



ORIGINAL ARTICLE

To assess the frequency of antibiotic use through internet and social media among people visiting Rawal Institute of Health Sciences.

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ABSTRACT... Objective: To assess the frequency of antibiotic use through internet and social media among the people visiting Rawal institute of health sciences. To assess knowledge about antibiotics and to explore role of internet search engines and social media for accessing information regarding antibiotic use. **Study Design:** Cross-sectional Descriptive study. **Setting:** Rawal Institute of health sciences, Islamabad, Pakistan. **Period:** June 2019 to September 2019. **Material & Methods:** A was study carried to find out the role of internet and social media for use of antibiotics through a structured questionnaire from 150 people visiting RIHS. Sampling was done through non probability convenient sampling method. Response rate was 100%. **Results:** The data of 150 participants showed 92% have used antibiotics in their life time, of those 92% (n=138) participants, 26 % (n=39) have used them through prescription, 30% (n=45) have done self-medication, 19% (n=29) have used social media for medication. 91% think that information regarding use of antibiotics can be spread through internet and social media. **Conclusion:** The results conclude that social media and internet related antibiotic sales is contributing a substantial share. Majority of the participant also think that internet and social media are the best source to spread information for safe use. National guidelines should be devised for appropriate information seeking and communication interventions can be done using internet and social media.

Key words: Antibiotic Resistance, Antibiotic Use, Internet and Antibiotic Use, Social Media.

INTRODUCTION

Antibiotics are incredible discovery and have transformed the management of infection.¹ regrettably with widespread inappropriate and inadequate antibiotic use, we have noticed the emergence of multidrug resistant pathogens and reduced efficacy of most potent antimicrobials. Resistance to these antimicrobials was predictable and now it is wearing down the standard and provision of healthcare.² The reasons that unprofessional use of antibiotics are wide-ranging among them probably the most important is lack of knowledge or awareness of patient and the caregiver to some extent. Insufficient microbiologic information plays an important role. So in search of knowledge patient explores through internet and social media which is an unprecedented tool of information.

Patient's expectation and direct demands for antibiotics and their easy access to the antibiotic s through internet and social media contribute to the resistance.³ In recent years, antibiotics turned less efficacious, increase in resistance and virulence has skyrocketed. This poses a new threat where antibiotics that have previously wiped out infections are now struggling to battle against resistant bacteria. When a physician prescribes an antibiotic, it is significantly beneficial to take the full dose course as directed and not to desist use even when symptoms alleviate. Interfering with the antibiotic dosage early can speed up the rebound of resistant bacteria. The drug has thus a smaller interval to achieve the job, leaving a larger population vulnerable to resistant bacteria that are able to evolve again, causing the patient to become sick with a population of resistant

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bacteria.³ Many prescribers, researchers and law makers have been asked for judicious use of antibiotics prescriptions for human and non-human use and devise antimicrobial strategies and course of action effectively. The provision of better training for prescribers, updated awareness programs on effects of antibiotics for both patients and the prescribers, and legalized availability through internet and social media.⁴

Antibiotic use through social media is another avenue. Its availability and easy access should be made accountable, as antibiotics are easily available through online pharmacies, various websites and medicine dealers and over the counter.⁵

Moreover, knowledge alone might not be adequate to change health-related behavior. However, although strategies like health literacy may be fundamental for proficiently managing health and onslaught of antibiotic abuse, but research in the field of antibiotic use through internet and social media is sparse. Several studies have been carried out to assess knowledge about antibiotics and antibiotic resistance.⁶ Little research has been done on use of Internet and Social media as source of self-medication in Islamabad, to overcome this gap our study aims to assess knowledge of antibiotics and to explore role of internet search engines and social media for accessing information regarding antibiotic use and also internet and social media as a health promotion tool for creating awareness of judicious use of antibiotics.

MATERIAL & METHODS

A cross sectional, observational study was carried out at Rawal Institute of Health Sciences, Islamabad. The duration of study was five months, from June 2019 to September 2019. Sample size was obtained by sample size calculator, for which the sampling frame was of 250 with 95% confidence level and 5% margin of error. A total number of 150 eligible consenting study participants from patients and their relatives visiting RIHS through non probability convenient sampling were included in this study. Eligibility was assessed by ability to read and write and

secondly only internet users were included. Patients with chronic diseases, illiterate and not willing to participate were excluded from the study. Response rate was 100 percent.

Data was collected through a pilot tested; structured, close ended self-designed questionnaire to find out the frequency of use and misuse of antibiotics through internet and social media. The questionnaires were distributed to the participants who consented for the study by the help of researchers, the participants were given the participant information sheet and consent form and was got signed. Researchers picked the participants in groups of eight to ten, explained the whole purpose of the research and the process to fill the questionnaire, and any ambiguity that could have been created. Data was analyzed using MS excel. The questionnaire consisted of four parts namely; Participants profile, Demographic details of subjects included age, gender, education, access to social media/internet and place of residence, evaluation of participants knowledge of antibiotics and use of internet and social media for antibiotics. Knowledge was assessed by ten multiple-choice questions. For each patient, the percentage of correct answers was calculated as a representative of knowledge score. Questions were asked to assess the self-medication of antibiotics and then were explored about how many of them used social media to choose antibiotic or accessed valid information regarding antibiotic they were using.

The study was approved by the Ethical Committee of Rawal Institute of Health Sciences letter RIHS/15-5-2019. Assurance was given to the study population that the confidentiality of the information will be well-kept at all times.

RESULTS

The data of 150 participants showed 92% have used antibiotics in their life time, of those 92% participants, 26% have used it through prescription, 46% have done self-medication, and 19% have used social media for medication 9 % were told by friends, family and pharmacists.

Age Group	15-20 n=6	21-30 n=66	31-40 n=54	41-50 n=18	>50 years n=6
Gender	Males 38% n=57		Females 62% n=93		
Marital status	Married 78% n=81		Unmarried		
Educational Status	< Primary	Matric	BA	MA	Other
	16% n=24	32% n=48	28% n=42	30% n=45	44% n=66

Table-I. Demographics

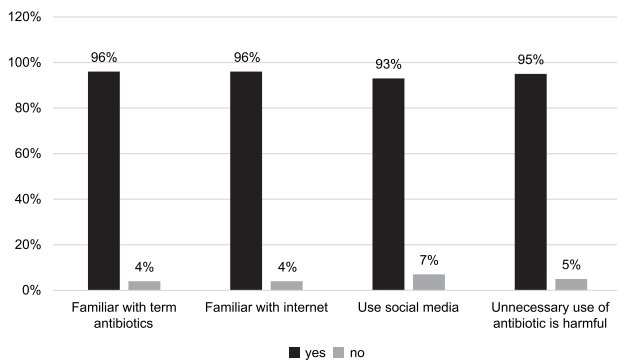


Figure-1. Knowledge of internet, social media and antibiotics

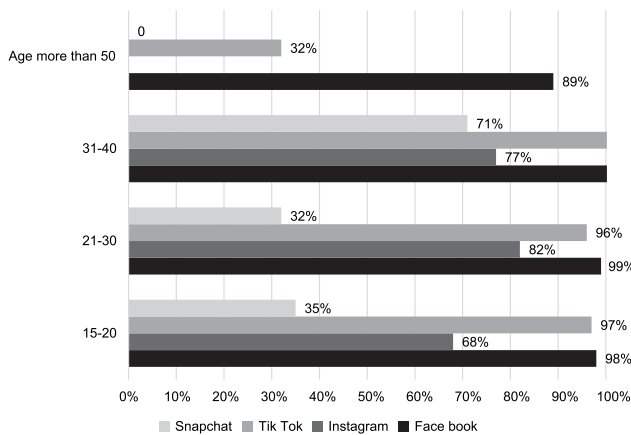


Figure-2. Social media platform users

98% think disease will not be cured without the use of antibiotics but only 20% of them have acquaintance with their use against bacterial infection. Only 24% of population considers the possible side effects from antibiotics, most are unaware of the fact that antibiotic can cause fatal allergic reaction. Among the significant factors with respect to general adult use of antibiotics

is when to discontinue the antibiotics intake. 78% agreed upon the fact that sharing personal experience on social media platforms can attract people to buy antibiotics

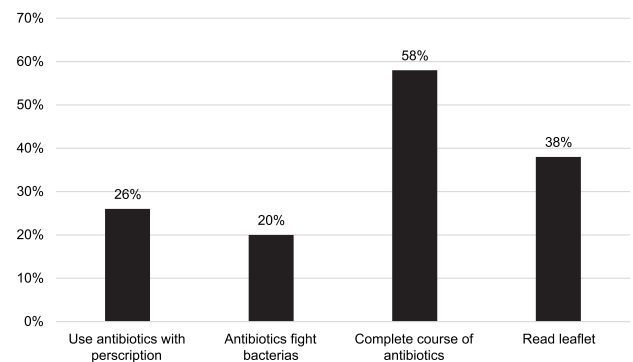


Figure-3. Variables regarding antibiotics

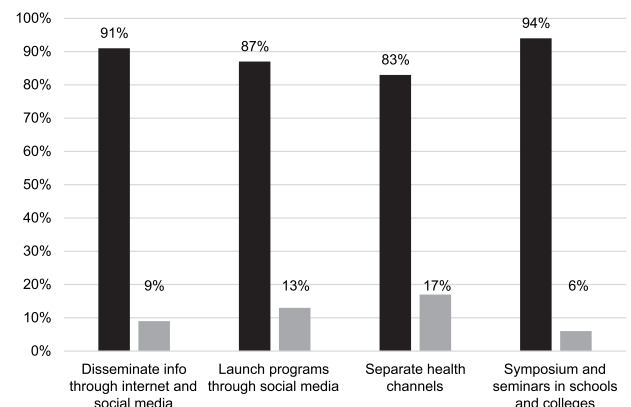


Figure-4. Perception of people about impact of social media in creating awareness

DISCUSSION

The basic purpose behind designing our study was to assess the role of social media regarding use of antibiotics in Khanna Daak population, Islamabad. This study was questionnaire based, designed to interpret the knowledge and safe use of antibiotics and impact of social media in usage of antibiotic and creating awareness about misuse of antibiotics.

It was clear that vast majority of participants were familiar with the term “antibiotic”, but only some of them understand that antibiotics are useful specifically against bacterial infection. This may be credited to non-comprehensive communication, during treatment, physician’s use the general term like infection rather than specifically mentioning bacteria. That’s why,

individuals do not understand the difference between bacteria, virus and fungi. Similar results were shown in a study conducted in Riyadh, in which only 38% understand that antibiotics were effective for bacterial infection, other participants believed that antibiotics worked on viruses, on cold and can cure cough.⁷ A study in Damascus, in which questionnaire posted on different social media platforms concluded that antibiotics were majorly used for bacterial infections.⁸

Moreover, the present study revealed that only 26% used antibiotics advised by doctor, 46% purchase antibiotics from medical store nearby their house without prescription. It clearly shows that antibiotics can be bought easily from medical store without any prescription from either nearby medical store or pharmacy indicating the irresponsible behavior and malpractice of pharmacists. Related results were seen in a study conducted in Karachi, where only 47.5% seek advice from health care professionals. Whereas in a study conducted in Riyadh, 69.7% of participants reported self-prescribed antibiotic use.⁹

Social media is significant factor in showing public knowledge and behavior. In health care sector also, social media and internet has immersed greatly resulting in benefit of the society, not only by retrieving information regarding health care but also by sharing and promoting health prevention strategies.^{10,11}

In our study majority of the participants were familiar with using computer and internet and 69% seek health related information from internet, 59% read about harmful effects of antibiotics on different social media platforms and agreed upon unnecessary use of antibiotics is harmful for health and that incomplete course can lead to resistance. Similarly in a data source published in Europe it was found that internet was most used for health related information search.¹²

In our study 78% agreed upon the fact that sharing personal experience on social media platforms can attract people to buy antibiotics. In concordance a study conducted in Pakistan

shows that people are making their acquaintances aware of healthcare information through the internet and social media.¹³

A study in Italy also concluded the same results that internet and social media are extensively used for antimicrobial information search in Italian population. Most of participants used the internet to explore information about antimicrobial use. Social network users conveyed that they use these mediums to seek knowledge about antibiotics also through instant messaging app, exchange information about antibiotics.^{14,15}

Perceived barriers were also highlighted by the participants such as prescription fee, lack of time and same medication will be given by doctor and only single or double dose alleviates the symptoms, which has also been identified by some national and international studies.¹⁶

Lastly we also tried to identify the modes of change in attitudes of participants towards the use of antibiotics through internet use, according to which 91% said that if information regarding antibiotics is made available through internet and social media, then they will get to know about antibiotics advantages and it will change the attitude towards unjustified use.

In order to increase the knowledge about safe use of antibiotics and awareness regarding antibiotic resistance majority of the respondents think that health related programs and information should be disseminated in our community and also agreed on launching of separate health channel. To improve the knowledge, attitude and behavior of our youth toward antibiotics, participants think that information regarding antimicrobial resistance should be a part of curriculum practice. Seminars and symposiums should also be arranged to instill information.

As health related information on social media and internet can be misconceived, as a result can effect the outcomes of health.¹⁷ Hence it should be kept in mind while using such resources that such media are properly used, in order to prevent the spread of erroneous communication. National

guidelines should be devised in light of the international recommendations for appropriate approach.¹⁸

CONCLUSION

Study concludes that although most participants were familiar with the term “antibiotic” but they do not have sufficient knowledge and understanding concerning the safe use of antibiotics. There is increase consumption of self-administered antibiotics for sale on internet and social media. Majority of the participant also think that internet and social media are the best source to spread information for safe use but there is still vast majority of people who have yet to know about it.






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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Asma Abdul Qadeer	Principal/corresponding author, Study conception and design, Data collection, Data analysis, Interpretation of results, Reviewed the results and approved the final version of the manuscript, Guarantor of the article for accuracy of data.	
2	Rabia Mahmood	Draft manuscript preparation, Reviewed the results and approved the final version of the manuscript.	
3	Saadia Baran	Critical revision of the article for important intellectual content.	
4	Sara Bashir Kant	Critical revision of the article for important intellectual content, Reviewed the results and approved the final version of the manuscript.	
5	Nida Badar	Draft manuscript preparation, Reviewed the results and approved the final version of the manuscript.	
6	Bushra Liaqat	Data analysis, Statistical expertise, Reviewed the results and approved the final version of the manuscript.	