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The Application of Mobile Marketing in CRM in the Medical Sector

Summary

The aim of the article is to indicate the possibilities of using the mobile applications in support of Customer Relationship Management in healthcare (in case of diabetics). The study is based on literature studies and the results of a questionnaire survey conducted online on Polish websites and in social media for diabetics in January 2016. The research results quoted in this paper prove that the application of mobile solutions can be beneficial for the CRM system in healthcare industry and patient's health. The results of own research show that this is still a rather rare practice. However, the great majority of the respondents is willing to use the mobile application and patients express their interest in using it to monitor diabetes and manage their relationship with doctors and health centres. This indicates the need to understand various perceptions of mobile marketing used for CRM among patients, doctors, and managers.

Key words: mobile marketing, patient, CRM, mobile health applications.

JEL codes: M31, O33

Introduction

Medical sector has migrated toward a customer centric business model and started to implement CRM because of several factors such as growing expectations and demands of healthcare consumers, limited access to healthcare providers, increased cost of healthcare and the government's continued effort to suppress cost by formulating more restrictive regulations (Alt, Puschmann 2005, p. 297-315). In this article, CRM aspects in medical sector are examined, the specifics of relations between patient (customer) and healthcare facilities are analyzed and the possibilities of implementation of mobile CRM applications for diabetics are described.

The aim of this paper is to indicate the possibilities of using the mobile applications in support of Customer Relationship Management in healthcare (in case of diabetics). The theoretical part of this article was based on an analysis of literature and the results of existing studies. Due to the insufficiency of Polish sources, the authors used primarily foreign sources. The empirical part was based on an analysis of the results of own research. The studies were conducted using online survey technique among patients (diabetics), in January 2016.

CRM in healthcare

Yina (2010, p. 52-55) defines CRM in healthcare as a strategy in building trust of the patients as well as helping patients to avoid feeling alienated in the healthcare environment and at the same time improving the service quality and efficiency of healthcare. The technology of CRM enables healthcare providers to extend their services beyond traditional practice, providing a competitive advantage to the company. CRM allows to capture essential patient's information to use it effectively, especially by integrating it to the system and using it to improve the quality of treatment.

The last decades were the time of major changes to patients' perception by the companies in medical sector. Due to the almost unlimited access to medical knowledge, inter alia thanks to the Internet, as well as growing competition on the global health market, medical organizations started to perceive patients not only as beneficiaries of medical treatment but also as customers (Torpie 2014, p. 6-8). Rudawska and Krot (2010, p. 137) distinguish two main types of relations between patient and healthcare organization: lateral – to understand the customer, identify and satisfy their needs and longitudinal – to maintain the stable relationship with the customer.

Healthcare industry's main role is to provide medical service to the people but it is also a business. In addition to strictly medical services oriented to eliminate the illness such as diagnosis or operation, healthcare facilities need to satisfy other patients' needs such as safety, comfort or psychological care. This is an example of service sector, where the relations between the service provider and the service recipient are clearly visible and have great influence on final customers' satisfaction which may result in their loyalty. In the changing environment, especially in Poland, where the medical facility's contract with National Health Fund may or may not be sustained a year after, creating patients' loyalty may result in continuous cooperation even if it will require from the patient additional payment.

Mobile marketing applications in healthcare

The Mobile Marketing Association defines mobile marketing (also called m-marketing) as a set of practices that enables organizations to communicate and engage with their audience in an interactive and relevant manner through any mobile device or network (Sadowska 2013, p. 124). Mobile devices can be any type of cell phones, from basic feature phones to more developed smartphones such as iPhones or Android phones, tablets, e-readers (Kindle), even gaming units such as Sony's PSPs (PlayStation Portables) can be considered mobile devices because they can access the internet through Wi-Fi and are often used remotely (Dushinski 2012, p. 3-4).

Mobile technologies are used in almost every part of human's life. They are also present in the medical sector and called "mobile health" (or mHealth). Mobile health is a subset of eHealth, defined as "the use of mobile computing and communication technologies in health care and public health" (Free, Phillips, Watson et al. 2013, p. 2).

UN Foundation and Vodafone Foundation (2009, p. 9) stated in their global report that the main objectives of mobile health are:

- increased access to healthcare and health-related information (particularly for hard-to-reach populations),
- improved ability to diagnose and track diseases,
- more actionable public health information,
- expanded access to ongoing medical education and training for health workers.

Organizations use different mobile health tools to ensure reaching their goals (Table 1).

Table 1

Chosen mobile health tools

Purpose	Tool
Communication between individuals and health services	Health call centers/ Health care phone help line Emergency toll-free telephone services
Communication between health services and individuals	Treatment compliance Appointment reminders Community mobilization Awareness raising over health issues
Health monitoring and surveillance	Mobile telemedicine Mobile surveys (surveys by mobile phone) Surveillance Patient monitoring
Access to information for health care professionals at point of care	Information and decision support systems Patient records

Source: own elaboration based on: WHO (2011, p. 20).

The existing research results prove that the application of mobile solutions can be beneficial for CRM system in healthcare industry and patient's health. The adoption of such technologies have positive outcomes and mobile health tools may become a prevalent part of future practice. Sezgin et al. (2017) in their research tried to evaluate physicians' awareness of mobile health applications and their intentions to use these applications in medical practice. According to authors, user perception and intentions are important factors in technology use. Thus, the preferences, expectations, and characteristics of physicians which were outlined in this research could be significant inputs for researchers, applications developers, managers and policymakers. According to Elvin-Walsh et al. (2018), a mixture of traditional methods and smartphone technology is desirable to patients. Similar results were received by Kassianos et al. (2017) and Mansour (2017). According them, a co-creation with patients is needed when developing the mobile applications. This will ensure that the applications increase the possibility to impact on non-adherence. A large number of mobile health applications users showed very positive attitudes towards the use of these apps, since they allow for easy dissemination of information and are described as easily accessed.

Most studies concerning mobile health have involved chronic disease management and preventative measures that include lifestyle changes. The study of Con et al. (2017) demonstrates the willingness of patients to engage with mobile health as a potential solution to facilitate IBD self-management. The study of Salem et al. (2017) confirmed that digital media are an integral part of the daily professional practice of urology residents, reflected by high usage rates and perceived usefulness of the internet and mobile health applications. According to Hollenbach et al. (2017), clinicians view an asthma mobile health technology as enhancing the patient-centered medical home and according to Yamaguchi et al. (2017), patients who previously dropped out of diabetic care are suitable candidates for mobile health.

Mobile health is a rapidly growing branch of healthcare. As patients become more and more demanding regarding their treatment and they use more and more advanced technology, it seems natural for healthcare providers to introduce mobile solutions into their services.

Harvard Medical School in “Brigham and Women’s Hospital Tests NFC RFID for Patient Bedsides project” benefits from mobile health opportunities in order to develop a solution for the electronic management of medication administration with Near Field Communication passive tags attached to medications, patients’ wristband and nurses’ badges (Swedberg, 2013). A patient in a hospital is given a NFC wristband that contains an NFC tag and patient’s ID. The medical records are accessible anytime by taping it with a NFC-enabled tablet or phone. It ensures that patient receives the right medication and treatment, enables to track the patient’s progress, schedule therapy, even see the bills for the treatment and pay them quickly. If a patient is left too long without being checked or visited, the system can automatically generate messages to the responsible person.

Other application, VivaLink (<http://www.vivalink.com>) allows monitoring health in distance and sending the parameters such as body temperature or heart rate directly to the doctor. It provides two sensors: Fever Scout for constant body temperature monitoring and Vital Scout for monitoring body temperature, respiration rate, sleep status, heart rate and variability, stress levels, activity and training.

Mobile applications are used also by Pact Health (<https://pacthealth.com/>) to provide insurance companies with the possibility to monitor the health behavior of their clients. It rewards them for good behavior by lowering their deductible by \$5 for every walk, run or gym session, and increases their deductible by \$5 for each missed workout. It motivates people for a healthy lifestyle but also step by step decreases the costs of treatment of patients.

Sprout (<https://play.google.com/store/apps>) is a free Android smartphone application for self-monitoring processes related to pregnancy. It contains the recommendations of physicians, daily and weekly information about the mother and the developing baby, Personalized Pregnancy Timeline, tools (Weight Tracker, Kick Counter and Contraction Timer), checklists that remind about medications or doctor’s visits.

First aid (<https://play.google.com/store/apps>) is an application designed by Nestlé to help people and instruct them about first aid. The application is connected to the emergency line and in case of need, professional help can be called.

The examples quoted above visualize positive impact of implementing mobile marketing solutions into healthcare industry. The use of smartphone applications, smart devices and wireless technologies among others improve the patient's data safety and accelerate the diagnosis or treatment.

Research methodology

In order to validate if CRM solutions can be integrated in the mobile health application, online questionnaires with diabetes were conducted. This helped to identify the main weak and strong parts of CRM and mobile marketing solution from the usage perspective as well as to have a baseline for drawing conclusions.

The following main research question was formulated: How mobile application may support the monitoring of diabetes and customer relationship management by using mobile marketing?

Specific research questions were also formulated:

- Do patients would like to use the mobile application to monitor diabetes and manage the relationship?
- What tools should be included in a mobile application to monitor diabetes and manage the relationships with the patient?
- If a mobile application to monitor diabetes is needed and can help to manage relationships with patients?

The survey for the purpose of this article was conducted in the form of an online questionnaire. It contained 11 closed and one open-ended questions. The open-ended question allowed unlimited answer. This type of question was used to ask for the reason why patients would not like to use an application which collects data about them and links them to doctors and researchers. Other types of questions were checklists, two-way questions and multiple-choice questions.

The diabetics were chosen as research group. The choice was deliberate one. Diabetes is considered one of the most dangerous diseases in the world. According to International Diabetes Federation (IDF) in 2015, 415 million people suffered from it worldwide (<http://idf.org/diabetesatla>). This means 1 in 11 adults has diabetes. This is a fatal disease which kills a person every 6 seconds. The costs of its treatment are estimated to cover 12% of global health expenditure (<http://idf.org/diabetesatla>). Lifestyle factors and blood glucose management are important in reducing long-term diabetes complications and reducing both personal suffering and enormous costs associated with insufficient self-management. The usage of mobile health tools such as smartphone applications can support it.

Research results

The survey was conducted online and published on Polish websites and social groups for diabetics in January 2016. 60 people of different sex and age participated in it. 57 respond-

ents that filled in the questionnaire suffered from diabetes. 3 respondents were close relatives of diabetics.

Almost 85% of people who participated in the survey do not use mobile health applications on their smartphones. Among the 15% who use these applications, the applications for monitoring blood glucose change (*Diabetes Pal*) and for monitoring healthy diet and sport activities (for example *Endomondo*) were indicated. However, a vast majority of the respondents (81%) would like to try the mobile application which tracks their blood glucose concentration and shares their blood test results with doctors and scientists.

In the mobile application for diabetics, respondents would like to find the information about healthy recipes (44%) and lifestyle tips (33%), as well as they would like to be able to observe the evolution of their disease on charts by tracking the blood glucose changes (31%) and analyzing their average results (24%). One fifth of answerers would like to find restaurants for diabetics using the application and 7% of respondents would like to use it to find other diabetics. Among other features suggested we could find also contacting the diabetologists.

According to the other results of the conducted survey, the following conclusions can be drawn for Polish conditions:

- The current contact with the diabetologists is rare.
- The majority of the patients do not use any smartphone applications related to healthcare.
- The great majority of the respondents is willing to use the mobile application.
- The most quoted as useful content of type of application are healthy recipes, lifestyle tips, blood glucose concentration tracking and average results or BGC.

The potential outcome of this study may consist of recommendations that can be adopted for future implementation.

Following research results, possible opportunities for the use of the mobile application for diabetics in Poland are:

- cooperation with healthcare centers in terms of advertisement and consultations for the patients,
- raising awareness about the disease,
- reducing treatment costs and time,
- introducing products related to the application, for example glucometers,
- creating long term relationship with the patients,
- using the gathered data to develop new solutions for diabetics,
- growing number of smartphone users and diabetics.

Conclusions

The technology of CRM enables healthcare providers to extend their services beyond traditional practice, providing a competitive advantage to the company. CRM applications allow to capture essential patient's information to use it effectively, especially by integrating

it to the system and using it to improve the quality of treatment. The successful CRM initiatives require a continued commitment and collaboration between all parties involved to lead to a successful and long lasting relationship. The main advantages of CRM system in healthcare industry are: office efficiency and record management, improvement of patient's care, balancing costs and quality care. Mobile health uses mobile computing and communication technologies in health care and public health among others to increase the access to healthcare and health-related information and to improve the ability to diagnose and track diseases.

The research results quoted in this paper prove that the application of mobile solutions can be beneficial for CRM system in Polish healthcare industry and patient's health. Prevention requires personal information to be accessible timely to the representatives of the healthcare system. The strategy of providing personalized self-management tool can give people knowledge of their own health status and encourage them to improve it.

Polish patients expressed their interest in using the mobile application to monitor diabetes and manage their relationship with doctors. Diabetes is considered one of the most dangerous diseases in the world, with constantly growing number of patients. Lifestyle factors and blood glucose management are important in reducing long-term diabetes complications and reducing both personal suffering and enormous costs associated with insufficient self-management. There is also a need for more advanced studies on this disease which require a significant amount of data from the patients. The usage of mobile health tools such as smartphone applications can support it. Patients expect the application to have the following functions: tracking blood glucose concentration, sharing statistics with the doctors, providing lifestyle tips and healthy recipes.

After WHO (2011, p. 101), the main barrier for implementing mobile health solutions in organizations is the matter of priorities. Mobile health is not considered as the priority and the organization's resources (financial, human and others) are allocated to other programs. The lack of knowledge is the second reason why mobile health is not broadly applied. The costs of implementation as well as the necessity of special infrastructure are also important barriers for the development of mobile health. In addition, the legal guidelines on privacy and confidentiality reduce the interest of organizations in mobile health. In order to benefit from its advantages, Mobile health programs need to be evaluated in the matter of cost-effectiveness.

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Wykorzystanie marketingu mobilnego w CRM w sektorze medycznym

Streszczenie

Celem artykułu jest wskazanie możliwości wykorzystania mobilnych aplikacji wspomagających zarządzanie relacjami z klientami w opiece zdrowotnej, w przypadku diabetyków. Badania przeprowadzono na podstawie studiów literaturowych oraz wyników własnych badań empirycznych przeprowadzonych metodą komunikowania się pośredniego z respondentami, techniką ankiety internetowej, opublikowanej na stronach internetowych i w mediach społecznościowych dedykowanych dla diabetyków w styczniu 2016 roku. Wyniki badań wskazują, że zastosowanie rozwiązań mobilnych może być korzystne dla systemu CRM w opiece zdrowotnej. Wyniki własnych badań empirycznych pokazują, że jest to raczej rzadka praktyka. Jednak zdecydowana większość respondentów chce skorzystać z aplikacji mobilnej, a pacjenci wyrazili zainteresowanie użyciem aplikacji do monitorowania cukrzycy i zarządzania relacjami z lekarzami i ośrodkami zdrowia. Wskazuje to na potrzebę zrozumienia różnego postrzegania marketingu mobilnego wśród pacjentów, lekarzy i kadry zarządzającej.

Słowa kluczowe: marketing mobilny, pacjent, CRM, aplikacje *mobile health*.

Kody JEL: M31, O33

Использование мобильного маркетинга в CRM в медицинском секторе

Резюме

Цель статьи – указать возможности использования мобильных приложений, поддерживающих управление отношениями с клиентами в здравоохранении в случае диабетиков. Изучение провели на основе анализа литературы и собственных эмпирических исследований, проведенных по методу опосредованной коммуникации с респондентами, по технике онлайн-анкеты, опубликованной на вебсайтах и в социальных медиа для диабетиков в январе 2016 г. Результаты изучения показывают, что применение мобильных решений может быть полезным для системы CRM в здравоохранении. Результаты собственных эмпирических исследований показывают, что это скорее всего редкая практика. Однако подавляющее большинство респондентов хочет воспользоваться мобильной аппликацией, а пациенты выразили заинтересованность в применении аппликации для мониторинга диабета и управления отношениями с врачами и диспансерами. Это указывает на потребность понять разное восприятие мобильного маркетинга среди пациентов, врачей и менеджеров.

Ключевые слова: мобильный маркетинг, пациент, CRM, аппликации *mobile health*.

Коды JEL: M31, O33

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