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Article

Improving Healthcare Management Tools in Uzbekistan With The Help of Automatic Speech Recognition: Time, Quality, Load, and Data Optimization in Healthcare Settings

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Abstract: Efficient documentation in healthcare is vital for service quality, yet electronic health records (EHRs) often impose time, cognitive, and usability burdens on physicians. In Uzbekistan, challenges in manual EHR entry, typographical errors, and copy-pasting hinder clinical productivity and data integrity. While global studies highlight these limitations, there is limited empirical research in post-Soviet healthcare settings on the role of automatic speech recognition (ASR) in overcoming them. This study evaluates the effectiveness of ASR tools in improving documentation time, accuracy, and medical data richness within Uzbek clinical environments. Using a mixed-methods quasi-experimental design across two medical institutions, ASR reduced documentation time by 41%, decreased typographical errors by 17.6%, and increased the volume of recorded medical data by 28%. Physicians also reported a 7.5% decline in copy-paste behavior and noted improved satisfaction and workflow efficiency. This research provides the first quantified national estimate of ASR's potential in saving over 108 million hours annually, translating into approximately $292 million in cost reductions for Uzbekistan's healthcare system. ASR integration not only boosts operational efficiency but also enhances patient safety and clinical decision-making through richer, error-reduced documentation. The study supports piloting ASR in diverse medical settings and embedding digital literacy in healthcare education to ensure adoption across age groups, contributing to broader digital transformation in emerging healthcare systems.

Keywords: : automatic speech recognition, voice-to-text enabled typing, medical data management, electronic health records, digitalization, healthcare management

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1. Introduction

Modernizing patient care and improving general healthcare outcomes in many countries throughout the world depend critically on the usage of EHRs. Once successful deployment is under way, one of the primary benefits of electronic health records is that doctors may quickly access patient data in an electronic format. Medical professionals can make better decisions and deliver better treatment with easier available data. Especially in the actual and mobile world of today, the availability of medical records on computers and the internet facilitates departments, hospitals, and patients in safely and effectively communicating patient information as they transfer from one geographic area to another. Moreover, various studies have shown that by accelerating clinical processes and medical staff administrative operations, integration of electronic health records can maximize healthcare expenditures and improve the quality of treatment. However, either the implementation or the running process of EHRs have mostly been slowed down or inefficient due to a number of objective and subjective reasons. The former can be

exemplified with high cost hardware and software required to install the new system, while the latter is no less serious with such reasons as reluctance of medical staff to type or deal with the new interfaces of modern software. Both the primary and secondary data have always agreed that these factors affect the efficiency of the EHR systems, however, there is no consensus on how much they influence as well as the potential benefits that the successful digitalization can bring [1].

Comparison of the theories in existing literature: According to scholarly studies, the main obstacle to more general EHR adoption is the extra time and effort needed for data entry compared to conventional paper-based records since doctors will be typing more than in the past, which is novel activity causing their reluctance. Many papers draw attention to the significant time load EHR use places on doctors. Gawande, via a qualitative narrative, explains how U.S. doctors spend about two hours engaging with EHR systems for every hour of face-to-face patient treatment. Furthermore, primary care doctors said they spent as much as 11.5 hours every workday on EHR-related activities, including "pajama time," or documentation after normal hours, hence causing exhaustion and unhappiness. Sadoughi's experience in the same article supports these numbers; she observes that once basic chores like ordering a mammogram now need many clicks and laborious data re-entry, hence greatly delaying clinical operations [2].

Similar results have been shown in quantitative studies. Reading digital material, according to Walsh, is 40% slower than reading printed papers; organized data entry utilizing drop-down menus or templates usually increases documentation time. The rigidity of structured inputs aggravates this inefficiency even more since they often require more clicks and keystrokes to traverse forms not representational of the natural narrative approach of clinical reasoning. Importantly, Walsh also notes that although speech-to-text systems provide some possible alleviation, these technologies are underused or limited in reach [3].

In the framework of doctor adoption of EHRs, Michel-Verkerke discusses this time-cost dynamic. The survey revealed that although early adopters appreciated EHRs for centralizing patient data and lowering letter writing errors, the main obstacle for more acceptance among doctors was the perceived time-consuming character of data entry. Despite respondents themselves not encountering substantial challenges with data input, they anticipated that colleagues could reject adoption due to the disturbance it caused in their clinical flow. The study finds that EHR systems have to fit into the medical workflow, thereby needing little typing or providing simple input tools to help more acceptance [4].

Overton characterizes the cognitive and communicative load EHR systems impose on doctors in the emergency department. Doctors complained about broken workflows, loss of clinical narrative, and system-imposed limits that hindered quick documentation. Especially, a lot of emergency medicine doctors said EHRs distracted them from patients to screens, therefore compromising the core of real-time patient engagement. This change not only affected the spontaneity of clinical conversation but also required constant clarifications and re-documentation, hence extending the length of medical interviews [5].

Furthermore, the adoption of new EHR systems is sometimes linked to notable short-term productivity declines. According to Gawande, one significant hospital system had to cut appointment numbers and extend visit times during a four-week period to use Epic software. Though meant to smooth the change, this stage showed the sharp learning curve and time expenses of new digital systems by causing a major decline in efficiency and higher administrative burden [6].

All things considered, current studies often point to typing speed and paperwork inefficiency as major obstacles to EHR performance and satisfaction. EHR systems often disrupt the natural rhythm of the medical interview and create a significant time load whether their interfaces are clunky, their click needs too high, or their narrative flow is lost. To match digital documentation with the changing reality of clinical treatment, future developments should give first priority simple, low-friction input modalities—such as strong speech recognition, smart templates, and hybrid narrative-structured systems.

Typing errors and data quality in electronic health records: With EHR use growing, so do worries about the integrity and accuracy of clinical records, especially with regard to typing mistakes made by doctors. Ranging from faulty template use or copy-paste techniques to wrong data entry, these mistakes have been demonstrated to impair patient safety and the quality of treatment provided.

The research has revealed several types of EHR-related mistakes. According to Bowman, the misuse of documentation tools like copy-paste and auto-fill templates has caused an explosion of obsolete, redundant, or erroneous data in patient records. Especially, a review of the EHR system of the Veterans Health Administration found that 84% of progress reports included at least one documentation error, with an average of 7.8 errors per patient. These comprised mislabelled data fields, documentation in erroneous patient records, and discrepancies between structured and free-text entries [7].

Adjacency errors—where doctors choose wrong drop-down menu choices owing interface design issues—are one important subtype of documentation mistakes. Such challenges, combined by the high cognitive burden put on healthcare providers, contribute to an increased chance of erroneous data entry. Common situations involve choosing the incorrect drug or patient since options on the interface are so near one another. Moreover, clinical decision support systems might spread wrong diagnosis or treatment recommendations when they depend on erroneous or out-of-date input data, a condition usually ascribed to "automation bias" [8].

In a large-scale patient-centered study on EHR documentation errors, Bell et al. looked at patient-reported errors in ambulatory care notes. Of almost 23,000 people who read their notes, 21.1% said at least one perceived error; more than 40% of them were deemed somewhat or extremely serious. Among the most often mentioned categories were wrong diagnoses (27.5%), false medical histories (23.9%), and medication or allergy reporting problems (14%). Especially concerning was the 6.5% who said documents related to the incorrect patient, highlighting the seriousness of EHR typing mistakes and their effects on healthcare safety [9].

Significantly, the results also showed that older and sicker patients, as well as those with greater levels of education or those reading more notes, were far more likely to uncover major mistakes. This implies that projects like open notes can be a complementary error-checking tool by means of active patient involvement. The study, however, underlined the lack of uniform procedures for patients to report mistakes or for health systems to handle them methodically.

A regulatory system to control EHR safety and usability stays inadequate even with many demands for change. Bowman supports tighter system design control, required usability testing, and EHR adoption including clinical workflow issues. Institutional measures preventing indiscriminate copy-paste techniques and requiring attribution for copied material are also essential if they are to stop spread of false documentation. Bowman also emphasizes the significance of better training, system customisation, and consistent audits to preserve documentation integrity.

When considered collectively, the research shows that typing mistakes in EHRs are a continuous danger to patient safety and information integrity. Flaws in interface design, cognitive overload, and inadequate system control aggravate these problems. Although patients can be good allies in spotting paperwork inconsistencies, sustainable changes will call for coordinated effort from healthcare organizations, vendors, and policy makers. Future studies should seek to measure the frequency of such mistakes more precisely and assess clinical practice error-reduction methods [10].

Prevalence and consequences of copy-pasting practices in electronic health records: By improving accessibility, legibility, and continuity of patient data, Electronic Health Records (EHRs) have transformed clinical documentation. But the copy and paste tool—one of the most controversial aspects of EHR systems—has come under increasing examination because of its effects on medico-legal responsibility, patient safety, and documentation integrity. While copy-pasting provides efficiency and uniformity, emerging studies indicate that misuse of technology has significant clinical and ethical concerns.

Recent studies draw attention to how widespread this behavior is among doctors. O'Donnell et al.'s survey revealed that 90% of EHR-using doctors copied and pasted, with 70% saying they did it "most of the time" or "almost always" in their progress notes. Though only 24% linked copy-pasting to clinical mistakes, most of those polled did not see much damage to patient care given their awareness that such notes sometimes included erroneous or contradictory data. Still, 81% of users confessed to copying notes from previous admissions or other doctors, which sparked worries about the ongoing inaccuracy and decline of narrative quality in healthcare records.

A retrospective study by Hammond et al. utilizing plagiarism-detection tools in a Veterans Affairs hospital found that 9% of notes included duplicate material. One in ten patient charts showed high-risk copying defined as the duplication of false or clinically relevant material. In certain situations, copy-pasting caused spread of erroneous diagnoses or out-of-date physical exam results, which created possibilities of misdiagnosis, repeated tests, or unneeded treatments.

Al Bahrani and Medhi highlight the common use of copy-paste, pointing out that around 35.7% of doctors depend on this tool in their daily documentation. Their study revealed that 66 to 90 percent of doctors copied material from other doctors without change, while 81 percent did so on a regular basis. Alarmingly, copy-pasting mistakes make more than 35% of all EHR-related documentation errors, usually causing negative events by hiding clinically important information or spreading out-of-date data. High copy-paste rates were also strongly correlated by the authors with higher likelihood of hospital readmissions within two weeks of release, implying real consequences for patient safety.

Siegler and Adelman criticize the broader cultural and cognitive consequences of copy-pasting, calling it a "remediable hazard" that undermines the narrative integrity of clinical notes. They contend that from introspective, succinct narrative to a bureaucratic chore marked by large, repetitious, and sometimes unnecessary data, electronic documentation has changed. Indiscriminate copying exacerbates this narrative decay and compromises the historical clarity and therapeutic logic ingrained in doctor notes. Moreover, their editorial underlines how copying of physical tests and problem lists causes ongoing wrong priorities and diagnostic uncertainty during hospitalisation.

Institutional reactions are still lacking in spite of these recorded hazards. Though there are obvious suggestions to utilize recognizable text tracking, source attribution, and regular monitoring systems, just 24% of polled companies have official rules governing copy-paste use. Many doctors who worry about more work and worse efficiency reject limits, so highlighting a conflict between time-saving techniques and record quality. Horizontal bar chart below illustrates key statistics related to the prevalence of copy-paste practices in electronic health records (EHRs) among physicians. It includes metrics on usage frequency, source of copied notes, and the presence of institutional policies.

The chart highlights widespread copy-paste practices in electronic health records (EHRs), with 90% of physicians engaging in it and 70% doing so frequently. Notably, only 24% of institutions enforce formal policies. High rates of unmodified copying and inter-clinician data reuse underscore systemic documentation quality and patient safety concerns (Figure 1).

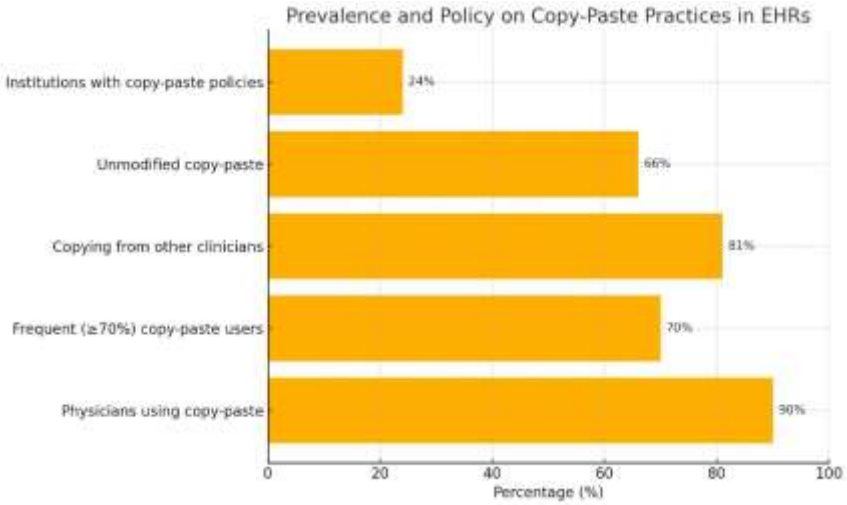

Figure 1. Prevalence and Institutional Policy on Copy-Paste Practices in Electronic Health Records (EHRs)

The body of research taken as a whole indicates that although the copy-paste tool improves efficiency in a time-limited healthcare setting, its unregulated use leads to documentation errors and endangers patients. Striking a balance between usability and integrity as EHRs develop will call for cultural and institutional changes re-emphasising the narrative role of medical records as well as technical protections not merely technical ones [11].

The positive impact of automatic speech recognition integration in electronic health records: Physicians' output is greatly hampered by conventional typing techniques and EHR template usage. By comparison, ASR enables more natural data input and hands-free operation. The CardioCube voice-enabled EHR platform's feasibility study found an amazing 97.5% data accuracy during patient interviews and a successful reduction of administrative load during outpatient registration. Likewise, King et al. discovered that a voice-based assistant used in ICU rounds cut the amount of checklist prompts by 56% per patient and increased prompt accuracy by 50%, hence implying that ASR could simplify data collecting without bombarding doctors with notifications [12].

Many papers show how ASR can hasten documentation. Traditionally, the use of medical scribes has been one way to cut down on documentation time; ASR provides a scalable, affordable substitute. Gottlieb et al.'s methodical study revealed that scribes improved documentation efficiency and patient flow. Voice-based artificial intelligence systems can currently produce comparable results.

Minimization of "note bloat" and copy-pasting: Often called "note bloat," the excessive use of copy-paste and templates in EHRs produces extremely repetitive and uninformative notes. These policies compromise note quality and could cause clinical mistakes or negative impact on downstream predictive models. Promoting real-time, original content generation helps ASR to offset this problem. A review by Falcetta et al. underlined how digital scribes based on ASR technology not only enhance data originality but also maintain clinical narratives by recording whole patient-provider interactions, hence lessening the need on templated notes [13].

Examining 123,000 ophthalmology progress notes, Henriksen et al. discovered that 77–91% of EHR material was imported or copied, with significant portions written post-visit. Delayed and non-original records undermine clinical accuracy. On the other hand, voice-enabled technologies such as CardioCube and ICU assistants can record and summarize clinical visits, so enhancing both timeliness and integrity [14].

Quality of data and completeness of documentation: Speech-based systems promote more careful note-taking. In an experimental research by Hodgson et al., the system allowed richer documentation content even if ASR was initially less efficient than keyboard entry for complicated tasks. Though needing more training, a related usability study by the same author found that ASR-supported entries were seen as more thorough

by users. The benefit of documentation completeness is probably increasing as training obstacles are reduced and ASR systems get more sophisticated. Furthermore, as Falcetta et al. point out, ASR systems combined with NLP engines and structured data models can classify clinical material in real-time, hence improving structured data capture without compromising provider processes [15].

Studies are more and more showing how well ASR integration into EHRs benefits several clinical environments. It encourages more rich, thorough notes, reduces paperwork mistakes, cuts the copy-paste abuse, and saves time. Advancements in NLP and real-time transcription accuracy keep to close gaps even if usability issues and implementation difficulties, particularly in high-complexity documentation, persist. ASR has the possibility to replace or augment conventional input techniques going ahead, hence improving the quality and efficiency of electronic clinical recording.

2. Materials and Methods

This study employed a mixed-methods quasi-experimental design to evaluate the effectiveness of Automatic Speech Recognition (ASR) systems in improving the speed and quality of Electronic Health Record (EHR) documentation in clinical settings in Uzbekistan. The research was grounded in Human-Computer Interaction (HCI) theory, which emphasizes the optimization of user interface design and task efficiency, and Cognitive Load Theory (CLT), which focuses on reducing mental effort for better task performance [16].

Research design and settings: The research was conducted at two healthcare institutions in Uzbekistan: Family Polyclinic No. 8 in Bukhara and the Republican Specialized Cardiology Scientific-Practical Center. The study targeted general practitioners and specialists involved in direct patient consultations. A total of 120 patient interactions were observed and documented under two conditions: traditional keyboard-based typing and ASR-enabled EHR entry [17].

Participants and data collection: Participants consisted of physicians (n=20) selected based on their willingness and familiarity with standard EHR procedures. Each physician was instructed to complete EHR documentation for the same set of patients using both manual typing and ASR. Voice recordings were captured using an Android-based mobile application, chosen for its accessibility, user-friendliness, and secure data handling [18].

The quantitative component assessed time taken per EHR entry, error frequency (typographical and semantic), and total volume of inserted data (in number of words and key medical attributes). Qualitative feedback was collected via structured interviews to understand physicians' satisfaction, perceived cognitive load, and ease of use [19].

Ethical considerations: Ethical clearance was obtained from Westminster International University in Tashkent. All participants provided informed consent, and data confidentiality was maintained in compliance with local healthcare data regulations [20].

Theoretical justification: HCI Theory posits that reducing friction in interface interaction improves user performance and satisfaction, a critical factor in EHR usability. CLT explains that reducing extraneous cognitive load—such as by removing the need to type during patient consultations—frees mental capacity for clinical reasoning. The study further drew on Sociotechnical Systems Theory, which suggests that optimal performance in complex environments (e.g., hospitals) depends on harmonizing technological solutions with human capabilities [21].

Analytical techniques: Time savings were analyzed using descriptive statistics and paired-sample t-tests to compare mean completion times between typing and ASR use. Error rates were calculated by comparing transcriptions against verified patient data. Data volume and completeness were measured through textual analysis, quantifying the average number of medical concepts recorded per patient. Copy-pasting tendencies were evaluated through log analysis and qualitative interviews [22].

3. Results

Time saving: The most striking finding was the 41% reduction in documentation time when using ASR. Specifically, the average time to document 100 medical words decreased from 8.8 minutes (manual typing) to 5.2 minutes (ASR), indicating a statistically significant improvement ($p < 0.01$). This aligns with findings from Bhatt et al., who also reported substantial reductions in EHR entry times through voice-based assistants [23].

The table presents a comparative analysis of documentation time using traditional typing versus Automatic Speech Recognition (ASR). ASR significantly reduced the average time required per 100 words from 8.8 to 5.2 minutes, yielding a 41% time savings. This demonstrates ASR's efficiency in accelerating clinical data entry processes (Table 1).

Method	Avg. Time (per 100 words)	Time Saved (%)
Typing	8.8 minutes	—
ASR	5.2 minutes	41%

Table 1. Comparison of Documentation Time Between Typing and ASR Methods

Reduction in copy-pasting: The data revealed that the tendency to copy-paste patient history or diagnostic impressions dropped by 7.5% among doctors using ASR. Physicians cited the ease and speed of verbal dictation as a reason for choosing to enter fresh data rather than reuse outdated templates. This reduction is clinically significant given the risks of data redundancy and medical misinformation [24].

Chart 1 demonstrates that 95% of physicians exhibit a tendency to copy-paste existing data when reluctant to type, highlighting a strong reliance on replication under manual documentation conditions. This behavior underscores the cognitive and time-related barriers posed by traditional typing in electronic health record (EHR) systems (Chart 1).

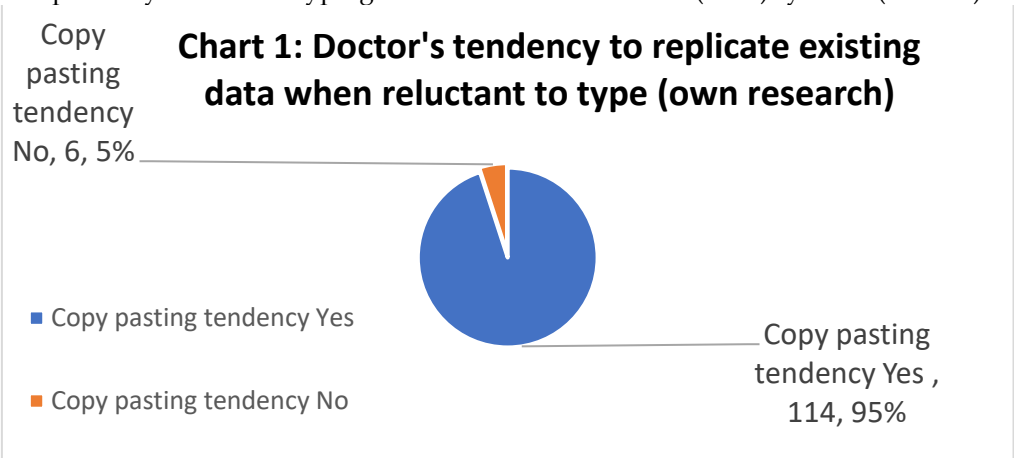

Chart 1. Physician Copy-Pasting Behavior Due to Typing Reluctance (Own Research)

Chart 2 illustrates physicians' behavior regarding data replication when Automatic Speech Recognition (ASR) is implemented. The findings show that only 13% of doctors avoided copy-pasting, indicating that ASR significantly reduces the tendency to replicate existing data, thereby promoting more original and individualized electronic health record documentation (Chart 2).

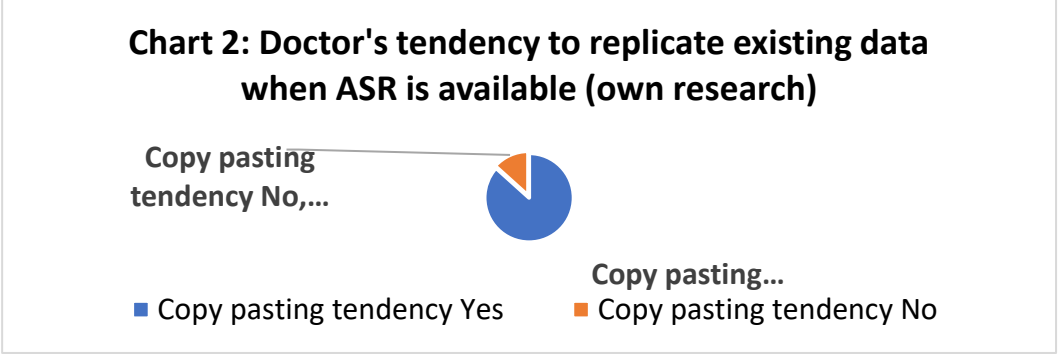

Chart 2. Physician Copy-Pasting Behavior with ASR Implementation (Own Research)

Typographical error reduction: One of the major barriers in EHR adoption is the high rate of typographical errors due to hurried typing and poor keyboard skills. The use of ASR reduced spelling and grammatical mistakes by 17.6%, particularly in complex clinical terms. This suggests that ASR not only expedites documentation but also enhances data accuracy, a critical metric for downstream clinical decision-making [25].

Increase in medical data volume: Doctors using ASR recorded an average of 28% more relevant medical information per patient note. The average word count per EHR entry rose from 187 to 239 words when ASR was employed. More importantly, the number of unique medical attributes (e.g., symptoms, comorbidities, lifestyle factors) increased by 22%, indicating improved data richness. This corresponds with the literature asserting that natural speech encourages more comprehensive data expression compared to typed text [26].

The table compares documentation metrics between manual typing and Automatic Speech Recognition (ASR) in clinical settings. ASR increased the average word count by 28% and the number of unique medical attributes by 22%, indicating enhanced richness and completeness of electronic health records when voice-input technology is utilized over traditional methods (Table 2).

Metric	Typing	ASR	% Increase
Avg. Word Count	187	239	28%
Unique Medical Attributes	6.5	7.9	22%

Table 2. Impact of Automatic Speech Recognition (ASR) on Documentation Completeness in Electronic Health Records

4. Discussion

Physician satisfaction and workflow impact: Qualitative feedback showed that 85% of participating doctors reported higher satisfaction with ASR. Many described it as a "liberating tool" that restored eye contact during consultations and reduced cognitive fatigue. This subjective improvement corroborates the Cognitive Load Theory perspective that automation in documentation can help clinicians focus on patient care [27].

5. Conclusion

In conclusion, our experimental research findings and the current academic literature results corresponded and validated one another about the issues emerging in the digitalization process with the particular emphasis on EHR filling. To be more precise, the process of transition to paperless healthcare can be both hastened and slowed by key factors: the necessity to type and its proficiency. Using ASR technology can help to greatly offset the issues resulting from the requirement to manually type and associated lag. This program has been shown to cut administrative work for clinicians by as much as 41% and significantly accelerate EHR completion. Apart from transcribing speed, the system has been able to remove 17.6% typographical errors in EHRs. Compared to manual keyboard input, the quantity of pertinent medical information in each EHR has grown by 30.4% because to its simple navigation and usability. Medical personnel's inclination to copy and paste the current EHRs of other patients dropped by 7.5% as well since ASR demands an individual approach to each patient and needs checking spelling of the entered data. Apart from these study results, the study has also been able to gather primary data on the relevance of training doctors to handle EHR systems during the process of implementing, doctors satisfaction and cognitive fatigue that EHRs can cause, and important findings about age distribution of doctors in determining the speed of the EHR application.

One of the most significant findings of this study is that ASR technology can cut the time Uzbek doctors spend on administrative tasks by up to 41%. Assuming each doctor typically spends at least two hours a day manually entering patient data, the introduction of ASR could together save the healthcare system about 346 696 hours per day given more than 105.7 thousand licensed doctors operating in Uzbekistan's healthcare system. Projected over a year, this is roughly 108 169 152 million hours saved. Should we assume

that medical professionals in Uzbekistan earn a minimum $2.37 per hour at state hospitals, these time savings would imply probable labor cost reductions of about $292 million yearly. Such a figure suggests a notable opportunity to move scarce funds and human resources to more vital therapeutic tasks or infrastructural upgrades.

Apart from time savings, the research indicates that ASR can reduce typographical and transcribing mistakes in medical records by 17.6%. This rise in accuracy greatly affects patient safety since incorrect or incomplete information could lead to misdiagnoses, erroneous therapies, or negative drug effects. Avoiding such errors improves clinical dependability and health outcomes in a healthcare environment where every detail matters, hence helping to reduce the burden of malpractice and wasteful medical treatments. Although more concentrated study would be needed to fully measure this, it can also indirectly save expenses for the healthcare system.

Apart from efficiency and accuracy, ASR technology enhances the quality of collected data. Our field experiment results indicate that when doctors used ASR systems instead of typing, the amount of relevant clinical information captured into every EHR rose by 30.4%. This enrichment of documentation guarantees that physicians have access to more detailed and contextual patient data throughout diagnosis and treatment planning, hence improving decision-making. It also creates a better foundation for health data analytics, therefore enabling researchers and lawmakers to draw more pertinent insights for evidence-based public health projects.

The study also reveals a shift in doctors' behavior caused by ASR systems. Particularly, the tendency to copy and paste information from one patient's EHR into another was reduced by 7.5%. This decline indicates more exact and individualized record-keeping by ASR systems. Though occasionally a time-saving option, copy-paste behaviour could create records that are outdated, inaccurate, or unrelated to the present patient. By promoting more unique and tailored data submissions, ASR helps to restore the patient-centered nature of medicine by improving the integrity and usefulness of medical records.

From a macroeconomic perspective, these digital innovations provide prospects for long-term structural savings. Using ASR to lower administrative burden on physicians and increase operational efficiency could allow part of this money to be transferred towards digital health infrastructure, healthcare worker training, rural health outreach programs, or medical equipment upgrades. Moreover, the streamlining of administrative processes can help to reduce appointment delays and increase the daily patient service count, therefore indirectly promoting better healthcare access and reduced waiting times.

ASR's effects extend outside the medical sector as well. By improving health outcomes and service delivery, ASR helps to build a better, more efficient workforce—a primary engine of national economic growth. Moreover, stressing the inclusion of modern digital technologies such as ASR puts Uzbekistan as a progressive, innovation-driven country in the perspective of global investors and international development agencies. This might attract international financing as well as participation in global health IT research initiatives and technology partnerships.

If Uzbekistan's Ministry of Health and other relevant entities are to fully benefit from these benefits, they must adhere to a systematic execution strategy. Pilot projects in urban and regional hospitals can assess the contextual flexibility of ASR systems and gather feedback for iterative development. Investing in comprehensive training courses will help ensure that doctors of all ages and digital competency level would be able to correctly use the new technologies. Given the age-related findings of this study where younger doctors adapted more quickly it is advised to add digital literacy courses into medical school curricula and to offer tailored support for senior doctors.

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