

75 Years of India's Independence: How Have Doctors Evolved Reading Medical and Scientific Content? A Cross-Sectional Survey to Decipher Unmet Needs, Opportunities and Future Directions



Shalini Gour, Nikita N Burde, Devi Vinayagam, Gramle Amol

Abstract: Information is now a commodity that can be accessed, serviced, or traded with minimal effort and maximum ease. The Healthcare and Medical information news that keeps the provider and the receiver aware and updated about the diseases and its therapy is no different. However, that also comes with an issue of information overload for the humongous volumes of research in this field, coupled with increasing publications. As India celebrates its 75 years of Independence, we targeted to understand the evolution in the information access, consumption & utilization journey of the HCPs. A secondary research and pan India survey with 680 Healthcare professionals was conducted to uncover the trends and the evolution of healthcare information access over these years. MedShots figured as the top medical news aggregating platform, followed by MedScape. Educational/CME platforms are the preferred sources for gathering information and 64% of the respondents spent more than 10 minutes each day reading medical updates. 58.3% of respondents agreed that Digitalization and sharing of information through mobile applications is comfortable and 86.30% of survey respondents preferred content on Clinical practice guidelines and recommendations, with 57.1% also expecting such platforms to support clinical/therapeutic decision making. The results have reinforced the higher level of acceptance & adaptation in the HCPs towards digitalization of the information access. While the medical information/news aggregating platforms remain helpful in updating the knowledge of HCPs in clinical decision-making, the study provides future directions to make the experience of information access & consumption more integral to the knowledge journey of HCPs.

Keywords: 75 years, Digitalization, Health care professionals, Knowledge behavior, India's Independence, Medical news & updates

I. INTRODUCTION

A. The Journey Until Now

Medical Information and Continuing Education are inherently linked to the shaping of Clinical knowledge of Healthcare Providers (HCPs) and thereby promoting Public and Patient Health. Seen through a critical lens, it also impacts the growth and development of a country like India where diversity and the burden of healthcare are like none other. As India is celebrating its 75th year of Independence on the 15th of August 2022, we at Omnicuris Healthcare Private Limited (Link: www.omnicuris.com) envisaged the information journey of the HCPs to understand the pathway of knowledge consumption & utilization over the years.

At the time of independence, there were over 7000 hospitals in the country along with only 19 medical colleges. Post-independence, gradually, healthcare became a priority for the govt & policymakers. Over the decades, there have been various schemes including National Health Mission (NHM), National Rural Health Mission (NRHM), National Digital Health Mission & Ayushman Bharat among others which have played an important role in shaping the healthcare ecosystem in India. The growth is depicted with the enhancement in the life expectancy of the average Indian which was a mere 32 years at the time of independence & has reached 69.09 years in 2018. The development in medical infrastructure has also come hand in hand with around 70,000 hospitals & 542 medical colleges and 64 stand-alone PG Institutes in India, housing the largest number of medical colleges in the world.

While the development in the healthcare ecosystem has been noticeable, an even bigger boom has happened in the consumption of medical information & knowledge.

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The digital revolution & advancement in technology in India has paved the way for a better reach like never before. Be it telemedicine, teleconsulting, patient interaction, community interaction, job search, or access to information, everything is available at a single tap over mobile phones and HCPs are becoming an active part of this revolution.

On the information front, the number of Indian research journals has increased to over 21,000 in past decades & India has become the world's third largest publisher of science articles with a publishing count of 1.35 lakh scientific papers. With the meteoric rise in the information available, the journals have also become largely digital, facilitating instant and on-the-go information consumption.

Besides these sources, there are a number of information aggregate providers who regularly access and refine medical information in a format and channel that is easier for the HCPs to consume information, often through emails, social media, and instant messenger Mobile Applications. One of the prime reasons for this change is peer pressure and patients also prefer sharing of information and medical advice over such channels, thanks to telemedicine.

B. Reasons for conducting this survey

This article is an attempt to research, analyze and provide information on select major information providers, Globally and in India. Inspirations have also been taken to provide technology and attention spans of HCPs as the key driving force for ease of culling and sharing information. With the country also celebrating 75 years of India's independence, it also marks a moment for the healthcare fraternity to pause and reflect on the tremendous improvements that have been made over these years.

Over the years, advancement in modern technology has revolutionized our world and daily lives. The usage of digital engagement/social media is becoming an indispensable part of billions of people's lives worldwide and is affecting almost every industry imaginable. There were 658.0 million internet users in India in January 2022. India's internet penetration rate stood at 47.0 percent of the total population at the start of 2022 [1].

In the modern world, digital engagement has become crucial for the life sciences sector like any other industry. The impact of technology advancement is felt across all aspects of healthcare. In medicine and healthcare, digital technology has helped transform unsustainable healthcare systems into sustainable ones [2]. With this, the healthcare industry is entering an era of major digital innovation, as patients seek on-demand healthcare because of their busy schedules. The healthcare ecosystem is increasingly joining forces with digital services to improve patient outcomes. Disruptive innovation is burgeoning across healthcare professionals, and this is a good thing [3].

The dynamic changes in healthcare delivery and advances in medicine over the last few decades have resulted in increasing the demands of the health care professionals (HCPs) in terms of their knowledge aggregation. Similarly, changes in sites of health care delivery, from acute care institutions to community-based healthcare settings for

chronic care, have required adaptations in educational venues. The current era of digitalization has done its bit by bridging the gap between the learner-centered model and the newer medical educational avenues [4]. Digital engagement among HCPs across the globe has steadily increased over the years.

II. REVIEW OF LITERATURE

A. Covid 19 pandemic resulting in medical info emic

With the unprecedented outbreak of COVID-19, a major disruption in medical education preceded, with the boom in E-learning as a convenient platform for medical education & knowledge consumption [5]. Even before the commencement of the COVID-19 pandemic, Palvia, et al. reviewed the global status of e-learning in 2018 and predicted that the use of technology in medical education is expected to increase in the coming decade. And today, right from in-person lectures, skills development, tutorials, and clinical experiences to high-quality medical journals all have undergone a drastic digital and technological shift [6]. E-learning has become a pinnacle of the learning experience with the ease of distance learning & use of online courses and materials through electronic devices. It refers to the use of Internet technologies to deliver a broad array of solutions that enhance knowledge and performance [5]. E-learning can be used to improve the efficacy of educational interventions, in the view of social, scientific, and pedagogical challenges.

Mobile devices have been at the forefront of digitalization in the medical fraternity. They have become commonplace in health care, leading to rapid growth in the development of medical software and learning applications (Apps). Numerous apps are now available to assist HCPs with many important tasks, viz: information and time management, communications and consulting, health record maintenance and access, patient management and monitoring, reference and information gathering, medical education and training, and clinical decision-making, among others [7]. Most importantly, mobile devices provide these at the convenience of one's fingertips. Today, mobile devices are loaded with several social networking sites. Many such social media tools are available for HCPs, including social networking platforms, blogs, microblogs, wikis, media-sharing sites, and virtual reality and gaming environments that can be used to enhance professional networking and education, and patient care, organizational promotion, public health programs & patient education. The results of a survey including 4,000 physicians, conducted by a social media site (QuantiaMD) suggested great use of social media among HCPs. It was reported that 90% of the physicians used some form of social media for personal activities while professional reasons were stated by 65% [8].

Though, the study reported a gradual increase in the use of social media platforms among physicians on both personal & professional fronts.

Other studies have also supported the increasing use of online platforms & smartphone devices among HCPs for knowledge consumption & sharing. With the results of the 2012 Manhattan Research/Physician Channel Adoption Study, it was concluded that HCPs are becoming increasingly adaptive in using their mobile devices. The most popular online activity was found to be ‘searching’ for which a variety of digital tools are being used, such as laptops (98%), tablets (63%) & smartphones (56%).

With a focus on the usage of smartphones, ‘searching’ was again found to be the most common activity, taking up around 48% of the average phone time while browsing the professional apps added 38%. As for the average time spent, it was reported that HCPs spend 3 hours on average per week watching professional online videos, using their laptops, tablets, or smartphones. Unsurprisingly, Continuing Medical Education (CME) activities were reported to be the most frequently viewed content (55%) [7].

With increasing technological advancements, it is time for the healthcare organizations & medical information aggregating providers to consider these advancements as a mode of access & connection, as most of the HCPs are already using them. Studies suggest that 4 out of 5 doctors, across all age groups, are browsing social media news feeds with their regular practice to get updated on regular medical news. HCP-focused strategies & tools on digital platforms hold immense value for both HCPs and healthcare companies to build a comprehensive knowledge & communication channel. For HCPs to prioritize the use of digital channels, it’s important to convey their effectiveness. But, the underlying behaviors and preferences of HCPs towards the medical news aggregating platform for productivity enhancement and knowledge consumption remain ambiguous [9].

This study seeks to understand the knowledge, preferences, and underlying behaviors of HCPs on medical news aggregating platforms, which include the exchange of medical information with peers, interpersonal communication, and productivity enhancement in their daily practice.

III. METHODOLOGY

Omnicuris Healthcare Pvt Ltd conducted this cross-sectional survey during the summer of 2022, in anticipation of completion, analysis, and submission by August 2022, coinciding with our 75 years of Independence.

To collect data for the analysis, a questionnaire was drafted in the form of a Google form and was shared with health care professionals (HCPs) PAN-India via e-mail, WhatsApp, and SMS message.

A. Questionnaire formulation

Our questionnaire comprised 10 questions to analyze the knowledge, attitudes, and preferences of the HCPs on medical news aggregating platforms. The sections included

- 1) Specialty of practice
- 2) Years of practice
- 3) Place of practice
- 4) Level of awareness of various digital medical news aggregating platforms
- 5) Perception of their impact on clinical practice
- 6) Any challenges perceived with any unmet needs and scope for potential opportunities to enhance them.

These questions were broadly divided into two types. The first one is the Likert scale type of question where the HCPs were given a question followed by five options which allowed them to express their agreement or disagreement with the stated question.

The second type of question consisted of a question followed by four options where the HCPs had to pick the one that was most appropriate and applicable to them along with an option to answer on their own if they don’t align with provided options to that particular question.

The responses to these questions were collected using a real-time Google sheet.

B. Data collection

From the HCP database available with Omnicuris Healthcare Pvt Ltd, the survey was conducted & a total of 670 HCPs responses were received. These HCPs had a pan-India representation. They were general practitioners (MBBS), specialists as well as super specialists.

IV. RESULTS

With a PAN India representation in the responses, the survey could yield 680 responses. The qualifications of the respondents ranged from MBBS (32.1%) to MD (9.3%). As observed in Fig. 1, Obstetrics & Gynecology specialists & General medicine experts had the highest representation in the survey responses (7.4% & 7.1%, respectively).

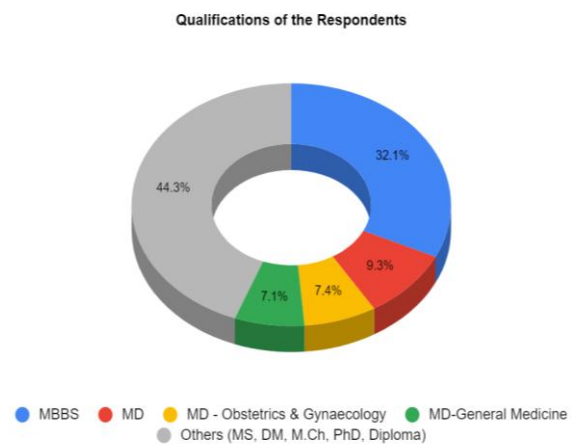


Fig. 1: Qualification distribution of the survey respondents

As depicted in Fig. 2, the responses also covered a broad range of years of practice with 13.8% of the respondents having 1 year of experience while 1.9% of the respondents had 50 years of experience. Interestingly, a significant proportion (8.4%) of the responses came from HCPs with around 30 years of experience.



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As shown in Fig. 3, 78.8% of the respondents reported their place of practice to be urban, and 26.1% practiced in a rural setup.

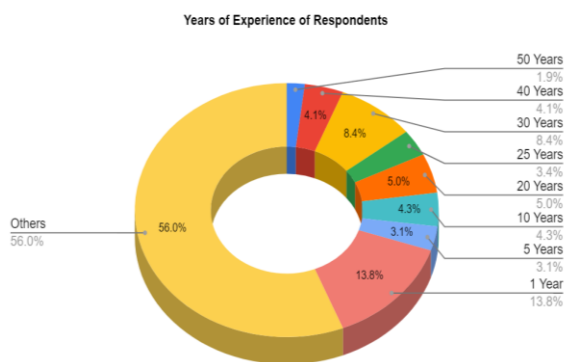


Fig. 2: Distribution of the years of practice of the survey respondents

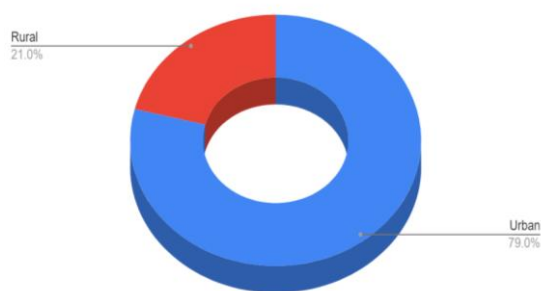


Fig. 3: Distribution of the place of practice of the survey respondents

The major survey findings could be categorized as followed:

A. Status of awareness

As depicted in Fig. 4, 75% of the HCPs agree to a large & very large extent that there has been a transformational shift & digitalization in the field of medical information.

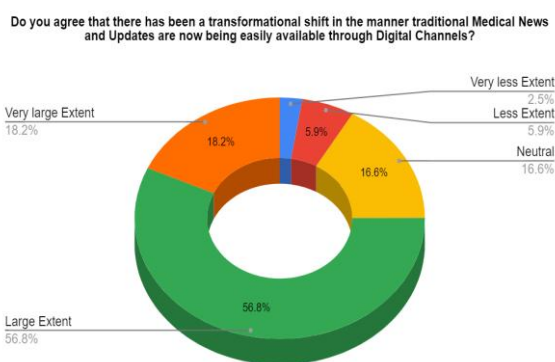


Fig. 4: Approach of HCPs toward the digitalization of the information access

The HCPs were highly aware of the available global/Indian Medical News Aggregating Platforms, with Omnicuris-MedShots (76.8%), MedScape (62%), Docplexus (43.5%) & Medical Dialogues (33.9%) being some of the known Medical news/updates aggregating platforms (Fig. 5). The results suggested a high level of awareness & acceptance in HCPs towards the digital platforms providing medical news/updates.

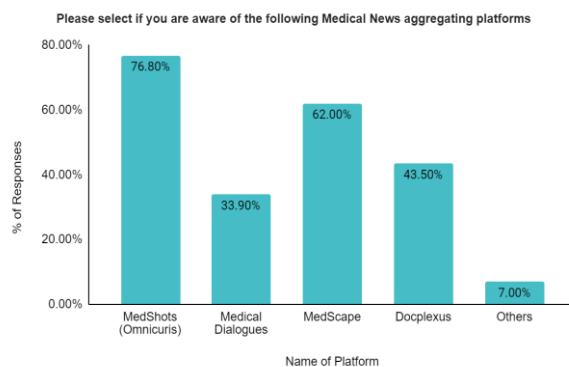


Fig. 5: Awareness of different medical news aggregating platforms

B. Information journey

While we could decipher the awareness & acceptance of the HCPs towards the medical news aggregating platform, the next step was to understand the journey of information from the HCPs' perspective. As observed in Table I, Educational/CME platforms (83.7%) were reported to be the most appropriate source for gathering medical news/updates.

Table I: Preferred sources for gathering medical updates

Sr. No.	Source(s)	Response in %
1	Medical Representative	28.1
2	Peers	24.5
3	Educational/CME platforms	83.7
4	Conferences	58.8
5	Through Google Search	46.2
6	Social Media	20.4

Concerning the preferred timings of accessing the medical news aggregating platforms, 23.5% of the HCPs reported no time boundaries while the majority (42.2%) preferred accessing the updates during post-work hours (after 9 PM), as shown in Fig. 6.

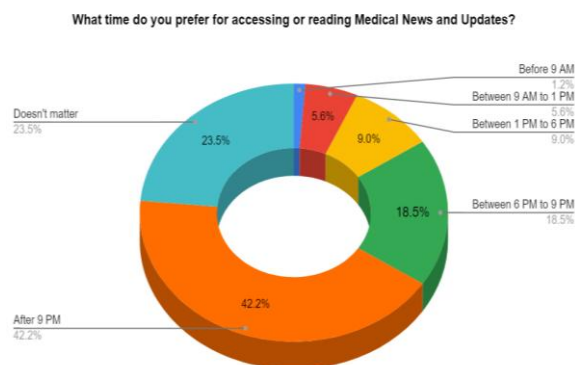


Fig. 6: Preferred time of information access

As shown in Table II, 63.9% of the respondents spent more than 10 minutes accessing the medical updates daily.

Table II: Average time spent on accessing/reading Medical Updates

Sr. No.	Average time spent	Response in %
1	Less than 5 minutes	8
2	Between 5-10 minutes	29.1
3	More than 10 minutes	63.9

Fig. 7 shows that 70% of the respondents agreed that the availability of mobile applications enhances their medical news accessing experience with its flexibility & ease of access.

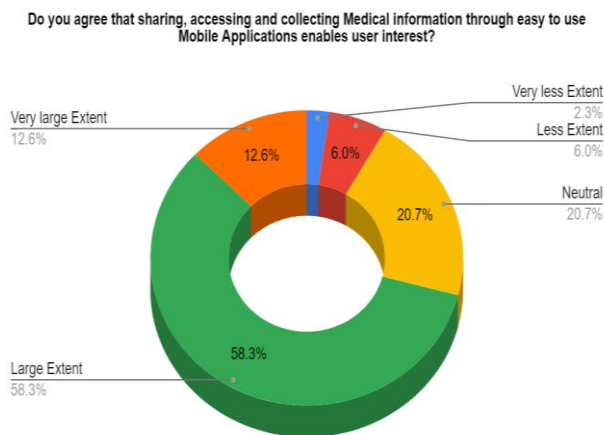


Fig. 7: HCP's Approach towards mobile application

C. Clinical impact

While clinical practice guidelines, recommendations (86.3%) & case studies (58.7%) were found to be the most sought-after updates for the news feed, novel drug alerts & conference alerts were the additional preferences (Fig. 8). The observation indicated that HCPs look forward to receiving practice shaping updates.

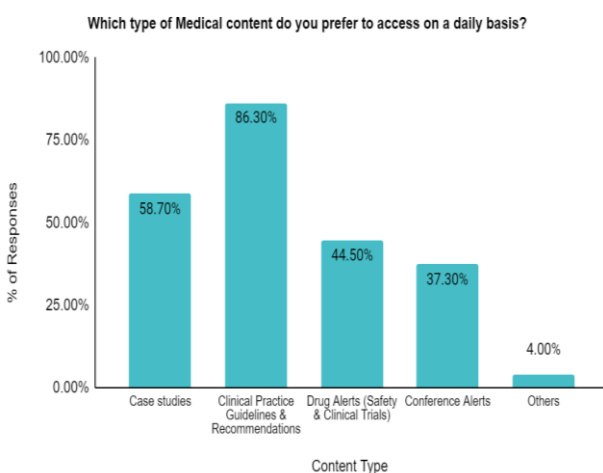


Fig. 8: Preferred type of content for daily consumption & access

The notion was supported by the observation that 75% of the respondents believe that staying updated through the

medical news aggregating platform has helped in their daily practice & improved patient outcomes. However, 18.5% of HCPs bear a neutral attitude about the practical relevance of the news aggregating platforms (Fig. 9).

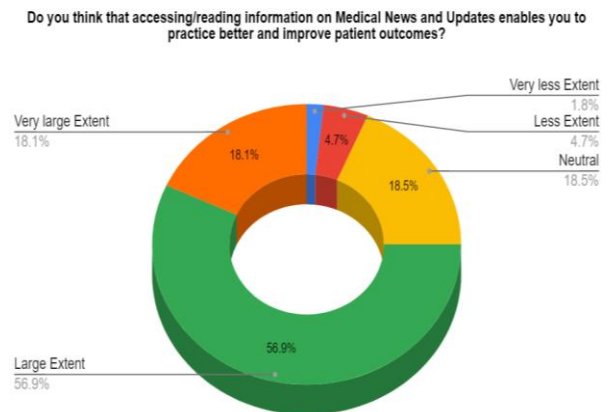


Fig. 9: Applicability of accessed information in daily practice

D. Expectations & opportunities

As presented in Table III, 57.1% of the respondents expect that an ideal platform should be able to support them in their day-to-day clinical practice. Multichannel availability, byte-sized updates & fair mix of general news updates were other ideal attributes.

Table III: Ideal attributes of the best medical news & update aggregating platform

Sr. No.	Attributes	Response in %
1	Should have a fair mix of General and Specialty specific news	46.6
2	Available in Multiple Channels (e.g., Mobile App, WhatsApp, Website, Email)	45.3
3	Not overwhelming, but short bytes of Information	32
4	Support in Clinical/Therapeutic decision making	57.1
5	Swift and exclusive presentation	26.2

As shown in Table IV, more than half (58.4%) of the respondents were interested in novel modes of content delivery such as podcast/quick snippets & 50% believe that ease of connectivity should be the future for the news aggregating platforms for better information gathering, dissemination, and consumption.

Table IV: Opportunities for medical news & update aggregating platform

Sr. No.	Attributes	Response in %
1	Easy comprehension of information through novel content delivery such as Podcasts, Quick information snippets, Advanced simulations	58.4
2	Connecting straight with ease, the experts and patients across the Globe for first-hand information: Walls to Bridges	50.1
3	Customization and personalization of content: See, Hear, Do and Share only what you want and not what you are expected to know	38.5
4	Regionalization of content, including the use of vernacular language for better connect	19.7
5	Beyond content accessibilities, including Forum discussions, events & interactions	33.2

V. DISCUSSION

For the past three decades, the internet has revolutionized our lives and digital engagement is growing and developing very fast around the World. More & more people/organizations are using digital technologies including social media to seek and share information, resulting in an uptrend in the penetration of social media worldwide [10]. The healthcare sector is not lagging in the trend. In today's world, healthcare is also advancing with the help of digital advancements, bringing a new revolution. The digital interventions, largely including social media, have offered a connective medium to the public, patients, and health professionals which has proven its worth in the current pandemic times [11]. Interestingly, social media has become a source of mainstream popularity in society, attracting the ever-busy HCPs. With the renewed digital experiences of the pandemic times, HCPs are also embracing digitalization. The utilization of digital tools & social media has also increased in medical organizations & among practitioners [11].

With the current study, we tried to understand the perception of HCPs across India towards the medical news aggregating platforms & their digitalization. Our results indicated that most HCPs admit that there has been a transformational shift & digitalization in the field of medical information. The majority of HCPs who participated in the study have shown frequent use of medical information aggregating platforms, showing a great adaptation to the norm 'Information at the Go'.

Previous studies have highlighted the key reasons driving the utilization of digital tools by HCPs. As reported by Sirous, P. et al, continuing medical education, knowledge sharing, networking with the wider community, staying connected with peers & reaching out are some of these drivers [11]. With an increasing reach & use of smartphones even in the remotest of geographical locations, all of these factors are becoming increasingly accessible to the HCPs

with the help of various digital tools & Apps. The transition from large desktop screens to handheld tablets & smartphones has revolutionized many fields including medicine & healthcare [7,11]. With their ease of access & point of care utility, the application of smartphones & tablet devices has increased significantly around the globe, among HCPs [7]. As fast access to information is the need of the hour, availability of the mobile device has become a necessity for HCPs. Our observation supported this notion as most HCPs of this study concurred that mobile applications enhanced their medical news accessing experience with their flexibility & ease of access.

HCPs are becoming increasingly absorbed in health topics discussed/shared over digital platforms including the clinical trial results, latest treatment options & patient care, utilizing both private & public digital forums [7, 11]. In this study, the highest number of HCPs admit that the regular use of medical news aggregating platforms could be an effective tool for gathering medical news/updates.

Contributing time on social media is described as a time- and effort-consuming activity. Finding sufficient time to use social media was perceived as too difficult for physicians as they have a busy profession and barely have enough time to spend on social media [11]. The HCPs who participated in this study reported that the most preferred time for accessing the updates was after 9 pm, that is during their post-work hours. In addition, the study also revealed that most respondents spent more than 10 minutes daily accessing medical updates. The availability of various news aggregating platforms as mobile apps also facilitates this quick information access, at any time of the day.

The findings of some previous studies have also provided an opportunity for healthcare providers/ professionals or decision makers to understand the scope of digitalization & impact of social media & other digital mediums in healthcare [11]. The studies have suggested that HCPs prefer digital tools, specifically social media for knowledge sharing as it is easy to join, has a user-friendly interface & functionalities & comes with a variety of media options including text, images, and audio-video components, making it ubiquitous & highly accessible [11]. On the following lines, knowing the expectations of the HCPs from the medical news aggregating platforms may help in delivering the best user experience, keeping the practical application in focus. Our study suggested that more than half of the participating HCPs were interested in novel content delivery options such as Podcasts, Quick information snippets, and advanced simulations. Also, most respondents of the study expect that an ideal platform should be able to support them to provide better patient care in their day-to-day clinical practice. As many healthcare organizations are already focusing on digital interventions, the future of medical news aggregating platforms looks promising with a great adaptation & acceptance from the medical community.

The majority of HCPs who participated in this study believe that the future medical news aggregating platforms hold the potential to help experts and patients across the globe to connect with ease for better information access, sharing & dissemination.

VI. CONCLUSION

Over the last 75 years, Healthcare Education and Information have substantially changed in India. The Internet has also revolutionized Healthcare Research Information availability, access, and ease of sharing. The senior HCPs, with more than 40 years of experience who started their clinical practice before the internet can reckon with the fact that much has changed over the years. While it can be argued that excessive fragmentation and democratization of information may often result in the general populace and the patients getting the wrong information and or interpretation, it has often supported the clinical fraternity with an ability to translate the latest research into shaping the therapeutic strategies for patients and improve the clinical outcomes and their quality of life.

It's clear that the HCPs have shown interest in Digitalization and are keeping up with the times that are often dictated by the advances in technology. One must cater to the personalization efforts in information curation and ensure that the design of sharing information across various channels supports the busy lifestyle of the overburdened HCPs. The HCPs are also interested in novel formats such as podcasts and the possibilities of blurring geographical borders to connect with Global experts. A Super Mobile App that has everything to offer, from a CME/CPD program to the latest medical information, live webinars from experts, and opportunities to upskill through fellowships appear to be the way forward.

But, do we have one? or can we build one? Only the mammoth HCPs group across the world appears to have the secret answer requiring further systematic surveys and research in this evolving area.

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