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Original Article

## An Analysis of the Current Status of E-Book Reader Applications in Iran: Insights from Medical Publishers

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### Abstract

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**Introduction:** Electronic book (e-book) reader programs providing rapid access to books. These programs encounter significant challenges in Iran, particularly in the medical field. This study aims to explore the obstacles publishers face in the electronic publishing industry, and evaluate the current state of Persian-language book reader programs from the publishers' viewpoint.

**Methods:** This study utilized a qualitative approach, gathering data through semi-structured interviews, engaging publishers with at least 10% of their catalog dedicated to medical books, and collaborating with Persian book-reading programs. The questions focused on the challenges of electronic publishing, the economic aspects of digital publishing, and the future prospects of this industry in Iran. The present study initially selected 30 publishers through purposive sampling, followed by a snowball sampling. The data were coded, categorized, and analyzed.

**Results:** The study's results revealed that publishers face several challenges, such as technical difficulties in preparing e-books, copyright issues, collaboration challenges between publishers and e-readers, and financial challenges. Furthermore, medical publishers face specific problems, such as the difficulty of organizing resources in the original language and the lack of a suitable market for specialized medical books in the digital space.

**Conclusion:** E-book reader applications in Iran are hindered by various challenges that reflect limitations in technical, economic, cultural, and social fields. These challenges affect publishers' collaboration with the e-book reader app, and reduce user satisfaction. The analysis emphasizes the critical need for improved interaction between publishers and designers and suggest a pressing need to reevaluate the design and management of these applications to better align with user needs.

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## Introduction

Publishing has long served as a vital bridge between creators and readers, playing a crucial role in exchanging ideas and culture. It remains a key method of informing societies. With the advent of printing technology, the ability to reproduce works

has enabled the widespread transmission of both content and emotion (1). Both electronic and printed books offer distinct advantages and drawbacks. E-books are popular for their portability, quick access, and affordability, making them a convenient



option for many. On the other hand, printed books offer a tactile reading experience that many find more engaging and immersive. Ultimately, the choice between these two formats hinges on individual needs and preferences (2).

In today's digital age, services like banking, bill payment, and shopping are predominantly conducted online, reflecting society's growing reliance on digital tools across fields such as education, communication, and economics. The internet, functioning as a vital communication hub alongside satellites and fiber optic and wireless networks, has transformed the world into a global village, enabling seamless, borderless communication. Within this landscape, electronic books have emerged as significant resources for acquiring knowledge and are anticipated to be integral to the future of library collections. These e-books represent a remarkable advancement in the literary world since Gutenberg's invention of the printing press. They surpass traditional books by offering quick storage and search capabilities, fostering creativity, and enhancing educational experiences (3).

Digital publishing is on the rise, driven by its quick and easy access to information and lower printing costs. The new generation, well-versed in the digital world, gravitates towards digital content for its convenience, offering instant access and the flexibility to read anytime, anywhere. Digital reading software like Kindle, Apple Books, and Fidibo provide features such as advanced searching, text customization, and note-taking (4). However, these platforms are not without their drawbacks. Users may experience eye strain from prolonged screen time, there's a reliance on electronic devices, and an Internet connection is necessary to download new books. Recent studies indicate a rapid increase in digital book usage in developed countries, with e-books projected to comprise 15% of the global market by 2025 (5). These digital platforms allow users to carry multiple books on their mobile devices at a lower cost, relieving publishers from the challenges of production, distribution, and rising paper prices (6). Moreover, digital reading platforms are not only expanding the e-book market but are also significantly reshaping traditional publishing

business models (7).

Electronic-readers (E-readers) are available in two main types: Standalone devices and software apps. Standalone E-readers, like the Kindle Paperwhite and Kobo Libra Color, utilize electronic ink technology to mimic the look of paper, helping reduce eye strain. These devices are generally lightweight and portable, making them perfect for extended reading sessions. On the other hand, E-reader software apps can be downloaded onto tablets and smartphones. Although these apps offer various features, they may cause more eye strain due to their reliance on Liquid Crystal Display (LCD) or Organic Light Emitting Diode (OLED) screens (8).

E-book readers have become crucial for both publishers and users, particularly in the medical field, due to the constant need for updated resources. Features like multimedia content enhance educational experiences and allow for broader distribution. Apps such as Fidibo, Taaghche, and Ketabrah enable publishers to engage in electronic publishing, manage sales, and directly publish both books and audiobooks. For users, these platforms offer access to a wider range of resources at lower costs, optimize content volume, and allow for uninterrupted reading experiences (9). In Iran, the adoption of these platforms has been relatively recent, spanning less than a decade. As their usage expands, challenges in providing services to both users and publishers are expected to arise (10).

Furthermore, research indicates significant variation in the use of E-reader software worldwide. In Europe and North America, approximately 35% of users regularly engage with this technology. In contrast, the adoption rate remains notably lower in Asian countries (11). In Iran, E-reader software usage is on the rise, yet challenges persist, including a shortage of local content and issues with online payment systems. Despite these obstacles, the demand for digital books is growing among younger generations, who appreciate the convenience of downloading and reading books from various sources (12).

Recent studies have delved into the various challenges faced by designers of E-reader programs, analyzing these issues from their perspective.



For instance, one study focused on the economic difficulties faced by E-reader programs, exploring financial data and revenue models (13). Other research has highlighted issues related to user interface design, such as limited customization features and inadequate customer support (14). Additionally, cultural challenges have been noted, including a lack of local content and cultural mismatches in the translation and presentation of international material (10).

The studies also covered the state of medical book publishing (15), user interaction with E-reader apps (16), and explored the structure of E-reader applications by examining systems like e-book lending and purchasing through models such as purchasing system (Taktab) based on the Osterwalder business model canvas (17). Technical challenges, the functionality of E-readers on mobile devices (18), and the differences and similarities in learning from printed books, laptops, and E-readers have also been investigated (19, 20).

However, there remains a gap in research regarding the collaboration between publishers and readers. This study aims to address this gap by exploring the challenges faced by E-reader apps in Iran, specifically from the viewpoint of medical publishers and electronic publishing. The goal is to identify these challenges and propose solutions to enhance the performance and efficiency of these apps.

## Methods

The present study was conducted with an applied focus, using a qualitative approach. The participants were publishers chosen based on specific criteria and invited to participate via phone calls. The study employed in-depth, semi-structured interviews to explore the challenges faced by publishers in the electronic publishing industry. Data were collected from publishers across the country over a six-month period, from January to June 2023.

The interview questions focused on four main areas. First, the electronic publishing industry, addressing issues like compatibility with various E-readers and challenges in uploading files. Second, the specific challenges faced by publishers in the medical field, particularly concerning intellectual

property and specialized topics, compared to other genres. Third, the economic aspects of digital publishing, examining financial hurdles in working with authors and E-reader platforms. Finally, the future of this industry in Iran and globally was assessed, highlighting the challenges for publishers and e-book platforms and their implications for the future of digital publishing.

This research project gathered data over a six-month timeframe through semi-structured interviews with publishers who have a minimum of 10% of their publications in the medical sector and engage with Persian book reading initiatives. The interviews were conducted both face-to-face and via online platforms. The collected data underwent a thorough process of coding, categorization, and analysis. The interview questions were specifically crafted to investigate topics such as the challenges associated with electronic publishing, the economic aspects of digital publishing, and the future landscape of the industry in Iran. Initially, 30 publishers were selected through a purposive sampling approach, which was subsequently complemented by a snowball sampling technique. Following the interviews, the data were analyzed using an impartial coding method, with all findings confirmed by the participants.

To ensure validity, the interview questions were developed by referencing research history and using reliable sources, alongside expert opinions in the publishing field. Experts confirmed the face and content validity of our research instrument. Additionally, this study conducted several pilot interviews to refine the questions. To prepare the interviewees, the researchers sent them the questions in advance. The interviews, conducted in person or via online audio and video through social networking software, were transcribed and reviewed in text form without bias.

The data analysis process involved summarizing, categorizing, coding, and processing to uncover various analyses and relationships within the data. The researchers sent the transcribed and coded version to the interviewees for final approval, allowing for necessary corrections. Data coding followed Dickelman's seven-step model, including reading the interviews, writing interpretive summaries,



analyzing and identifying themes, clarifying unclear issues, comparing texts, extracting basic patterns, and drafting a version for feedback from the analysis team (21). Besides sending the codings

to the interviewees, the researchers also shared them with five experts to ensure the accuracy and correctness of the codes assigned to the interview texts.

**Table 1.** Sample coding performed

Category	Concept	Frequency of occurrence (publisher codes)	Sample statement	Publisher code
Technical Issues in Format and Preparation	Request for uploading an e-file in a specific format in e-book reader applications	10 (P13, P11, P6, P20, P17, P9, P19, P10, P15)	Some e-book reader applications insist on uploading files in a specific format to make their work easier when preparing the book and converting it to an electronic version.	P5

Table 1 indicated an analysis featuring the publisher code, a sample statement, the frequency with which statements are repeated according to publisher codes, the selected concept for each set of statements, and the category derived from each set

of concepts. Each category groups related concepts, with each concept drawn from a series of statements. Additionally, Table 2 provides demographic information about the interviewees, comprising 30 publishers.

**Table 2.** Publishers' demographic information

Characteristic	Gender		Field of activity		Collaboration with E-book reader app		Average share of publisher's books in e-book reader app	Interview method			
	Male	Female	Medical (specialized)	Medical & general	YES	NO		In-person	Voice call	Video call	Email
Number	26	4	11	19	19	11	20%	25	3	1	1

Notably, during the process of implementing this research, one of the main challenges was the difficulty in accessing publishers for interviews. This challenge was largely resolved by receiving a letter from the university where the research was conducted and the research team's discussions and consultations with the publishers.

## Results

The data gathered from the interviews underwent a thorough analysis, with results presented in Tables 3 to 11. From the 30 interviews conducted, this study identified 64 statements (sub-challenges) and 10 categories through the analysis of extracted

codes. The table below highlights findings from coding interviews with the publishers involved in this study. The percentage frequency in these tables indicates how often each concept is repeated within the context of a specific challenge, as noted at the top of the table. This percentage essentially reflects the prominence of each concept in relation to that challenge. Additionally, the total frequency percentage shows the significance and prevalence of each specific challenge when compared to all identified challenges in the study. This measurement underscores the importance and recurrence of each challenge relative to others. The examination of E-reader applications from the publishers'

perspective uncovered several concepts and categories, which are listed below.

**Table 3.** Infrastructure and technical challenges in formatting and preparation

No.	Concept	Frequency	Relative frequency (%)	Total frequency percentage (%)
1	Publishing files in proper e-book format	6	9%	
2	Time-consuming preparation of books in electronic publication (EPUB) format	4	7%	
3	Reader dissatisfaction with PDF format books	10	14%	
4	Loss of book layout during EPUB conversion	8	11%	
5	Lack of support for all types of book layout formats	10	14%	
6	Platform request to upload e-files in specific formats	8	11%	11%
7	Low growth rate of e-book reader applications	6	9%	
8	Lack of infrastructure for the development of e-book reader applications	4	7%	
9	Low internet speed in the country	8	11%	
10	Lack of proper monitoring and supervision over e-book reader applications	4	7%	
<b>Total of infrastructure and technical challenges</b>		<b>68</b>	<b>100%</b>	

Table 3 highlights the infrastructural and technical challenges associated with formatting and preparation. The most frequent issues, accounting for 14%, are reader dissatisfaction with PDF format books and inadequate support for all book layout formats. In contrast, the least frequent challenges, at 7%, involve the time-consuming nature of preparing books in EPUB format and insufficient supervision of E-reader programs. These findings suggest a greater emphasis on improving format quality and enhancing infrastructure.

Table 4 shows that the cost of digitizing original medical books and the time-consuming nature of publishing illustrated books (both 36%) are among the crucial challenges, while publishing books in general (6 %) is the least challenging.

Table 5 shows the challenges of collaboration and commitments, with reader platforms not adhering to commitments (43%) being the biggest challenge, while not allowing publishers to collaborate with multiple readers due to the monopolistic approach of some readers (19%) being the least reported challenge in this area.

Table 6 shows that “Lack of a dedicated panel for book authors” has the lowest frequency percentage at 8%, whereas “Authors complaining about books not being available on all E-readers” has the highest frequency percentage at 22%.

Table 7 shows that “Lack of harmonization of laws with global standards” ranks lowest with 8% of the total frequency, while “Lack of deterrent laws on plagiarism and copyright” ranks highest with 30% of the total frequency. This difference indicates the importance of strengthening deterrent laws and harmonization with global standards in the field of copyright.

Table 8 indicates the challenges of sales and demand in the medical book market, indicating a variety of problems in this area. The highest frequency percentage is related to “Limited community and low sales of medical books” with 20%, referring to the limited market and specific audience. The lowest percentage is related to “Book sales lower than the author and publisher expected” and “Decrease in the number of active medical publishers in the country”, each with 5%. This indicates fundamental challenges in the supply and demand for medical books, including



problems related to the publication and access to medical books in small and limited markets.

**Table 4.** Challenges related to cost and preparation time

No.	Concept	Frequency	Relative frequency (%)	Total frequency percentage (%)
1	High cost of book preparation	8	12%	10%
2	High cost of publishing printed books in the field of medical sciences	6	10%	
3	Time-consuming process of publishing illustrated books with tables and charts in EPUB format	16	24%	
4	Time-consuming to make minor changes in books already published in e-reader applications	8	12%	
5	Time-consuming to publish a book for the first time on an e-reader platform	4	6%	
6	High cost of digitizing printed, original, and authenticated medical books	24	36%	
<b>Total of challenges related to cost and preparation time</b>		<b>66</b>	<b>100%</b>	

**Table 5.** Collaboration challenges and commitments

No.	Concept	Frequency	Relative frequency (%)	Total frequency percentage (%)
1	Publishers are not allowed to collaborate with multiple e-reader platforms due to monopolistic approaches	6	19%	5%
2	Publishers avoid cooperation with all e-reader platforms due to lack of commitment and poor platform performance	14	43%	
3	Lack of legal authorities to follow up on non-compliance with commitments	12	38%	
<b>Total of challenges related to collaboration and commitments</b>		<b>32</b>	<b>100%</b>	

**Table 6.** Challenges related to authors and publisher-author trust

No.	Concept	Frequency	Relative frequency (%)	Total frequency percentage (%)
1	Lack of a dedicated panel for book authors	6	12%	8%
2	Authors not being informed about real-time book sales	10	18%	
3	Handling a large number of authors and providing accurate and timely information about book sales status	10	18%	
4	Authors complaining about books not being published on all available e-reader platforms	12	22%	
5	Low level of trust between authors and publishers	8	15%	
6	Publishers' low trust in e-reader platforms	8	15%	
<b>Total of challenges related to authors and publisher-author trust</b>		<b>54</b>	<b>100%</b>	

**Table 7.** Challenges related to copyright infringement

No.	Concept	Frequency	Relative frequency (%)	Total frequency percentage (%)
1	Fear of copyright law being disregarded	12	16%	12%
2	Copyright violations by medical students	8	11%	
3	Lack of deterrent laws regarding plagiarism and copyright infringement	22	30%	
4	Time-consuming and exhausting process of pursuing copyright violations	18	24%	
5	Lack of deterrent punishments for literary and academic theft	8	11%	
6	National copyright laws not aligned with international standards	6	8%	
<b>Total of challenges related to copyright and rights violations</b>		<b>74</b>	<b>100%</b>	

**Table 8.** The challenges related to sales, demand and the medical book markets

No.	Concept	Frequency	Relative frequency (%)	Total frequency percentage (%)
1	Decrease in printed book sales after availability of electronic version in e-reader apps	18	16%	19%
2	Lack of electronic libraries alongside printed ones in university libraries	8	6%	
3	Book sales lower than expected by the author and publisher	6	5%	
4	Author dissatisfaction with uploading the book on e-reader platforms	10	8%	
5	Unreasonable discounts applied to books	8	6%	
6	Limited audience and low sales of medical books on e-reader platforms	24	20%	
7	Unsellable outdated versions of medical books	8	6%	
8	University libraries not purchasing from e-reader platforms	6	5%	
9	Preference for printed format over electronic format in the medical community	10	8%	
10	Short shelf life of medical books	10	8%	
11	Budget shortages in university libraries for purchasing printed books	8	6%	
12	Decline in the number of active medical publishers in the country	6	5%	
<b>Total of challenges related to the sales, demand, and the medical book market</b>		<b>122</b>	<b>100%</b>	



**Table 9.** Challenges of publishing medical books and the original language

No.	Concept	Frequency	Relative frequency (%)	Total frequency percentage (%)
1	Lack of collaboration between e-reader platforms and medical publishers for publishing original language books	14	16%	15%
2	Large file sizes of original language medical books	8	9%	
3	Limited audience for original language books on e-reader platforms	8	9%	
4	Lack of willingness to publish Persian medical books on e-reader platforms	26	30%	
5	Translation of medical books by students without collaboration of renowned professors, using their names for boosting sales	14	16%	
6	Refusal to publish large-volume books on e-reader platforms	18	20%	
<b>Total challenges related to publishing medical books and the original language</b>		<b>88</b>	<b>100%</b>	

Table 9 highlights the challenges of publishing medical and original language books and related issues in this area. The highest frequency percentage, at 30%, is related to “Unwillingness to publish Persian-language medical books in book-reading programs,” indicating major problems in attracting publishers to publish Persian content. In contrast, the lowest frequency percentage, at 9%,

is related to “High volume of original language medical books” and “Lack of audience for original language books in book-reading programs.” These data emphasize the dual challenges in publishing original language and Persian books, including lack of audience, difficulties in publisher collaboration, and lack of support for voluminous books.

**Table 10.** Challenges related to publishing and updating

No.	Concept	Frequency	Relative frequency (%)	Total frequency percentage (%)
1	Lack of user awareness about updated versions of books	13	38%	5%
2	Time-consuming upload process due to numerous metadata fields	9	27%	
3	Absence of a government-supported e-reader platform	12	35%	
<b>Total challenges related to publishing and updating</b>		<b>34</b>	<b>100%</b>	

Table 10 highlights the main challenges faced in the current system. The most significant issue is that 38% of respondents cited “Users not being informed about the updated version of a book.” This points to a communication gap in keeping users informed. On the other hand, the least pressing concern, noted by 27%, is that “Files take a long

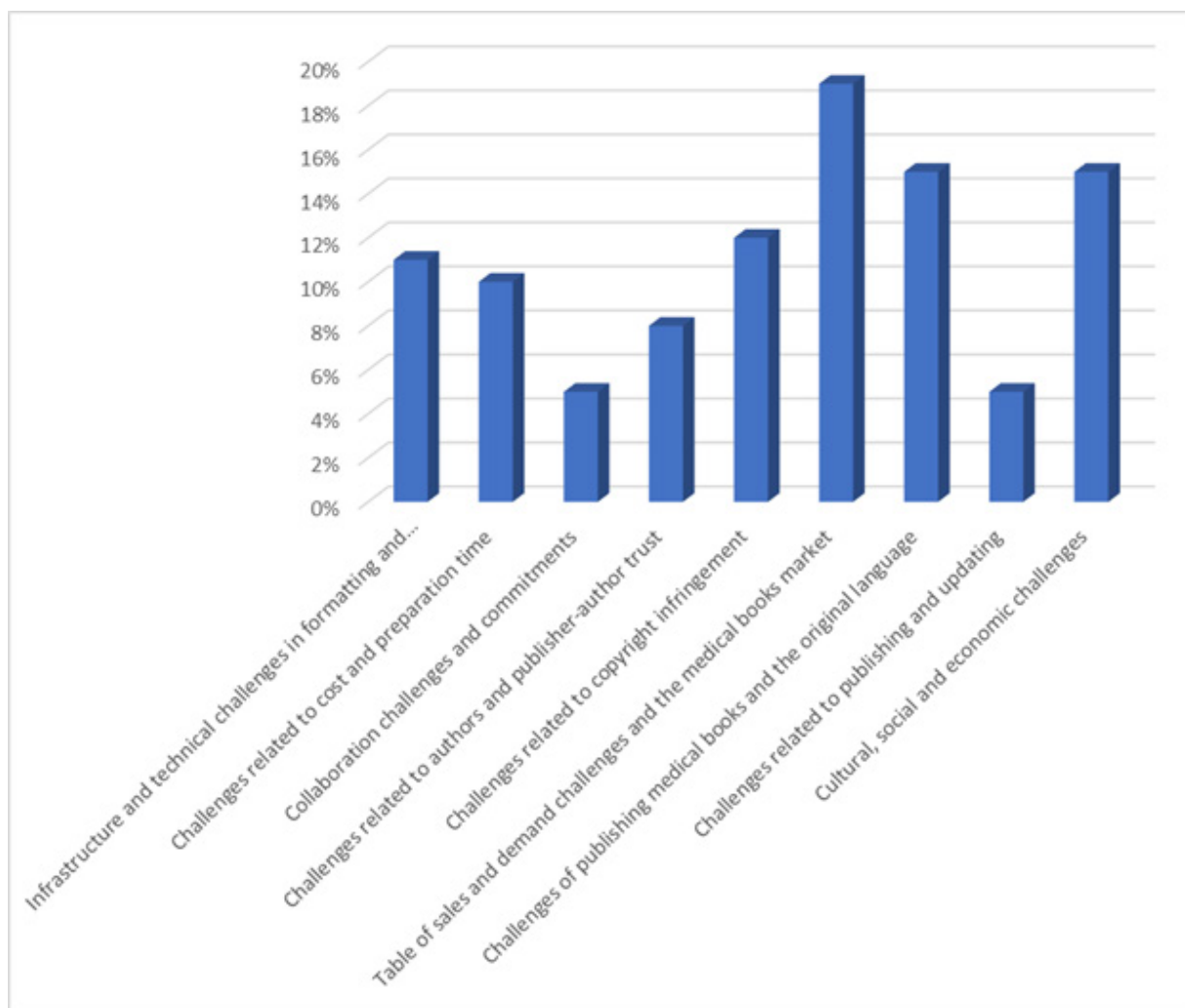
time to upload due to the large number of book introduction fields,” indicating technical difficulties in content uploading. Additionally, 35% of respondents pointed out the “Lack of a government-backed book reader program,” underscoring the need for government intervention to support book publishing.

**Table 11.** Cultural, social and economic challenges

No.	Concept	Frequency	Relative frequency (%)	Total frequency percentage (%)
1	Low national average reading rate	8	8%	15%
2	Poor economic conditions of the population	10	10%	
3	Lack of motivation due to the low economic profitability of e-reader platforms	10	10%	
4	Failure of e-reader projects after a few years due to financial issues	6	6%	
5	Sanctions and lack of access to original medical books	10	10%	
6	Medical book market monopoly in universities	10	10%	
7	Bookstores recommending high-profit books to students	8	8%	
8	Misuse of top professors' names to boost sales of medical books	9	9%	
9	Lack of cultural priority for reading in e-reader platforms	10	10%	
10	Lack of promotion for using e-books alongside printed books	4	4%	
11	Pessimism of publishers about the future of e-reader platforms	4	4%	
12	Lack of interest among readers in purchasing e-books	11	11%	
<b>Total cultural, social, and economic challenges</b>		<b>100</b>	<b>100%</b>	

Table 11 shows the cultural, social, and economic challenges that are the numerous problems in the field of reading and publishing medical books. The highest frequency percentage (15%) is dedicated to “Low per capita reading rate in the country,” indicating a lack of attention to reading in the general society. Furthermore, the lowest frequency percentage (4%) is related to “Lack of culture of

using electronic books alongside printed books” and “Publishers’ pessimism about the future of e-book reading programs,” indicating problems in accepting electronic books and publishers’ concerns about the sustainability of e-book reading programs. Other challenges also refer to economic issues, sanctions, and problems in the systems for buying and selling medical books.



**Figure 1.** Percentage frequency chart by each challenge in publishers' collaboration with E-reader apps

Figure 1 explores the current state of e-book reader applications in Iran, focusing on the perspective of medical publishers. It highlights various challenges these publishers encounter when utilizing e-book platforms. These issues significantly influence the production, publication, and sale of medical e-books, necessitating solutions across different areas. The figure underscores the numerous hurdles faced by medical publishers in Iran. To address these challenges, improvements in technical infrastructure, enhanced collaboration, resolution of economic and social issues, and fostering a culture of e-book usage within the medical community are essential.

## Discussion

This article explores the challenges medical publishers face when entering the field of electronic books. With the growing demand for e-book

publishing, this study focuses on the difficulties in collaboration between publishers and e-book readers in Iran. Through interview analysis, 64 statements were identified, categorized into nine distinct groups from 30 interviews with publishers. In a related study, Nourbakhsh et al. used a phenomenological approach to examine the state of medical book publishing in Iran, identifying various issues and challenges. This study highlighted 44 categories related to the problems in medical publishing and proposed 30 solutions to address these challenges (15).

The world of e-books faces several technical and preparatory challenges, such as formatting difficulties, costs, and the time required for preparation. Collaboration between publishers, authors, and e-reader manufacturers often encounters hurdles due to incomplete commitments and issues with authors. Trust and copyright concerns,

including mistrust between publishers and authors and copyright infringement, remain significant issues. In the e-book market, challenges include sales, fluctuating demand, and a particularly limited market for medical books. Medical publishing confronts specific obstacles, such as the reluctance to publish in original languages and resistance from medical publishers to embrace digital formats. Infrastructure issues, like slow internet speeds and underdeveloped e-reader technology, are also significant barriers. Additionally, cultural and social resistance to e-books, along with economic concerns, complicate the landscape further. Support, services, and billing complications contribute to the ongoing challenges in this sector.

A study by Nourbakhsh et al. found that 53% of the challenges faced by medical publishers' stem from content production, with additional issues arising in cultural production (17%), sales (14%), and distribution (9%). Key challenges include a lack of effective policymaking, insufficient expertise, and high costs. To address these challenges, the study suggests implementing strong laws, advancing technology, improving distribution systems, increasing government support, and enhancing editorial promotion. These solutions could significantly improve the landscape of medical book publishing (15). Both studies focused on medical publishers, but from different perspectives. Nourbakhsh's study analyzed the situation of medical book publishing in Iran, while the current study explores the challenges faced by medical publishers in partnership with book reader programs. Nourbakhsh's research highlighted that over 50% of the issues are related to content production. In contrast, the current study found that content-related challenges are minimal, with the primary obstacles being sales and the demand for medical books.

Azarami's research highlights several key factors that impact the production of e-books from the publishers' perspective. These include the integration of images and graphics, film and animation, page layout, and audio elements. The study also underscores the growing potential of mobile applications in libraries, the challenges posed by e-readers, and strategies for promoting these

technologies in developing countries. A significant challenge identified in the current study is the publication of books in PDF format. This format lacks the engaging features of the e-pub format, which is specifically designed for e-books.

According to Rasouli et al., the development of online bookstores in Iran faces obstacles and challenges that can be grouped into four main categories: network infrastructure, cultural issues, general issues within the Iranian publishing industry, and store-specific problems. Among these, infrastructure and cultural issues are fundamental pillars for the growth of online bookstores (22). In this study, cultural issues represented 15% of the challenges, while infrastructure issues made up 11% of the difficulties in the collaboration between publishers and e-reader programs. Additionally, slow internet speeds have been a significant barrier for publishers attempting to upload books.

Publishers face several challenges when collaborating with e-reader platforms. These include monopolistic conditions that hinder cooperation across all platforms, a lack of adherence to commitments, unilateral shutdowns of access panels, and insufficient legal frameworks to address issues. Additionally, publishers often threaten to end partnerships if platforms directly engage with authors, encounter settlement issues with independent authors, and find a lack of support for their authors. Internationally, these challenges have been recognized as well. A study in *Publishing Research Quarterly* highlights three primary concerns: Reliance on digital platforms for reaching readers, shifts in revenue models, and the need to keep up with new technologies (23). Furthermore, an article in the *Journal of Library Administration* discusses the difficulties publishers face in managing e-books within library systems, pointing out challenges like digital rights management and accessibility (24).

The current study highlights the critical role that content in e-reader applications plays in shaping user interactions with publishers and the apps themselves. Chanbari's evaluation of the digital book publishing industry's success factors reveals that while the customer segment is in a favorable



state, there is a need to reassess strategies in areas such as value proposition, customer relationships, key resources, key partnerships, and key activities. Meanwhile, challenges persist in communication channels, revenue streams, and cost structures (25). In this study, marketing and cost challenges were identified as major obstacles for publishers, affecting 19% of respondents. Therefore, designers and manufacturers should prioritize enhancing content quality to boost user engagement with these applications (16).

Additionally, Prajwal research underscores the impact of high-quality content, which includes accessible designs, structured formats, and multimedia features, on attracting and retaining users. This study emphasizes that well-designed content can influence every stage of user interaction, from setting initial goals to executing actions and evaluating outcomes (26). Furthermore, some e-book reader programs have opted to avoid publishing low-quality content, choosing instead to focus on books with superior content and strong sales performance.

The findings revealed that one of the primary challenges in the current study is the infrastructure needed for the growth and development of e-books. Research from various parts of the world highlights the necessity of such infrastructure for the expansion of e-books. A study by Moné et al. in 2021 identified the lack of technological infrastructure in many countries as a significant barrier to the proliferation of e-books. The research indicates that without proper systems for distributing and accessing digital content, e-books cannot effectively gain traction in the market. While developed countries have established this infrastructure, it remains a problem in developing countries (27). Meanwhile, Kim et al. observed that e-paper technology has matured sufficiently to be utilized in dedicated e-book readers, providing readers with an experience akin to reading a printed book (28).

In the present study, one of the challenges related to the acceptance of e-books was cultural, which showed that different generations have different preferences between e-books and printed books. Research by Sage et al. also showed that students

had a better learning experience with printed books than using laptops or e-readers (19). Furthermore, Wexelbaum et al. examined the challenges that university librarians faced in choosing e-readers and made suggestions for related investment and training (29). According to previous research, it is better for the Iran's Ministry of Health and the Ministry of Culture and Islamic Guidance to develop clear and impartial policies to address these problems, while paying attention to the concerns of publishers (15).

## Conclusion

The analysis of data and the examination of categories derived from interviews have revealed numerous challenges within the electronic publishing sector. These challenges highlight various limitations and barriers across technical, economic, legal, cultural, and social dimensions that hinder collaboration between publishers and e-readers. By recognizing these issues, it becomes possible to propose solutions aimed at enhancing conditions and eliminating these barriers. Technical challenges encompass the need for files to be formatted in standard specifications, the loss of page layout during the conversion to electronic formats, and insufficient support for diverse formats. Economic and temporal challenges, such as the substantial costs associated with preparing medical texts and the protracted publishing timeline, necessitate optimization and cost-efficiency measures.

In terms of collaboration and commitments, the failure of e-readers to fulfill their obligations and the absence of legal frameworks to address these issues present significant hurdles. Additionally, authors encounter difficulties such as a lack of transparency regarding book sales and the absence of a dedicated platform for tracking performance. Trust issues arise as publishers' express skepticism towards e-reader programs due to prior negative experiences. Copyright infringement remains a critical challenge that deters publishers from offering electronic editions. In the sales and marketing domain, the decrease in demand for printed editions following the release of electronic versions, along with a limited audience for medical literature, are pressing concerns. Furthermore, inadequate infrastructure,

slow internet connectivity, and insufficient oversight of e-reader program performance have adversely impacted the growth of this industry. The cultural landscape also poses challenges, as there is a lack of acceptance for electronic books and a diminished willingness among readers to purchase these formats, underscoring the necessity for cultural initiatives. Lastly, social and economic factors, including low reading rates per capita, unfavorable economic conditions, and the presence of monopolistic practices in the sale of medical books, have introduced additional obstacles.

To enhance the electronic publishing industry, several strategies have been proposed. Firstly, it's crucial to assemble expert teams and develop advanced tools for creating electronic formats, particularly for picture and graphic-rich books. Leveraging modern technologies can help reduce costs and speed up preparation time. Additionally, providing financial support to publishers, specifically in the medical field, can boost content production.

For successful collaboration between publishers and e-reader platforms, it's important to establish transparent agreements, draft fair contracts, and form committees to resolve disputes. Implementing management panels for publishers and authors, along with providing real-time sales reports, can increase trust and transparency. When it comes to intellectual property rights, strict laws need to be enforced, and users should be educated about copyright issues.

Prioritizing the development of digital libraries and digital advertising is essential to increase sales of specialized books. Promoting a culture of e-book usage and offering support for translating medical books are also key steps. Lastly, the creation of government-backed e-reading platforms and the provision of low-interest loans to emerging publishers could significantly boost the digital publishing industry.

Research suggestions from this study include exploring the impact of new technologies like

artificial intelligence and machine learning on e-reading app user experiences. Analyzing how the rise of e-books affects traditional publishing and consumer behavior is also essential, as is comparing domestic apps like Fidibo and Ketabrah with international ones such as Kindle. The study also looks into the role of audiobooks in attracting new audiences, legal and copyright challenges in the digital realm, and how digital libraries impact access to scientific resources. Further research could focus on the economic dynamics of the e-medical book market, optimal design for e-reading apps, and fostering a culture that embraces digital books.

## Declaration

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### Conflict of Interest

The authors declare that there is no conflict of interest.

### Ethical Statement

This article is the result of a master's thesis in medical library and Information science with the ethics code IR.TUMS.SPH.REC.1402.063. The researchers have adhered to all ethical principles throughout the research. The data are available and will be provided upon request.

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### Authors' Contribution

All authors contributed to the research and writing of all parts of this study.



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