

**Assessment of Awareness and Understanding of Online Pharmacy Services among Dentists and Patients**

<sup>1</sup>Dr. Anup N, HOD, In Charge Principal, Department of Public Health Dentistry, Jaipur Dental College

<sup>2</sup>Dr. Vikas Jeph, Principal, Department of Public Health Dentistry, Jaipur Dental College

<sup>3</sup>Dr. Anchal, MDS Final Year, Department of Public Health Dentistry, Jaipur Dental College

<sup>4</sup>Dr. Swasti Tambi, Professor, Department of Public Health Dentistry, Jaipur Dental College

<sup>5</sup>Dr. Rahul Agarwal, MDS Final Year, Department of Public Health Dentistry, Jaipur Dental College

<sup>6</sup>Dr. Shruti Madhuri Sarma, Senior Lecturer, Department of Public Health Dentistry, Geetanjali Dental And Research Institute, Geetanjali University

**Corresponding Author:** Dr. Anup N, HOD, In Charge Principal, Department of Public Health Dentistry, Jaipur Dental College

**Citation of this Article:** Dr. Anup N, Dr. Vikas Jeph, Dr. Anchal, Dr. Swasti Tambi, Dr. Rahul Agarwal, Dr. Shruti Madhuri Sarma, “Assessment of Awareness and Understanding of Online Pharmacy Services among Dentists and Patients”, IJDSIR- August – 2025, Volume – 8, Issue – 4, P. No. 200 – 210

**Copyright:** © 2025, Dr. Anup N, et al. This is an open access journal and article distributed under the terms of the creative common’s attribution non-commercial License. Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given, and the new creations are licensed under the identical terms.

**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

**Abstract**

**Introduction:** Agenda of these online pharmacies is to provide handy and reasonably priced medicines to consumers with a guaranteed safety and security but intentionally or unintentionally doing of wrong things cannot be ruled out. As dentists in close contact with pharmacy business a comparison with patients was in a need, to know their perspective towards online pharmacy.

**Aim of the study:** To Assess the awareness and understanding of Online Pharmacy Services among Dentists and Patients

**Material and Methods:** The data was collected through a close ended pre tested and validated questionnaire consisting of 20 questions, dentists were approached through emails and social media platform whereas

patients filled the form themselves at reception area of different private clinics of Alwar City.

**Results:** In this study out of all participants, 56.92 % of dentists 55.88% of patients were employed. Out of all the dentists 45.38 % were graduated and 54.62 % had completed their post-graduation. 48.53 % of patients had completed their degree after schooling. More number of dentists think purchasing dental medicine through online pharmacy would be safe as results of this question was statistically significant ( $p < 0.05$ ).

**Conclusion:** To conclude we can say that positive perception on online pharmacy mode clearly depends on a socio demographic status of a person irrespective of what occupation he belongs too.

**Keywords:** Dentist, Patients, Online Pharmacy, Discernment, Acquaintance

### **Introduction**

Since the notion and mechanism of illnesses have been a subject of continuous research for many years, it might be difficult to analyse <sup>1</sup>. To treat a variety of illnesses, even fatal ones, societies have created a number of therapeutic approaches, frequently combined <sup>2</sup>. Using pharmaceuticals and medicines, which are chemical substances intended to treat, prevent, or mitigate diseases, is one of the most popular approaches. Since ancient times, medicine has been used to treat and cure diseases, and new developments in medication creation have greatly aided medical professionals in treating and saving lives. It can be challenging to keep track of all the drugs available because sometimes it seems like there are more of them than there are illnesses to cure. These medications are available from a number of locations, such as retail establishments, pharmacies, and hospitals. The emergence of internet pharmacies, which enable quick medication purchases from home, is a recent development in this field.

Online pharmacies provided a limited range of therapies and were mostly run through postal orders in the early 19th century. But with the expansion of the internet, online pharmacies today provide several benefits, including free shipping, fast access, discounts, and, in certain situations, prescription-free or prescription-free drugs. Online pharmacies are now more accessible and reasonably priced than traditional brick-and-mortar pharmacies as a result of these considerations <sup>3</sup>.

Notwithstanding the advantages, it's critical to understand that when safety is an issue, healthcare shouldn't be too readily available. Online pharmacies strive to offer safe and reasonably priced prescription drugs, but there are risks—intentional or not—involved.

Online pharmacies, like any system, have advantages and disadvantages that should be carefully evaluated <sup>4-5</sup>.

Dentists are heavily involved in the pharmaceutical process and prescribe a variety of medications as part of their clinical practice. Therefore, it is essential to comprehend the opinions of patients and dentists regarding internet pharmacies, especially with regard to features, hazards, and concerns. This study intends to investigate and contrast dentists' and patients' knowledge and comprehension of online pharmacy services in Alwar City.

### **Material & Methods**

The present cross sectional comparative study was conducted among the dentists and patients in Alwar city during the month of August and September 2024. Ethical approval to conduct the study was obtained from the institutional ethical committee. Written informed consent was obtained from the participants after explaining them the aim and objectives of the study.

20 closed-ended questions that were pre-tested <sup>6</sup> and validated were used to assess patients' and dentists' behavioural attitude, knowledge, and perceptions of internet pharmacies. In order to get input on the questionnaire's overall acceptability in terms of its length and linguistic clarity, a convenience sample of 20 dentists and 20 patients were interviewed. Their comments indicated that there was nothing wrong with the questionnaire. The questionnaire's internal reliability was demonstrated by the Cronbach coefficient, which was 0.80. Additionally, about 90% of patients who answered the survey were unaware <sup>3</sup> of internet pharmacies. Based on these findings, the sample size was estimated. There are 139 dentists in the entire sample, and the same number of patients. The questionnaire was of twenty questions which contain the participants' sociodemographic information (gender) and professional

background data (occupation, education, and employment) and to assess patients' and dentists' behavioural attitude, knowledge, and perception of internet pharmacies using a Likert scale.

Patients filled out the form on their own at the reception areas of several private clinics in Alwar city, while dentists were contacted via emails and social media platforms for the purpose of gathering data. A total of 266 forms were filled out, of which 136 were filled by patients and 130 were filled out by dentists. Due to incompleteness or non-return, the remaining forms were not included in the study.

**Statistical Analysis:** The data were statistically analyzed by using IBM SPSS (version 20.0. Armonk, NY: IBM Corp). The statistical analysis was determined by the chi-square test; fisher exact test with level of significance which was set at  $p < 0.05$ .

**Results**

The study included 130 dentists and 136 patients. The mean age of dentists was  $36.75 \pm 10.21$  years, while that of patients was slightly younger at  $30.45 \pm 11.35$  years. Among dentists, males comprised 63.08% and females 36.92%, whereas among patients, 55.88% were male and 44.12% female. This distribution highlights a predominantly male sample across both groups, with dentists generally being older than patients (Table 1).

In this study out of all participants, 56.92 % of dentists 55.88% of patients were employed. Out of all the dentists 45.38 % were graduated and 54.62 % had completed their post-graduation. 48.53 % of patients had completed

**Legend Tables and Graphs**

Table 1: Demographic Details of Respondents

Demographic	Dentists	Patients
Age (Mean $\pm$ SD)	36.75 $\pm$ 10.21	30.45 $\pm$ 11.35
Gender N (%)		
Male	82 (63.08)	76 (55.88)
Female	48 (36.92)	60 (44.12)

their degree after schooling. A chi-square & Fisher's exact test of independence was performed to examine the relation between exposed groups (dentists and patients) and their employment & education level. The relation between these variables was significant, i.e.  $p$  value  $< 0.05$ . (Table 2) Out of all the 266 respondents in which 130 were dentists and 136 were patients, only 37.59% of respondents had used online pharmacy for ordering dental drugs out of which 44.62% were dentists and 30.88% were patients. When comparison was done on basis of buying medicine from online pharmacy in future than 60% of dentists and 36.03% of patients said that they will buy medicine from online pharmacy in future. Only 43.08% of dentists and 28.68% of patients know the rules and regulations regarding online pharmacy in India. More than 50% of dentists and patients agreed that there are illegal websites for selling drugs on internet. 36.92% of dentists and 19.86% of patients disagree to the statement that there is an uncertainty about timely delivery of medicines. 12.31% dentists and 52.21% patients agreed that these websites are operated from outside India. The results were found statistically significant ( $p < 0.05$ ) A notably higher percentage of patients (52.21%) believed that online pharmacies are run abroad, compared to only 12.31% of dentists ( $p < 0.001$ ). Similarly, the belief that prescriptions are not required for purchase and concerns about delivery uncertainties showed significant group-wise variation ( $p < 0.001$  and  $p = 0.084$  respectively). (Table 3)

Table 2: Employment and Education Status of Dentist and patients

Employment					
Group		Frequency	Percent	Chi square	P value
Dentists	Unemployed	56	43.08	8.9571	.002764
	employed	74	56.92		
	Total	130	100.0		
Patients	unemployed	60	44.12		
	employed	76	55.88		
	Total	136	100.0		
Education					
Group		Frequency	Percent	Fisher's exact test	P value
Dentists	intermediate	0	0	85.714	<0.001
	graduation	59	45.38		
	Post-graduation	71	54.62		
	Total	130	100.0		
Patients	intermediate	66	48.53		
	graduation	54	39.70		
	Post-graduation	16	11.77		
	Total	136	100.0		

Table 3: Responses of participants towards each question

Question	Responses	Group		Chi square	P value
		Dentists N (%)	Patients N (%)		
Medicine Purchase experience of participants					
Have you ever used an online pharmacy for ordering drugs	Yes	58 (44.62%)	42 (30.88%)	5.343	0.02
	No	72 (55.38%)	94 (69.12%)		
Do you think purchasing dental medicine through online pharmacy would be safe	Yes	56 (43.08%)	39 (28.68%)	6.003	0.014
	No	74 (56.92%)	97 (71.32%)		
What is your opinion about the following					
Would u like buy medicine through online pharmacy in future	Yes	78 (60%)	49 (36.03%)	15.307	<0.001
	No	52 (40%)	87 (63.97%)		
Are you in favor of uploading prescription on website of online pharmacy	Yes	82 (63.08)	76 (55.88)	11.250	0.232
	No	48 (36.92)	60 (44.12)		
Do you know what regulations	Yes	56 (43.08%)	39 (28.68%)	6.003	0.014

regarding online pharmacies in India	No	74 (56.92%)	97 (71.32%)		
Do you recommend this service(online pharmacy) in the region?	Yes	58 (44.62%)	42 (30.88%)	5.343	0.02
	No	72 (55.38%)	94 (69.12%)		
Attractive Features of online pharmacy					
Website provide medicines that are not easily available	Agree	64 (49.23%)	50 (36.76%)	5.452	0.065
	Neither agree nor disagree	16 (12.31%)	28 (20.59%)		
	Disagree	50 (38.46%)	58 (42.65%)		
Online pharmacies provide better prices and easy access to drug information.	Agree	72 (55.39%)	78 (57.35%)	16.749	<0.001
	Neither agree nor disagree	10 (7.69%)	31(22.79%)		

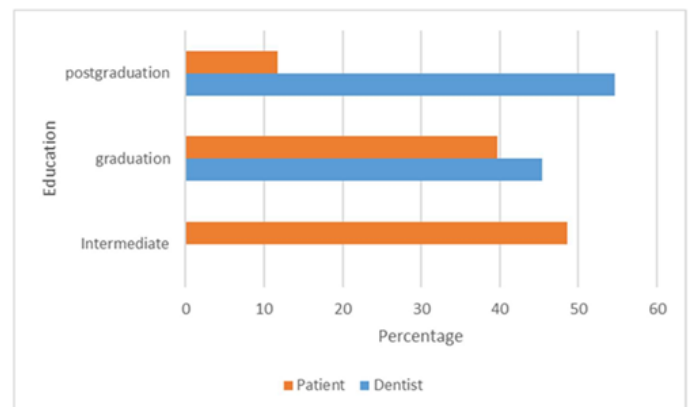
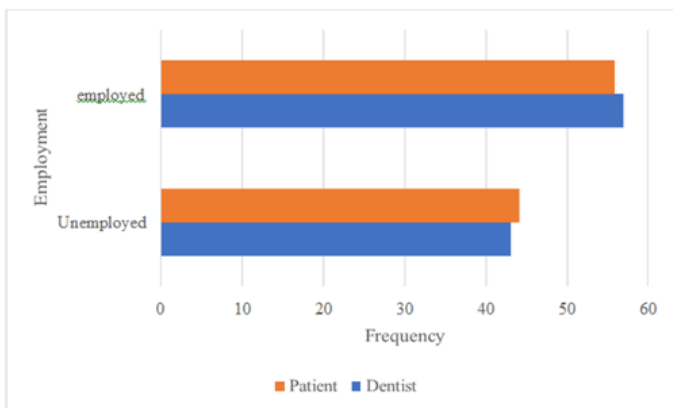
Do online pharmacies provide Door step delivery in less than 24hrs and Choices of delivering medicines at a chosen delivery times and address (remote areas, older people)	Disagree	48 (36.92%)	27 (19.86%)	15.253	<0.001
	Agree	10 (7.69%)	31 (22.79%)		
	Neither agree nor disagree	72 (55.39%)	78 (57.35%)		
They give Personalize medicine reminder services to customers	Disagree	48 (36.92%)	27 (19.86%)	4.852	0.072
	Agree	64 (49.23%)	50 (36.76%)		
	Neither agree nor disagree	16 (12.31%)	28 (20.59%)		
Concern regarding online pharmacy					
There is illegal website for selling drugs online on internet	Disagree	48 (36.92%)	27 (19.86%)	16.749	<0.001
	Agree	72 (55.39%)	78 (57.35%)		
	Neither agree nor disagree	10 (7.69%)	31 (22.79%)		
They provide medicines which are Substandard, counterfeit or illegal	Disagree	16 (12.31%)	71 (52.21%)	24.162	<0.001
	Agree	48 (36.92%)	20 (14.71%)		
	Neither agree nor disagree	66 (50.77%)	45 (33.08%)		

Is there a Chance of ordering wrong medicines on online pharmacies	Agree	72 (55.39%)	78 (57.35%)	6.749	<0.001
	Neither agree nor disagree	10 (7.69%)	31 (22.79%)		
	Disagree	48 (36.92%)	27(19.86%)		
Risk Characteristics for online pharmacy					
Online pharmacy is being operated through abroad (outside India) only	Agree	16 (12.31%)	71 (52.21%)	50.162	<0.001
	Neither agree nor disagree	48 (36.92%)	20 (14.71%)		
	Disagree	66 (50.77%)	45 (33.08%)		
These website does not ask for upload of prescription	Agree	48 (36.92%)	27 (19.86%)	32.521	<0.001
	Neither agree nor disagree	72 (55.39%)	78 (57.35%)		
	Disagree	10 (7.69%)	31 (22.79%)		

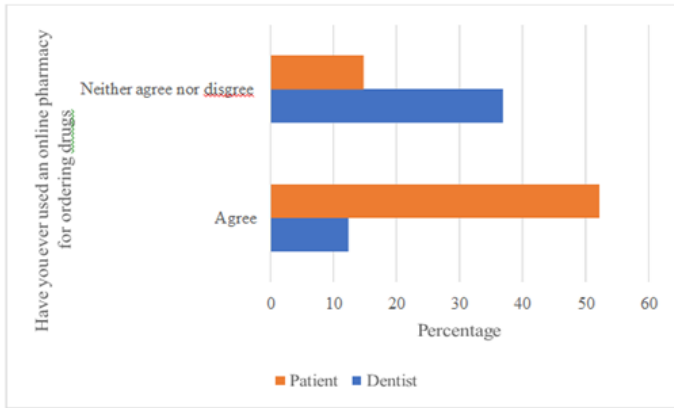
There is always an Uncertainty about timely delivery of the medicine	Agree	64 (49.23%)	50 (36.76%)	6.542	0.084
	Neither agree nor disagree	16 (12.31%)	28 (20.59%)		
	Disagree	50 (38.46%)	58 (42.65%)		

Graph 2: Education status of dentist and patients

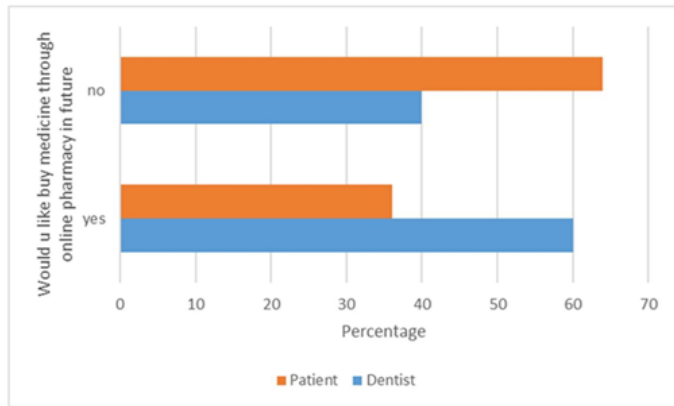
Graph 1: Employment Status of the dentist and Patient



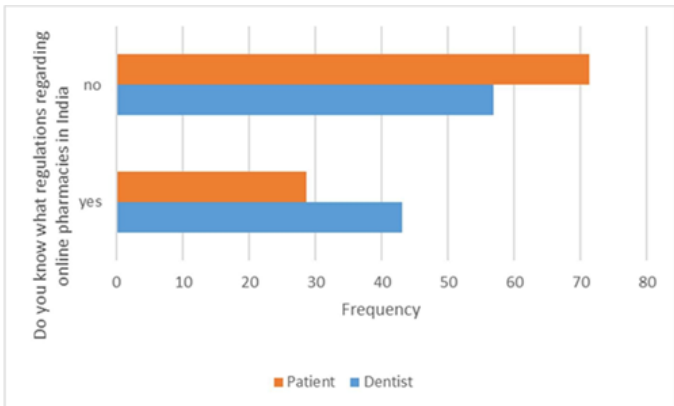
Graph 3: Q1 Response Have you ever used an online pharmacy for ordering drugs



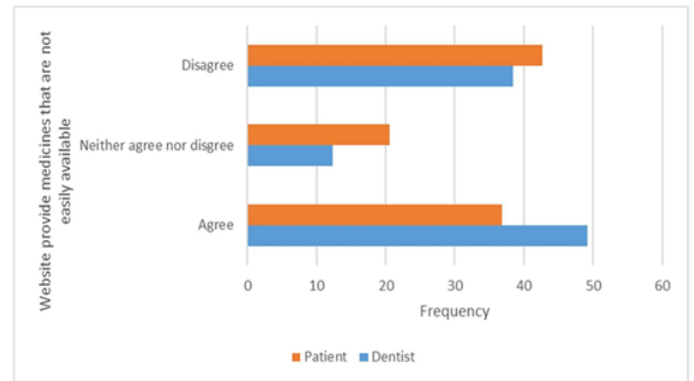
Graph 4: Q2 response Would u like buy medicine through online pharmacy in future



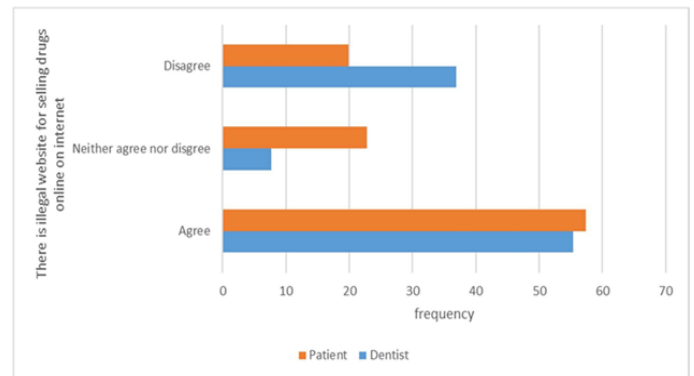
Graph 5: Q3 Responses Do you know what regulations regarding online pharmacies in India



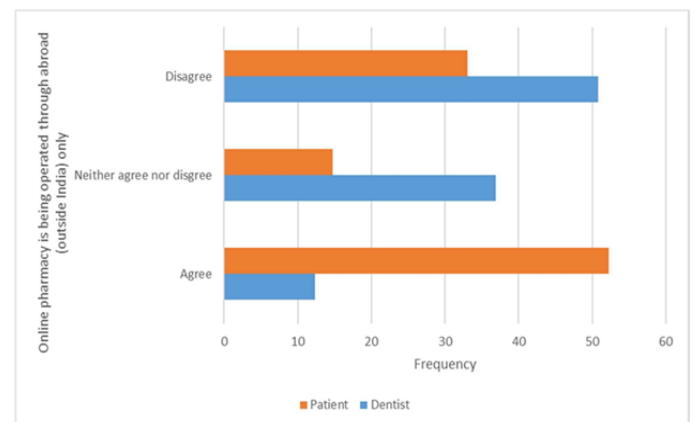
Graph 6: Q4 Responses Website provide medicines that are not easily available



Graph 7: Q5 Responses There is illegal website for selling drugs online on internet



Graph 8: Q6 Reponses Online pharmacy is being operated through abroad (outside India) only



## **Discussion**

Nowadays, buying medications from internet pharmacies is the newest trend. Online pharmacies are growing rapidly as a result of these factors. However, it should be highlighted that there aren't many research in the literature that compare and examine how patients and dentists view and understand internet pharmacies. The current study is primarily conducted to evaluate and assess patients' and dentists' perceptions and familiarity with online pharmacy services due to a dearth of existing literature.<sup>11</sup>

Less than half of the participants in our study were unemployed and had no income on an individual basis, which is comparable to a study by Abanmy N<sup>12</sup>. According to Sah et al. (2008)<sup>11</sup>, over two-thirds of respondents had earned a degree or diploma, which is consistent with our findings.

Similar to our study, Pal S et al.<sup>13</sup> determined in 2015 that over two-thirds of respondents do not purchase medications from online pharmacies. Compared to the patient group, more dentists out of the left respondents had used these services to buy medications. This was owing to the presumption that, as a result of their occupation, dentists were more knowledgeable about these services.

Similar to our study in the case of dentists, Sah et al.<sup>11</sup> found that a larger percentage of respondents who had not previously purchased medications online were interested in doing so in the future. This is in contrast to patients who were not seen to be very motivated.

The majority of participants in this study concurred that characteristic such as more affordable and conveniently accessible drug information, doorstep delivery within 24 hours, and discounts on medications, as well as personalised medication reminder services and easy access to medications, draw people to online pharmacies.

These results are consistent with prior research where consumers cited expediency-related aspects as illustrative considerations for online pharmacies.<sup>8</sup> In contrast to a study by Pal S et al.<sup>13</sup>, which found that 51.8% of respondents agreed that online services provide medications that do not meet standards, over one-third of patients and dentists disagreed with the statement that these online sites provide illegal or counterfeit medications due to stricter rules and regulations and government oversight of these sites.

Similar to a study by Pal S et al.<sup>13</sup>, gender had no influence on the purchase or use of online pharmacies and their services. As these three factors determine an individual's existence in the current state of affairs, employment, education, and occupation all have an impact on people's perceptions and ways of thinking.

Drug sales are governed under the 1940 Drugs and Cosmetics Act and the 1945 Drugs and Cosmetics Rules. At the moment, online and offline pharmacies are not distinguished by Indian pharmacy regulations. In an effort to legalise online medicine sales throughout India and give patients access to authentic medications from reputable online portals, the Union Health Ministry of India released draft regulations on the sale of medications by e-pharmacies and online pharmacies on August 28, 2018<sup>14</sup>.

## **Limitations**

There are some limitations to the study as it was a cross-sectional study done in a single city and hence results cannot be generalized with universal population of country.

## **Conclusion**

Although we live in the twenty-first century, we would like to point out that technology is becoming more advanced every day, not just in the area of health but in every aspect of human requirements. Residents are drawn

to the idea of online pharmacies, but they are still mostly unaware of the laws and regulations governing these services, as well as the advantages and disadvantages of using them. Compared to patients, dentists are more concerned, knowledgeable, and have a more favourable opinion of this subject because they work in the medical field themselves. However, regardless of a person's work, it is evident that a positive opinion of internet pharmacies depends on their sociodemographic level. As public health dentists, we would advise patient education and group discussions on this subject to advance knowledge and foster a good attitude in our patients.

### **Reference**

1. Ursano RJ, Disease and illness: prevention, treatment, caring, and health. *Prev Chronic Dis.* 2011; 8(6): A128.
2. Haidan Yuan, Qianqian Ma, Li Ye and Guangchun Piao, The Traditional Medicine and Modern Medicine from Natural Products. *MDPI.* 2016; 21(559):3
3. Desai C. Online pharmacies: A boon or bane?. *Indian J Pharmacol.* 2016; 48(6): 615– 616.
4. Alfahad N, Albelali MT, Khurshid FM, Al-Arifi MN, Al-Dhawailie AA, Alsultan M S. Perception and Knowledge to Online Pharmacy Services among Consumers in Riyadh, Saudi Arabia: a Pilot Survey. *Lat. Am. J. Pharm,* 2015; 34 (6): 1113-8
5. Asop foundation pharmacy. Retrived from <https://asopfoundation.pharmacy/wpcontent/uploads/2017/08/ASOP-White-Paper-Final.pdf> [ last accessed on 12/10/2024].
6. Sharma A, Sharma K, Neemawat K, Sharma L, Pilia D. Concurrent prescribing: Evaluation of its knowledge among dentists. *Natl J Maxillofac Surg* 2019; 10: 73-7.
7. Hajj A, Hallit S, Azzo C, Abdou F, Akel M, Sacre H, Salameh P, Khabbaz LR. Assessment of knowledge, attitude and practice among community pharmacists towards dental care: A national cross-sectional survey. *Saudi Pharmaceutical Journal.* 2019; 27(4): 475-83.
8. Loo J, Greaves G, Lewis PJ. Exploring patients' pharmacy stories: an analysis of online feedback. *International journal of clinical pharmacy.* 2021; 43(6): 1584-93.
9. Hertig JB, James SM, Hummel CJ, Rubin MJ. Evaluation of pharmacists' awareness of illegal online pharmacies and perceived impact on safe access to medicines. *Medicine Access@ Point of Care.* 2021; 5: 23992026211005642.
10. Manoliu-Hamwi EM, Dascalu CG, Carausu EM, Zegan G, Stan CD. Patient Satisfaction with Online Pharmacy Services. In 2022 E-Health and Bioengineering Conference (EHB) 2022; 17: 1-4.
11. Saha RK, Chandanea RD, Suranagia U, Manochab S, Kapura A and Hothaa P. Awareness and Behavioural Outlook Towards Online Pharmacy Services Among Consumers In Delhi, India: A Pilot Survey. *EJPMR* 2018;5(3), 552-557
12. Abanmy N. The extent of use of online pharmacies in saudiarabia. *Saudi Pharm J.* 2017; 25: 891-899
13. Pál S, László K, András F, Gabriel H, Hajnal F, Adriana C Et Al. Attitude Of Patients And Customers Regarding Purchasing Drugs Online. *FARMACIA.* 2015; 63(1): 93-98
14. Wikipedia.org. Retrived from [https://en.wikipedia.org/wiki/Online\\_pharmacy\\_laws\\_in\\_India](https://en.wikipedia.org/wiki/Online_pharmacy_laws_in_India) [ last accessed on 26/10/2024]



19. There is always an Uncertainty about timely delivery of the medicine

- a. Agree                      b. Neither agree nor disagree                      c. Disagree

20. Online pharmacies are being operated from abroad (outside India) only

- a. Agree                      b. Neither agree nor disagree                      c. Disagree