

Perception of eHealth tools implementation – the experience from the Czech regions

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Abstract

The paper is embedded into the issue of electronization of healthcare in the Czech Republic, specifically on implementation of particular electronic instruments – e-prescription and e-sick certificate that should make the Czech healthcare system more fluent, transparent and effective. The research is oriented on realization and evaluation of questionnaire survey that was realized between practitioners of Jihomoravský, Zlínský and Olomoucký regions of the Czech Republic. Provided findings could be used by professional healthcare as well as the political representation.

Keywords: Electronization, Healthcare, the Czech Republic, questionnaire survey

1. Introduction

The paper is embedded into the issue of electronization of healthcare in the Czech Republic. The primary focus is oriented on two tools of electronic healthcare (eHealth), e-prescription and e-sick certificate. The first tool was implemented into the praxis of the Czech healthcare providing in 2018; the second was implemented in 2020. Implementation of both tools is inseparable from daily work of practitioners. Regarding this, the questionnaire survey was realized between these subjects to find out, how they evaluate the positives and negatives, respectively the process of implementation and using of electronic tools itself.

The total amount of 353 questionnaires was included into the research. The practitioners of Jihomoravský, Zlínský and Olomoucký regions of the Czech Republic were addressed, according to the interest area of authors. The questionnaire survey was realized in December 2019 and January 2020. The results of survey was analysed using the instruments of descriptive and comparative statistics.

The paper is structured as follows:

- The second chapter provides basic theoretical fundamentals of the issues of eHealth and electronic tools implemented into the healthcare praxis.
- The third chapter introduces applied methodology.
- The fourth chapter summarizes the main findings of the questionnaire survey.
- The final part concludes.

2. Theoretical background

This section is dedicated to some theoretical fundamentals of healthcare electronization (eHealth in other words). eHealth can be perceived as developing sector between healthcare informatics, public healthcare and entrepreneurship that is embedded into healthcare service and information shared and enhanced through internet and ICT technologies (according to Ministry of healthcare, 2015, similarly also Kwankam, 2004). More globally, eHealth includes also way of thinking, opinions and attitudes of society, aiming on better, more effective healthcare providing using ICT (Ministry of healthcare, 2015). Process of electronization in healthcare is a part of global phenomenon affecting the whole economy and society, when using of ICT and electronic tools is connected with daily life and activities of people in all areas (e.g. Wickramasinghe et al., 2005; Sebetci and Cetin, 2016). Here we can, however, distinguish between so-called developed and developing world – in the first case, the ICT tools are usually used and enhanced to more sophisticated forms; in the second case, the main aim is to build sufficient ICT infrastructure and provide basic electronic services to most population (Kwankam, 2004, Wickramasinghe et al., 2005; Sebetci and Cetin, 2016).

eHealth is primarily based on interaction of various players (e.g. patients, practitioners, healthcare providers and workers etc., like introduced by Ministry of healthcare, 2015). According to Löhr, Sadeghi and Winandy (2010), Wickramasinghe et al. (2005), Kierkegaard (2013), Sebetci and Cetin (2016) or Mair et al. (2007), modern ICT technologies are in healthcare used with increasing intensity, but this intensity is still lagging compared to other sectors of economy (e.g. Parente, 2000 links this fact to its public-sector character). The main objective of electronization in healthcare is cost reduction, leaning of processes and agendas, reducing of personal costs and time savings (Parente, 2000; AbuKhoua, Mohamend and Al-Jaroodi, 2012; Dhavle and Rupp, 2015; Tan et al., 2009; Mair et al., 2007, or Šoltés et al., 2015).

Electronic tools in healthcare, that are the core object of this paper, includes various instruments in various forms – databases, registries, devices (e.g. in tele-medicine), communication technologies, tools for healthcare agendas generating etc. (AbuKhoua, Mohamend and Al-Jaroodi, 2012; Kwankam, 2004; Löhr, Sadeghi and Winandy, 2010). Effective and fluent implementation of electronic tools suggests, according to Dhavle and Rupp (2015), among other education of users, friendly and intuitive user interface, continuous evaluation and monitoring, strategic approach and political support. Very important is also the task of cybernetic safety and data protection (e.g. Löhr, Sadeghi and Winandy, 2010 or Mair et al., 2007). Quality and effectivity in using electronic tools is relatively complicated, on the other hand, Tan et al. (2009) or Sebetci and Cetin (2016) point at users' satisfaction to be one of the useful indicators in this regard.

In this paper, attention is paid about two specific electronic tools – e-prescription and e-sick certificate.

Using of e-prescriptions is one of the strategic areas of healthcare policy of the European Union (Kierkegaard, 2013), although it still exist several problems in this regard (e.g. inter-connectivity and compatibility of systems between states, legislative differences, different importance perception and political support etc.). Nevertheless, Kierkegaard (2013), Dhavle and Rupp (2015), Sebetci and Cetin (2016) or Tan et al. (2009) stress advantages e-prescription, like the possibility of sending precise, mistake less and understandable information from practitioner directly to pharmacy; minimization of illegal drug misusing; minimization of mistakes in drug issuing; increased control of using of drugs, contraindications etc.

Working-disability is perceived to be one of costly problems of economy (Gabbay, 2010). Regarding this, electronic tools grasping this agenda can be one part of solution for

minimizing costs related to working disability for all actors (employers, allowances providers, practitioners of employees). E-sick certificate could contribute to better control of misusing of working-disability and also brings cost- and time-savings for employers, employees or public sector organizations (see Mair et al., 2007 for comprehensive overview of benefits and risks).

Using of e-prescription and e-sick certificate is mandatory, based on acts no. 378/2007, no. 259/2017 and no. 164/2019. In case of e- prescription, the whole project is evaluated to be successful and beneficiary. The e-sick certificate was introduced at the beginning of the year 2020, so it is too early to postulate relevant judgements.

3. Methodology

The prior objective of this paper is to realize and evaluate the questionnaire survey between practitioners, who use electronic tools e-prescription and e-sick certificate, and reveal their opinions and attitudes to electronization of healthcare in the Czech Republic. The assumption in this regard is, that most respondents perceived electronization of healthcare to be beneficiary in general, but the way of its implementation and practical using of electronic tools is evaluated with rather negative accent and prejudices.

The survey was realized on sample of 353 respondents – practitioners of Jihomoravský, Zlínský and Olomoucký region of the Czech Republic (addressed was 580 subjects, so there is 61% return rate, that provides us with relatively satisfactory research sample). Answers were collected in December 2019 and January 2020. Respondents were address via e-mail. The structure of questionnaire consists of (1) closed questions, when respondents choose one answer or choose the answer on the scale, (2) and final open question to give respondents the possibility to express their ideas and comments about electronization of healthcare and electronic tools implementation. For evaluation of results, tools of descriptive and comparative statistics were employed. The evaluation was realized for a total sample, and also between particular socio-demographic groups (according to region, gender and age). Answers given to final open question were executed by synthesis of findings into summarizing postulate.

The results of survey were visualized into graphs and tables.

4. Questionnaire survey

In this section are introduced the main findings revealed about opinions and attitudes of practitioners about electronization of healthcare and using electronic tools of e-prescription and e-sick certificate in the Czech Republic.

Table 1 provides basic socio-demographic characteristics of respondents according to region, gender and age. Research participated rather majority of men; the most respondents practise in Jihomoravský region; and finally it is obvious, that the majority of respondents is in older than 45 years of age. The last fact could be important in relationship to the evaluation of healthcare electronization (older population is more likely to refuse modern technologies and have negative attitudes to electronic tools and technologies in general).

Evaluating the perception of term electronization of healthcare, almost 80 % of respondents seem to have the correct information and clear perception of the meaning of the term. Rather misrepresented perception of the term have mostly respondents in higher age groups.

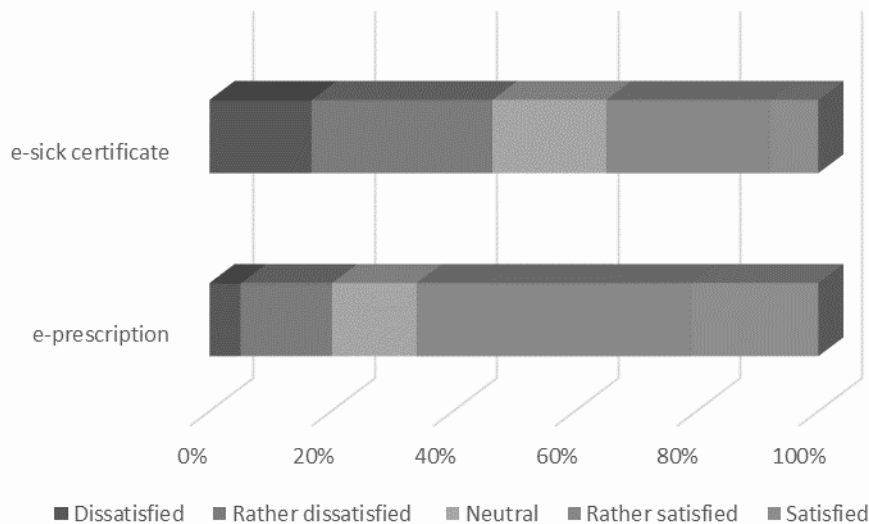
Table 1: Socio-demographic characteristics of respondents

Gender			
Male		Female	
168 (52.4 %)		185 (47.6 %)	
Region of praxis			
Jihomoravský	Olomoucký	Zlínský	
145 (41.1 %)	122 (34.6 %)	86 (24.3 %)	
Age			
Under 35	36 to 45	45 to 60	More than 60
53 (15 %)	99 (28 %)	137 (39 %)	64 (18 %)

Source: own research

The next set of questions was oriented on respondents' satisfaction with functions and using of electronic tools e-prescription and e-sick certificate. Most of respondents are rather satisfied with e-prescription but rather dissatisfied with e-sick certificate (see figure 1). The results could be nevertheless biased because of current implementation of e-sick certificate into praxis and practitioners are going through adaptation process. Differences were revealed in case of various age groups of respondents. Thus, younger of them perceive the electronic tools and their using more positively compared to the older colleagues. Comparing men and women, men assess the electronic tools relatively more positively.

Figure 1: Satisfaction of respondents with functions and using of electronic tools

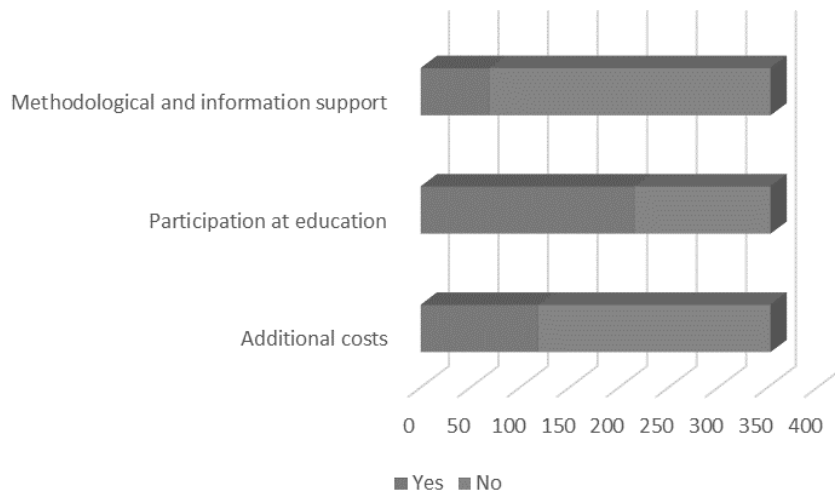


Source: own research

The next set of questions aims on implementation process and its preparation (methodical support, information providing, attendance of respondents on educational actions and emerging of additional economic costs related to electronic tools implementation). Results are summarized in figure 2. Strongly negatively is evaluated especially methodological support during implementing of tools and also information providing. Interest of respondents in obtaining information is obvious in their relatively high participation rate at various educational

actions connected with implementation of electronic tools. Communication and possibility of participation in the process of preparation of electronic tools themselves was evaluated to be poor and insufficient. On the other hand, there was indicated also relatively low participation of respondents in discussion forums or healthcare symposiums or similar actions (not explicitly connected with the issue of electronic tools).

Figure 2: Implementation and preparation of electronic tools

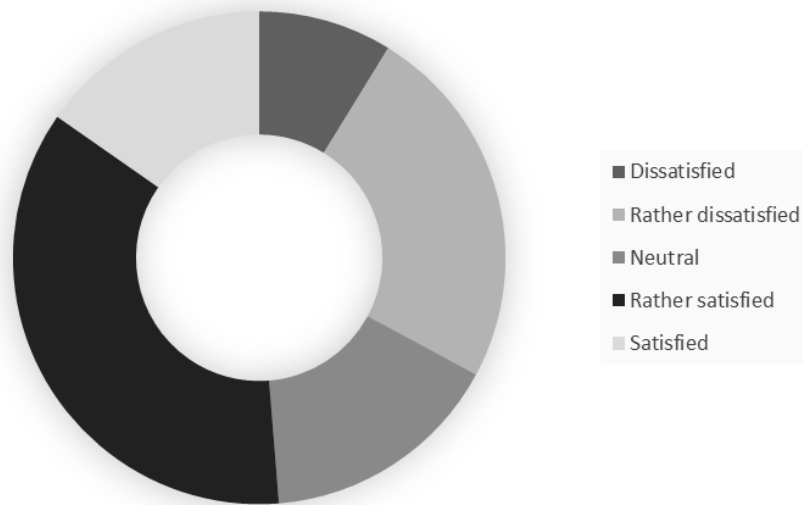


Source: own research

The next question (see figure 3) of the questionnaire was embedded into current evaluation of start of using e-sick certificate (since January 2020). Most of the respondents indicated relatively positive evaluation. Regarding the comments given in final open question, lots of respondents understand this time as adaptation process and believe, that prospective problems are going to be solved in few months. Thus the future of e-sick certificate using is evaluated to be positive and beneficiary. Higher share of negative answer connected with e-sick certificate evaluation is present in case of older respondents and in male group.

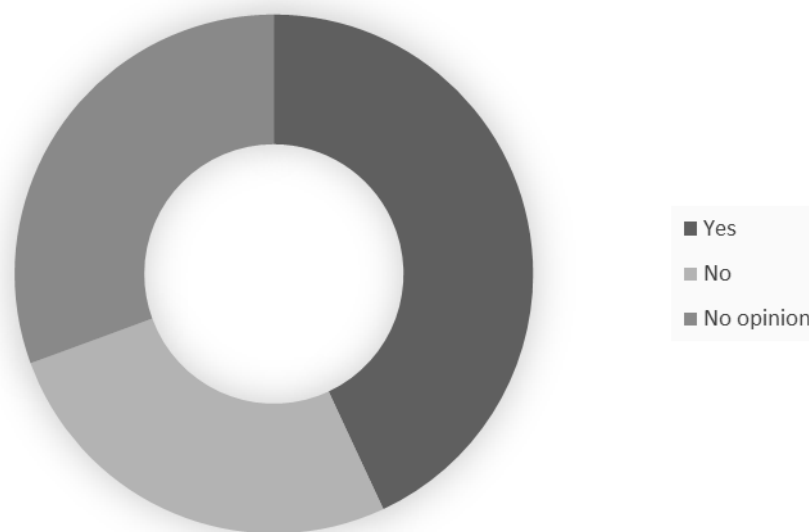
The last, closed, question was oriented on overall assessment of electronization in healthcare (figure 4). Almost half of respondents agree with positive impact of electronization in healthcare, among other on leaning processes, information sharing, more fluent and quicker communication, economic savings etc. Actual implementation is nevertheless usually assessed to be problematic and un-systematic. Nearly 30 % of respondents is sceptic about electronization process. As already mentioned, younger respondents tend to assess the electronization in healthcare more positively compared to older ones.

Figure 3: Evaluation of using e-sick certificate



Source: own research

Figure 4: Evaluation of electronization in healthcare



Source: own research

4. Conclusions

Based on the results of questionnaire survey, it is possible to summarize following findings:

- The main weak point of electronization in healthcare is lack of communication. This is true either for electronic tools designing and preparation, either for implementation. Information tend to be insufficient, late and irrelevant in relationship to needs of users.

- Typical feature of implementing new electronic tools is traditionally defending approach of actors. This approach, connected with prejudices and uncertainty, is nevertheless usually overcome during the first months of using of tools.
- Especially for older users of electronic tools it was identified the need of intensification of present educational actions. For all users it would be useful to create more e-learning materials, tutorials, videos and similar support.
- Lots of respondents indicate, that the future of electronization in healthcare is embedded into the issue and development of telemedicine and its specific tools. In this regard, substitution of face-to-face contact with patients by using distance communication and ICT technologies is preferred.
- There should be further enhance information sharing and inter-connectivity of systems, databases and registries, not only in the Czech Republic but also from international viewpoint.
- Commonly agreed is idea about allocation of bigger amount of money in electronization of healthcare. On the other hand, there are preferred savings related to administration and bureaucracy or ineffective and uneconomic healthcare facilities.
- There could be indicated the interest of practitioners in research or pilot projects participation on regional, national and international level.
- Generally, there persist relatively positive opinion about healthcare electronization.

For further research, it is possible to recommend extension of research sample (in the way of number and types of respondents and also in the way of other regions inclusion). The evaluation could be appended by further analytical data exploitation (facing the problem of availability). Inspiration about electronization processes can be found in abroad good, but also bad, praxis examples, in other branches of public and private sector. Especially in commercial sector, the electronization processes and ICT technologies utilization are far ahead of public one. Regardless particular negative findings and opinions about electronization processes in healthcare in the Czech Republic, the future of electronization seems to be positive and challenging.

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