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# Patient co-creation activities in healthcare service delivery at the micro level: The influence of online access to healthcare information

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## ABSTRACT

The healthcare sector has undergone a number of transformations in recent years, partly due to recent advances in technology. This triggered our study to examine patients' desire to seek health information largely driven by increased access via the Internet and the cumulative impacts on value co-creation. We employed a sequential exploratory design involving a phenomenological approach in the qualitative phase, followed by a quantitative survey design to further our understanding of the influence of technology in co-creating value in healthcare at the micro level. Advances in technology have empowered patients to be informed, which enabled them to play an active role in clinical encounters with the doctor. The findings suggest pre-encounter information search impacts positively on improved service engagement and commitment to compliance with medical instructions. It does this by shaping the nature of interactions; enhancing provider-patient orientation; and increasing their involvement in a shared decision-making process. From a theoretical perspective, our study integrates multiple research perspectives (e.g., access to information, online information seeking and knowledge creation, healthcare consultation models, etc.) and extends research on patient integration, participation, and co-creation of value. The conceptualization of value co-creation activities in this study suggests a need for service providers to adopt delivery approaches that would effectively integrate patient resources to co-create value.

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## 1. Introduction

Recently, patient participation in co-creating value has received much credence in healthcare research. Their active participation in clinical encounters is well documented to improve expected service outcomes (Bitner et al., 1997; Gill et al., 2011; McColl-Kennedy et al., 2012). Furthermore, the upsurge of consumerism in healthcare (Jaakkola and Halinen, 2006), whereby patients seek information from several sources, including the Internet or online communities, is changing the face of clinical encounters and provider relationships (Gutierrez et al., 2014; Heidenreich and Handrich, 2015; Nambisan and Nambisan, 2009; Silver, 2015). These advancements, coupled with improved cloud computing technology (an on-demand, self-service Internet infrastructure that enables the user to access computing resources on multiple devices in various locations), make cloud healthcare services a real option (Lai and Wang, 2015). As a result, clinical encounters in relation to healthcare consultation models have undergone a number of transformations, including the movement away from a paternalistic approach towards patients (i.e. one directed entirely by the doctor) to one that is more patient-centred

(Laing et al., 2002; Taylor, 2009), all in the quest to satisfy the patient's needs as a consumer. Given that consumers of healthcare are also becoming more demanding with higher expectations, some doctors find this consumerist attitude unacceptable but tolerate this practice and improve on their delivery approach (Osei-Frimpong et al., 2015).

Considering these consumerist behaviours exhibited by patients, their active participation in clinical encounters is deemed critical in relation to managing their health or ill conditions (Gallan et al., 2013). As a result, sharing ideas or contributing to the decision-making process with healthcare providers is essential in order to enhance treatment options as well as improve on expected health outcomes (Elg et al., 2012; McColl-Kennedy et al., 2012; Osei-Frimpong et al., 2015). To co-create improved healthcare, patient's active participation is viewed as being important (Gallan et al., 2013; Hausman, 2004; Jaakkola and Halinen, 2006). However, not all patients are willing to engage in co-creation taking into account, the patient's ability and competence in co-creating value as well as their role clarity (McColl-Kennedy et al., 2012), which also reflects in the challenges purported to ensue during clinical encounters (Hardyman et al., 2015; Jaakkola and Halinen, 2006).

Technological advancements have provided a platform for easy access to information for patients (Fiksdal et al., 2014; Peine and Moors, 2015; Zhao et al., 2015). This has, in a way, changed the nature of consultation models in healthcare, in which case, the patient is now

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considered active rather than being a passive subject (McColl-Kennedy et al., 2012). In effect, online resources (including the internet, patient community forums, etc.) play a vital role in the health of an individual and the healthcare system as a whole (Cotten and Gupta, 2004; Hajli, 2014). In the healthcare industry, the adoption of technology faces many challenges (e.g., lack of time, lack of financial resources, see, Saborowski and Kollak, 2015) and it is interesting to note that the technology lag in this unique industry has been identified long ago (cf. Kaufmann, 1973). This does not mean that technology is unimportant. In fact, the technology dimension has been widened to Health Information Technology (HIT). Its adoption remains particularly slow in this sector (Behkami et al., 2012), although reliable information and effective communication are critical elements in public health practices. Likewise, empowering patients through information dissemination tends to bridge the knowledge asymmetry gap to some extent, which is also likely to improve on the clinical engagement practices in the consulting room (Nambisan and Nambisan, 2009). Technology has the potential to be an experience-enriching and value-creating component in this one-to-one setting.

In related studies on co-creating healthcare, some authors have focussed on patient value creating practice styles (McColl-Kennedy et al., 2012), micro level influencing factors of value co-creation from the focal dyad (doctor-patient) perspective (Osei-Frimpong et al., 2015), and models of co-creation taking into consideration the nature of leadership of the online health community and the nature of knowledge activity facilitated by the online health community (Ayers and Kronenfeld, 2007; Gutierrez et al., 2014; Nambisan and Nambisan, 2009; Woo et al., 2015). To our knowledge, there exist no empirical studies that examine the influence of online information seeking on patient co-creation activities in healthcare at the micro level (service-for-service exchange that occurs among individual actors) despite an increased e-health literacy rate. According to the most recent study on this issue, 59% of all adults in the United States looked for health information online in 2012 (Fox and Duggan, 2013). This study, therefore, fills this void by providing an empirical perspective of the influence of online health information search on patient co-creation activities in healthcare service delivery at the micro level. The study primarily sheds light on the influence of information seeking on the encounter process and how this cumulatively impacts on the expected service outcomes. The nested effects established in this study also differentiate it from previous research. From a theoretical perspective, our study integrates multiple research disciplines (e.g., access to information, online information seeking and knowledge creation, healthcare consultation models, etc.) and extends research on patient integration, participation, and co-creation of value.

The study employs a mixed method approach to provide deeper insight into the concept and presents a model that is quantitatively tested. The objectives of this paper are two-fold. Firstly, to understand patients' motivation in online health information search, and how this influences their engagement with the provider during consultation. Secondly, to develop a model of co-creation in healthcare and ascertain the cumulative effects of online resources on the expected outcomes.

## 2. Theoretical framework

### 2.1. Resources as a vehicle for co-creation

Value co-creation requires the collaborative activities of actors involved in the service exchange (Epp and Price, 2011; Frow and Payne, 2011), which are dependent on the capabilities and resources available to the provider (e.g., expertise, technology etc.) and the consumer (e.g., knowledge) as the two relevant parties (Peters et al., 2014). For the purposes of this study, McColl-Kennedy et al.'s (2012, p. 375) definition of customer value co-creation is adopted: the "benefit realized from integration of resources through activities and interactions with collaborators in the customer's service network".

More recently, Lusch and Vargo (2014, p. 15) placed emphasis on "four FPs [foundational premises] in particular that capture the essence of S-D logic [service-dominant logic]", considered as axioms.

**Axiom 3.** (FP<sub>3</sub>) states, "All economic and social actors are resource integrators" (Lusch and Vargo, 2014, p. 74).

Within S-D logic, resource integration refers to how actors "integrate and transform micro-specialised competences into complex services that are demanded in the marketplace" (Vargo and Lusch, 2008, p. 7). This implies that service cannot be separated from the resource integrating activities performed by the involved actors taking into consideration their operant resources (e.g., knowledge and skills, see, Peters et al., 2014). McColl-Kennedy et al. (2012) placed emphasis on the fact that access to resources not only influences healthcare outcomes, but rather how these resources are adopted in relation to the resource integration process. Furthermore, Lusch and Vargo (2014, p. 77) note that, "the effectual actor makes adjustments as the resource-integration and resource-creation process unfolds".

The importance of resource integration illustrates the dynamic nature of value co-creation, which is also evident in the different experiences and value (benefits) created for actors in a service exchange and determined by the beneficiary (Lemke et al., 2011; Lusch and Nambisan, 2015; Lusch and Vargo, 2014). Co-creation involves encounters that provide an enabling environment and motivation for actors to create value (Payne et al., 2009). These encounters tend to provide the means for engagement between the actors, which could be initiated by the provider, patient or both (Alam, 2013; Payne et al., 2008). Furthermore, value co-creation occurs when two service systems have congruent expectations in a way in which the available resources should be used in the course of their interactions (Plé and Cáceres, 2010). They further note the implications of resources on value co-creation in cases where there are variances between the systems with regard to expectations of appropriate behaviour. Considering its criticality, ineffective integration of resources by actors could adversely affect value co-creation resulting in potential value co-destruction (Echeverri and Skålén, 2011). As part of resource integration, patients in healthcare delivery seek to equip and enhance their knowledge on health related issues through pre-encounter information search, as briefly discussed in the following section.

### 2.2. Online healthcare information seeking

The application and different uses of information and communications technology (ICT) in healthcare has been reported extensively in the extant literature. Caridà et al. (2014) note the essential role ICT plays in healthcare systems and the potential impact it has on the actors' responsibilities in the service delivery. Recent adoption of online communities (Hajli, 2014; Nambisan and Nambisan, 2009), hospital websites providing information and serving as an interactive platform with patients (Ayers and Kronenfeld, 2007; Chou and Chou, 2002; Hajli et al., 2015) among others have contributed to empowering patients which also reflects in increased participation in healthcare delivery (Caridà et al., 2014; Cotten and Gupta, 2004; Eysenbach et al., 2004).

Patients increased participation in healthcare service delivery is considered critical of which, knowledge resulting from healthcare information seeking plays a cardinal role (Ayers and Kronenfeld, 2007; Fiksdal et al., 2014). Health-information seeking is defined as "verbal and non-verbal messages ascertained via everyday interaction, either purposeful or serendipitous, by members in a self-defined network, that serve not only to reduce uncertainty regarding health status, but also to construct a social and personal (cognitive) sense of health" (Tardy and Hale, 1998, p.338). This reflects in Payne et al.'s (2008) assertion that access to information, resources, individual knowledge and skills (competence), need assessment, and cognitive behaviours are some of the attributes to assist the patient to create value. Kellogg et al. (1997) assert that

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