



Health Care Professionals in the Digital Landscape in India

Arun Kumar S, Ankita Wadhwa, Gramle Amol

Abstract: Internet has become essential to everyone during the Covid-19 pandemic lockdown as everything went to virtual. This has made the interactions between Pharmaceutical companies and Health Care Professionals (HCPs) explore digital channels as Medical Representatives (MRs) were not able to efficiently reach the HCPs. This pioneering study was conducted to evaluate the scope of digital channels and uncover insights into the digital behavioral landscape of HCPs to reach them effectively. A proctored, PAN India survey was conducted for health care professionals across diverse specialties and the responses were collected through in-clinic visits, mobile phones (via WhatsApp & SMS) and e-mails. 407 HCPs had actively participated in this survey from across the country. Descriptive statistics were used to analyze the outcomes of this research which will help to develop programs directed at the HCPs in India to enhance their knowledge, medicine practice, HCP – patient & HCP – Pharmaceutical company interactions, engagement with the medical community and highlight the areas that they face challenges while accessing information online to better fit in this fast-growing digital landscape of the health sector. This will also cover insights to bridge both physical and digital interactions as ‘Phygital interactions’ that could be followed in the hopeful Post – Covid-19 scenario.

Keywords: Health Care Professionals, Internet, Online Learning Social Media

I. INTRODUCTION

The usage of digital media has grown at an alarming rate in the last few years in India. India has more than 560 million active internet users at the end of 2020 which makes it the second-largest online market in the world. It is also estimated that this number will reach more than 650 million internet users by 2023. Even with this huge user base, the country’s internet penetration rate stood around 50 per cent, which meant that almost half of the population of 1.37 billion had access to internet in 2020 [1].

The advancement in online technologies enabled health care professionals to collect, consume, manage and interact with the data in less time [2]. However, challenges such as patient confidentiality, information overload and legal compliances are still present [3].

Social Media has also started being popular among the HCPs and has been found as an effective way of communication among themselves as well as conveying health-related information from pharma companies [4]-[8], but there were no studies found by the authors targeting India specific HCPs during the formulation of this article. Many pharmaceutical companies and healthcare organizations leveraged COVID-19 as an opportunity to identify their digital scope of work and shifted to digital modes of communication [9]. In-clinic collaterals and Health care professionals (HCPs) events were replaced by Digital banners, E-mailers and Webinars, respectively. The primary aim of the research was to understand the relationship between social media, the internet and health care professionals, the impact of online channels and learning formats and identify the key social channels adopted for professional purposes by HCPs. A recently conducted survey by BioQuest Solutions Pvt. Ltd., discussed the significance of internet and social media for health care professionals. The survey focused upon the overview of the current digital behavior of HCPs, understanding roadblocks and opportunities for social media in the healthcare fraternity, mobile health through e-clinics and e-hospitals, the right approach of creating a digital identity for the HCPs and post-COVID 19 behavior of HCPs in the digital landscape. The PAN India proctored survey recorded 407 responses (out of 500), where more than 55% of respondents were General Practitioners, Pediatricians and Gynecologists, across 22 states and 2 Union Territories. While almost 65% of HCPs were nonchalant about internet consumption for professional reasons, 50% of them found emails from pharma and medical device companies informative. On the social media front, Facebook, WhatsApp and Instagram were the top 3 channels of communication for HCPs, where 85% of them used WhatsApp as a mode of patient consultation. While 3 out of 5 HCPs are still not comfortable in adopting digital methods of learning for diagnosis and treatments, more than 40% of HCPs practiced telemedicine and preferred online journals to acquire updated medical information. The digital scenario took a leap in the pandemic, with more than 50% of HCPs participating in online events and webinars, and 75% of them accessing e-books and journals during the pandemic. As digital is still beaming in the healthcare sector and most HCPs are skeptical of adopting the new ways for patient communication or self-learning, 2 of 3 HCPs preferred texting as a mode of communication for patient consultation and quoted source credibility, irrelevance and too much information as challenges while accessing medical information online.

Manuscript received on March 09, 2021
Revised Manuscript received on March 15, 2021
Manuscript published on March 30, 2021.

* Correspondence Author

Arun Kumar S*, Intern, Consulting and Solutioning BioQuest Solutions Pvt. Ltd., Bengaluru, India. Email: arun.s@bioquestglobal.com

Ankita Wadhwa, Digital Manager, Consulting and Solutioning, BioQuest Solutions Pvt. Ltd., Bengaluru, India. Email: ankita.w@bioquestglobal.com

Dr. Amol Gramle, Vice President, Consulting and Solutioning, BioQuest Solutions Pvt. Ltd., Bengaluru, India. Email: gramle.amol@bioquestglobal.com

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)



II. METHODS AND MATERIALS

Bio Quest Solutions Pvt. Ltd. conducted a survey to analyze the digital behavior of health care professionals in India. To collect the data for thematic analysis, a questionnaire approach was taken, which was hosted on BioQuests' proprietary, QSights to collect, manage and analyze the responses from several HCPs across India.

A. Questionnaire Preparation

A Questionnaire was prepared with a total of 23 questions to analyze the digital behavior of the HCPs with five major sections. These sections include 1. Internet consumption, 2. Social Media usage, 3. Practice and Professional reasons, 4. COVID-19 and 5. Limitations and challenges.

The questionnaire comprised of two types of questions. The first one is the Likert scale type of questions where the HCPs are given a statement followed by five options which allows them to express how much they agree or disagree with that particular statement.

The second type is where a question is provided to the HCPs which addresses the above-mentioned sections followed by multiple choices that could be selected along with an option to answer on their own if they don't align with provided options to that particular question.

Responses to the Questionnaire were collected through multiple means such as digital channels(e-mail/WhatsApp), phone calls and a visit made to the doctors in person.

B. Data collection

From the HCP database available with BioQuest Solutions Pvt Ltd, 500 HCPs with the split-up of 125 from each of the four regions of India, i.e., East, West, North and South, who practice various specialties were drawn using a random number generator and contacted, and 407 responses were received with a response rate of 81.40%

The survey was aimed at 7 specialties, namely, General Practitioners, Pediatricians, Gynecologists, Diabetologists, Oncologists, Dentists, Dieticians, Chest Physicians and Ophthalmologists, and covered 21 states and 2 union territories, namely, Tripura, Gujarat, Jharkhand, West Bengal, Odisha, Telangana, Kerala, Tamil Nadu, Madhya Pradesh, Karnataka, Maharashtra, Andhra Pradesh, Rajasthan, Haryana, Punjab, Uttar Pradesh, Mizoram, Nagaland, Chhattisgarh, Assam, Bihar, New Delhi and Pondicherry.

III. STATISTICAL ANALYSIS

To analyze the results of this study, Descriptive statistics in terms of frequency and percentage were utilized. Also, the significance between the variables and the answers of the HCPs were tested utilizing the Chi-square test. The analysis was done using Microsoft Excel and p-values less than 0.05 were considered significant.

IV. RESULTS AND DISCUSSIONS

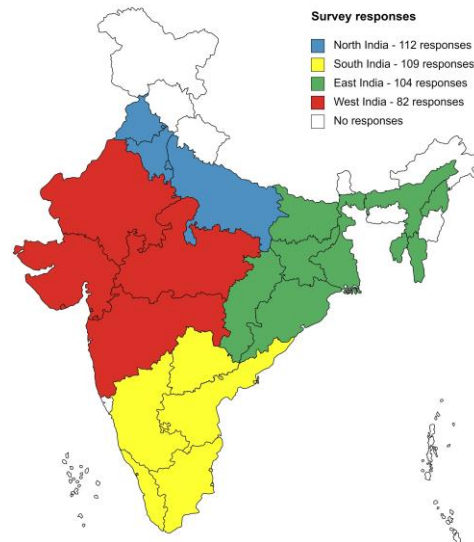


Fig. 1: Survey responses across India

The survey had a good representation from all four regions of India, 112 responses from the north, 109 from the south, 104 from the east and 82 from the west (Fig. 1). The findings from the survey are as follows.

1. Internet consumption

"The Internet plays a vital role in my professional life."

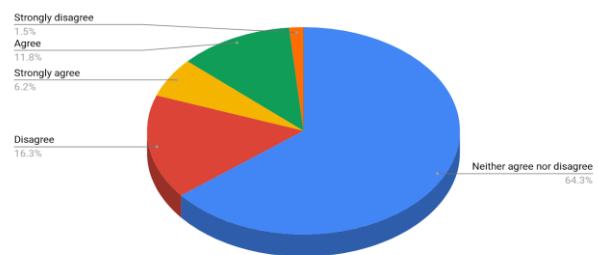


Fig. 2: Role of Internet in Professional Life

From Fig. 2, we could understand that 64.3% of the HCPs were nonchalant about the internet as a vital tool in their professional life. The impact of the internet in their professional life has not changed much even in this digital age and 50% internet penetration rate in the country [1].

How long do you use the Internet per day (includes social media)?

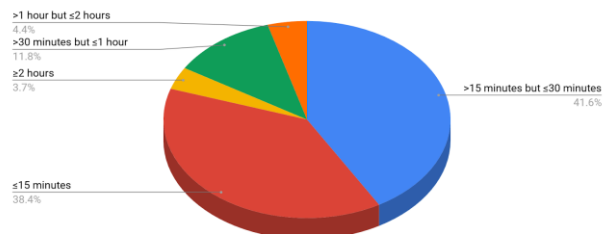


Fig. 3: Daily Internet usage

From the chart above, We could see that about 38.4% of the HCPs browse the internet for less than 15 minutes a day and 80% of the HCPs spend less than 30 minutes on the internet a day.



This further solidifies that the impact of the internet is very little in their day to day life. The doctors average time that primary care physicians spend with patients in India is 2 minutes per patient [10] with a huge number of patients to deal with the HCPs don't have sufficient time to be on the internet.

Table- I: Preferred time of Internet usage

Timings	Number of corresponding responses	Percentage
Early morning (4:00 am to 7:59 am)	7	1.4%
Morning (8:00 am to 11:59 am)	33	6.4%
Afternoon (12:00 p m to 3:59 p m)	17	3.3%
Evening (4:00 p m to 7:59 p m)	29	5.6%
Night (8:00 p m to 11:59 p m)	167	32.5%
Late night (12:00 a m to 3:59 a m)	170	33.1%
Intermittently throughout the day	91	17.7%

From the Table- I, 33.1% of the HCPs tend to browse the internet late night (12:00 am to 03:59 am) and about 65.6% of the HCPs utilized the internet between night and late-night (08:00 pm to 03:59 am). This data solidifies that the duty timings with the huge number of patients made doctors browse on the internet during late night.

Table- II: Preferred device for Professional browsing

Devices	Number of corresponding Responses	Percentage
Desktop	17	2.7%
Laptop	202	32.2%
Smartphone	374	59.6%
Tablet	35	5.6%

About 59.6% of the HCPs tend to use smartphones as their preferred device for professional content consumption from the internet (Table- II). This shows that the convenience and portability of the smartphone help the HCPs to consume content on their smartphones [11]-[12].

How often do you check your email for professional reasons?

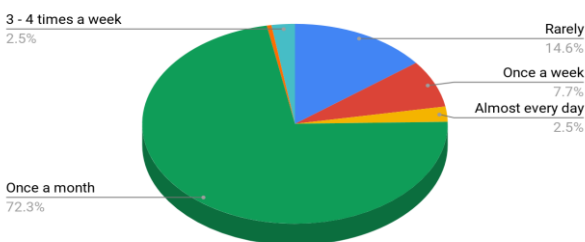


Fig. 4: Email habits

72.3% of the HCPs would only check their emails once a month for professional reasons (Fig. 4). This suggests that they have started to utilize emailing for their professional purposes but not yet quite comfortable with it [13].

2. Social Media Usage

Which are the top three social media platform(s) you use for staying connected in the digital world?

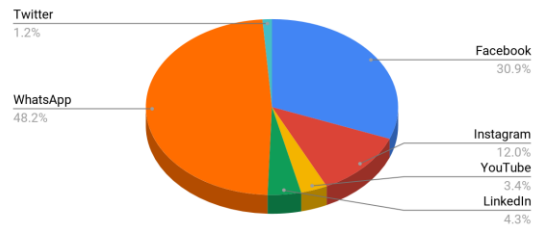


Fig. 5: Top three Social Media Platform

The Topmost used Social media platform with 48.2% of the HCPs on it is WhatsApp, followed by Facebook with 30.9% HCPs and 12% on Instagram (Fig. 5). This shows that doctors are most available in the SNS platform focusing on mostly communication [4]-[5],[8].

"I use the following platforms for patient consultations:"

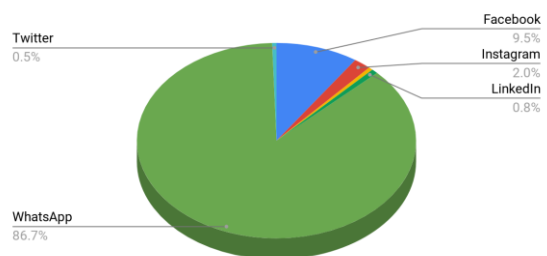


Fig. 6: Preferred platform for Patient Consultation

WhatsApp has been utilized by 86.7% of the HCPs to communicate with patients and provide them consultations (Fig. 6). This shows that HCPs have utilized WhatsApp, a messaging platform to connect one on one with patients and provide medical consultations to them.

3. Practice/Professional Reasons

"I try to adopt new methods of diagnosis/treatment after learning about it through credible online resources"

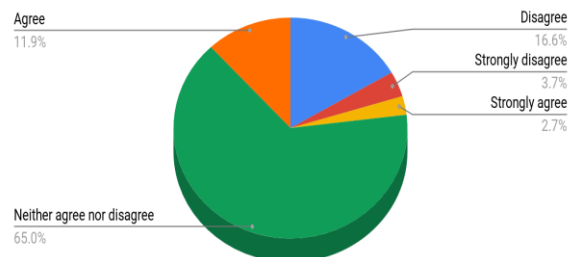


Fig. 7: Practising what learnt online

From the Fig.7, Even learning new methods to diagnose/treat through credible sources online, 65% of the HCPs are not comfortable in implementing them in their day to day profession [12],[14].



Health Care Professionals in the Digital Landscape in India

"I update my profile and/or my hospital/clinic's profile in review websites." (e.g, Google business, RateMDs.com)

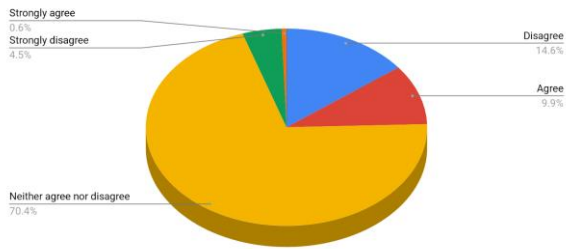


Fig. 8: Online presence on patient review websites

From the data, 70.4% of the HCPs were not keen on their online rating/ reviews made by their patients on public review websites (Fig. 8). Recent studies show that the online reviews of an HCP directly affect the number of patient visits and question their skills on particular specialties [15]-[17].

Table- III: Professional Digital presence

Channels online	Number of corresponding responses	Percentage
Website	96	23.5%
Social Media Page	34	8.4%
Blogs	5	1.1%
None	272	66.9%

From the table- III, we get to know that about 66.9% of the HCPs do not have any professional online presence. This limits the factors to find apt professionals online by the patients and reduce their visibility in a fast transforming digital health sector in India [18]-[19].

Table- IV: Online appointment facility

Facility to book appointments online?	Number of corresponding responses	Percentage
Yes	175	43.1%
No	232	56.9%

56.9% of the HCPs do not provide any means to book an appointment online without the patients physically getting there to their clinic/hospital (Table- IV). If the HCPs prominently offered ways to book online, it will reduce the outpatient waiting time and will improve the overall satisfaction rate of the patients [20].

Telemedicine has evolved to be an essential platform to connect with patients. What is your current stand on it?

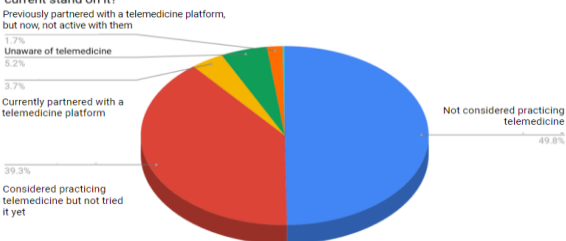


Fig. 9: Interest in telemedicine

49.8% of the HCPs did not show any interest in practicing telemedicine and about 39.3% of the HCPs who have not yet tried practicing telemedicine showed interest in it (Fig. 9). As

telemedicine has steadily increased in usage by the patients [5],[21]-[22], HCPs, in general, didn't have proficiency in easily adapting Health information technologies [23]-[24] leading to this majority not showing interest in practicing telemedicine.

Table- V: Preferred online engagement models

Engagement Model	Number of corresponding responses	Percentage
Live Webcasts	93	20.9%
Recorded Videos	3	0.7%
Podcasts	4	0.9%
Emailers	5	1.1%
Online Journals	236	52.9%
Do not prefer online engagement	105	23.5%

52.9% of the HCPs preferred online journal like engagement model followed by 20.9% preferring live webcasts (Table- V). This suggests that HCPs still prefer the traditional format of analysing and studying the information in a template of journal articles.

4. Covid-19

According to you, what percentage of Pharma companies to HCP interactions would in the future adopt primary digital connect and engagement due to the prevailing scenario?

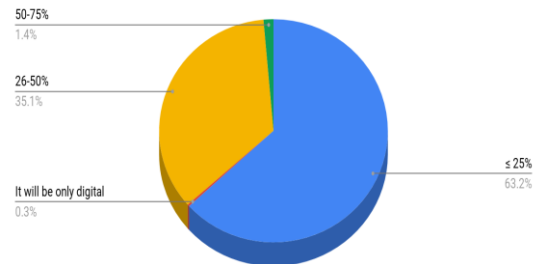


Fig. 10: Pharma companies to HCPs interactions

As during the pandemic, the face to face interactions between the HCPs and Medical Representatives (MR) was not possible, digital marketing alternatives were adopted [25]. But from fig:10, 63.2% of the HCPs feel that less than 25% of the interactions between pharma companies and HCPs will continue to remain digital in the future.

Table- VI: Online behaviour during the pandemic

Channels spent	Number of corresponding responses	Percentage
Increased uptake of Webinars	22	5.8%
More comfortable with e learning/e certification courses	6	1.6%
Connecting with patients for routine/follow on practice through Teleconsultation platforms	64	16.9%
Accessing e-books and e-journals has gone up	287	75.7%



75.7% of the HCPs spent their time accessing e-books and e-journals during the outbreak of Covid-19 (Table- VI). Even with the lack of exposure on the internet, HCPs consumed e-books and journals as there was little to no alternatives available to gain information immediately.

Table- VII: Activities have taken up during pandemic

Action	Activities during the pandemic		
	Participating/ conducting online events	Provide online consultation (NOT including telemedicine)	Learn/revise medical or other related courses online
Active even before COVID-19	11.3%	3.4%	5.7%
Started during COVID-19	52.0%	92.4%	48.9%
Considered but not done yet	21.5%	3.4%	23.1%
Never considered and not done	15.3%	2.0%	22.3%

From the above table, 52% of the HCPs started only to participate in online events after the pandemic. 92.4% started to give online consultation by non-conventional means and 48.9% started to learn/revise online related to their profession. As the normal has changed and everything went virtual, the HCPs who are very new to this suffered from anxiety and other mental stress [26].

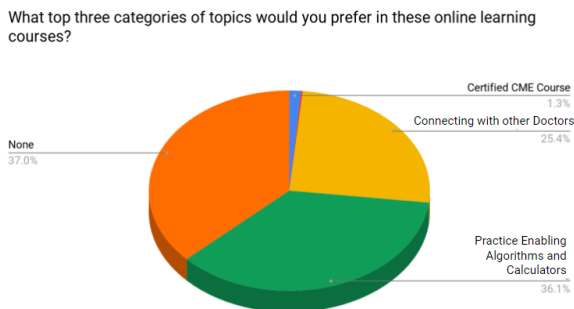


Fig. 11: Top categories to learn online

Practice enabling Algorithms and calculators to aid their profession was preferred by 36.1% of the HCPs followed by 25.4% who preferred to learn by connecting with other doctors (Fig. 11). HCPs had an interest in understanding the application of such algorithms which were available in their field to improve their diagnosis and help their patients with treatment [27]-[28].

5. Limitations and Challenges

Table VIII: Preferred means to provide online consultation

Channels	Number of corresponding responses	Percentage
Video Call	61	14.9%
Voice Call	77	19.1%
Texting	269	66.0%

66% of the HCPs preferred texting the patients to provide online consultation (Table VIII). On further analysis, we

could understand that the HCPs preferred texting as they could easily get the documentation from the patient about their symptoms with their consent, which will be easily available when that patient visits again virtually without searching for patient-specific health history [29].

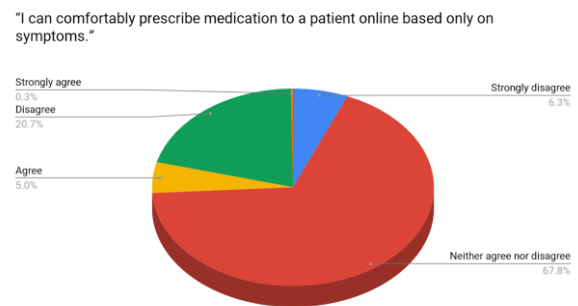


Fig. 12: Prescribing medication only by online diagnosis

67.8% of the HCPs were not comfortable prescribing medications to the patients only based on online consultation (Fig. 12). This is understandable, as there was no direct physical examination done by the HCP and could have instances of misuse [30], HCPs will not be confident enough to prescribe any drugs to the patients.

Table- IX: Services preferred by HCPs to be offered

Services	Number of corresponding responses	Percentage
Website/blog - development/management	5	1.1%
Telemedicine platform to engage with patients	8	2.0%
Compiling Journals/conferences/videos in an easy and accessible way	201	49.4%
Do not need any services for now	193	47.5%

From the above table, 49.4% of the HCPs felt that compiling Journals/conferences/videos in an easy and accessible way could be offered by Pharma companies to help them with their profession.

What are the challenges faced by you while accessing information online?

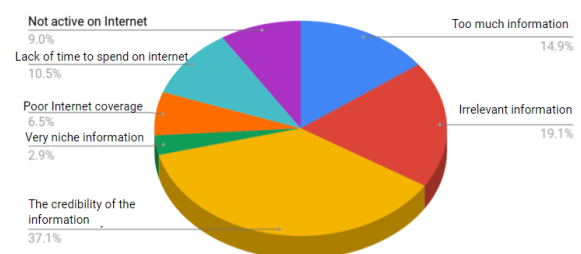


Fig. 13: Challenges faced by HCPs accessing information online

37.1% of the HCPs faced challenges in the credibility of the information that they are accessing followed by 19.1% who had challenges in irrelevant information while searching online (Fig. 13).



We could understand that these problems would be addressed in table IX, by offering them an easy and accessible way of compiled journals/conferences/videos with help of reputable companies. From the speciality data, General Practitioners are the most active HCPs on the internet and believe that the internet plays a vital role in their professional life. Most of the GPs check their emails once a week and browse the internet for more than half an hour per day.

Chest Physicians are the least active HCPs on the internet and social media and spend less than 15 minutes per day surfing the internet. Specialities such as Gynaecologists and Paediatricians opted for Telemedicine during the pandemic and also considered online learning. From the regional data, we can conclude that HCPs from South India are internet savvy, followed by West, North and East India respectively. HCPs spend around 15 -30 minutes per day on the internet and check their emails once a month. Health care professionals from West India showed interest in online learning and practicing telemedicine. East India has the least consumption of internet by HCPs for professional purposes and more than half of them did not half any significant digital presence.

V.CONCLUSION

From the research, it can be concluded that with the increased use of consumption of social media channels, Pharmaceutical companies can target HCPs on Facebook, WhatsApp and YouTube. E-learning is an upcoming platform that is greatly being used and can be considered to educate HCPs on the latest advancements in Healthcare and their areas of interests. While Covid-19 is subsiding as compared to the year 2020, a 'phygital approach', that is a physical interaction with the HCPs through MRs from the pharmaceutical companies followed by digital means of disseminating information (such as videos, podcasts, QR codes) could be recommended for an effective HCP-Pharmaceutical Company communication.

REFERENCES

1. Statista S. Internet usage in India-Statistics & facts.2020
2. Dash SP. The Impact of IoT in Healthcare: Global Technological Change & The Roadmap to a Networked Architecture in India. Journal of the Indian Institute of Science. 2020 Nov 3:1-3.
3. Bhuyan SS, Kabir UY, Escareno JM, Ector K, Palakodeti S, Wyant D, Kumar S, Levy M, Kedia S, Dasgupta D, Dobalian A. Transforming healthcare cybersecurity from reactive to proactive: current status and future recommendations. Journal of medical systems. 2020 May;44(5):1-9.
4. McGowan BS, Wasko M, Vartabedian BS, Miller RS, Freiherr DD, Abdolrasulnia M. Understanding the factors that influence the adoption and meaningful use of social media by physicians to share medical information. Journal of medical Internet research. 2012;14(5):e117.
5. Alanzi T, Al-Yami S. Physicians' attitude towards the use of social media for professional purposes in Saudi Arabia. International journal of telemedicine and applications. 2019 Dec 2;2019.
6. Huang E, Dunbar CL. Connecting to patients via social media: A hype or a reality?. Journal of medical marketing. 2013 Feb;13(1):14-23.
7. Surani Z, Hirani R, Elias A, Quisenberry L, Varon J, Surani S, Surani S. Social media usage among health care providers. BMC research notes. 2017 Dec;10(1):1-5.
8. Rolls K, Hansen M, Jackson D, Elliott D. How health care professionals use social media to create virtual communities: an integrative review. Journal of medical Internet research. 2016;18(6):e166.
9. Kapoor A, Guha S, Das MK, Goswami KC, Yadav R. Digital healthcare: The only solution for better healthcare during COVID-19 pandemic?. Indian Heart Journal. 2020 Apr 11.

10. Irving G, Neves AL, Dambha-Miller H, Oishi A, Tagashira H, Verho A, Holden J. International variations in primary care physician consultation time: a systematic review of 67 countries. BMJ open. 2017 Oct 1;7(10):e017902.
11. Koehler N, Vujovic O, McMenamin C. Healthcare professionals' use of mobile phones and the internet in clinical practice. Journal of mobile technology in medicine. 2013 Mar 1;2(1):3-13.
12. Shiferaw KB, Mehari EA. Internet use and eHealth literacy among health-care professionals in a resource limited setting: a cross-sectional survey. Advances in medical education and practice. 2019;10:563.
13. Dennis S, Waterworth S. Health Professionals' Engagement With Email—Enabler or Disrupter?. CIN: Computers, Informatics, Nursing. 2021 Jan 1;39(1):9-16.
14. Rohwer A, Motaze NV, Rehfuess E, Young T. E-learning of evidence-based health care (EBHC) to increase EBHC competencies in healthcare professionals: a systematic review. Campbell Systematic Reviews. 2017;13(1):1-47.
15. Hong YA, Liang C, Radcliff TA, Wigfall LT, Street RL. What do patients say about doctors online? A systematic review of studies on patient online reviews. Journal of medical Internet research. 2019;21(4):e12521.
16. Liu S, Wang H, Gao B, Deng Z. Doctors' Provision of Online Health Consultation Service and Patient Review Valence: Evidence from a Quasi-Experiment. Information & Management. 2020 Aug 13:103360
17. Patel S, Cain R, Neailey K, Hooberman L. Public awareness, usage, and predictors for the use of doctor rating websites: cross-sectional study in England. Journal of medical Internet research. 2018;20(7):e243.
18. Juhra C, Ansorg J, Back DA, John D, Kuckuck-Winkelmann A, Raschke M, Osterhoff G, Pfföringer D, Scherer J. Online patient consultation. Zeitschrift für Orthopädie und Unfallchirurgie. 2020 Aug;158(04):345-50.
19. Xing W, Hsu PY, Chang YW, Shiao WL. How does online doctor-patient interaction affect online consultation and offline medical treatment?. Industrial Management & Data Systems. 2019 Dec 2.
20. Mehra P. Outpatient clinic waiting time, provider communication styles and satisfaction with healthcare in India. International journal of health care quality assurance. 2016 Aug 8.
21. Almathami HK, Win KT, Vlahu-Gjorgievska E. Barriers and facilitators that influence telemedicine-based, real-time, online consultation at patients' homes: systematic literature review. Journal of medical Internet research. 2020;22(2):e16407.
22. Wernhart A, Gahbauer S, Haluza D. eHealth and telemedicine: Practices and beliefs among healthcare professionals and medical students at a medical university. PLoS One. 2019 Feb 28;14(2):e0213067
23. Konttila J, Siira H, Kyngäs H, Lahtinen M, Elo S, Kääriäinen M, Kaakinen P, Oikarinen A, Yamakawa M, Fukui S, Utsumi M. Healthcare professionals' competence in digitalisation: A systematic review. Journal of clinical nursing. 2019 Mar;28(5-6):745-61.
24. Shiferaw KB, Tilahun BC, Endehabtu BF. Healthcare providers' digital competency: a cross-sectional survey in a low-income country setting. BMC Health Services Research. 2020 Dec;20(1):1-7.
25. Chiplunkar S, Gowda D, Shivakumar H. Adaptation of pharmaceutical marketing and drug promotion practices in times of pandemic COVID-19. International Journal of Health & Allied Sciences. 2020 Apr 1;9(5):11-.
26. Chatterjee SS, Bhattacharyya R, Bhattacharyya S, Gupta S, Das S, Banerjee BB. Attitude, practice, behavior, and mental health impact of COVID-19 on doctors. Indian Journal of Psychiatry. 2020 May;62(3):257.
27. Nicoll P, MacRury S, Van Woerden HC, Smyth K. Evaluation of technology-enhanced learning programs for health care professionals: Systematic review. Journal of medical Internet research. 2018;20(4):e131..
28. Callahan A, Pernek I, Stiglic G, Leskovec J, Strasberg HR, Shah NH. Analyzing information seeking and drug-safety alert response by health care professionals as new methods for surveillance. Journal of medical Internet research. 2015;17(8):e204.
29. Iyengar K, Jain VK, Vaishya R. Pitfalls in telemedicine consultations in the era of COVID 19 and how to avoid them. Diabetes & Metabolic Syndrome: Clinical Research & Reviews. 2020 Sep 1;14(5):797-9.

30. Hariton E, Tracy EE. Telemedicine Companies Providing Prescription-Only Medications: Pros, Cons, and Proposed Guidelines. *Obstetrics & Gynecology*. 2019 Nov 1;134(5):941-5.

AUTHORS PROFILE



Arun Kumar S, Currently interning at BioQuest Solutions Pvt. Ltd under the Consulting and Solutioning (Pre-Sales) team. Pursuing M.Sc. Biotechnology in Vellore Institute of Technology, Vellore. I am an enthusiastic and curious learner who is ready to explore the unknown. Like to solve problems. Participated in various events for knowledge enhancing. Presented a paper during the 19th International Conference on Science, Engineering and Technology (ICSET) in Vellore Institute of Technology. Certifications include High Impact Business writing, Artificial Intelligence, Excel Skills from Coursera and strategic thinking from LinkedIn.



Ankita Wadhwa (Marketing), Currently employed with BioQuest Solutions Pvt. Ltd. as a Digital Marketing Manager, under the Consulting and Solutioning (Pre-Sales) team. Educational background with a degree in Bachelors of Technology from Indraprastha University, Delhi, followed by Post Graduate Diploma in Marketing Management (Part-time) from NMIMS, Mumbai. Certifications include Fundamentals of Digital Marketing by Google Digital Garage and Advanced Certificate Course in Digital Marketing by Edukart and IAMAI.



Dr. Gramle Amol, Currently employed BioQuest Solutions Pvt. Ltd as Vice President for Consulting and Solutioning (Pre-Sales) team. Educational background with Bachelor of Medicine, Bachelor of Surgery (MBBS) followed by Doctor of Medicine (MD), Clinical Pharmacology and Therapeutics at Rajendra Institute of Medical Sciences and Research Center and Executive Management Degree in Business Analytics and Strategy at Indian Institute of Management, Indore. He has Published research articles in various National and International journals. He is a Life Member in ISPOR—The Professional Society for Health Economics and Outcomes Research and was awarded University Gold Medal- MD Pharmacology in Ranchi University.