

## Information Technology and Social Media: Changing Paradigm of Medicine Practice

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### **Abstract:**

**Background:** Medical knowledge is a very dynamic subject which gets updated with addition of new studies, reviews and case reports. Though most of the clinical practice is based on guidelines and studies, still there is a small grey area which gives room to a clinician to apply his mind in the interpretation of the investigations and imaging in relation with the symptoms and signs in a particular case to reach to a certain diagnosis and decide management accordingly. Internet and social media has widened the horizon of dissemination of medical knowledge and information technology has brought it to the every smartphone user which is just a click away. However it also has added the information which is unfiltered, occasionally biased and at times not substantiated by adequate evidence. This has added confusion about medical knowledge, anxiety of the patients and distrust amongst caregiver and recipients. Consumer Protection Act in creating an environment of fear and apprehension. The impact of this apprehension is very significant in developing countries in the terms of cost of healthcare. Application of sound clinical judgement is replaced by plethora of investigations and added to the expenditure of public money. This has also increased litigations and conflict between patients and health institution. It is unjustified to say that everything is bad with this dissemination of information. This awareness of population has helped in prevention of various life style diseases also.

**Aim:** To create awareness of healthcare providers about impact of increased information amongst the service seekers and customise the soft skills in dealing with the patients. It is also for the policy makers to take note of information dissemination and their impact on healthcare.

**Material and methods:** Internet research, Daily news and updates in the healthcare practice and personal experience of the authors is used as source for making of this article.

**Conclusion-** Unless the population is educated, aware and appreciate the grey area of clinical practice, this half-baked recipe of readily available medical knowledge is detrimental to human being and society. Therefore, a stringent regulation is a must to regulate content over social media so as to get the optimum utilisation of the same in betterment of healthcare.

**Key Words:** IT, Information Technology, Social Media, Health Care, Medical Apps, Medical Ethics, Consumer Protection Act (CPA), Evidence Based Medicine, Changing paradigm

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### **I. Introduction**

Information technology (IT) has significantly affected the human lives and their interpersonal interactions. Earlier, the information was only restricted to those who could afford and approach the books, news and journals. It was the elite or organised population who could read, assimilate and use the information for the benefit of the people. The medical students, paramedics and allied specialities used to get an organised and structured education in the practice of medicine. However, now the situation has changed significantly. Most of the information is available on the internet. Many research articles and studies are available on internet. Initially, this had improved the transparency in the medical practice but this benefit appeared to be a short lived one.

The problem is, the data accessed by people is unfiltered, unchecked and often lacking significant level of evidence. Every smartphone user has a Facebook, WhatsApp or other social media applications on their mobile (1). Most of the people have some or other applications, installed in their mobile phones, related to the drugs, their indications, administration and adverse effects. Search engines like Google, Bink, Yahoo search etc have eased the path of accessing medical information related to specific symptoms of a patient. Therefore, in a nutshell, every smartphone user/the one who has access to internet is either pre-informed about the medical issues or has an option of checking the readily available information about the issue. He/she can readily refer to the information available on internet and get herself educated. The difference between knowledge and

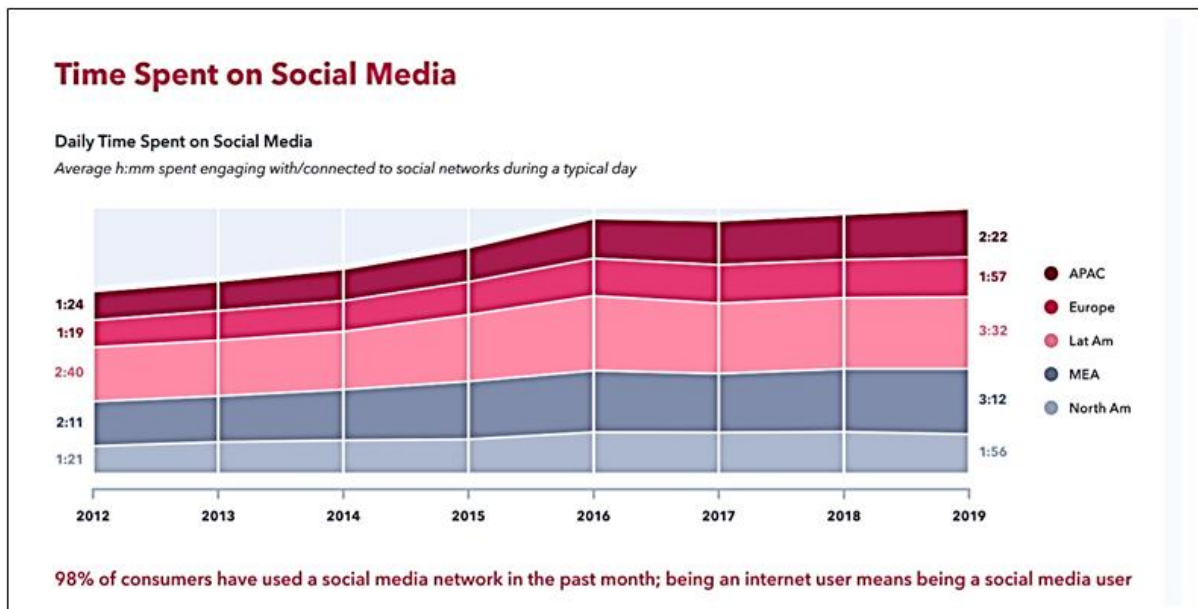
information about a medical issue is making huge gap in understanding the basic nature of the disease and often is the root cause of confusion.

The issue is not only about the readiness and availability of the information, it is about authenticity of the information, ability of the user to assimilate the same, appreciate it in terms of the clinical profile of the patient and last but not the least ability to correlate it with the clinical profile (2). Moreover, even the reputed text books of a particular subject, speciality or sub-speciality mentions the clinical findings and description of the disease on the basis of statistical inferences drawn from a study or controlled trials.

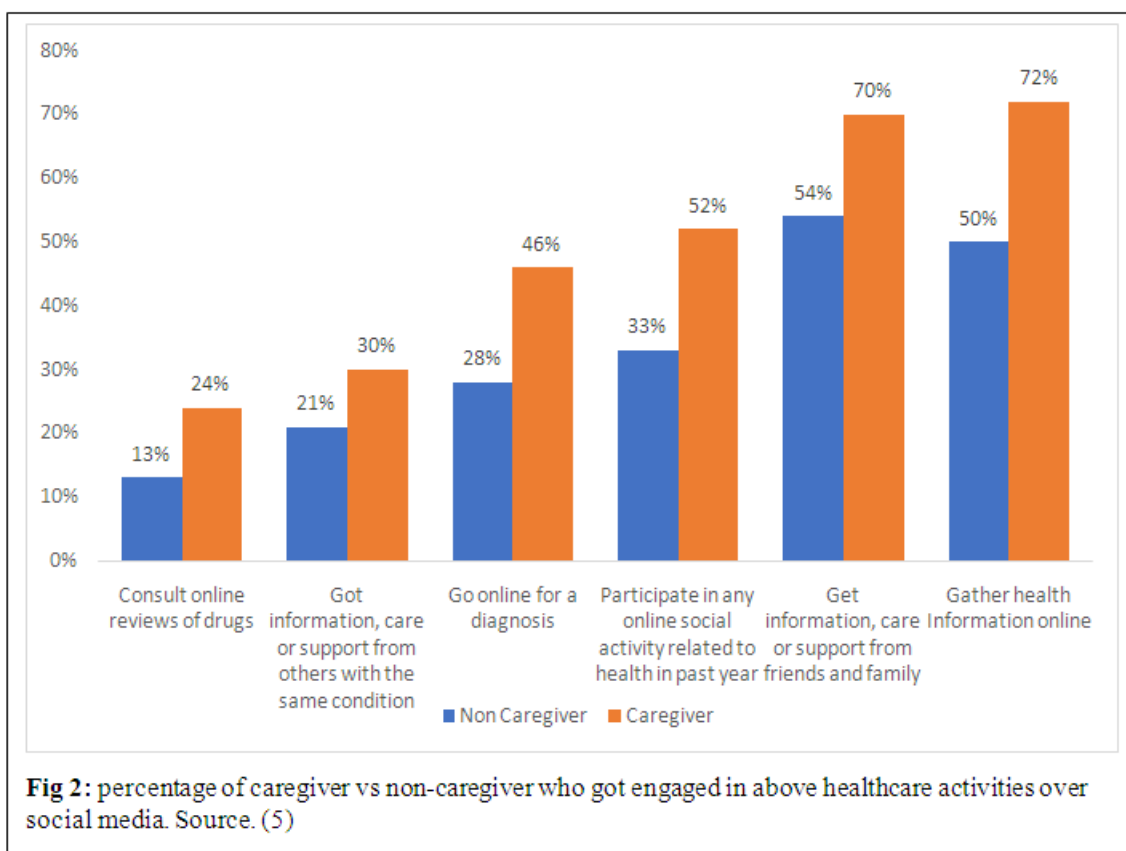
Most of the times the terms like infrequently found, often seen, rarely found, less common, and likewise do indicate reasonable grey area in the interpretation of the text (3). It gives the clinician, a room to apply his/her mind on case to case basis to come to a conclusion and decide the management strategy accordingly. This aspect of relevance of text book knowledge, experiences in the clinical practice, understanding the laboratory tests and radiological investigations in relation with the clinical profile of patient is not possible for a layman just by surfing the internet.

### Social Media Engagement-A Global perspective

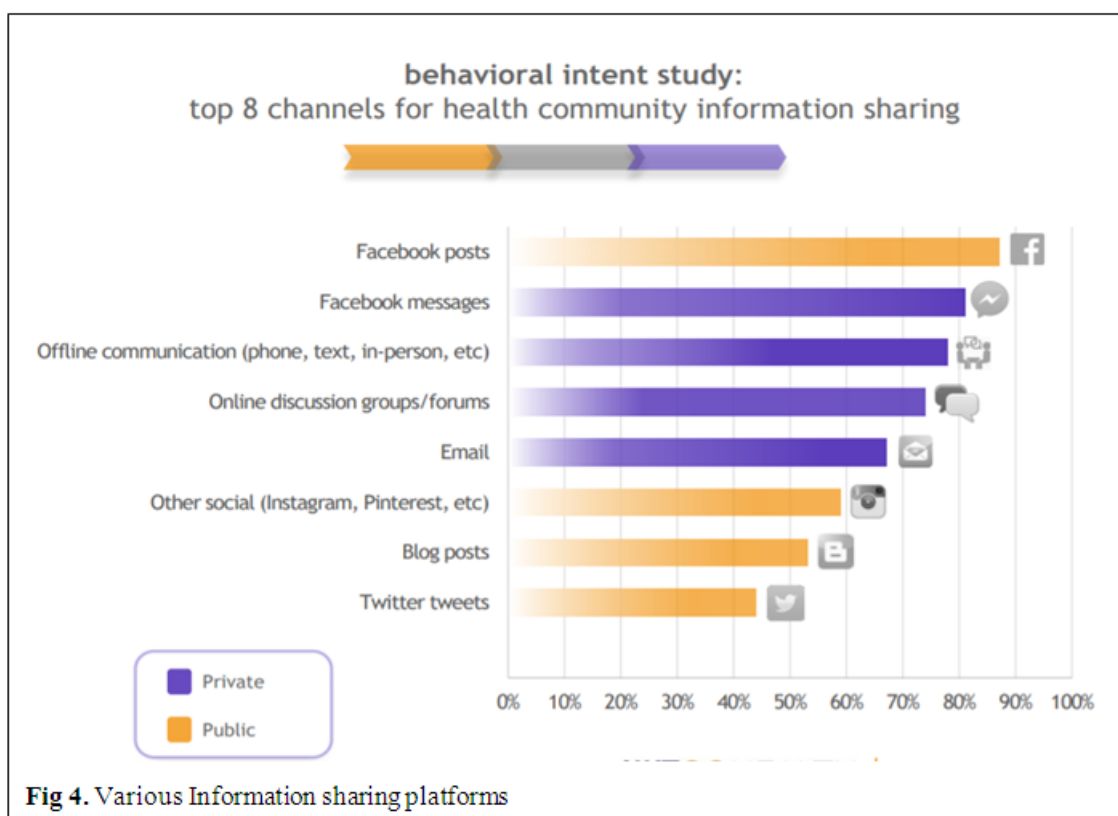
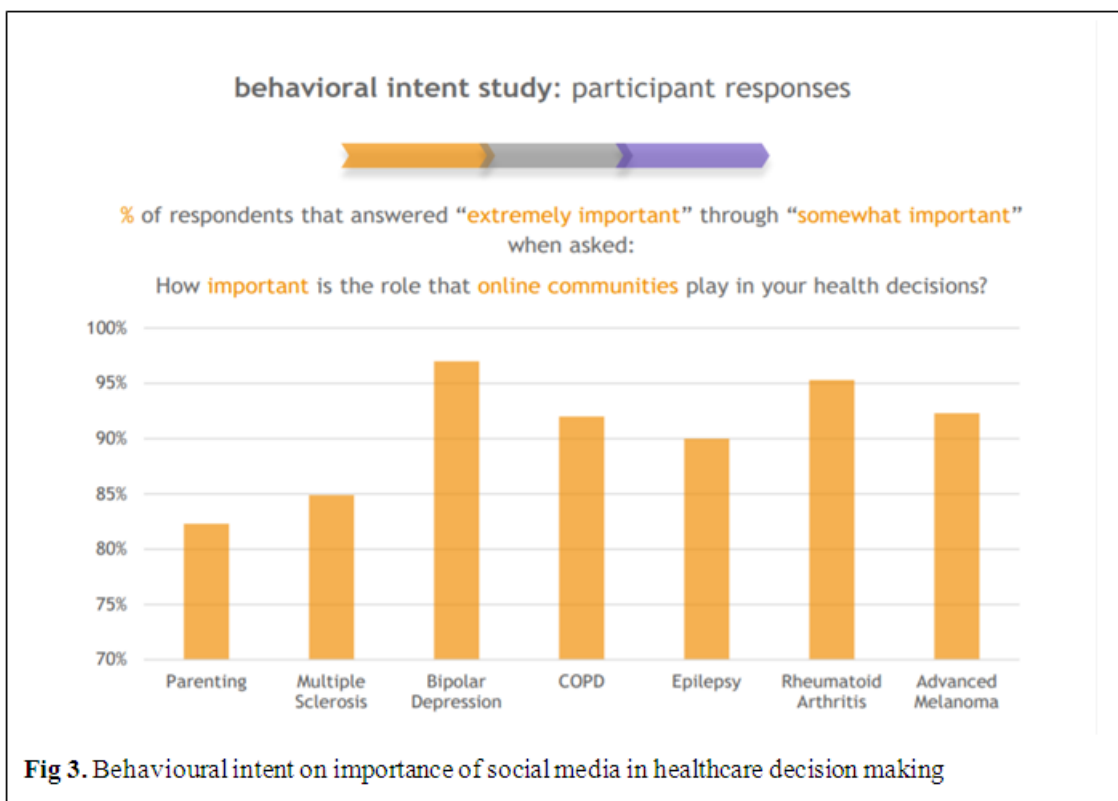
As per 'GlobalWebIndex Social Media Flagship' report 2019(4), time spent by netizens over social media since 2012 in different continent is depicted in Fig 1.



The Pew Research Centre, based in Washington D.C, the USA, which acts as a research and data analytic agency which publishes data pertaining to Global trends of different public issues, behaviour and attitude of people across the Globe, published the fact-sheet about organic engagement and reach of healthcare data to the caregiver and non-caregiver (5). The data is depicted in (Fig 2).



As per an online survey conducted by the WegoHealth, USA on a total of 433 individual from 07 online communities to check the impact of online communities over health decision and also the preferred ways of sharing health information, revealed that 91% of participants said that online communities on Twitter, Facebook, discussion forums, blogs etc sites play an important role in health related decisions. The behavioural intent of patients suffering from diseases like advanced melanoma, rheumatoid arthritis, multiple sclerosis, bipolar depression, chronic obstructive pulmonary disease, epilepsy and also from parenting said that online platforms are extremely useful in decision making (Fig 3) (6). The top information sharing platforms are mentioned in (Fig 4) (6).



By and large the types of healthcare related social media access can be classified into professional Networking, professional education, organisational promotions, patient care, patient education and public health programmes.

### **How are the health services affected?**

Broadly, the negative effect of social media on healthcare can be observed in terms of poor quality of information, damage to professional image, breaches of patient privacy, violation of the patient–HCP boundary, licensing issues and legal issues. Unlike the pre smartphone era, now the clientele is more informed and aware. However, a huge component of this information is partial, un-interpreted and at times false also. As a matter of fact, the client tends to believe this information over the one provided by the clinician during treatment. Normal human tendency is to retain, reproduce and remind more negative than positive information (7). Same applies in this case also and when a client approaches a clinician, he is more apprehensive and alert about negative part of the disease and treatment. Such a client is full of questions about diagnosis, queries about side effects and would like to want all the answers which can satisfy his apprehension. With the present status of doctor to patient ratio the time constraint does not permit a doctor to answer all the questions while sitting in OPD (8). Similar situation arises in busy emergency departments too.

The various ways social media can affect a medical professional's practice are creating a distrust or confusion in client about disease conditions due to poor quality of information. The uploading of improper or unverified content on social media about a medical professional to defame his image can severely affect the person adversely. Information accumulated from search history of an individual social media can be tactfully applied for advertisement about a particular medical course, professional programme or promoting a particular medical device, product or a hospital. Social media can disrupt the doctor-patient relationship by breaching patients' privacy. It also hampers the boundaries between patient and healthcare providers (HCP).

There have been many ways of professional misconduct by a health care professional by the misuse of social media in terms of sharing improper content, sexual misconduct, privacy breach, breaching the privileges of prescription writing and improperly presenting credentials. Therefore, there is increasing risk of policing by state boards or authorities on such issues and chances of revoking of registration (9-11).

### **Consumer Protection Act and role of social media**

The recent surge in increased incidences of manhandling of the medical professionals at many of the busy hospitals in India can be partially attributed to Consumer Protection Act (CPA). After inclusion of medical profession and health services in the consumer protection act amendment in the year 2013 (12) more number of intimidations to the medical staffs are noted. The social media is a viral mode of communication. It contains tremendous flow of information which is mostly either a personal opinion or sponsored propaganda about a particular issue. A famous advertisement of lawyers encouraging the aggrieved patients to file litigation against doctor/hospital can be cited for reference (13). As mentioned earlier, there are various uncertain variables in the management of a case. Such negative, unfiltered and unauthentic information in the population increases unnecessary apprehension in the clients. A bigger danger affecting this situation is over cautious management of even common diseases. Due to fear of CPA and fear of litigations (either genuine or biased), even the medical professionals have started getting more investigations and imaging done for even common disorders. This has increased health care cost and expenditure for common man. For example, instead of depending over sound clinical judgement in the management of common viral fever almost every OPD patient is subjected to variety of tests to rule out all possible (either common or uncommon) causes of fever by doing lab test/imaging. Most of the time just a pattern of fever and clinical profile might click the diagnosis but there is always a possibility of another differential diagnosis. In such situation there is always a fear of litigation by an aware, alert but distrusting client. To avoid such unpleasant and embarrassing situation even a common viral fever is evaluated like FUO (Fever of unknown origin) even on the first day of fever. This extra financial burden is borne by the patients.

### **Evidence based Medicine and the Social Media**

There is huge gap of 17 to 23 years between publication of a research finding and its clinical implementation. Therefore, there is a considerable lag between evidence-based medicine and translation of the knowledge into practice (14). There have been continuous efforts in reducing this gap by various institutional bodies, research groups and medical authorities with unsatisfactory success. Whereas, knowledge translation in social media-based platforms are viral and rapidly accelerating, which in turn, creates a big confusion area in clinical practice. The new age concept of Free Open Access Medical education (FOAM) through various blogs and podcasts has emerged as a handy tool for the patients as well as the clinicians.

### **The pros of FOAM**

If utilised in a regulated manner, the FOAM concept can reduce the gap between the trial-based evidences and translational knowledge since allows practitioners across the globe to engage and critically apprise translational knowledge which is essential for real time scenarios. This will accelerate the implementation of a new knowledge after its publication.

**The cons of FOAM**

The rapidity of dissemination of translational knowledge to end-users often creates a lacuna in terms of potential incorrectness or bias in the published research work, or the possibility of immediate studies contradicting or challenging the previous one. Therefore, there is need of a regulating these open sources before reaching to end-users. Another issue with FOAM is less stringent editorial checks or peer reviews unlike printed materials. Moreover, there is always a possibility of the data being manipulated, modified or influenced by eminent online agencies. The ease of sharing data over social media platforms not revealing patients’ identity has revolutionised the remote access to specialist help and improved patient care definitely.

**How to eliminate the confusion?**

The development of scholars who will critically appraise research and then transmit the information to the translational teachers who in turn will adapt to the new technologies and act as a bridge between evidenced based medicine and clinical practice (15) The varied and useful use of social media cannot be denied; however, the risk of harm can also not be overruled. Therefore, a strict policy (Table 1) can be included to regulate the same and the guideline can be formulated (Table 2) (16).

**Positive aspects of IT and social media**

It will be unjustified to say that social media has played only villain role in the health care. There are various other aspects of social media and IT which have helped in betterment of health care.

Sr No	Table 1. Concepts for Health Care Organizations’ Social Media Policies
1	Address work culture issues like wrongful termination, discrimination amongst staff, harassment of ground workers, information security, leaking of confidential or proprietary information, control damage to the organization’s reputation, productivity, and other issues.
2	Expectations regarding employee behaviour outside the realm of employment needs consideration.
3	Implementation of work place discipline by ban, limit, and/or monitor employee access to the Internet and/ or to social networking sites.
4	Define responsibilities of employees while witnessing inappropriate use of social media.
5	Define and implement policy regarding the use of organizational email addresses and graphics or logos.
6	Define disciplinary actions for the inappropriate use of social media.
7	Designate and define who can access social media on the organization’s premises and for what purpose.
8	Ensure that medical staff and employees acknowledge that they are not representing the organization when they post material to their personal social media sites.
9	Ensure that medical staff and employees disclose any conflicts of interest while dealing with clients or patients.
10	Ensure that the medical staff and employees are familiar with state and federal guidelines regarding patients’ privacy.
11	Ensure that the medical staff and employees include a disclaimer when they are not speaking on behalf of the organization.
12	Ensure that the medical staff, employees, and students understand the need to adhere to the organization’s social media policy.
13	Revise or expand current policies regarding patient consent and its positive implementation.

Table 2. Common Guidelines for the Use of Social Media by HCPs (Health Care Professionals)		
Sr No	Context	Concept
1	Credibility of Content	Share only information from credible sources. Refute any inaccurate information you encounter.
2	Legal concerns	Remember that the content you author may be discoverable. Comply with federal and state privacy laws. Respect copyright laws.
3	Licensing concerns	Know professional licensure requirements for your state and its legal connotations.
4	Networking practices	Do not contact patients with requests to join your network. Direct patients who want to join your personal network to a more secure means of communication or to your professional site.
5	Patient care	Avoid providing specific medical advice to non-patients. Make appropriate disclosures and disclaimers regarding the accuracy, timeliness, and privacy of electronic communications.
6	Patient privacy	Avoid writing about specific details of patients. Compliance with state and federal privacy laws. De-identification- Protect patient information Use of soft skills when discussing patients.
7	Personal privacy	Use the most secure privacy settings available. Keep personal and professional profiles separate.
8	Professional ethics	Disclose any in-kind or financial compensation received. Avoid making false or misleading claims.
9	Self-identification	Disclose professional Identity. Make sure that your credentials are correctly stated. Specify whether or not you are representing an employer.

There are various healthcare apps available in the app portals of different operating systems<sup>10</sup>. The mobile application of the fitness, blood sugar monitoring, dietary advices, obesity control and so many others have improved enough awareness amongst common man. The medicine reminders have improved the drug compliance of many geriatric patients. Readily available Yoga and meditation videos on the internet have revolutionised the fitness level and management of primary hypertension. There are strong anti-junk-food campaigns on the internet which highlight the disadvantages of junk food and its effects on child health. Excellent example of Anti-tobacco campaigns and their effect in reducing smoking population is known widely. There are many such examples which show positive side of IT and social media adding improvement in the healthcare.

## II. Conclusion

In a nutshell, the IT or social media is a double-edged sword. On one hand it has revolutionised the healthcare by adding a new dimension in the medium of information, secondly it has become a weapon of wrong, sponsored, biased misinformation. This is very significant in developing and underdeveloped countries with poor infrastructure of healthcare and large unorganised sector of health services which are working with poorly defined guidelines. It has only increased the healthcare expenditure of a common man, and put extra burden on public money due to more investigations and imaging. It also adds more apprehension and distrust amongst population about healthcare professionals and is slowly destroying the fabric of doctor-patient trust. Unless the population is educated, aware and appreciate the grey area of clinical practice, this half-baked recipe of readily available medical knowledge is detrimental to human being and society. Therefore, a stringent regulation is a must to regulate content over social media so as to get the optimum utilisation of the same in betterment of healthcare.

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