

Using Social Media to Facilitate Patient-Provider interaction

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Abstract

Aim *To uncover and appraise literature related to social media use in facilitating patient-provider interaction.*

Methodology *A literature review was conducted using the meta-narrative method described by Greenhalgh.*

Findings *The two most important meta-themes identified in this article are the historical context of Web 2.0 technology and facilitation of patient-provider interaction.*

Discussion *The digital divide is an important concept that factors heavily when considering the efficacy of social media outlets with access to technology being presented as a significant barrier to social media utilization.*

Conclusion *Based on the information uncovered in this literature review, it can be concluded that social media outlets are powerful tools and have the potential to successfully facilitate health care interaction.*

1. Introduction

The field of health informatics is extremely interesting and continually expanding. With the emergence of a computerized culture, we can look at health informatics to help solve many traditional problems within the health care field. Additionally, health informatics can not only overcome geographical barriers such as distance, but also build on and improve what is already working well.

Social media outlets are prevalent – whether this is in the form of social networking websites such as Facebook, Myspace and Bebo or an online support forum such as the one found at www.thelowdown.co.nz. These social media outlets share some common characteristics, such as being wide-reaching, user-centric and collaborative in nature [1].

Increasingly, health professionals are integrating the way they work with social media in an attempt to provide better care for their patients as well as information sharing [2]. Within this context, there has never been a better time to explore the possibility of using social media to facilitate health care interaction. This article will consider some key features of using social media to facilitate patient-provider interaction.

Articles discussing social media for the purpose of enhancing patient-provider communication vary greatly. Some, such as Biggs, Lowe, et al. [3] indicate that use of social media in health care has been problematic. However, in contrast to this, other research within the field illustrates the advantages of using social media within health care [4]. Despite this contrast, a wide range of articles indicates that the use of social media within a health care environment is desirable [5]. Some of the key reasoning behind this includes elimination of barriers such as accessibility and a reduction in cost. Similarly, patients have reported being more comfortable conversing with health professionals via social media for matters that may otherwise be embarrassing in a face-to-face consultation [6].

While the above emphasis is on the advantages associated with patient-provider interaction, there are other advantages. One example is improved communication between doctors, consulting with fellow medical practitioners on opposing ends of the globe [2]. Another example includes enhanced patient-to-patient interaction as characterised by the various benefits of online social support groups [7].

In this article we will describe the method we used to conduct the literature review and the findings. The discussion will explore social media features in light of patient-provider interactions and draw some conclusions.

2. Method

Greenhalgh [8] proposed a qualitative, meta-narrative method for conducting systematic literature reviews. The method involves defining a preliminary search query and identifying the literature databases to be searched. Once this has been completed and the query has been run, the returned articles are analysed thematically. Additional literature is identified during the analysis period, collected and included for further analysis until saturation is achieved. In analysing the content of the literature, the researcher identifies meta-narratives and analyses, analysing the literature content as though it were reflections on narratives, i.e. data itself. The meta-narratives become the findings of the literature review.

It was decided that a literature review based on Greenhalgh's method [8] was best suited to the chosen topic (Web 2.0 and patient-provider interactions). Greenhalgh's methodology is appropriate within this field due to a lack of traditional systematic evidence such as randomized control trials.

2.1. Scoping Literature Search

A scoping literature review was conducted using the Medline search engine to identify articles related to the subject matter. This search proved helpful as it provided some key information such as the definitional meaning of Web 2.0 technology [1] as well as its various advantages when utilized within a health care environment [5].

2.2. Analysis and Refinement of Meta-themes

Following the scoping literature search, certain meta-themes (overarching narratives) began to emerge. For the purpose of this article, the two-themes of focus are the historical context and some aspects of the development of Web 2.0 and facilitation of patient-provider interaction.

2.3. Finding the Bulk of Research Literature

Once the query was developed it was run through Medline, the Google search engine, and Google Scholar. Articles relating to the research question were read superficially to ensure that they did indeed cover the topic of the review before they were included. From this reading certain additional articles were identified, i.e. from the articles' reference lists. This procedure was done on some key articles. For example, within the first meta-theme, one article that largely sought to describe Web 2.0 technology and Social media was 'What is Web 2.0?: ideas, technologies and implications for education' [1].

3. Findings

3.1. Context of Web 2.0 - New Avenues of Information Sharing

Before we can understand what social media consists of, it is essential to understand the connective technology which makes social media possible – Web 2.0. Web 2.0 has many definitions. Some simply refer to it as 'cool' new technology, whereas others see it as a much larger phenomenon [1].

At the beginning of the internet revolution, web pages, and indeed web design itself, was predominantly revolving around building several html-hypertext pages with static text. In essence, the initial website technology (now referred to as Web 1.0) hosted a basic read-write functionality allowing authors to publish websites using computer languages such as HTML and Java. These pages were made available for viewers in a 'read-only' format [1]. The important implication to note here is that with Web 1.0 'read and write' processes could not occur simultaneously. Authors were only able to publish a website, whereas readers were only able to take this information in, without contribution or collaboration. This form of publication can be likened to a newspaper. The information is published by an individual company with many readers subscribing to the newspaper. One party is assigned the 'write' function whereas the other is assigned the 'read' function.

Enter Web 2.0 – a revolutionary advent of tools which allowed the internet to be used in collaborative ways never before possible. The original aspects that made Web 1.0 great ('write and read' capabilities) were retained and expanded, to incorporate a more social and participatory framework [9]. This essentially forms the crux of Web 2.0 – a

social and participatory network operating through simultaneous read and write functionality, for the purpose of information sharing. The ultimate aim was to allow end-users much more control over the type of content viewed. Similarly this allowed knowledge banks to expand, with expertise drawn on from every individual with access to this technology [9]. The result sees a user-centric framework, allowing social interaction through Web 2.0 media on a never-before-seen scale. This user-centric framework allows individuals to get what they want, how they want it and in a convenient manner. Clearly, a striking contrast can be seen when comparing this to Web 1.0 technology which did not facilitate interaction, nor participation on such a large scale basis [1]. With the advent of Web 2.0 technology, information generation and sharing was opened up to all sections of society, not only a select few scientists [9].

3.2. The Inception of Social Media

Outlets became available as a source of connecting individuals together through a collaborative and participatory framework. This essentially forms the definitional basis for Social Media outlets. The definition is reflected by Kaplan and Haenlein [10] who state that social media are internet-based applications, designed to follow through with the foundational basis of Web 2.0 technology, encompassing exchange of information generated by users for the benefit of other users.

Social media applications exist in many forms and websites. Facebook is perhaps the most overwhelming example given its high usability in recent times, ranking as one of the most visited websites on the internet, hosting some 500-million active members. Of these members, over half use Facebook on a daily basis [11].

3.3. Descriptions of Different Social Media

Facebook aside, there is a panoply of other social-media applications. Prominent examples include blogs, wikis, videoconferencing, multimedia blogging and of course the wide-ranging variety of social networking websites. While each of these applications have some distinctive features, it is important to note that they are all grounded within Web 2.0 philosophy – information sharing and assimilation [10].

eHealth, as its name suggests is the amalgamation of electronic information transfer (communicative technology) and delivery of health care. According to Eysenbach [12], this concept began to surface as early as 1999. The term served as a revolutionary meme, signifying the possible advantages which can be reaped from amalgamating internet technology and health care. On a similar basis, Paton [13] goes a long way to reinforce this by showing the usefulness of using internet forums to elicit health care communication among those interested in the field.

Web 2.0 technologies opened up unique new ways of delivering health care. The nature of social media challenges traditional barriers of information sharing – the distinguishing aspects of social media are collaboration and user-centricity. These aspects hold an important application within the health care field as service delivery must be personalized to meet individual needs. Similarly, the natural progression of using Web 2.0 technology (such as the development of social media outlets) overcomes geographical barriers to health care delivery.

Using telecommunication technology, such as Web 2.0-based applications can aid the delivery of health care services at a distance – dubbed ‘Telemedicine’ [14]. Overcoming geographical barriers is perhaps one of the most overt advantages present. Other advantages associated with social-media use will be explored throughout this article.

3.4. Medicine 2.0

Medicine 2.0 hints at the integration of medicine and Web 2.0 applications, promoting the values held within Web 2.0 philosophy, such as sharing, collaboration, openness and user-centricity. The purpose of this integration is to allow for facilitated communications between all parties involved in the health care process which include (but is not limited to) patients, clinicians, researchers and other health professionals [5].

3.5. Integrated Example of Social Media and Health Care

While the above has largely dealt with explaining what Web 2.0 is, it is now necessary to reflect on a modern-day example that illustrates the integrated use of social media outlets. The Centre for Disease Control (CDC) has provided an example that illustrates social media tools in action. In this case, the CDC was faced with an outbreak of the H1N1 virus, prompting quick action in vaccinating citizens of the United States. In the first instance, the website Flickr (photo sharing social media outlet) was used to evoke an outbreak disaster response. This involved circulating images through Flickr, allowing for a disaster response message to be conveyed widely, quickly, efficiently and in a user-centric

manner [15]. While the CDC had previously experimented with Facebook and MySpace, this H1N1 response campaign is unique in that it is the first large scale campaign that has successfully integrated social media use. The use of Flickr was soon expanded to allow for utilization of podcasts, Really Simple Syndication (RSS) feeds, Facebook and MySpace. The CDC chose these specific outlets for conveying health warnings and information because they believed that an infrastructure built on open communication exchange can reinforce and personalise health warning messages to avoid disaster [15].

This example shows that through social media use, the department was able to deliver a timely, personalized and widely targeted message. According to Reynolds [15], heavy use of social media outlets was correlated with an improved public perception of the CDC department, as characterised by a jump in its satisfaction index from 74 to 82 points (on a 100 point scale). This jump in the satisfaction index illustrates the favourability of using social media outlets to convey health-related information.

3.6. Social Media for Facilitating Patient-Provider Interaction

This section will focus on how social media tools have a strong potential to educate, engage and empower patients through facilitating interaction with health care professionals. Before delving into this subject, it is necessary to reinforce the idea that patients currently look for and access health care information on the internet. In America this figure is a substantial 61% of all adults [16]. By accessing health information, many benefits are derived. This includes uptake of information (education), engagement with medical professionals, and empowerment. [16]. Health information is accessed through various means of social media such as blogs or websites [16]. Because of this, it makes sense that efforts should be made to enhance an already prevalent behaviour, for the purpose of improving information quality that is filtered through to patients. Many patients (especially those with chronic conditions) allow such information to affect their day-to-day health care decisions. Due to the potentially large impact of this information and subsequent decision making, it is necessary to establish reliable avenues through social media that make it simple for patients to interact with health care professionals [17].

3.6.1. The 'Hello Health' Model

Many organizations have attempted to leap ahead of the social media bandwagon to develop models for incorporating social media into care pathways [17]. These organizations have incorporated a variety of tools such as text messaging, website portals and video conferencing applications to facilitate interaction. One example that has demonstrated the success of social media in patient-provider interaction is the 'Hello Health' model employed in Brooklyn, New York [17]. This model integrates many themes of social media-facilitated care, much like a tapestry, that centralises the patient's needs. After paying an enrolment fee, patients are able to interact with practitioners via secure website, email and instant messaging. Much in line with the underlying benefits associated with social media, instant and timely (in this case, round-the-clock) access to practitioners can be observed [17].

Other benefits that can be clearly seen here include improved access (overcoming traditional barriers such as lack of transport and geographical isolation), is of particular importance to the field of health informatics. Conversely, these benefits are not limited to the patient. The medical practice also benefits in ways such as improving costs associated with paper, telephone calls and other overhead components. This improvement of cost, in turn, has another important effect. Lower practice costs will generally mean the savings can be passed on to potential patients, providing a more cost-effective means of health care delivery [17].

3.6.2. Social media and geographic barriers to health care

Going back to geographic barriers – it can be seen that, traditionally, rural populations show poorer health outcomes as opposed to their urban counterparts [18]. Utilization of social media can provide alternative (electronic) pathways in connecting rural patients with health care providers. This connective potential can have a flow on effect to reduce health disparities associated with rural populations. One word that is of importance in this paragraph is 'potential'. While social media, in theory can provide many favourable benefits, its success within a rural setting is dependent on certain prerequisites [17], an adequate internet connection being a primary one.

In a similar fashion, utilization of social media tools can also confer some indirect benefits for patients. Family members and friends often want to be involved in the service provision. At the same time, patients often want to keep their family members and friends up to date on their condition. Social media tools can allow practitioners to actively communicate with those close to the patient, e.g., a nurse uses a social medium (Twitter) to provide updates for a patient's family and friends while they were undergoing surgery. This surgery generated numerous 'tweets', which in turn helped to ease the family's anxiety [19].

Having said this, while possible elimination of barriers (and reduction in health inequities) through use of social media is a welcome step to facilitating health care interaction, there are potentially serious risks. Chou, Hunt et al. [20] have established that social media use was not equivalent amongst all age strata. For example, the most prevalent population to access social media outlets was the 18-24 year age group. Subsequent age groups showed a downfall in terms of access, with older individuals being far less likely to access social media.

An additional finding from Chou, Hunt et al. [20] which is of particular significance revolves around social media access depending on ethnicity. In this particular study, it was shown that access is not equally distributed amongst ethnic groups, for example non-white Americans accessing the internet were more likely to make use of social media as opposed to their white American counterparts. However, while this may seem like an encouraging statistic, the research compounds certain variables. The initial hurdle of 'access' to the internet needs to be carefully considered.

3.6.3. The 'Digital Divide'

At this stage, it is necessary to acknowledge the concept of the 'Digital Divide'. This divide refers to a gap that groups individuals in one of two categories; ones that have effective and adequate access to information technology tools and those who have limited or non-existent access. Many different barriers can cause this divide. They include social barriers, for example, social isolation with no available broadband connection, knowledge barriers such as having limited computer literacy as well as financial barriers, such as not being able to afford the technology [21].

4. Discussion

In assessing the historical context of social media and the various examples such as the CDC and the 'Hello Health' model which have made use of it within a health care setting, many contentious issues begin to emerge. This section will focus on the real world efficacy of using social media, exploring certain aspects which can affect utilization.

4.1. Social Barriers and Inequities Among Rural Populations

Throughout this document, various advantages associated with social media use have been apparent. One of the most prominent is the ability to overcome geographical isolation barriers, as demonstrated in facilitating patient-provider interaction through the Hello Health model. For the purpose of this discussion, rural populations will be defined as those living away from urban centres and will therefore be synonyms with geographically isolated populations. As such, the ability to overcome distance is perceived as an advantage because geographically isolated populations generally present with poorer health outcomes [18].

Before going any further, it is necessary to establish that 'rurality' in itself is not necessarily the contributing factor accounting for poorer health outcomes of those living in isolated areas. As Smith, et al. [18] state, aspects that affect rural populations, such as lower availability of health care services are more likely to account for this than rurality on its own. This conclusion is highly plausible as lower availability of health services is a documented issue associated with rural populations [22]. In turn, lower availability will mean a greater inconvenience faced by rural and/or isolated populations in consulting healthcare professionals. Consequently, social media outlets have the potential to provide rural populations with these services. This provision of services may in turn allow for a reduction in the outcome gap between urban and rural populations [23].

Based on the information presented earlier in the article about the advantages of social media outlets in facilitating health care interaction, it becomes tempting to simply conclude that these outlets should be fully utilized for their inequity reducing abilities. However, instead of jumping to this conclusion, it is essential to consider the wider-environment. Firstly, while Smith, et al. [18] point out that rural populations face poorer health outcomes, Manious and Kohrs [24] indicate that significantly poorer health outcomes are only faced by older adults living in rural locations, whereas the difference between rural and urban population young adults is almost-non-existent. The reason behind highlighting the above is that many studies emphasise the sub-group of older adults living in rural populations as being the worst off in terms of health care outcomes. Accordingly, for any social media intervention to have the most impact, it will need to target this population sub-group to reduce health inequities.

This issue is further compounded by the fact that earlier statistics mentioned that social media use is likely to decline with older age groups [20]. In contrast, Smith and Gray [25] demonstrate that provided their basic needs are met, older patients do not have any issues interacting via social media outlets with health professionals, e.g., through videoconferencing. This could mean that prima facie, older patients may have trouble accessing social media, however, with little a training or facilitation this can be easily overcome. The above is supported in that according to Chou, et al. [20], social media usage declined with age in absence of supervision and training. However, in Smith and Gray [25],

patients reported to outreach clinical centres then successfully communicated with health professionals via videoconferencing through these centres (staff members were available to assist in initiating the interaction).

The other environmental aspect we need to consider is the availability of technology. Communicative technology such as videoconferencing is perhaps some of the most useful for facilitating health care. It is also apparent that an internet connection of at least 300 kilobytes per second is required to successfully utilize this [26]. OECD broadband statistics generally back up the fact that average broadband speed (nation-wide) within New Zealand is well up to standard [27]. While nation-wide average broadband speed may be up to standard, availability must also be considered. To get a better picture of overall technological availability it is necessary to assess information related to internet access by geographical locality. According to statistics New Zealand, in 2009, only 55 percent of rural households had ready access to broadband internet [28].

Accordingly, rural populations are, on average, less likely to have access to an adequate broadband connection for fully reaping the benefits associated with using social media to facilitate health care interaction. This calls into question the efficacy of simply instituting social media-related technology without making sure adequate infrastructure is in place to support it. Access to broadband must be a key area of focus if technology is implemented to facilitate access through social media outlets. Reconsidering the above, a minimum of 300 kilobytes per second connection is needed to provide adequate video and audio feedback in videoconferencing. While the average connection speed of New Zealand broadband may appear to satisfy this requirement, availability is lagging, and therefore, in many rural households this prerequisite is not met.

Some research limitations were inherent in this literature review. These include an accelerated rate of article production, meaning newer articles may have been ignored or missed, and research bias may be apparent in promoting or denouncing the usefulness of social media outlets depending on whether the researcher's perspective is grounded primarily in information technology or healthcare.

5. Conclusion

In conclusion, this article provided an overview of a meta-narrative literature review about the social media and its role in patient-provider interactions, and described issues around social media use. In the first instance, it was decided that the Greenhalgh methodology would be the most appropriate means of conducting this literature review owing to the meta-narrative structure of the literature and lack of systematic evidence.

The findings indicated that there are advantages and disadvantages associated with social media use for facilitating health care interaction. In terms of patient-provider interaction, advantages included cost reductions and overcoming distance. Similarly, disadvantages were also inherent – this included availability of necessary technology and certain utilization issues.

The following three conclusions can be drawn:

- Geographically isolated populations face limited access to health professionals, and social media outlets have the potential to combat this. Taking advantage of social media outlets may require professional facilitation and support. People will use social media, e.g. Hello Health, if it's available and if they get help while learning to use the technology.
- The digital divide is a concept that segregates individuals based on their ability to effectively and adequately access information technology tools. This divide should be addressed as part of any initiative to reduce health inequalities.
- Availability (rather than sophistication) of technology is an issue that needs to be addressed as a priority. In New Zealand nation-wide average broadband speed is adequate, but isolated and/or rural populations are less likely to have access to a broadband connection.

As a result, a direction for future research can include focusing on issues surrounding the digital divide and its effect on technological utilizations. The ability of social media to improve rural wellbeing is important; more research needs to be done in this area to determine how to implement interventions within rural communities as well as means of assessing their effectiveness. Similarly, a more detailed look at the availability of the infrastructure to support these social media interventions can shed light on how to deliver optimal results. Ultimately, social media outlets showed significant potential for enhancing patient-provider interaction as well as supplying other benefits.

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