

Zadovoljstvo pacientov z elektronskimi bolniškimi listi: raziskava v ambulantah družinske medicine

Patient Satisfaction with Electronic Sick Leave Certificates: Survey of Family Medicine Outpatient Clinics

Avtor / Author

Ustanova / Institute

Ksenija Tušek Bunc¹, Primož Bobek²

¹Univerza v Mariboru, Medicinska fakulteta, Maribor, Slovenija;

²Gerontološka in splošna ambulanta Polonca Vobovnik Grobelnik, Maribor, Slovenija;

¹University of Maribor, Faculty of Medicine, Maribor, Slovenia;

²Gerontology and General Outpatient Clinic Polonca Vobovnik Grobelnik, Maribor, Slovenia;

Ključne besede:

zdravnik družinske medicine, bolniški stalež, papirnati bolniški list, elektronski bolniški list, računalniški sistem

Key words:

family medicine physician, sick leave, sick leave certificate, electronic sick leave certificate, paper sick leave certificate, IT system

Članek prispel / Received

28. 4. 2024

Članek sprejet / Accepted

4. 6. 2024

Naslov za dopisovanje / Correspondence

Izr. prof. dr. Ksenija Tušek Bunc, dr. med.
ksenija.tusek-bunc@guest.arnes.si
+ 386 41 699 690

Izvleček

Namen: Prehod od uporabe bolniških listov v papirnati obliki na elektronske bolniške liste (eBOL) se je v Sloveniji zgodil z začetkom leta 2020. V svetu se papirnata oblika bolniškega lista še široko uporablja; evropske države, ki elektronske bolniške liste že uporabljajo, pa preštevajo njihove prednosti. Namen raziskave je bilo ugotoviti zadovoljstvo pacientov z novimi elektronskimi bolniškimi listi ter izpostaviti njihove najpomembnejše prednosti in slabosti z vidika pacientov.

Metode: Kvantitativna presečna raziskava je bila izvedena v ambulantah družinske medicine v Mariboru in okolici. K sodelovanju je bilo povabljenih 250 naključno izbranih pacientov, ki so bolniške liste v papirnati in elektronski obliki že prejeli. Raziskava je bila izvedena preko spleta s povezavo do spletne ankete, sestavljene iz dveh delov.

Abstract

Purpose: In Slovenia, the transition from paper-based to electronic sick leave certificates (hereafter referred to as eBOLs) started at the beginning of 2020. While paper sick leave certificates are still widely used worldwide, many European countries are already reaping the benefits of using the eBOL system. This survey aimed to determine patients' satisfaction with the new eBOLs and highlight the most significant advantages and disadvantages from the patient's viewpoint.

Methods: A quantitative cross-sectional survey was conducted in Maribor, Slovenia, and the surrounding area to collect quantitative data from family medicine outpatient clinics. Two hundred and fifty patients were randomly selected among those receiving either paper or electronic sick leave certificates. The survey was conducted

Prvi del je obsegal osem trditev o izkušnjah z elektronskimi in papirnatimi bolniškimi listi in petstopenjsko Likertovo lestvico. Drugi del je vseboval dve vprašanji z več možnimi odgovori o prednostih in slabostih eBOL. Za statistično analizo podatkov je bila uporabljena bivariatna statistična analiza.

Rezultati: Od povabljenih 250 pacientov se jih je na povabilo za sodelovanje v anketi odzvalo 80 (stopnja odziva 32 %). Povprečna starost je bila $46,2 \pm 11,2$ let. Sodelovalo je 56 (70 %) oseb ženskega in 24 (30 %) moškega spola. Po več kot letu dni rabe je 57 (71,3 %) anketirancev izrazilo popolno strinjanje, da pacientom eBOL olajša urejanje bolniškega staleža, 55 (68,8 %) pa, da je eBOL ustrezno nadomestilo papirnatim bolniškim listom. Kot najpomembnejšo prednost eBOL je 76 (95 %) sodelujočih izpostavilo izogib dodatnim obiskom ambulate zaradi urejanja bolniškega staleža, kot največjo slabost pa negotovost glede podatkov, ki se pošiljajo s sistemom eBOL (64 oz. 80 % anketirancev).

Zaključek: Rezultati raziskave so pokazali, da so bili pacienti znatno zadovoljnejši z eBOL že ob uvedbi, z nadaljnjo uporabo pa se je njihovo zadovoljstvo še povečalo. Jasnejši in širši vpogled v prednosti in slabosti novo uvedenega informacijskega sistema in v zadovoljstvo uporabnikov bi dobili s širšo raziskavo, ki bi vključevala večje število ambulant in bolnikov po Sloveniji, in tudi mnenja zdravnikov.

online with a web survey link and consisted of two parts. The first part included eight items measuring patients' experiences with electronic and paper sick leave certificates, rated on a five-point Likert scale. The second part consisted of two multiple-choice questions regarding the advantages and disadvantages of eBOLs. The data were analysed using bivariate statistical analysis.

Results: Out of the 250 patients invited to participate in the study, 80 responded, resulting in a response rate of 32%. The mean age of the participants was 46.2 ± 11.2 years, with 56 (70%) women and 24 (30%) men. After more than a year of usage, 57 (71.3%) respondents expressed complete agreement that the eBOL system makes it easier for patients to manage their sick leave. Furthermore, 55 (68.8%) participants considered eBOLs as a good alternative to paper sick leave certificates. Most participants (76 (95%)) considered avoiding additional outpatient visits to manage their sick leave as the most significant advantage of using eBOLs. However, 64 (80%) respondents expressed uncertainty about the data sent by the eBOL system as the most significant disadvantage.

Summary: The survey results showed that patients were already significantly satisfied with the eBOL system when it was first introduced and that their satisfaction increased with continued use. A broader survey including a larger number of Slovenian outpatient clinics and capturing both patients' and doctors' opinions would provide more precise and broader insights into the newly introduced IT system's advantages and disadvantages and its users' satisfaction.

INTRODUCTION

In the 21st century, healthcare systems worldwide are facing new challenges due to advancements in technology and communication. In response to the accelerated evolution of medicine and the health ecosystem, countries are digitising their healthcare systems to keep up with these changes and improve patient care. This digitisation provides easier access to health data and other parts of the healthcare system, which helps improve patient outcomes and healthcare

quality. That is particularly crucial in light of global health concerns, such as the COVID-19 pandemic (1, 2).

The transition from physical to digital systems in the healthcare sector is a lengthy process due to the complexity and interconnectedness of healthcare systems. It takes time for the general population to learn about and get used to the innovations offered by digital healthcare. Most countries have prioritised

the digitisation of the secondary and tertiary levels of healthcare along with components that are standard to all healthcare system levels, such as ePrescriptions. However, the digitisation of the primary level and elements specific to each healthcare system level, such as sick leave certificates, usually follows later (3). Digitisation in healthcare not only simplifies previously paper-based procedures, like the issuance of sick leave certificates but also makes them more secure.

A certificate of an excused absence from work (in general), or “sick leave certificate”, is a public document issued to insured persons by a family medicine physician or a paediatrician. The employee then must deliver it to their employer. The Health Insurance Institute of Slovenia (HIIS) and the Chamber of Commerce and Industry of Slovenia (CCIS) have identified various administrative barriers to using paper sick leave certificates. These primarily include: (i) the insured person’s time spent traveling to the outpatient clinic for the issuance of a sick leave certificate, (ii) the delivery of a paper sick leave certificate to an employer, (iii) the manual input of data by an employer into the IT system for time and payroll recording, and (iv) the need to attach all original documents when claiming reimbursement of salary compensation. Moreover, (v) paper sick leave certificates can be quickly lost or even altered, adding to their inconvenience (4).

Electronic sick leave certificates (eBOLs) offer a solution to most of the shortcomings of paper sick leave certificates. They are also more secure and reliable, thanks to the numerous checkpoints within the system that ensure the accuracy and integrity of the data and the physician’s digital signature (3). In Slovenia, family medicine physicians handle around 1.5 million sick leave certificates annually, making the management of paper records a significant burden for the healthcare system. In Malta, for example, a study on the administrative burden of managing sick leave found that sick leave certificates account for more than 11% of medical treatments in family medicine outpatient clinics, which is comparable to the European average (3).

Interestingly, in the EU, despite the high overall development of its member states and the digitisation

of its member societies, many countries still rely on a combined system of paper sick leave certificates and scanned documents sent by email. Among the European countries that first introduced fully integrated digital systems are Sweden (introduced in 2015 with a pilot project conducted as early as 2011) (6), Poland (2016) (7), Latvia (2016) (8), Norway (2018) (9), and Russia (2017) (10).

Several studies conducted in the UK, where paper sick leave certificates are still used, identify similar issues to those found in Slovenia. They include a high administrative burden on family medicine physicians, possible duplication or loss of paper sick leave certificates, and extra work for insured patients who need to deliver paper sick certificates from their doctor to their employer (11). The researchers also noted that many family medicine physicians would like to receive more detailed and practical guidance or training on managing sick leave and transitioning to a more integrated electronic system (12).

In Poland, the e-system was introduced on a trial basis in 2016. The system significantly reduced the time spent managing sick leaves by more than 75%, from an average of 13 minutes to just 3 minutes per case. Related administrative issues, such as managing sick leaves of insured persons with multiple employers, also decreased. In addition, the e-system improved sick leave oversight and increased data security. Due to the trial’s success, Poland permanently introduced the e-system in 2018 (7).

At the beginning of 2020, after a three-month trial in selected outpatient clinics, a new IT solution was introduced in all family medicine outpatient clinics in Slovenia—the eBOL certificate of an excused absence from work. It replaced the paper form (the so-called “sick leave certificate”), thus relieving insured people, clinics, and employers from additional work. Until 1 February 2020, both paper sick leave certificates and eBOLs were accepted. After this date, paper sick leave certificates were discontinued. However, exceptions to this rule exist for those employed abroad and certain other groups, such as farmers, self-employed persons, clerics, those simultaneously employed in other EU countries, and employees of employers who do not have a legal basis to join the SPOT Slovenian Business Point portal (e-VEM). The introduction of the eBOL

system is one of the most significant measures taken in the recent digitisation of operations within the state in the Republic of Slovenia.

Every insured person can access the system through a digital certificate on the HIIS portal for insured persons. They can also access it with their employer or at a nearby HIIS unit (13). Transitioning to a digital system of managing sick leaves is a complex process involving health care providers, insured persons, employers, the Financial Administration of the Republic of Slovenia, National Institute of Public Health, and HIIS (14).

This study aimed to determine patients' satisfaction with the new eBOLs and highlight their most significant advantages and disadvantages from the patient's viewpoint.

We anticipated that at least 50% of respondents would have a favourable perception of eBOLs upon initial contact and that they would be viewed as a viable substitute for traditional paper-based medical records. Moreover, we expected that individuals younger than 50 years of age would find eBOLs more satisfactory than older patients. Lastly, our assumption was that there would be no significant statistical differences between genders.

PATIENTS AND METHODS

In November 2021, a cross-sectional quantitative study was conducted among visitors to family medicine outpatient clinics in Maribor, Slovenia, and the surrounding area. Due to the SARS-CoV-2 pandemic, an online questionnaire was used to facilitate and secure the study implementation. Patients were invited to participate in the study via a web application with a welcome address and a link to the online survey. Two hundred and fifty randomly selected patients and eBOL users were invited to join the study. In the Health Centre Dr. Adolf Drolc Maribor, all of the 59 family medicine outpatient clinics were included. Patients were randomly selected from the central register including all family medicine outpatient clinics. The researchers received codes of patients who met the inclusion criteria and performed random selection on this sample. In the final step, the

health centre administration office notified selected patients and asked them to participate using the health centre-implemented web application. All family medicine physicians were also informed about this ongoing research, which may involve their patients. The study had specific inclusion criteria that included individuals between the ages of 25 and 65 with a history of using both paper sick leave certificates and eBOLs. The study excluded unemployed individuals, pensioners, patients who had not used either eBOLs or paper sick leave certificates, patients not employed in Slovenia, patients whose employers did not have a legal basis for accessing the e-VEM operational support system, and patients who were under 25 or over 65 years of age. The online survey questionnaire used in the study was anonymous, and participants were informed about this in advance in the introductory remarks.

After reviewing the existing literature, we could not find a suitable validated questionnaire for our research purposes. Therefore, we designed a short-form questionnaire with key items connected to the eBOL system, which included items similar to those used to evaluate other electronic health services, i.e., general satisfaction, utilisation, time consumption and safety (15). The eBOL-specific questions were designed by the researchers, who then consulted two external experts in the field of family medicine regarding the quality of the questionnaire.

The questionnaire consisted of three segments. In the first segment, respondents were asked to provide their gender and age. In the second part of the survey, participants were asked to indicate their agreement or disagreement with eight items focused on eBOLs and traditional paper sick leave certificates. These items included questions about their satisfaction with eBOLs when they were first introduced, their current satisfaction with eBOLs, the usefulness of eBOLs for employers and their chosen family medicine physicians, and whether the current pandemic affected their opinion of sick leave certificates. Items were measured on a five-point Likert scale.

In the third and final part of the survey, participants were asked to select up to three items from a list of six that they believed highlighted the advantages and disadvantages of eBOLs. The collected data

were then analysed using IBM SPSS version 28 for Microsoft Windows (IBM Corp., Armonk, NY, USA). A t-test for independent samples and the Pearson correlation coefficient were used for the statistical comparison of the data by gender and age. Cronbach's alpha coefficient was used to calculate the reliability of an eight-item instrument measuring eBOL user satisfaction. A value of $p < 0.05$ was considered to determine statistical significance.

The Medical Ethics Committee of the Republic of Slovenia approved the study on 20 October 2021 (approval number 0120-430/2021/3).

RESULTS

Out of the 250 patients invited, 80 (32.0%) completed the survey. Of those who responded, 56 were female (70.0%), and 24 were male (30.0%). The majority of respondents (44 (55.0%)) were under 50 years of age, while 36 (45.0%) were over 50 years old. The youngest respondent was 25 years old, and the oldest was 63 years old. The average age of all participants was 46.2

± 11.2 years. The mean age for men was 44.6 ± 9.3 years, and 46.9 ± 12.3 years for women. Having used eBOLs, 57 (71.3%) respondents expressed complete agreement with the view that eBOLs make it easier for patients to manage their sick leave, and 55 (68.8%) considered eBOLs as a good alternative to paper-based sick leave certificates (pBOLs) (Table 1).

Cronbach's alpha coefficient of the eight-item instrument was 0.741, which constitutes an acceptable reliability level.

The 5-point Likert scale applied to the eight-item instrument was considered to yield interval scale data; therefore, the Pearson correlation coefficient was used to determine associations between eBOL use satisfaction and age (also measured on an interval scale). The results presented in Table 2 show that none of the eight items resulted in a significant association with age. In the second part, we calculated the mean values and standard deviations of the eight items and compared them by gender. Similarly, the results in Table 2 show no statistical differences in satisfaction with eBOL use between male and female respondents.

Table 1: Patients' self-assessed satisfaction with the use of electronic sick leave certificates

Item	Satisfaction rate with eBOL				
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)
When I first encountered eBOL, I preferred pBOL*.	45 (56.3)	5 (6.3)	17 (21.3)	7 (8.8)	6 (7.5)
Currently, I would be more satisfied with pBOL certificate than with eBOL.	49 (61.3)	7 (8.8)	16 (20.0)	5 (6.3)	3 (3.8)
eBOL is a good alternative to pBOL.	5 (6.3)	0 (0.0)	8 (10.0)	12 (15.0)	55 (68.8)
eBOLs make doctors' work easier.	0 (0.0)	0 (0.0)	22 (27.5)	15 (18.8)	43 (53.8)
eBOLs make it easier for patients to manage their sick leave.	2 (2.5)	0 (0.0)	13 (16.3)	8 (10.0)	57 (71.3)
eBOLs provide better transparency of sick leave.	2 (2.5)	7 (8.8)	22 (27.5)	10 (12.5)	39 (48.8)
The coronavirus epidemic has positively impacted my opinion of eBOL.	13 (16.3)	5 (6.3)	35 (43.8)	6 (7.5)	21 (26.3)
My employer frequently faces issues with eBOL.	29 (36.3)	11 (13.8)	32 (40.0)	1 (1.3)	7 (8.8)

Scale: 1 – strongly disagree, 5 – strongly agree

*pBOL: paper sick leave certificate

Table 2: Patients' satisfaction with the use of electronic sick leave certificates as compared to paper sick leave certificates by age and gender

Item	Age	Gender		
	r (p)	male n=24	female n=56	t (p)
When I first encountered eBOL, I preferred pBOL*.	0.171 (0.129)	2.0±1.2	2.1±1.4	0.216 (0.830)
Currently, I would be more satisfied with pBOL certificate than with eBOL.	0.059 (0.605)	1.9±1.1	1.8±1.2	0.247 (0.805)
eBOL is a good alternative to pBOL.	0.080 (0.480)	4.3±1.2	4.4±1.0	0.575 (0.567)
eBOLs make doctors' work easier.	-0.040 (0.723)	4.1±0.9	4.3±0.9	0.927 (0.357)
eBOLs make it easier for patients to manage their sick leave.	0.155 (0.169)	4.4±1.1	4.5±0.9	0.620 (0.537)
eBOLs provide better transparency of sick leave.	-0.019 (0.870)	4.1±1.1	3.9±1.2	0.816 (0.417)
The coronavirus epidemic has positively impacted my opinion of eBOL.	0.008 (0.942)	3.3±1.3	3.2±1.4	0.162 (0.872)
My employer frequently faces issues with eBOL.	0.138 (0.223)	2.7±1.2	2.2±1.2	1.852 (0.068)

Scale: 1 – strongly disagree, 5 – strongly agree

r: Pearson correlation coefficient, t: t-test for independent samples, mean ± standard deviation, *pBOL: paper sick leave certificate

The majority of respondents (95.0%) highlighted eliminating the need to visit the outpatient clinic to manage sick leave certificates as the most significant advantage of eBOL use. However, the central weakness of the eBOL system was that it is unclear which data had been transmitted to the eBOL system, as reported by 80.0% of the respondents. Table 3 also outlines some other, less pronounced advantages and disadvantages of the eBOL system from the patient's perspective.

DISCUSSION

This study was the first conducted in Slovenia to focus on eBOL, a rare subject in the existing literature. Our survey found that patients were satisfied with the switch from paper-based sick leave certificates to eBOLs, and that the eBOL system was well-received. Most respondents highlighted that avoiding additional

visits to the clinic to manage sick leave was the most significant advantage of eBOLs (Table 3). At the same time, uncertainty about the data sent by the eBOL system was seen as its most critical disadvantage (Table 3).

There are very few studies worldwide on user satisfaction with eBOLs, and most of them have been conducted in the United Arab Emirates in the context of other studies examining satisfaction with the transition to a comprehensive electronic healthcare system. A survey undertaken in five primary-level health facilities in Saudi Arabia in 2018 found that the introduced electronic healthcare system with an embedded electronic sick leave interface enabled reduced waiting times, fewer falsified patient records, and faster patient treatment (16).

The study results verified most of our anticipated findings. Specifically, our research showed that most patients surveyed had a favourable opinion about the eBOL system from their first interaction with it

Table 3: Patients' assessments of the advantages and disadvantages of electronic sick leave certificate use

	n=80	%
Advantages of eBOL		
Not having to go to the clinic solely to manage sick leave	76	95.0
Quicker processing of sick leave with the employer	54	67.5
No need to wait in the clinic for a sick leave certificate after a medical check	50	62.5
Reduced paper consumption	42	52.5
eBOL cannot be lost	17	21.3
Disadvantages of eBOL		
I do not know what data have been transmitted to eBOL	64	80.0
eBOL has not been sent	48	60.0
The employer could not access eBOL due to problems with computer systems	44	55.0
The eBOL was sent with incorrect data	41	51.3
The doctor terminated my sick leave without my knowledge	21	26.3
The employer needs more time to enter sick leave	1	1.3
No automatic notification of sick leave arrangement by the electronic system	1	1.3

(Table 1). This was expected since eBOLs offer clear advantages over paper-based certificates in terms of administration and logistics. Only a small proportion of respondents preferred paper sick leave certificates (Table 1), which could be attributed to a distrust of innovations and digital documents or an unfamiliarity with their use and handling. This finding is consistent with other studies that report patients' concerns about privacy and security when using e-services (16). However, our results indicate that patients are satisfied with eBOLs after more than one year of use, and their current satisfaction with them is even higher than at the time of their initial experience (Table 1). Currently, only 10% of respondents prefer paper sick leave certificates, while most prefer eBOLs (Table 1). There has been an increase in the number of patients who prefer electronic sick leave certificates over paper ones. This shift is evident when comparing the data on patients' perceptions of their first contact with eBOLs (Table 1). The number of respondents with a neutral opinion remained the same. Almost 84% of patients reported being satisfied with replacing paper sick leave certificates, which exceeded researchers

expectations (Table 1). This increase in satisfaction levels might be attributed to patients getting used to the novelties and learning about the benefits of eBOLs, alleviating their fear of the unknown and any prior prejudice. Most studies worldwide were performed to assess user satisfaction with e-services in primary care. Patients generally report high satisfaction with e-services in primary care. Studies have shown that patients report improved self-care, communication, and engagement with clinicians (17, 18). One study found that patients reported improved satisfaction with online access and services compared to standard provision (18, 19). Overall, patients report satisfaction with e-services in primary care, including improved self-care, communication, and engagement with clinicians (18, 20).

According to the respondents, eBOLs have numerous benefits (Table 3). The most significant advantage is that patients no longer need to visit an outpatient clinic to obtain sick leave documentation, which is one of the primary goals of the eBOL system. This was found to be both expected and desirable. Respondents also reported faster sick leave

management at their workplaces and the avoidance of waiting time for sick leave at an outpatient clinic (Table 3), suggesting that the goal of introducing eBOLs to achieve administrative relief has been met. Lower paper consumption was rated as significant by more than half of the respondents; however, this was below our expectations in light of current efforts to preserve ecosystems and the threat of climate change. Respondents considered the least significant benefit to be that eBOLs cannot be lost or accidentally destroyed in the same way as paper sick leave certificates (Table 3). However, 20% of respondents who saw this benefit are still a substantial proportion; therefore, it would be interesting to see how often paper sick leave certificates or other medical documents that are still in use were lost in the past.

The main issue with eBOLs was the uncertainty regarding the information transmitted from the eBOL system to the employer (Table 3). A likely reason for this is that the paper sick leave certificates that insured persons were served with always showed all of the relevant sick leave information quickly and clearly. In contrast, with eBOLs, this information bypasses the insured person because of the direct electronic transmission. Although insured persons can access this information through a digital certificate or their employer, the findings indicate that patients need to be better instructed on how to use the HIIS electronic system, which also needs further investigation and improvement. For example, Polish research studies found that the interest in accessing electronic health records was very high in the younger population, about 70% in the middle-aged population, and only 50% in the 60+ age group (19).

Three leading weaknesses were highlighted with approximately equal frequency (Table 3): problems with unsent eBOLs, sending eBOLs with incorrect data, and employers' problems with accessing the eBOL system. These three weaknesses were already expected in the eBOL design due to teething troubles when the new system was adopted (4) and, according to the survey responses, occur relatively frequently (for about half of the respondents; see Table 3). Therefore, it would be helpful to monitor and improve the timing of this since considering the increase in satisfaction

with eBOLs after one year of use, we expect to see a decrease in the frequency of problems with their use. A quarter of the respondents answered that family medicine physicians had terminated their sick leave and issued an eBOL without their knowledge (Table 3). Compared to the other answers, this is a low proportion; however, the researchers find it a very high figure that may indicate poor communication between doctors and patients in managing sick leave without personal contact or represent a symptom of other well-known problems related to absenteeism in Slovenia (21), such as non-compliance with agreed-upon deadlines for the completion of sick leave, unavailability of patients during sick leave, frequent sick leaves, and other issues.

None of the participants disagreed with the claim that eBOLs make work easier for physicians (Table 1), which may be an encouraging indicator of patients' willingness to tolerate the transition to an integrated digital patient management system, which should further ease administrative work for family medicine physicians. There was also very little negative feedback on the claims that eBOLs make it easier for patients to regulate sick leave, allowing for improved transparency. According to the survey results, the impact of the CoV-Sars-2 pandemic on the perception of eBOLs was weaker than expected, with a third of patients reporting a more favourable opinion of eBOLs than before and less than a half expressing no change in opinion (Table 1). The researchers assumed that isolation and restraint measures would better reflect the logistical benefits of eBOLs during the outbreak. The reason for this may be that e-health already achieved high acceptance rates prior to the SARS-CoV-2 outbreak (15). According to the survey, only 10% of respondents expressed frequent problems with the use of eBOLs, despite more than half identifying this as one of their main potential disadvantages (Table 1). This might be attributed to the initial challenges employers face in adopting integrated electronic systems (e-VEM), which some have yet to acquire.

Given the higher digital literacy of younger patients, the researchers expected that younger patients would be more satisfied with the introduction of eBOLs than

older patients (19). However, the statistical analysis results refuted this as there were no statistically significant correlations (Table 2). Possible reasons for this could be an insufficient sample size for the reliability of statistical data processing, familiarity with electronic systems and applications that was above the expected familiarity among older respondents, or other eBOL benefits that we had not taken into account, such as poorer mobility or access to outpatient clinics among older people, which would, in turn, increase their satisfaction with this digital solution allowing them to manage their sick leave from home.

Regarding gender, the researchers found that both women and men rated their satisfaction with eBOLs and the transition from paper sick leave certificates to the new eBOL format very similarly (Table 2). A noteworthy limitation in the analysis was that significantly more women than men participated in the survey. This was expected given the higher number of female patients in family medicine outpatient clinics (22, 23).

This study has several limitations. One was the use of an online questionnaire due to the SARS-CoV-2 pandemic, which was a significant challenge for the target population. Thus, the change in the data collection method resulted in a relatively small number of respondents. Statistical analyses of small samples are generally less reliable due to the more significant variability of the results, as it is more difficult to determine whether the results are genuinely representative when interpreting them. If a physical questionnaire had been used and administered in the clinic as initially planned, a higher participation rate would have most likely been achieved, thus increasing the reliability of the statistical analysis, and improving the sample's representativeness.

The survey was limited to patients of family medicine outpatient clinics in Maribor and surrounding area. Due to the pandemic situation, the number of participants was lower than expected. Nevertheless, although only 32% of the invitees responded to the survey, the response rate was comparatively higher

than the usual response rate for online surveys, which ranges from 5% to 30% (24).

To provide a more comprehensive picture of eBOL use satisfaction, a larger number of practices from different regions of Slovenia should have been included.

CONCLUSIONS

The transition from the paper-based sick leave certificate system to the new electronic integrated system has been well received by patients in family medicine practices. Although some expected drawbacks and doubts existed at the time of implementation, the advantages of the eBOL system have prevailed.

Patients should be better informed about the different ways to access the eBOL system to address uncertainty around data submission, which was identified as the primary disadvantage in the survey.

Further research could expand and improve the survey's scope to include doctors' opinions and a greater number of patients, or it could focus more on specific age groups.

ACKNOWLEDGEMENTS

The authors thank the patients who agreed to participate in this study. They thank Prof. Polona Selič-Zupančič, PhD, for valuable guidance in writing this article. Acknowledgements also go to Alojz Tapajner, BSc, System Engineer, for statistical support services and Zvezdana Marija Kompara, MA, CTLP, for language editing.

CONFLICT OF INTEREST

The authors of this study declare that they have no conflicts of interest related to the research.

FUNDING

The researchers received no funding to carry out this study.

ETHICAL APPROVAL

The Ethical Committee of the Republic of Slovenia approved this study (No: 0120-430/2021/3).

REFERENCES

1. Klemenc Ketiš Z, Rochfort A. Sustainability for Planetary Health: A Seventh Domain of Quality in Primary Care. *Zdr Varst.* 2022;61(4):198-200. doi:10.2478/sjph-2022-0026.
2. Petrazzuoli F, Collins C, Van Poel E, Tatsioni A, Streit S, Bojaj G, Asenova R, Hoffmann K, Gabrani J, Klemenc-Ketis Z, Rochfort A, Adler L, Windak A, Nessler K, Willems S. Differences between Rural and Urban Practices in the Response to the COVID-19 Pandemic: Outcomes from the PRICOV-19 Study in 38 Countries. *Int J Environ Res Public Health.* 2023;20(4):3674. doi:10.3390/ijerph20043674.
3. Agarwal R, Gao GG, DesRoches C, Jha AK. Research Commentary: The Digital Transformation of Healthcare: Current Status and the Road Ahead. *Information systems research.* 2010;21(4):796-809. Accessed March 24th, 2024 at: <http://www.jstor.org/stable/23015646>
4. Marčun T, Vodičar A, Copot M, Krunić R, Ljubić B, Polutnik, M, et al. Uvedba in prevzemanje eBOL preko portala SPOT. *ZZZS.* 2020. Accessed March 12th, 2024 at: <https://rgzc.gzs.si/Portals/rgzc-gzs/e-BOL%20in%20eZahtevk.pdf>
5. Soler JK, Okkes IM. Sick leave certification: an unwelcome administrative burden for the family doctor? The role of sickness certification in Maltese family practice. *Eur J Gen Pract.* 2004;10(2):50-55. doi:10.3109/13814780409094232.
6. Modin G. Electronic sick leave certificates in Sweden. Swedish Social Insurance Agency, EUMASS Congress Stockholm 2014. Accessed April 12th, 2024 at: <https://eumass.eu/wp-content/uploads/2019/09/Modin-Electronic-sick-leave-certificates-in-Sweden.pdf>
7. Szafraniec-Buryło S, Gluchowski P, Grzegorz Bukato G, Prusaczyk A, Żuk P. Nationwide implementation of the electronic sick leave certificates in Poland: quality improvement initiative towards value-based primary care resulting in rapid implementation in integrated care. *International Journal of Integrated Care.* 2019 (S1);A36:pp. 1-8. doi:10.5334/ijic.s3036
8. OPSI Latvia. Sick leave e-certificate. Observatory of Public Sector Innovation, 2016. Accessed April 14th, 2024 at: <https://oecd-opsi.org/innovations/sick-leave-e-certificate/>
9. Norwegian digitalization agency. Absence due to illness and sick-pay. Altinn [internet]. Accessed April 12th, 2024 at: <https://www.altinn.no/en/start-and-run-business/working-conditions/print-sickness-and-leaves-of-absence/absence-due-to-illness-and-sick-pay/>
10. Matyukhina A. Electronic Sick Leave Certificates: How It Works. Unicon Outsourcing. Accessed April 14th, 2024 at: https://ubpo.ru/en/press/publications/elektronnye_bolnichnye_kak_rabotaet_sistema/
11. Fullick S, Maguire K, Hughes K: Exploring perceptions and attitudes towards the extension of fit note certification. Ipsos MORI. 2020. Accessed April 6th, 2024 at: <https://www.gov.uk/government/publications/exploring-perceptions-and-attitudes-towards-the-exten>

- sion-of-fit-note-certification/exploring-perceptions-and-attitudes-towards-the-extension-of-fit-note-certification
12. Coole C, Nouri F, Potgieter I, Drummond A. Completion of fit notes by GPs: a mixed methods study. *Perspect Public Health*. 2015;135(5):233-242. doi: 10.1177/1757913915594197.
 13. ZZZS. Elektronsko potrdilo o upravičeni za držanosti od dela, 2019. Accessed March 6th, 2024 at: https://zavarovanec.zzzs.si/wps/portal/portali/azos/bolniska_ods/ebol/
 14. Portal GOV.SI. Pomembna novost za delodajalce – do e-bolniškega lista le preko portala SPOT (eVEM). 2020. Accessed March 6th, 2024 at http://evem.gov.si/evem/cms/news/detailEugo.evem?srcsi cms_news_id=7422.
 15. Zanaboni P, Fagerlund AJ. Patients' use and experiences with e-consultation and other digital health services with their general practitioner in Norway: results from an online survey. *BMJ Open*. 2020;10(6):e034773. doi: 10.1136/bmjopen-2019-034773
 16. Wali RM, Alqahtani RM, Alharazi SK, Bukhari SA, Quqandi SM. Patient satisfaction with the implementation of electronic medical Records in the Western Region, Saudi Arabia, *BMC Fam Pract*. 2020;21(1):37. doi:10.1186/s12875-020-1099-0.
 17. Mold F, Hendy J, Lai YL, de Lusignan S. Electronic Consultation in Primary Care Between Providers and Patients: Systematic Review. *JMIR Med Inform*. 2019;7(4):e13042. doi:10.2196/13042.
 18. Pogorzelska K, Chlabicz S. Patient Satisfaction with Telemedicine during the COVID-19 Pandemic-A Systematic Review. *Int J Environ Res Public Health*. 2022;19(10):6113. doi:10.3390/ijerph19106113.
 19. Bujnowska-Fedak MM, Wysoczański Ł. Access to an Electronic Health Record: A Polish National Survey. *Int J Environ Res Public Health*. 2020;17(17):6165. doi: 10.3390/ijerph17176165
 20. Dhakate N, Joshi R. Classification of reviews of e-healthcare services to improve patient satisfaction: Insights from an emerging economy. *J Bus Res*. 2023;164:114015. doi:10.1016/j.jbusres.2023.114015.
 21. Kovačič A, Raspor A, Kolar J, Žezlina J. Absenteeism in Slovenian companies. *Innovative Issues and Approaches in Social Sciences*. IIASS. 2021;14(1):18-30. doi:10.12959/issn.1855-0541.IIASS-2021-no1-art2
 22. Vedsted P, Christensen MB. Frequent attenders in general practice care: a literature review with special reference to methodological considerations. *Public Health*. 2005;119(2):118-137. doi:10. 1016/j. puhe. 2004.03.007
 23. Baudier L, Senn N, Wild P, Cohidon C. Consultation frequency and general practitioners' and practices' characteristics. *BMC Primary Care*. 2023;24:39. doi: 10.1186/s12875-023-01996-9
 24. Shih T-H, Fan X. Comparing Response Rates from Web and Mail Surveys: A Meta-Analysis. *Field Methods*. 2008;20(3):249-271. doi:org/10.1177/1525822X08317085.