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How do online communities matter? Comparison between active and non-active participants in an online behavioral weight loss program

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ABSTRACT

This paper contributes to the discussion on the potential of different social media platforms in health behavior change programs. More specifically, it compares the outcomes of participation in different online community platforms in an online behavioral weight loss program. Results show that active participants on online community platforms perceive their service experience more positively, follow instructions more precisely, have a more positive perception of achieving their goals, and also feel that they receive more social support than do those who do not actively participate in online community channels, although no differences were found related to weight loss itself. Furthermore, interesting differences were found in the perceptions of participants on different types of social media platforms. For example, those who actively participated in a Facebook-based online community reported receiving more emotional support than did those who participated in a discussion forum-based online community. The results shed light on what types of outcomes active participation in different kinds of online communities might have for individuals. A description is provided of possible strategies for service providers in terms of facilitating the service experience that they provide.

1. Introduction

The internet and social technologies have provided interesting new platforms to implement different kinds of health-related interventions aiming for behavior change. In health care, information systems have great potential to reduce costs and improve outcomes (Fichman, Kohli, & Krishnan, 2011; Kelley, Chiasson, Downey, & Pacaud, 2011; Kolodner, Cohn, & Friedman, 2008). One interesting, cost-effective, and efficient aspect is to harness social media to support health behavior change. Online communities in social media, often called online support groups (OSGs), are used extensively in giving and receiving social support, such as informational and nurturing support (see, e.g., Ballantine & Stephenson, 2011; Coursaris & Liu, 2009; Gray, 2013; Hether, Murphy, & Valente, 2014; Hwang et al., 2011; Patel, Chang, Greysen, & Chopra, 2015). Although social media platforms provide effective ways to participate, it remains unclear what types of benefits participation can provide in health behavior change.

Some studies have yielded modest evidence supporting the effectiveness of social media in health-related behavior change. These studies include a recent systematic literature review of health behavior change interventions (tobacco and alcohol consumption, dietary intake, physical activity, and sedentary behavior) that used social media (Maher et al., 2014); a systematic review and meta-analysis of randomized controlled trials (RCTs) of social media interventions for diet and exercise behavior (Williams, Hamm, Shulhan, Vandermeer, & Hartling, 2014); and a systematic review of social media use in chronic disease treatment (Patel et al., 2015). These literature reviews conclude that the RCT studies have rarely reported significant differences in key outcomes (such as weight loss or increased physical activity) between control groups and groups having access to social media elements (Maher et al., 2014; Williams et al., 2014). However, in the most studied RCTs, the specific role of social media cannot be tracked, since often the social media component has not been the only component that has been modified in an RCT setting (see Maher et al., 2014; Patel et al., 2015; Williams et al., 2014). For example, in RCT studies evaluating the effect of an online forum, in addition to the availability of the online forum, various digital elements were added such as tailored messages or e-mail feedback (see Gow, Trace, & Mazzeo, 2010; Harvey-Berino, Pintauro, Buzzell, & Casey, 2004; Hurling et al., 2007; Morgan, Lubans, Collins, Warren, & Callister, 2011; Tate, Jackvony, &

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Wing, 2006); mobile reminders (Hurling et al., 2007); self-monitoring tools (Tate, Wing, & Winett, 2001, 2006); and additional information via websites (van Genugten et al., 2012). More research is needed to clarify the specific role of social media (Hurling et al., 2007).

Furthermore, low participation rates have been a major limitation in studies of interventions related to social media, restricting the interpretation of the results of previous studies (Morgan et al., 2011; Pullen, Hageman, Boeckner, Walker, & Oberdofer, 2008; Rydell et al., 2005; Tate et al., 2006; Webber, Tate, Ward, & Bowling, 2010; Williams et al., 2014; Womble et al., 2004). In some interventions, the lack of significant differences between the control group and the group that had access to the social media platform may be a result of low utilization of the provided channels (Cavallo et al., 2012), which prevented participants from achieving the expected benefits. Many of the studies do not pay enough attention to the frequency of use of these social media channels in interventions; the channels do exist, but their existence alone does not in itself bring benefits. As Oinas-Kukkonen (2013) has observed, if a system is not used, it is not likely to be very persuasive; therefore, it is not likely to be effective. For that reason, it is important to pay attention to the usage of social media platforms when evaluating their benefits.

Additionally, the differences in social media channels and their designs should be taken into consideration (Fichman et al., 2011). More research at the system-feature level or at the level of categories in systems features, rather than at the level of the whole system (Oinas-Kukkonen, 2013), is needed to better understand and design effective technology-based health interventions. As Oh, Lauckner, Boehmer, Fewins-Bliss, and Li (2013) commented, more research is also required to determine specific social media functions that are more likely to lead to benefits for patients; meaning information about the benefits of such functions could then be disseminated.

For the above reasons, this paper reports on a study of the utilization of two different types of social media platforms (a Facebook-based community and an online forum[2] based community) in the context of an online behavioral weight loss program. In this observational study, participants of the same online program were divided into three groups based on their utilization of different social media channels in the program, plus a control group of those who did not actively utilize the social media communities provided. Because channel usage was the only differentiator, reliable comparisons among users of each channel type made it possible to relate channel types to users' perceptions of service-related aspects, aspects related to behavioral change, and perceived social support.

2. Theory

2.1. Different types of social media

Social media is not just one platform, but a collection of platforms that are based on Web 2.0 technology allowing two-way user-to-user interactions. Within these platforms, users are able to create communities. Kaplan and Haenlein (2010) identified six different types of social media platform: collaborative projects (e.g., Wikipedia and OhMyNews); blogs (e.g., text-based blogs, podcasts, and Twitter); content communities (e.g., discussion forums, YouTube); social networking sites (e.g., Facebook and LinkedIn); virtual game worlds (e.g., World of Warcraft); and virtual social worlds (e.g., Second Life and Habbo).

These platforms differ for example based on their level of media richness and the level of self-presentation they provide (Kaplan & Haenlein, 2010), and also based on the half-life of their information and depth of communication they can convey (Weinberg & Pehlivan, 2011) as well as their usage logic and ease of use. In the context of eHealth services, these networking platforms must be straightforward to use and fit into people's everyday lives to be effective (Hardiker & Grant, 2011). These differences set different premises for online community interactions within each platform. Next the two often-used social media platforms for OSGs, social networking sites and online discussion forums, are compared.

Social networking sites (e.g., Facebook, Google+, and LinkedIn) are social media channels with high self-presentation (Kaplan & Haenlein, 2010). This means that users experience each other as real people. It is important to note that people often interact on Facebook with their real names and have profiles that include rich information about the user. As social presence theory states the greater the social presence, the larger the social influence that the partners to communication have on each other's behavior (Short, Williams, & Christie, 1976). The communication within these sites is often rich, in terms of the number of options to communicate available within the site (i.e., liking, sharing, posting pictures and videos, rather than just text-based communication). As media richness theory informs us, the richer the medium is, the more effective it is (Daft & Lengel, 1986). Furthermore, people frequently use social networking sites such as Facebook daily, often browsing their own news feed curated for them and exposing themselves to the communication present without making an effort to log in separately. The platform is also strongly integrated into peoples' everyday lives.

Discussion forums are content communities where the interaction is focused primarily on topics and issues, not on relationship building. Often the communication is limited to text-based communication, which equates to poor media richness. In many cases, users of content communities are not even required to make a personal profile page, and if they do so, such pages might include only basic information, such as the amount of content shared and the date of joining (Kaplan & Haenlein, 2010), which makes communication rather faceless and anonymous. Compared to social networking sites, the level of self-presentation is lower (Kaplan & Haenlein, 2010). With regard to usage logic and ease of use, discussion forums rarely include similar kinds of news feed features requiring an effort by the user to go to a specific forum to review what is going on.

The main differences between social networking sites and online forums are summarized in Table 1 using Kaplan and Haenlein (2010) classification of social media channels based on their level of media richness and level of social presence, and also comparing channels from the perspective of their usage logic.

2.2. Usage and role of social media in health behavior change

The most often-used social media tool in the diet and exercise intervention context is an online forum (or discussion board); blogs and social networking sites are used far less often in diet and exercise interventions (Williams et al., 2014). In the case of chronic diseases and social media utilization, Facebook is the most often-used channel, followed by blogs and Twitter (Patel et al., 2015). In addition, Wikipedia and YouTube are sometimes used.

In general, social media platforms devoted to chronic diseases are used to provide support, but they are also used for educational purposes, diagnosis, disease management, and disease moderation (see Patel et al., 2015). Online social networks such as Facebook have been used as additional platforms to motivate users to keep

[2] In this paper, an online forum is regarded as equivalent to an online discussion board.