



RESEARCH ARTICLE

THE WEB WORLD: UBIQUITY OF INTERNET AND IMPACT ON DOCTOR-PATIENT RELATIONSHIP

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ABSTRACT

The Internet, an overall arrangement of computer networks and an extraordinary creation of present day and high innovation science has taken control over the lead job in impacting individuals with thousands of facts and figures, bringing about a shift in knowledge, correspondence and way of life on a worldwide level in the course of recent years. Due to the omnipresence of the Internet and the accessibility of wellbeing data, individuals are getting reliant on looking for the Internet for self-care. Self-administration of medicines and other healthcare measures, by taking into consideration the information shared by the internet is a whole new trend now. Chronic conditions, for example, Diabetes mellitus, because of its intricacy need somewhat more consideration. Here, we perceive how the Web data is influencing patients' conduct in instances of different health conditions. Additionally, there is a paradigm shift in doctor-patient relationship because of web interventions. The results of this study emphasized that although internet interventions aim at symptom improvement, they are unlikely to replace face-to-face care in view of the uncertainty and reliability upon the internet information, which if not utilized appropriately could end up being hazardous.

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INTRODUCTION

With an expanding influence of the Internet, and the reliance of people on this Internet based information, it can be clearly seen that 'healthcare' has also become a part of this ceaseless journey. People belonging to different age groups, be it old or young, are becoming tech savvy and therefore, are equipped with the necessary information and up-to-date knowledge sufficient enough to keep themselves aware about their own self. Whether a health condition is acute or chronic, people try to find ways, to find measures and cure their condition through a painless and convenient method before visiting a doctor. The sole purpose of this study was to find out the frequency of use of the Internet by diabetes patients', their perception about web-data reliance versus face-to-face communication with the doctor, doctors' perception about the patients sharing information with them and the impact of this interaction on the doctor-patient relationship (1,2)

Literature Review

The sources that patients use are assorted: sites of care groups, patient blogs, web journals, sites made by editors of mainstream media, and sites controlled by other clinical associations and wellbeing experts.

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Although many people find this information relatable and useful, an enormous gathering of individuals discover this data problematic and a significant number of them report issues and disarrays about these hunts. This utilization of Internet and individuals' interest to find out about their ailments and wellbeing conditions has prompted an adjustment in their thinking pattern. Some discover this data helpful though others end up in a dilemma. Patients reach out to their doctors with increasing number of inquiries day by day. Doctors need to live up to patients' new and evolving expectations. The utilization of Web has driven them to pose new inquiries or acquire a second opinion from another specialist. Patients who are ignorant of the outcomes and are at half-information, cannot utilize the web data satisfactorily which at last influences their well-being in light of the fact that there is a lot of prolongation of time and the treatment gets deferred by the time they connect with the specialist. Not all the data accessible on web is certifiable. Individuals who attempt cures subsequent to being impacted by the data accessible on web regularly fall into an increasingly muddled circumstance as they are uninformed about the reactions and contraindications of the medications they are utilizing. People looking for help from the Web fall into posing inquiries to their doctors later, which thus prompts an additional time-consuming meeting between the specialist and the patient. (3, 4)

Research Objective

To conduct a study

- To find out diabetic patients' perception about adhering to the Internet information versus face-to-face

communication with the doctor with regards to their health condition.

- To find out doctor’s perception about the Internet information being shared and inquired by the patients.
- To find out the overall impact of this interaction on the doctor-patient relationship.

METHODOLOGY

- **Data collection method:** Questionnaire
- **Target population:** General Practitioners & Diabetologists
- **Sample questions:**
 - a. What is the average interaction time with the patients?
 - b. How many patients share the online searched information?
 - c. Is the information found on the Internet helpful?
 - d. How frequently do you use the Internet to find new information?
 - e. How do you deal with the irrelevant information being shared by the patients?
 - f. What is the effect of this interaction on your relationship with the patients?
- **Data collection method:** Questionnaire
- **Target population:** Diabetic patients
- **Sample questions:**
 - a. What is the frequency of Internet usage to find information about Diabetes?
 - b. How relevant is the searched information found online?
 - c. What is the average interaction time with the doctor?
 - d. How open-minded is the doctor with respect to the queries being raised?
 - e. Do you ask the doctor to alter the treatment based on the online searched information?
 - f. Have you made any lifestyle changes adhering to the suggestive measures shared online?
 - g. Have you made any lifestyle changes adhering to the suggestive measures shared by the doctor?
 - h. What is the effect of this interaction on your relationship with the doctor?

Method of Data Analysis for both the parties: Pie Charts and SPSS (Statistical Package for Social Science Research) Software- Standard deviation, t-test

Data Interpretation/Result

Doctor: From the study conducted, following results were obtained: See Fig. 1 Since this study focuses on Diabetes; we selected General Practitioners and Diabetologists as our target population. Out of the total population, 80% were found to be General Practitioners and the rest 20% were found to be Diabetologists.

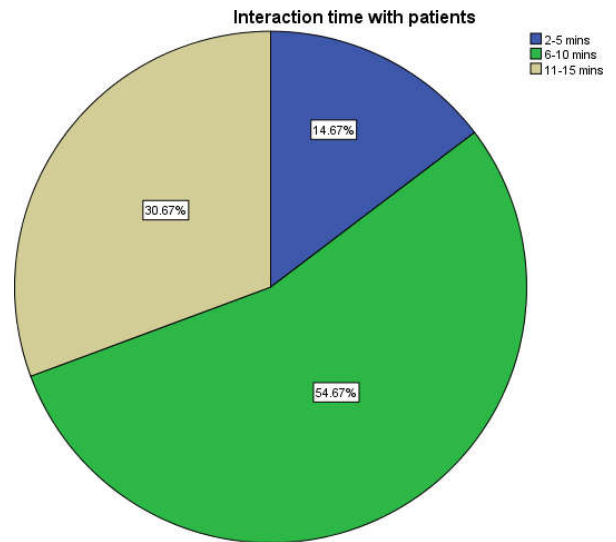


Fig. 2

Fig. 2 suggests, on an average, the maximum interaction time between the doctors’ and the patients’ was found to be 6 to 10 minutes with 54.67%. Since most of the doctors have their patients fixed i.e. they get visits by their regular patients, they find it easier to write their prescription because of their well-known patient history. The second average interaction time slot was found to be 11 to 15 minutes with 30.67% (this time slot being occupied usually when dealing with the new patients or when the patients have queries about their treatment) followed by 2 to 5 minutes with 14.67%.

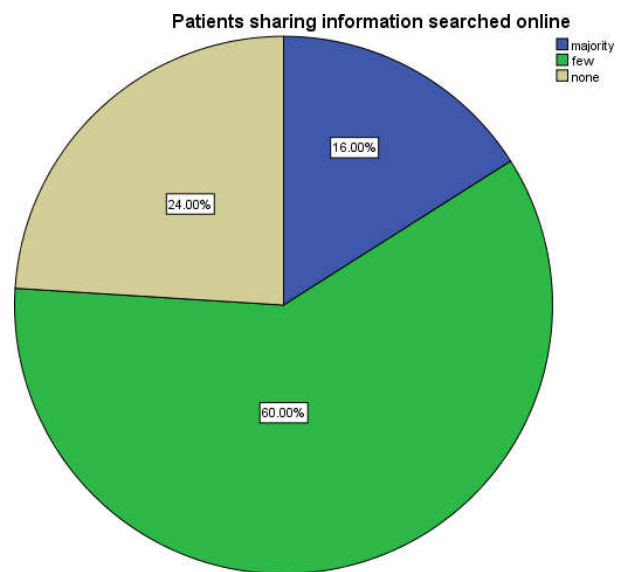


Fig. 3

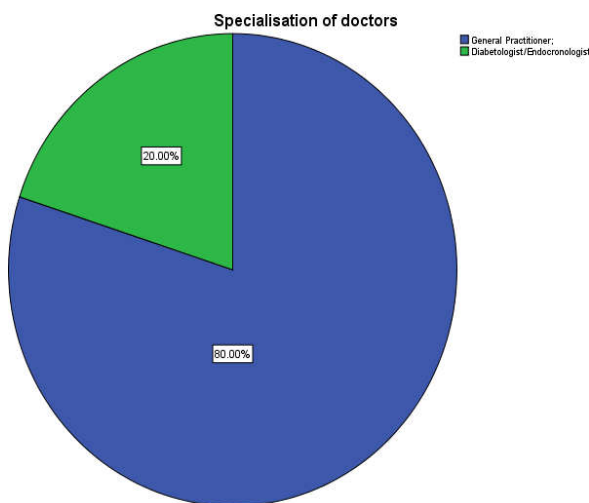


Fig 1.

See Fig. 3 When asked about the patients sharing the Internet based information with the doctors; it was found that only few patients raise their queries and concerns regarding their health and the treatment being given to them. Only 60% people share the online found information with the doctor whereas 24% people do not share such information with the doctors at all. The reasons could be: (a) not all the patients are comfortable to question the measures being suggested by the doctor (b) patients are not sure about the doctors' way of dealing the queries, especially when it is related to the Internet (c) there is a well-built trust between the doctors and the patients which makes it easier for the patients to follow the doctors' prescription without any doubts (d) the doctor is not open-minded enough to answer the patient's questions which he/she might think to be irrelevant.

Helpfulness of information found online

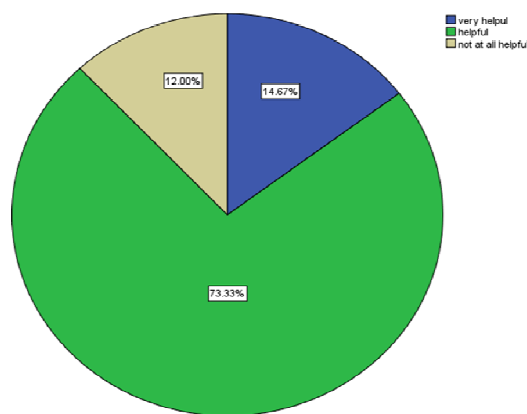


Fig. 4

Fig. 4 suggests that from a doctor's perspective, the information available on the Internet with respect to specific disease conditions is quite helpful. The information related to Diabetes online as shared by the patients, as well as self-checked by doctors is often found to be relevant if the information belongs to a trustworthy and authentic source. Obviously not all the information available online is reliable enough but around 88% of the doctors agreed to this fact that Internet is a great source for keeping oneself updated specially where self-care is involved. On the other hand, 12% of the doctors had the opinion that such information brought to them by the patients is not relevant enough to take into consideration. They believe that Internet is a parallel domain with respect to face-to-face patient-doctor interaction.

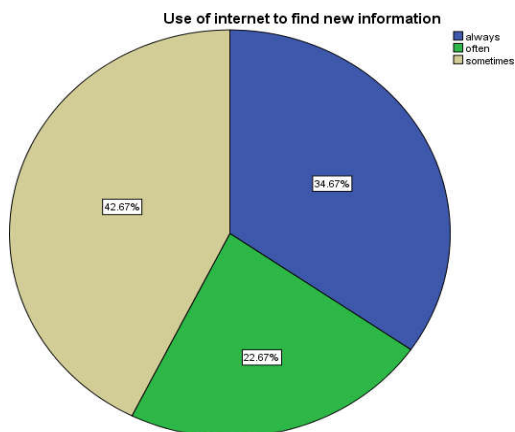


Fig. 5

See Fig. 5 Now the question arises, whether the doctors use Internet for checking something online? And if yes, what is the frequency? Doctors themselves prefer to search things online sometimes if they feel the need to do so. First they check the authenticity of the website, and then they proceed to search the information if it seems to be relevant. Around 35% of the doctors are always in touch with the online information, keeping themselves updated with the current trends and therapies. Around 23% of the doctors often use the Internet for checking the information online, maybe as a habit, or when a patient raises a query or a doubt which the doctor is not updated with. Around 43% of the doctors refer the Web sometimes to clear their doubts or to cross-check information.

See Fig. 6 Patients often come up with irrelevant information to the doctors.

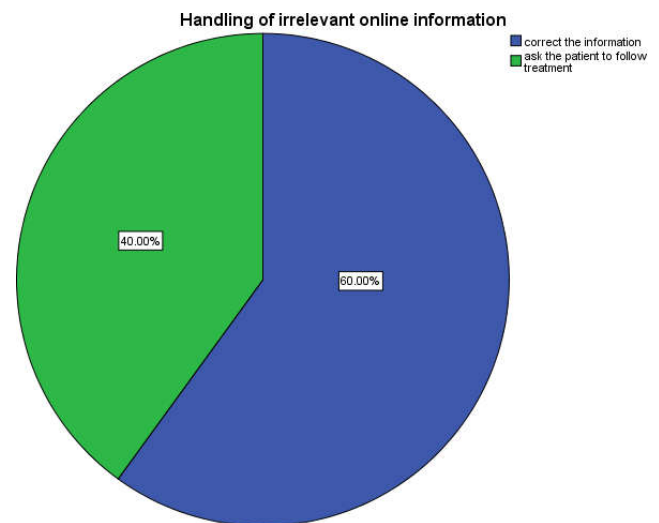


Fig. 6.

They are not well aware of the consequences and even start following the measures and administration of medications they believe to be right referring the Internet. Most of the patients who come up with the information they found online, are corrected by the doctors (60% of the doctors) because it is necessary to correct the patients on the initial step since they do not know about the side effects, adverse reactions, drug interactions, etc. especially in chronic conditions like Diabetes. The remaining 40% of the doctors are not open-minded and flexible enough to take into consideration such doubts and queries being raised by the patients which seem irrelevant to the doctors. Hence, they ask the patients to follow the prescription and the treatment being given to them by the doctors.

With reference to Table 1, the following interpretations can be made:

- a. The doctor-patient relationship has not inclined towards much improvement: This is because the more queries the patient counters with the doctor, the more clarifications he/she gets. This signifies that most of the doctors are open-minded towards patients' doubts and correcting them by making them understand the effects, adverse drug reactions, contraindications, etc. before taking any major step has somewhat improved the relationship of doctors with their patients. But at the same time, listening to each and every query that too within limited time-constraints

is difficult from a doctor's perspective, which sometimes results in the behavioural changes in the doctor. This counts for the drawback.

- b. Doctors usually do not alter the treatment being requested by the patients: This is because Internet is a seamless source of Information representing a whole bunch of data, thousands of statistics, facts and figures, suggestive measures, self-medication dosage regimens etc. which cannot be relied upon completely. Patients who possess a second health condition other than Diabetes Mellitus, say liver disease or renal failure etc. can always ask their doctor to change their treatment if necessary.
- c. Patients share the information with their doctors to seek clarification on topics they find to be dilemmatic: Patient-engagement in a now-widespread practice of referring the Internet as a first opinion of treatment is well known by now. Questionable online data may cultivate unreasonable desires among patients, diminishing trust in experts and adherence to treatment. Patients may over-identify with others' encounters, making them overuse health services or present their side effects in such a manner to acquire the preferred response from a doctor. Such situation of relentlessness the soon gets encountered, the better. However, doctors may feel tested, devalued, and additionally on edge when patients bring on the web wellbeing data into consultations. Doctors report tending to this nervousness by separating themselves from their underlying emotional response, including learning from past meetings, and conduct procedures, and utilizing the web as a partner by guiding patients to specific sites. Not all doctors adapt so successfully.

Patients:

On the basis of the study conducted, the following results were obtained:

See Fig. 7 Most of the patients prefer to search the Internet for finding information about self-care measures and treatment about diabetes before going to the doctor. According to the study, it was found that these people belonged to the age range of late thirties to early fifties. Also, about 16% of the patients use Internet rarely when it comes to checking their health status and about 10% of the patients do not prefer searching information online because they believe in the traditional method of gaining direct information and treatment directions from the doctor, not risking their health and putting themselves in dilemma by getting exposed to information they are not well known about. Such people were generally above 55 years of age.

See Fig. 8 As asked to the doctors, a similar question was asked to the patients that whether they find the information searched online relevant enough to believe and follow. Most of the patients find such information sometimes useful. People at least look upon Internet to find out suggestive measures such as diet control, sugar intake control, exercises, well established home remedies etc. which they think would not cause any harm to their body. However, administration of medications needs the advice of a professional health practitioner. Also, about 12% of the patients rarely find such information useful and about 11% of the people still don't completely rely on such information which is related to their health without a doctor's consultation.

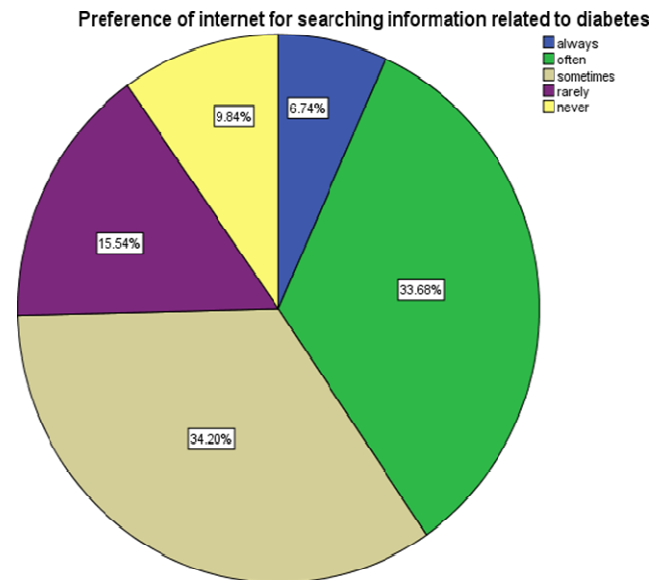


Fig. 7

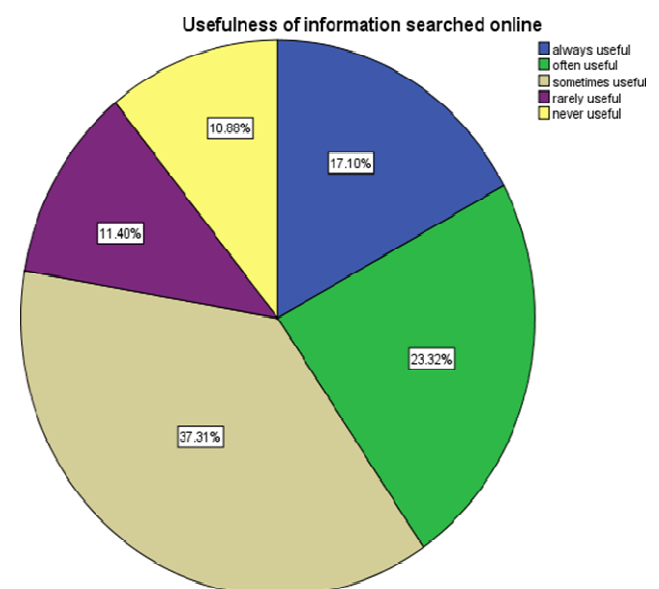


Fig. 8

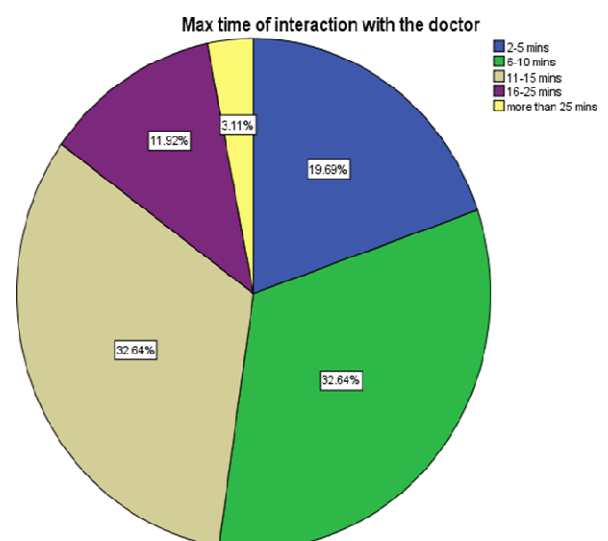


Fig. 9

Fig. 9 suggests, the maximum time of interaction between the doctors and the patients was found to be in the range 6 to 15 minutes. A general interpretation can be made from this data that the more doubts and queries a patient has, the more time he/she interacts with the doctor.

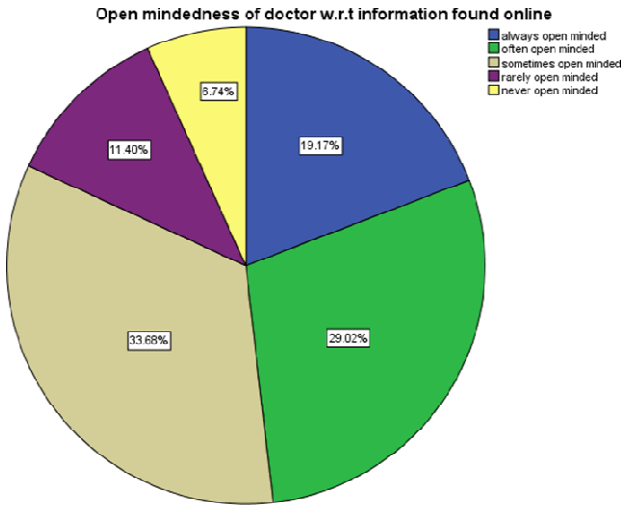


Fig. 10

See Fig. 10 Taking into consideration the open-mindedness of the doctors, patients feel that the doctors are mostly open-minded to their doubts and questions. They try to answer their patients' queries most of the times, but repetitive doubts and cross-checking of treatment, also irrelevant information leads to behavioral changes observed in the doctors'.

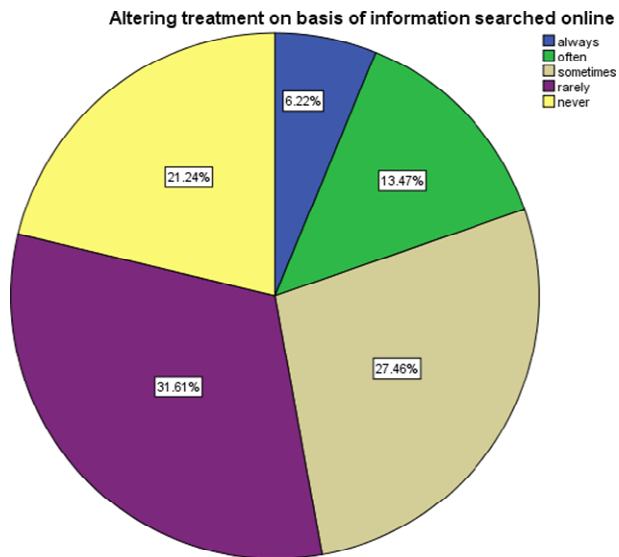


Fig. 11

Fig. 11 suggests, patients usually do not ask the doctors to change or alter their treatment. However, sometimes, when a patient feels that he/she needs to inform and remind the doctor any other prevailing health condition which he/she possesses or has recently developed, the patient asks the doctor to alter the treatment. This happens because the patient has already searched about that condition online and read about the given treatment measures and counter-indications already before visiting a doctor on the Internet, hence, asks the doctor to make the necessary changes.

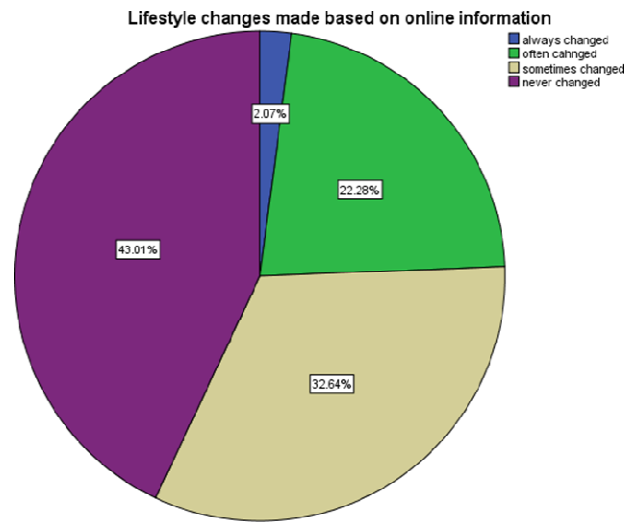


Fig. 12.

See Fig. 12 Most of the patients believe that depending wholly upon the Internet information for making changes in the lifestyle is not something to be relied upon completely. For example, a patient begins to follow a diet routine and some dosage regimen after reading some sort of information available on the Internet; however, he/she starts feeling some discomfort and eventually falls into trouble. To avoid such conditions, patients usually prefer taking a second opinion from the doctors. Looking on the other side, about 24-25% of the patients have actually made changes in their lifestyle by adhering to some general tips such as following workout plans, regimens for intensive dietary behaviors, keeping in mind the carbohydrate levels to be maintained and strictly controlling sugar intake etc.

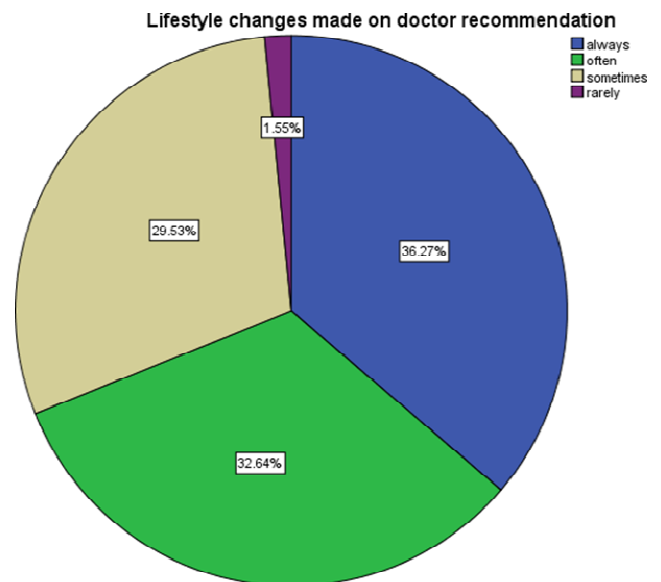


Fig. 13

See Fig. 13 Obviously patients believe in their doctors' recommendations, and also prefer to take opinion from the doctors before taking any major step as we discussed in the previous question. They believe that face-to-face communication is better as it is something which can be trusted upon.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Alteration of treatment requested by patient on basis of online information	75	3.59	.840	.097
Effect of online information on relationship	75	2.91	1.176	.136
Patients sharing information searched online	75	2.08	.632	.073

One-Sample Test

	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Alteration of treatment requested by patient on basis of online information	6.050	74	.000	.587	.39	.78
Effect of online information on relationship	-.687	74	.494	-.093	-.36	.18
Patients sharing information searched online	-12.615	74	.000	-.920	-1.07	-.77

Table 2.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Sharing of information searched online	193	2.66	1.092	.079
Does online information affect relationship with the doctor	193	2.62	1.122	.081
Clarification of the information searched online with doctor	193	2.55	1.060	.076
Initiatives taken by patient on their own depending on online information	193	3.63	1.068	.077
Improvement in the relation with doctor	193	3.00	.963	.069

One-Sample Test

	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Sharing of information searched online	-4.283	192	.000	-.337	-.49	-.18
Does online information affect relationship with the doctor	-4.748	192	.000	-.383	-.54	-.22
Clarification of the information searched online with doctor	-5.907	192	.000	-.451	-.60	-.30
Initiatives taken by patient on their own depending on online information	8.153	192	.000	.627	.48	.78
Improvement in the relation with doctor	.000	192	1.000	.000	-.14	.14

With reference to Table 2, the following interpretations can be made:

- Patients report looking for Internet data for various reasons: For example, to clandestinely affirm, clarify, and supplement data provided by specialists during counsels, to self-diagnose a medical issue, to get a subsequent supposition; to treat a medical issue; to find out about the symptoms and different results of treatment alternatives or on the other hand clinical preliminaries; to relieve fears and lift certainty; to figure out how others have adapted to sickness and regular issues related with disease; as well as just to become familiar with their wellbeing.
- Sharing online information with the doctor usually affects the doctor-patient relationship from a patient's perception: This can be explained on two levels, the first being the positive point-of-view where patients usually find the doctors open-minded, understanding and prepared enough to correct their patients wherever required. In such cases, the interaction sessions are usually longer. Patients find this as an improvement in their relation with the doctor. On the other level, such sessions are looked upon as close-ended conversation sessions where doctors usually ignore the data, judge a patient as being opposing or challenging or when the doctor implies the "doctor-knows-best" man centric methodology during the counsel. This usually happens when the doctor does not believe in the web information as being reliable enough to be taken into consideration. In such cases, the constant questioning of the patients affects the doctor-patient relationship in a

negative manner. It may seem annoying to the doctors if their treatment is being questioned upon constantly.

- c. Seeking clarification is a major initiative if one is relying upon the Internet information before approaching a doctor: Diabetes Mellitus being a chronic condition, directs that the higher the blood sugar level is, the longer one has to live with it, increasing the risk to complications such as heart disease, heart attack, stroke, neuropathy, nephropathy, retinopathy, hearing loss, depression, dementia etc. Hence, it is something to be taken care of with more intensiveness. Hence, clarification seeking is important.
- d. Patients do not usually take initiatives, healthcare measures before consulting a doctor: Patients who have multiple health conditions or those who have been suggested by their doctors to not to take any major step before seeking clarification, usually keep the Internet for considering it as a second opinion always. They believe that face-to-face communication is still a better way to be followed. Therefore, they follow the dosage regimen, diet chart, suggestive measures etc. strictly given to them by their doctors. However, certain activities, which do not involve the complexity of involving a doctor, such as suggestive measures indicating sugar intake control, physical workout etc. have been adopted by patients.
- e. Not much improvement can be observed in the doctor-patient relationship: Although changes can be seen in the doctor-patient relationship but it cannot be always considered on the positive side. Patient counseling and question answer sessions between a doctor and a patient can be time taking, repetitive, and exhausting for the doctor. This is because not all the doctors are comfortable and flexible enough to answer each question if the patient asks for validation on each step. Also, patients cannot filter the useful information and can bring queries arising from unknown sources which ultimately put a burden on the doctor constantly. In such cases, not much improvement can be observed between the doctor and the patients since a change in the behavior of doctors can be a limiting factor.

DISCUSSION AND CONCLUSION

The Internet was seen to be a helpful asset given the constrained time accessible in discussions, and was especially esteemed for the broadness of data and the simple entry to experiential information. Our data suggests that doctors support the use of Internet but only if the information belongs to an authentic and a legitimate source. We collected data from general practitioners, diabetologists as well as diabetic patients to understand the effect Internet information has on the doctor-patient relationship. We observed that data obtained by means of the Internet underpins existing helpful connections with the doctor. Patients feel a sense of empowerment and greater control of their disease by getting into self-management. This step is intensive because a layman would not be able to metastasize through the pool of information available out there on the Internet. People these days prefer to look upon the Internet as a first line approach, but there are still many patients who believe in consulting their doctors as a first line approach for face-to-face interaction sessions.

It was observed that patients viewed seeking data from the Internet as on a very basic level not quite the same as picking up data from an eye to eye experience with their primary care doctor. This can be ascribed to variables, for example, access to a full clinical history of the patient and the humanity of managing an individual up close and personal. Clarification is necessary if one wants to adopt suggestive measures provided by the Internet. However, considering the effect of Internet information on doctor-patient relationship, it was observed that there were mixed opinions from the doctors' perspective as well as the patients' perspective. As discussed in the study, not all the patients desire to share the information they found online with the doctor, they just approach the Internet to keep them "updated" about the health condition they possess. The others desire to seek clarification, hence get involved in the long interaction sessions, which might be exhausting from the doctors' point of view.

Patients have a lack of rationale regarding the legitimacy of the sources they usually rely upon, putting them in a dilemmatic situation. Hence their interaction with the doctor has proved to be resourceful and advantageous in some cases, as well as time consuming and worthless (in case the doctor is not responsive enough to consider the queries asked by the patients). Doctors were observed to be bound by time constraints. The study illustrates the impact of doctors' responses to Internet usage in terms of patients' feeling respected, competent, and able to engage in decision-making processes. The evidence presented suggests that increased access to information and support online does not necessarily result in better doctor-patient communication. Being well informed and attempting to engage actively in decision-making processes can result in hostility and irritation within the medical consultation.

Future Research Directions: Although the current situation says that information available online is not helping much in building the doctor-patient relationship, the transformation in the technological trends especially in the healthcare sector signify scope of developing a link between the doctors and the patients based on online infrastructure in the near future.

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