applications for creating and exchanging 'user-generated contents' [videos, photographs, graphic files and so on] (Osborne-Gowey, 2014).

Although the nature and nomenclature of connections differ with sites, social media are initiated, created, circulated and utilized in networking as well as in promoting relationship, personalities, products, services, issues and/or brands (Mangold & Faulds, 2009).

Interactivity, cost-effectiveness, and adaptability are some of the advantages social media has over traditional media [radio, television, and so on] (Moorhead et al., 2013). In addition to its potential for expansive audience reach, social

media gives a voice to the voiceless (Keller, 2009; Korda & Itani, 2013). For instance, while editors determine what gets into the public domain in conventional media, the case is different with social media, where ordinary citizens or anybody who choose to, can air their views.

Social media websites are probably the most visited sites on the internet. About 72% of adults with access to the internet use social media (Fox, 2011). In the United States (US), out of the 85% of adults with internet access, at least 67% use one form of social networking sites or the other (Duggan & Brenner, 2013 cited in Campbell & Craig, 2014). As further revealed by Duggan and Brenner (2013), about 60% of those using social media in the US visit the sites at least once daily. Recent data from PewResearch indicates that about two-third of all adults in the US now use social media networking sites – an increase of about 10% in a decade (PewResearch, 2015).

The term 'Social media' is broad, encompassing a spectrum of web-based communication tools and channels (Korda & Itani, 2013). First, there are 'social networking sites' (SNS) in which individuals create personal profiles (public or semi-public) and share same with a list of other users (Taylor, 2012). Examples of SNS include Facebook, Twitter, and LinkedIn (Laranjo et al., 2015). The second category is known as 'content sharing sites', for example, YouTube, Instagram and Flickr (Rainie, Brenner, & Purcell, 2012; Taylor, 2012). These sites are commonly used for rating, discussing and sharing videos and photographs (Taylor, 2012).

There are several, and diverse other types/categories of social media platforms, and examples include Wikis, Blogs, Weblogs, geolocation tools, Moblogs and so on (Mangold & Faulds, 2009; Taylor, 2012). In addition to the general social media types, a number of health-specific networking sites exist, for instance, 'TuDiabetes' and 'PatientLikeMe' (Korda & Itani, 2013; Laranjo et al., 2015). Similarly, there are social media sites designed primarily for behavior change interventions; ready examples would be sites for promoting smoking cessation (Cobb, Graham, & Abrams, 2010) and physical activities (Vandelanotte et al., 2014).

### Health and Behavior Change Communication

BCC, also known as 'social and behavior change communication' (SBCC), is part of the broader sub-discipline of health communication – the study and application of communication strategies for promoting positive health outcomes (Kreps & Maibach, 2008). Some authors have attempted to distinguish between the terms "BCC" and "SBCC" (Fabrizio, Liere, & Pelto, 2014; The

Manoff Group, 2012); however, in this paper, the synonymous use is adopted.

BCC or SBCC is a participatory process for encouraging positive health behavior change in individuals and communities through the strategic application of targeted messages, and the provision of a supportive environment (Briscoe & Aboud, 2012).

BCC encompasses social and community mobilization as well as health communication approaches, being a product of information, education and communication (IEC) strategies (Koenker et al., 2014). This type of communication goes beyond the mere dissemination of perceived necessary health information (Portsmouth, Trede, & Olsen, 2012). It is rather a two-way process that involves three cyclical stages – listening, dialoguing and actioning (Portsmouth et al., 2012).

Listening enables health professionals (communicators) to learn about their target audience while dialoguing aims at developing culturally appropriate and easy to understand strategies (Portsmouth et al., 2012). Actioning on the other hand, deals with implementing and maintaining changes often in partnership with other professionals (Portsmouth et al., 2012). The need for constant evaluation and, hence, adjustment of strategies means these three steps are cyclical and continuous (Portsmouth et al., 2012).

BCC occupies a strategic position in health promotion, as research has shown that theory-driven and evidence-based BCC interventions are the hallmarks of successful health promotion programs (Korda & Itani, 2013). Also, the understanding that health behavior/status is an interplay of biological, social and environmental factors supports the need for BCC interventions (Koenker et al., 2014).

Using the most fundamental and powerful human interaction – communication – BCC can positively influence the social components of health and wellbeing (Wakefield, Loken, & Hornik, 2010). BCC has been noted to be effective in areas such as nutrition (Ruel et al., 2008), hygiene and sanitation (Curtis et al., 2001), family planning and HIV prevention (Wakefield et al., 2010) and in many other diseases (Snyder, 2007).

In order to reach the target audience, communication channels are often employed in BCC. These channels range from 'one-on-one' (interpersonal) to multi-level mass media communication channels (Ogata Jones, Denham, & Springston, 2006). For example, communication on behavior change between a health practitioner and a client would go for interpersonal communication, and there is evidence that such could be highly effective, depending on the goal of the

communication (Ogata Jones et al., 2006). Conversely, a communication objective might, for instance, be for an expansive reach of audience. In such a case, channels with potential for a large audience reach are required, and social media represents one of the best options in this regard (Moorhead et al., 2013).

### **Using Social Media for Behavior Change Communication**

Health behavior change may be communicated using several channels – radio, television, videos, SMS and so on (Portsmouth et al., 2012). However, with the exponential growth in Internet-based communication, social media has emerged as one of the preferred or favored communication outlets (Benetoli, Chen, & Aslani, 2015). Social media is participatory, socially engaging, and reciprocal. It thus provides opportunities not only for information sharing, but also for social networking and interactive engagement (Benetoli et al., 2015).

### **Uses of Social Media in Health Communication**

Social media is utilized for health communication in a myriad of ways. Educating and empowering people with health information is one area where social media has found an unparalleled usefulness (Vance, Howe, & Dellavalle, 2009). Owing to the ever-increasing availability and access to social media, a growing number of people now have greater access to health information (Campbell & Craig, 2014). It has become easier for players in the healthcare industry to connect and interact with their clients via social media platforms. Not only is social media being used in searching for health information, clients now get involved directly in managing their health conditions through the media (Campbell & Craig, 2014).

Communicating public health emergencies and promoting community actions and partnerships are some of the other ways social media can be used for public health benefits (Moorhead et al., 2013). Also, the media has been employed in the delivery of behavior change interventions, for example, physical activity programs (Vandelanotte et al., 2014).

Social media have equally been used in surveillance, tracking and monitoring of disease outbreak as well as in providing cost-effective communication in real time (Scanfeld, Scanfeld, & Larson, 2010; Signorini, Segre, & Polgreen, 2011). Similarly, social media can be used in identifying areas in need of intervention, monitor the response of the public to health issues and communicate appropriate health messages to targeted communities (Signorini et al., 2011). Several of these uses are relevant in behavior

change communication as they can be adopted and adapted to the communication objective(s) of behavior change interventions.

#### **Importance/Benefits of Social Media in BCC**

Some unique characteristics distinguish social media as an important channel for BCC (Heldman, Schindelar, & Weaver, 2013). First, social media has the capacity for targeting and reaching diverse audiences since it is not limited by space, time or geography (Moorhead et al., 2013). The expansive and targeted reach of audiences, which social media offer is far greater than is possible with conventional media (Keller, 2009). Similarly, the use of social media cuts across all ages. Thus, if well-deployed, social media may influence behavior change across diverse population groups, irrespective of age, race, education or location (Kukreja, Sheehan, & Riggins, 2011; Scandfeld et al., 2010).

Second, social media promotes interactive engagement with the target audience (Korda & Itani, 2013). This interactive potential defines social media's suitability for effective BCC (Moorhead et al., 2013). Based on the understanding that BCC is not merely the transmission of health information to passive audiences (Portsmouth et al., 2012), the multi-way interactivity in social media offers an unmatched advantage (Adams, 2010; Taylor, 2012).

Third, social media has the potential for providing peer, social and emotional support (O'Dea & Campbell, 2010); these attributes are perhaps the most important requisites for BCC.

Lastly, with advances in technology, access to the internet and hence social media has greatly improved. Different physical gadgets such as smartphones and other mobile devices can now be used in accessing social media sites (Moorhead et al., 2013). Also, the creation of various mobile applications has further contributed to the ease of social media's accessibility. This improved access has implications for the use of social media, which in turn enhances audience reach and engagement, thus, benefiting BCC (Moorhead et al., 2013).

#### **Social Media and Behavior Change**

How social media brings about behavior change is not entirely understood; however, the idea behind marketing and advertising gives an insight (Taylor, 2012). In marketing, for instance, the popular brand (often a consequence of extensive publicity) easily becomes the most attractive option. This fact may explain why corporate bodies and organizations often budget large sums for advertising and brand promotion (Taylor, 2012).

Following a strategy similar to that of marketing, BCC uses various types of

communication channels in promoting positive health behaviors (Freeman et al., 2015). Arguably, social media channel offers a unique advantage for visibility, publicity and aggregating evidence of people's choices. Proof of options made by a network of friends/followers on social media platforms, for example, can significantly influence the choices of other users (Taylor, 2012). Thus, using strategies of commercial marketing, social media, may promote health behavior change – a concept known as social marketing.

#### **Limitations of Social Media for BCC**

Notwithstanding the many benefits in social media and its potential for engagement purposes, using the media for BCC is not without some challenges. First, barriers with respect to Internet connectivity tend to limit the use of social media (Taylor, 2012). Access to, confidence and knowledge in using technology and attitudes to learning, all have consequences for engagement with social media. In the United Kingdom, for instance, only about 77% of the population had access to the Internet in 2011 (Seybert, 2011). Lack of skills and cost of equipment were the commonly cited reasons for poor internet access (Seybert, 2011). A behavior change intervention, therefore, with social media as the only communication outlet will achieve little or no result among populations/sub-populations with low or poor access to or skills in using the internet.

Second, the use of social media is potentially risky in terms of breaches to privacy and confidentiality (Freeman et al., 2015). Concerns about data security and harmful consequences of indexing personal data have been raised in studies (Adams, 2010; Nordqvist, Hanberger, Timpka, & Nordfeldt, 2009). Similarly, across a range of health professions, the use of social media has been linked with litigation and liability consequent upon breaches to privacy of client(s) (George, Rovniak, & Kraschnewski, 2013). These realities have consequences for the use of social media and may be the determinants of success or otherwise of any behavior change intervention program.

Another downside of social media with respect to confidentiality has to do with the individual's level of privacy. People who share too much information about themselves, for example, may run the risk of leaking vital personal information. On the other hand, too much consciousness about personal information may defeat communication objective(s) of the behavior change program. Concern about the reliability and quality of information on social media has equally been raised (Moorhead et al., 2013). All these barriers could limit the success of BCC using social media.

Fourth, while it is possible to assess online impacts of social media such as the reach and level of engagement, measuring off-line impacts remains a difficult task (Taylor, 2012). Owing to this difficulty, evaluating online activities for their long-term influence on behavior change is considerably challenging (Taylor, 2012). One major criticism of BCC using social media is that the analytics for measuring engagement level – views, shares and likes – cannot be used in judging behavior change (Freeman et al., 2015). The number of ‘likes’, ‘views’ and ‘shares’, for example, may have no link whatsoever with changes in behavior in real life (Freeman et al., 2015).

Fifth, depending on the type of audience, the health issue and the communication objective(s), social media may not always be the appropriate channel for BCC (Korda & Itani, 2013). Consequently, it can be understood that whereas social media and the internet have become pervasive with lots of benefits for BCC, it is not ‘a one size fits all’ channel. A possible scenario would be a BCC intervention targeted at people with low technology skills, or local people in remote settings where there is no access to the internet. Another scenario could be a behavior change intervention targeted at children, for instance, hand-washing behavior in the prevention of trachoma. Social media will most likely perform poorly if used as a channel for communicating these types of behavior change interventions.

Some of the other challenges associated with using social media for BCC include difficulty in sustaining engagement, loss of control over messages, concern about negative comments, a rise in cyber bullying and challenges in carrying out evaluation (Heldman et al., 2013; Ngai, Tao, & Moon, 2015). These limitations may contribute individually or collectively to poor BCC outcome.

### **Optimizing Social Media for BCC**

The use of social media for BCC needs to be objective as well as strategic. First, like other communication channels, using social media for BCC requires adequate planning (Heldman et al., 2013). Communication objectives must be rigorously developed, and messages for the intended audience need to be culturally appropriate, easily understandable and cognizant of user characteristics (Korda & Itani, 2013). All these will entail listening and dialoguing first with the intended audience, so their needs are well researched, and potential solutions developed with their inputs (Portsmouth et al., 2012). Successful BCC interventions are research-based and often driven by clients’ perspectives, needs and epidemiological evidence. Also, it is imperative to carry members of the intended audience along at every stage of the

communication process as well as form a partnership with relevant organizations (Freeman et al., 2015).

Secondly, the choice of social media type and the tone of the presentations can affect the success of BCC to a greater extent. Evidence indicates the need for formative research for sufficient understanding of not only the audience of interest, but, also the social media of choice (Korda & Itani, 2013). For instance, using Facebook as the communication channel of choice is not same as using Twitter. There are media specific differences which must be understood. The demography of audience, for example, might differ with sites or given to change over time.

To further improve social media for BCC, it is imperative to give adequate consideration to the preferences of the audience (Korda & Itani, 2013). The question of whether or not social media suits the intended audience needs to be thoroughly investigated and potential challenges identified and addressed (Freeman et al., 2015). For instance, while privacy and confidentiality could come in as a barrier, a good understanding of professional ethics as well as strict adherence to clear guidelines for privacy settings may help to minimize the impact of such challenges (George et al., 2013).

Thirdly, notwithstanding the several advantages of social media over conventional media, it may sometimes be imperative to combine both for the overall effectiveness of BCC. For instance, a face-to-face contact (where practicable) may be necessary to further enhance the effectiveness of BCC program (Heldman et al., 2013). Although it has been argued that social media can be ‘a stand-alone channel’, evidence indicates that the media performs best when integrated with traditional media (Korda & Itani, 2013).

Some scholars have recommended the use of several social media platforms in BCC (Heldman et al., 2013; Korda & Itani, 2013). This recommendation is based on the argument that using complementary social media platforms potentially ensures greater reach of audiences and could further reinforce messages of behavior change program (Korda & Itani, 2013). The recommendation is theoretically sound and may prove to be highly effective. Example abounds of its effectiveness in the World HIV/AIDS day campaign where greater audience reach was reported following the use of several social media channels [blogs, Twitter, etc] (Anderson & Gomez, 2009 cited in Korda & Itani, 2013).

Notwithstanding the success of using complementary social media platforms, it is important to adequately research what works best for the intended audience. Again, this position brings to

fore the importance of formative and process evaluations (Moorhead et al., 2013). For example, when BCC is targeted at a specific audience, the appropriate thing may be to understand which social media type works best for the audience of interest (sometimes with respect to their age groups) and make the best use of same.

Fourthly, behavior change interventions through social media should be based on theoretical frameworks of social-behavioral change, given that theories are fundamental to effective BCC. There is evidence that interventions with strong theoretical background achieve greater impacts (Korda & Itani, 2013). For instance, using the transtheoretical stages of change model, may be helpful in tailoring messages to the needs of the audience (Korda & Itani, 2013).

Lastly, the need for a regular adjustment of strategies using feedback and evaluation reports must not be overlooked. Currently, evaluating behavior change intervention on social media is challenging. Frameworks for such evaluation are still evolving besides the fact that several of social media types (blogs, social networking sites, etc.) were designed with no evaluation plan(s) in mind. This limitation notwithstanding, approaches used by past researchers may prove to be beneficial. For instance, O'Grady et al. (2009), and Glasgow (2007) adopted and adapted methods previously used for conventional media. Self-reporting and automated tracking system (DeBar et al., 2009) as well as the RE-AIM (reach, effectiveness, adoption, implementation, maintenance) framework (Caperchione et al., 2015) are some of the recommended evaluation methods for population-based online behavior change programs.

### Limitation

While the conclusions reached in this study were based on evidence from a wide range of publications and so represent the current views in literature, it is imperative to state that the study is essentially a narrative review. Like any other narrative review, the study may be prone to a bias in the selection of reviewed articles. This limitation, however, could not have significantly altered findings in this review.

### Conclusion and Recommendations

### References

- Adams, S. A. (2010). Revisiting the online health information reliability debate in the wake of "web 2.0": an inter-disciplinary literature and website review. *International journal of medical informatics*, 79(6), 391-400.
- Anderson, J., & Gomez, M. (2009). *From Flickr to a blogging call to action: User generated content lessons learned from AIDS.gov*. Retrieved 21 July, 2015 from: <http://docslide.us/health-medicine/aidsgovs-user-generated-content-presentation-for-cdcs-national-conference-on-health-communication-marketing-and-media-2009.html>.

Behavior change communication is a core part of health promotion and one of the most significant strategies health professionals deploy to achieve the objectives of public health. Unfortunately, health awareness and availability of appropriate information does not necessarily translate to changes in health behavior or adoption of healthier lifestyles, despite the efforts and wishes of health professionals. Consequently, professionals and researchers are always on the lookout for more effective medium of communication to improve the success rate of BCC campaigns and interventions. Social media offers a unique opportunity for social engagement and unprecedented audience reach. Moreover, the media is considerably cheap, cost effective and easy to use (at least compared to conventional media). Notwithstanding these unique characteristics, the use of social media for BCC can be challenging, at least, or even counterproductive.

However, a growing body of evidence, as highlighted in this review, indicates that these challenges can be mitigated and the opportunities of social media could be harnessed for more effective BCC. In this regard, the needs for effective feedback and evaluation strategies have been emphasized in the literature. Unfortunately, proven methods and approaches for evaluating the impact of social media campaigns on behavioral change are lacking at the moment. Analytics reports (share, likes, and views) and approaches in traditional media may give some idea of the level of engagement achieved, but are inadequate for measuring offline impact and/or behavioral changes in target audience.

There is, therefore, the need for further studies to address these limitations. Other issues that would benefit from further, specific, studies, include: metrics for measuring interactivity, measures for judging meaningful engagement and methods for evaluating offline impacts and changes in behavior. There is equally the need for a proper evaluation of the 'true costs' of using social media for BCC interventions. Social media is generally promoted as being cheap and cost effective, at the moment, but given the several challenges and compromises often associated with using the media, it is only fair to assume that the 'true cost' of using this media remains to be clarified.

- Benetoli, A., Chen, T. F., & Aslani, P. (2015). The use of social media in pharmacy practice and education. *Research in Social and Administrative Pharmacy, 11*(1), 1-46. doi:10.1016/j.sapharm.2014.04.002.
- Briscoe, C., & Aboud, F. (2012). Behaviour change communication targeting four health behaviours in developing countries: A review of change techniques. *Social Science & Medicine, 75*(4), 612-621. doi:10.1016/j.socscimed.2012.03.016.
- Campbell, B. C., & Craig, C. M. (2014). Health Professions Students Academic and Personal Motivations for Using Social Media. *International Journal of communication and health*. Retrieved 10 October, 2015 from: <http://communicationandhealth.ro/upload/number3/BRITANNY-CAMPBELL-CLAY-CRAIG.pdf>.
- Caperchione, C. M., Duncan, M., Kolt, G. S., Vandelanotte, C., Rosenkranz, R. R., Maeder, A., Mummery, W. K. (2015). Examining an Australian physical activity and nutrition intervention using RE-AIM. *Health promotion international, 1*, 9.
- Cheung, C. M. K., & Lee, M. K. O. (2009). Understanding the sustainability of a virtual community: model development and empirical test. *Journal of Information Science, 35*(3), 279-298. doi:10.1177/0165551508099088.
- Cobb, N. K., Graham, A. L., & Abrams, D. B. (2010). Social Network Structure of a Large Online Community for Smoking Cessation. *American Journal of Public Health, 100*(7), 1282-1289. doi:10.2105/ajph.2009.165449.
- Curtis, V., Kanki, B., Cousens, S., Diallo, I., Kpozehouen, A., Sangare, M., & Nikiema, M. (2001). Evidence of behaviour change following a hygiene promotion programme in Burkina Faso. *Bulletin of the World Health Organization, 79*(6), 518-527.
- DeBar, L. L., Dickerson, J., Clarke, G., Stevens, V. J., Ritenbaugh, C., & Aickin, M. (2009). Using a Website to Build Community and Enhance Outcomes in a Group, Multi-Component Intervention Promoting Healthy Diet and Exercise in Adolescents. *Journal of Pediatric Psychology, 34*(5), 539-550. doi:10.1093/jpepsy/jsn126.
- Duggan, M., & Brenner, J. (2013). *The demographics of social media users, 2012* (Vol. 14): Pew Research Center's Internet & American Life Project Washington, DC.
- eMarketer. (2013). Social Networking Reaches Nearly One in Four Around the World Retrieved 8 October, 2015, from: <http://www.emarketer.com/Article/Social-Networking-Reaches-Nearly-One-Four-Around-World/1009976>.
- Fabrizio, C. S., Liere, M., & Pelto, G. (2014). Identifying determinants of effective complementary feeding behaviour change interventions in developing countries. *Maternal & child nutrition, 10*(4), 575-592.
- Fox, S. (2011). *The social life of health information 2011*: Pew Internet & American Life Project Washington, DC.
- Freeman, B., Potente, S., Rock, V., & McIver, J. (2015). Social media campaigns that make a difference: what can public health learn from the corporate sector and other social change marketers? *Public health research & practice, 25*(2).
- George, D. R., Rovniak, L. S., & Kraschnewski, J. L. (2013). Dangers and opportunities for social media in medicine. *Clinical obstetrics and gynecology, 56*(3), 10.1097/GRF.1090b1013e318297dc318238. doi:10.1097/GRF.0b013e318297dc38.
- Glasgow, R. E. (2007). eHealth evaluation and dissemination research. *American journal of preventive medicine, 32*(5), S119-S126.
- Heldman, A. B., Schindelar, J., & Weaver, J. (2013). Social media engagement and public health communication: implications for public health organizations being truly" social. *Public Health Reviews, 35*(1), 1-1.
- Kaplan, A., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Bus. Horiz., 53*(1), 59-68. doi:10.1016/j.bushor.2009.09.003.
- Keller, K. L. (2009). Building strong brands in a modern marketing communications environment. *Journal of Marketing Communications, 15*(2-3), 139-155. doi:10.1080/13527260902757530.
- Koenker, H., Keating, J., Alilio, M., Acosta, A., Lynch, M., & Nafu-Traore, F. (2014). Strategic roles for behaviour change communication in a changing malaria landscape. *Malaria Journal*13(1).
- Korda, H., & Itani, Z. (2013). Harnessing Social Media for Health Promotion and Behavior Change. *Health Promotion Practice, 14*(1), 15-23. doi:10.1177/1524839911405850.
- Kreps, G. L., & Maibach, E. W. (2008). Transdisciplinary science: The nexus between communication and public health. *Journal of Communication, 58*(4), 732-748.
- Kukreja, P., Sheehan, A., & Riggins, J. (2011). Use of Social Media by Pharmacy Preceptors. *American Journal of Pharmaceutical Education, 75*(9), 1.
- Laranjo, L., Arguel, A., Neves, A. L., Gallagher, A. M., Kaplan, R., Mortimer, N., & Lau, A. Y. (2015). The influence of social networking sites on health behavior change: a systematic review and meta-analysis. *Journal of the American Medical Informatics Association, 22*(1), 243-256.
- Luo, J. S., & Smith, B. N. (2015). Social Media *Mental Health Practice in a Digital World* (pp. 183-197): Springer.
- Manfred, B., Verena, S., & Daniela, B. S. (2012). Are social media replacing traditional media in terms of brand equity creation? *Management Research Review, 35*(9), 770-790. doi:10.1108/01409171211255948.
- Mangold, W. G., & Faulds, D. J. (2009). Social media: The new hybrid element of the promotion mix. *Business Horizons, 52*(4), 357-365. doi:<http://dx.doi.org/10.1016/j.bushor.2009.03.002>.

- Moorhead, S. A., Hazlett, D., Harrison, L., Carroll, J., Irwin, A., & Hoving, C. (2013). A New Dimension of Health Care: Systematic Review of the Uses, Benefits, and Limitations of Social Media for Health Communication *Journal of medical Internet research*(Vol. 15).
- Ngai, E. W. T., Tao, S. S. C., & Moon, K. K. L. (2015). Social media research: Theories, constructs, and conceptual frameworks. *International Journal of Information Management*, 35(1), 33-44. doi:<http://dx.doi.org/10.1016/j.ijinfomgt.2014.09.004>.
- Nordqvist, C., Hanberger, L., Timpka, T., & Nordfeldt, S. (2009). Health professionals' attitudes towards using a Web 2.0 portal for child and adolescent diabetes care: qualitative study. *Journal of medical Internet research*, 11(2), e12. doi:10.2196/jmir.1152.
- O'Dea, B., & Campbell, A. (2010). Healthy connections: online social networks and their potential for peer support. *Studies in health technology and informatics*, 168, 133-140.
- O'Grady, L., Witteman, H., Bender, J. L., Urowitz, S., Wiljer, D., & Jadad, A. R. (2009). Measuring the impact of a moving target: towards a dynamic framework for evaluating collaborative adaptive interactive technologies. *Journal of medical Internet research*, 11(2), e20. doi:10.2196/jmir.1058.
- Ogata Jones, K., Denham, B., & Springston, J. (2006). Effects of Mass and Interpersonal Communication on Breast Cancer Screening: Advancing Agenda-Setting Theory in Health Contexts. *Journal of Applied Communication Research*, 34(1), 94-113. doi:10.1080/00909880500420242.
- Osborne-Gowey, J. (2014). What is Social Media. *Fisheries*, 39(2), 55-55. doi:10.1080/03632415.2014.876883.
- PewResearch. (2015). Social Media Usage: 2005-2015. Retrieved 8 October, 2015 from: <http://www.pewinternet.org/2015/10/08/social-networking-usage-2005-2015/>.
- Portsmouth, L., Trede, F., & Olsen, M. (2012). Communicating with the community about health.
- Rainie, L., Brenner, J., & Purcell, K. (2012). Photos and videos as social currency online. *Pew Internet & American Life Project*, (September 2012), Retrieved on 22 July, 2015 from: <http://pewinternet.org/Reports/2012/Online-Pictures/Main-Findings.aspx> (accessed 8 October 2012).
- Ruel, M. T., Menon, P., Habicht, J.-P., Loechl, C., Bergeron, G., Pelto, G., Hankebo, B. (2008). Age-based preventive targeting of food assistance and behaviour change and communication for reduction of childhood undernutrition in Haiti: a cluster randomised trial. *The Lancet*, 371(9612), 588-595.
- Scanfeld, D., Scanfeld, V., & Larson, E. L. (2010). Dissemination of health information through social networks: Twitter and antibiotics. *American journal of infection control*, 38(3), 182-188.
- Seybert, H. (2011). *Internet use in households and by individuals in 2011*. Retrieved on 20 July, 2015, from: [http://www.ecdl.gr/el/presscenter/press/news/Documents/Digital\\_Agenda\\_survey.pdf](http://www.ecdl.gr/el/presscenter/press/news/Documents/Digital_Agenda_survey.pdf).
- Shaffer-Hudkins, E., Johnson, N., Melton, S., & Wingert, A. (2014). Social media use among individuals with diabetes. *International Journal of communication and health*, 4: 38 - 43.
- Signorini, A., Segre, A. M., & Polgreen, P. M. (2011). The Use of Twitter to Track Levels of Disease Activity and Public Concern in the U.S. during the Influenza A H1N1 Pandemic (Tracking Influenza Activity with Twitter). *PLoS ONE*, 6(5), e19467. doi:10.1371/journal.pone.0019467.
- Snyder, L. B. (2007). Health communication campaigns and their impact on behavior. *Journal of Nutrition Education and Behavior*, 39(2), S32-S40.
- Taylor, H. (2012). Social Media for Social Change. Using the Internet to Tackle Intolerance. *Institute for Strategic Dialogue*, Retrieved on 18 July, 2015 from: <http://tsforum.event123.no/UD/rehc2013/pop.cfm>.
- The Manoff Group. *Technical brief, defining social and behavior change communication (SBCC) and other essential health communication terms*. 2012. Retrieved on 24 July, 2015 from: <http://manoffgroup.com/documents/DefiningSBCC.pdf>
- Vance, K., Howe, W., & Dellavalle, R. P. (2009). Social internet sites as a source of public health information. *Dermatologic Clinics*, 27(2), 133-136, vi. doi:10.1016/j.det.2008.11.010.
- Vandelanotte, C., Kirwan, M., Rebar, A., Alley, S., Short, C., Fallon, L., Duncan, M. J. (2014). Examining the use of evidence-based and social media supported tools in freely accessible physical activity intervention websites. *Examining the use of evidence-based and social media supported tools in freely accessible physical activity intervention websites*, 11(1), 105.
- Wakefield, M. A., Loken, B., & Hornik, R. C. (2010). Use of mass media campaigns to change health behaviour. *The Lancet*, 376(9748), 1261-1271.