Critical review of viewership and contents of official healthcare organization websites

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Abstract

Introduction: We all use the World Wide Web to access health-related information regarding disease or healthy behavior. Its wide use and economic efficiency should be considered in preventive healthcare. In this research, we want to determine if the websites of official Slovenian healthcare organizations are suitable for content sharing in health promotion. *Methods:* Using stratified sampling, we gathered estimations of the average number of daily visitors of websites of Slovenian public healthcare organizations and a subselection from the 200 most visited Slovenian websites to identify those most suitable for health-related topics. Any detected health promotion content was noted. Data was collected between 13th and 15th April 2017. *Results:* Estimations of average daily visitors from 46 official healthcare organization websites (M=62.5; IQR=100.0) were compared to 34 suitable websites with high viewership nationally (M=10081.5; IQR=6720.9). Official healthcare organization websites included health promotion content as health-education and event information. *Discussion and conclusions:* As expected, official healthcare organization websites have low viewership nationally and are therefore less suitable for health promotion. Websites owned by pharmacies were visually most sophisticated and included health promotion content most frequently (product marketing). Health promotion should take place on established websites with health-related topics to reach a larger number of people.
Key words: health promotion, preventive care, the World Wide Web

Modern approaches in healthcare transfer certain amounts of responsibility from healthcare professionals to patients themselves, since they are the ones who control the parameters of their disease, avoid harmful behaviours and regularly take prescribed medication in their home

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environments (Taylor et al., 2014)others lack research explicitly on self-management and, consequently, some patient groups may be overlooked. AIM To undertake a rapid, systematic overview of the evidence on self-management support for LTCs to inform health-care commissioners and providers about what works, for whom, and in what contexts. METHODS Self-management is \u2018the tasks .\u2009.\u2009. individuals must undertake to live with one or more chronic conditions .\u2009.\u2009.\u2009[including] .\u2009.\u2009.\u2009having the confidence to deal with medical management, role management and emotional management of their conditions\u2019. We convened an expert workshop and identified characteristics of LTCs potentially of relevance to self-management and 14 diverse exemplar LTCs (stroke, asthma, type 2 diabetes mellitus, depression, chronic obstructive pulmonary disease, chronic kidney disease, dementia, epilepsy, hypertension, inflammatory arthropathies, irritable bowel syndrome, low back pain, progressive neurological disorders and type 1 diabetes mellitus. Each day they make choices about treatment and actively participate in the healthcare process and disease management. Not to concentrate only on disease, self-management is defined in a broader sense as knowledge, skills and virtues needed to adequately care for one's health. This includes an active and sustainable management of disease and healthy lifestyle choices. Encouraging self-management is also a foundation for patient-centred and patient-centric approaches in healthcare, assuming that patients have an active role and make their own health-related decisions. Patients are partners in relationship with healthcare professionals in contrast to a hierarchical relationship in more traditional approaches (Flott et al., 2017). To make patients capable and competent of making informed decisions about their health, it is necessary that they are well informed (Hibbard et al., 2017).

Although television, printed media, and the community can all be potential sources of information, this article will focus on the world wide web, on account of its growing popularity and wide usability. It is designed in a way that enables patients to search for desired information at any given time, which makes it useful when looking for information about a specific topic, like a current disease or certain symptoms. Although the World Wide Web is mostly used by younger generations, many elderly patients use it to gather information about their health (Medlock et al., 2015)how trustworthy and reliable they find these resources, and the difficulties they face in obtaining health-related information. A 41-item survey designed to understand the information-seeking characteristics of older adults was developed and distributed to retirement communities. Some items were taken from the Health Information National Trends Survey. Of 1520 surveys, 403 were returned completed (26.6%, and their numbers are expected to grow in the future.

The patient's information seeking behaviour can generally be divided into (1) seeking self-diagnosis information and (2) seeking information about an already diagnosed condition (Gage and Panagakis, 2012). Seeking self-diagnosis information is less desirable, and is very unreliable, since a non-health profes-

sional may have difficulty distinguishing information relevant to their condition. In a study where patients entered their symptoms into the Google search engine, only about 15 % were returned their correct diagnosis as a result (Tang and Ng, 2006). On the other hand, patients with already diagnosed conditions can use search engines to educate themselves about their disease. Many healthcare professionals and organisations publish relevant information online, and since many patients already know their diagnosis, they can easily identify contents relevant to them (Promislow et al., 2010)a comprehensive question list was developed in the three following areas: medical information (seven items.

It is entirely possible for patients to receive false, deceiving or even harmful information online, since massive amounts of information and different sources make it impossible to adequately control their quality (Ellsworth et al., 2016). Patients should therefore always remain in strict co-operation with healthcare professionals before making decisions based on web-gained information. Online sources may have intentions that do not consider an individual's health a priority, but rather publicity or financial gain. According to a United Kingdom based study, public health interests are likely under-represented, since only 6 % of mastectomy related contents online were published by healthcare organisations. The rest was published by private companies or private healthcare providers (Light et al., 2014), thus corporative interests should be considered as a possible threat to quality of information.

Because online information seeking is already present and will most likely hold an even greater importance in the near future, this phenomenon must be considered, not only in direct patient-healthcare professional relationship, but also in planning public health strategies. The world wide web can be used as an economically efficient tool for offering health promotion contents to a vast number of patients and achieve patient empowerment with better health outcomes. The World Wide Web ensures that anyone can publish freely, but in reality few healthcare professionals have the knowledge needed to effectively create online content. That is why an entry point is required – a website or platform that enables an individual to publish content online without any specific knowledge or skills. In this research, we consider the official websites of Slovenian healthcare organisations as possible entry points for health promotion and content sharing.

Methods

A cross-sectional study was conducted in the period between April 13th and 14th 2017. The data acquired is freely available from website traffic estimator services. In this study, alexa.com and hyperstat.com were used to gather data. All public Slovenian healthcare organisations listed by The Health Insurance Institute of Slovenia were included in the population. Stratified sampling using country regions as strata offered 60 potential official websites of healthcare organisations. Each website was visually evaluated during data gathering so that presence of health promotion content could be noted. An estimate of the aver-

age visitor count per day was gathered for every included website and a list of 200 most visited websites in Slovenia was obtained, of which 34 were identified as suitable for health-related topic implementation.

For some of the websites, data was unobtainable due to low visitor counts, which resulted in no data availability in website traffic estimators. Some data was unobtainable due to website design, so an accurate estimate of Slovenian visitors per day could not be obtained for international websites, even if they are frequently accessed from Slovenia.

Results

A comparison of 46 official websites of Slovenian healthcare organisations and 34 highly visited websites in Slovenia suitable for health-related topics was made in the final analysis. Websites occurring more than once during sampling and websites with inaccessible data were not included in the final analysis. During stratified sampling healthcare organisations were divided by region and type of organisation ("Community health centres", "hospitals", "pharmacies", "social institutions", "spas", and "other" (e.g. National Institute for Public Health and National Laboratory of Health, Environment and Food)).

Health promotion content was categorized as either health education or information about preventive events. The number of websites including either type of content is presented in Table 1.

Table 1: Number of included websites featuring health promotion content.

Organisation type	*Health education content*	*Information about preventive events informing*	*Number of included websites*
Community health centre	5	6	10
Hospital	4	4	10
Social institutions	1	2	8
Pharmacies	9	4	9
Spas	0	1	7
Other	1	2	2
Sum	20	19	46

Differences in website design were also detected. Pharmacy owned websites were visually most appealing and sophisticated. They included a lot of health promotion content and even forums, enabling users to post medicine-related questions to pharmacists. It should be noted that marketing interests are clearly present, since most health promotion content features products that can solve the described medical issue. Spa websites are also visually very appealing, but were lacking health promotion content.

Using hyperstat.com, estimates of average unique daily visitors for 46 official websites owned by health organisations were gathered. Data was used as an indicator for the number of people the published health promotion content may reach. Number of visitors varies according to organisation type, with the largest national reach in the categories "other" and "spa". The Medians of estimates of daily number of unique visitors according to different types of organisations are shown in Figure 1. Overall the numbers of daily visitors of official healthcare organisations websites are not inconsiderable (M=62.5; IQR=100.0), but their national ranking is lower. Among them nijz.si (owned by The National Institute for Public Health) ranks the highest, being the 520th most visited in Slovenia. The same data was collected for 34 websites among the 200 most visited in Slovenia (M=10081.5; IQR= 6720.9). Their design enables and often already includes health related topics. The sampled websites are either based in Slovenia or they are international but highly visited in Slovenia. The list included web-based media (24ur.com, rtvslo.si, slovenskenovice.si, etc.), moderated and unmoderated forums (over.net, vizita.si, alter.si, etc.), social networks (facebook.com, twitter.com, linkedin.com, etc.) and platforms for free content sharing (youtube.com, blogspot.si, wordpress.com).

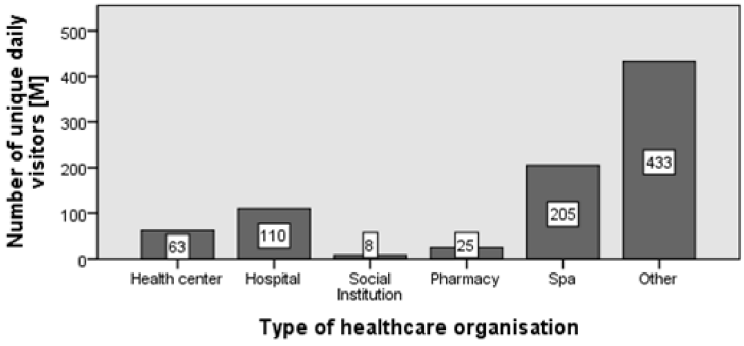

Figure 1: Medians of daily numbers of website visitors per organisation type.

Discussion

Official websites of healthcare organisations are already used to share health promotion content to some extent. Health education content was detected, and information about preventive events such as parenting school, Nordic walking classes, cheaper vaccination offers, etc. The primary goal of these websites is to inform patients about the working hours and the nature of the healthcare process in the particular organisation. They effectively serve their purpose, but in health promotion a larger population reach is needed (Korda and Itani, 2013).

Since many highly-visited websites include health-related topics we can assume there is a general interest in the population for health-related information. Even content sharing websites such as youtube.com include numerous

health-related videos (Chalil Madathilenstein et al., 2015). Online communities emerge as a result of common interests, goals and values, including the area of health and illness (Atanasova and Petrič, 2014). These communities benefit the patient in ways only possible outside a patient-healthcare professionals relationship since they provide empowerment and sense of participation and affiliation within the community (Petrovčič and Petrič, 2014). Sadly, these publications and relationships often lack concrete co-operation with healthcare professionals, which is a result of the poor utilisation of the world wide web in public health strategies. Social networks should also be the focus of healthcare professionals, since those platforms enable engagement and continuous sharing of content among users. Social networks can be used for efficient health promotion with an emphasis on behaviour changes and meaningful engagement in content design (Korda and Itani, 2013; Kite et al.,2016). Efforts to create, review and efficiently share health related content online should be made to harness what new technologies have to offer. Expert knowledge is wasted when content is shared on websites with inadequate viewership or on leaflets lying around waiting rooms waiting to be read.

The World Wide Web also has potential to reach specific population groups. This can be illustrated with pornography addiction, which is becoming prominent in recent years (Beyens et al., 2015). The simplest way of approaching this problem is by strategically placing content online. Since pornography addiction is most common among men, websites like moskisvet.com (website tailored for men's interests) or even adult websites like avanture.net (online dating, an affair-based website) can be used in raising awareness of different forms of risky sexual behaviours. To take that approach further, browsing habits of individuals can be analysed in order to identify and reach individuals at risk of developing pornography addiction (adult websites noted excessively in their browsing history). These strategies are already employed in targeted advertising, where data is used to profile consumers and deliver specially tailored advertisements to an individual. The same strategies can be adopted for reaching patients who can benefit the most from certain health promotion content. We chose pornography addiction as an example after finding that 14 adult content websites were listed among the 200 most visited websites in Slovenia, with bongacams.com ranked 20th and pornhub.com ranked 25th nationally. The same approach can be otherwise used in different areas such as pregnancy healthcare, early maternity healthcare, eating disorders prevention, depression and internet addiction detection, etc.

Health promotion should take place on already established websites in close co-operation with healthcare professionals. A great example of this symbiosis is med.over.net, a website that enables patients to read verified health-related content and connect with healthcare professionals about their own health-related problems. Understanding the world wide web not only as a means of communicating with more patients at the same time, but also as

means of communication with a particular population group enables us to better utilise the accessible technology in modern public health.

Conclusions

This article is based on estimates which can only provide an approximate depiction of true website viewership. Even so, based on the substantial differences found, a conceptual framework can be provided for a more efficient health promotion contents sharing. Keeping this in mind, healthcare professionals should shift their focus to already established websites that already have a larger audience in order to promote health more efficiently and have a larger impact on the health of the population.

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