USAGE AND IMPACT OF E-RESOURCES IN DIGITAL ERA: SPECIAL REFERENCE TO PHARMACY COLLEGES OF TUMKUR CITY, KARNATAKA

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ABSTRACT

This research study investigates the utilization and impact of e-resources among users in pharmacy colleges located in Tumkur City, Karnataka State. The study aims to examine the extent of e-resource usage, explore the purposes for which e-resources are employed, and assess the satisfaction levels associated with their utilization. A quantitative research design was employed, and a total of 180 participants, including 124 faculty members and 1161 students from eight pharmacy colleges were selected. Data collection was carried out through a questionnaire distributed to potential participants, with 180 respondents providing valuable insights. .

KEY WORDS: E-resources, On-line resources, Status of e-resources, Impact of e-resources, Pharmacy Colleges, Digital Libraries, Pharmacy Databases, Pharmacy E-Books, Pharmacy E-Journals

1. INTRODUCTION

In this modern information age, resources like e - books, e - journals, online databases, digital reference sources, digital bulletins, e- reports, etc. are finding their way into the higher education system. As a crucial component of the higher education system, academic libraries must acquire pertinent information sources and make them easily accessible to the groups who will utilize them in the future. Information is represented electronically via electronic resources. They come in a variety of formats, including electronic books, digital libraries, online journals, e-learning tutors, and online assessments. These electronic resources have developed into significant and useful informational resources as a result of their effective presentation using multimedia competences. Full text databases, e-journals, images, multimedia on CD, tape, the internet, web technologies, e-discussions, e-news, data archives, e-mail, and even online chatting are examples of electronic resources that contribute to the collecting of information in libraries. E-resources are practical to

utilize and greatly simplify study. Through the use of search engines rather than human library searches, they make it possible to find information more quickly.

2. REVIEW OF LITERATURE

Shashikala and Srinivasaragavan (2019) conducted a study on the use of E-resources (e-books, e-journals, e-databases subscribed by Health Science Library and Information Network, HELINET Consortium and ERMED Consortium) They found that most of the teaching faculty and PG students preferred to search Google and Yahoo as search engine for their information search requirements. At the same time, they consulted Pub Med and Science Direct and Ovid publisher's journal databases to access E-resources.

Das (2020) carried out a study to know the status of use of e-resources by the users of Gauhati Medical College and Hospital (GMCH), Guwahati, Assam. The study explored that most of users used e-resources for teaching and study purposes, they used Pubmed databases and prefer pdf. format during searching.

Olum et al (2020) aimed to assess the awareness, attitudes, preferences, and challenges to e-learning among Bachelor of Medicine and Bachelor of Surgery (MBChB) and Bachelor of Nursing (B.NUR) students at Makerere University, Uganda. Authors opined that Blended online and use of offline downloadable learning materials would overcome the challenges related to the variable quality of internet access in the country.

Devi and Keshava (2021) provided an overview of the utilization of e-resources by the users of 23 Ayurvedic Medical College libraries of North Karnataka. The study found that the users were not much aware about the availability of the e-resources in the library, and they feel the need of training in using these e-resources.

Shashikala and Reddy (2021) this paper examines the utilization pattern of e-resources by faculty of the Kempegowda Institute of Medical Sciences (KIMS) Bangalore. The paper highlighted the usage of different types of e-resources in health sciences, and also the application of web browsers and search engines in this context by the faculty members of KIMS. The levels of satisfaction among faculty members of KIMS towards the E-resources and barriers in using E-resources have been identified in this study.

Urstad et al (2021) found the usability and value for learning of e-compendiums shared and implemented across three European universities. The authors argued that, when sharing e-learning resources across

countries, an adaptation and translation process that includes a multicultural and multidisciplinary perspective should be carried out.

AlJasser et al (2022) conducted a cross-sectional among health science students at King Saud University, Saudi Arabia. The authors found that the e-learning resources had a significant impact on participating students' education as they were used very frequently during their health sciences' courses.

Taher et al. (2022) found the degree of satisfaction and perceived barriers among college students with E-learning. An online survey questionnaire was used to assess student perceptions of the level of satisfaction with and barriers to E-learning. Participants' non-identifying demographics were also collected.

Ankamah, Gyesi and Amponsah (2022) identified the use of electronic resources in research and learning in a health sciences library in Ghana. The study found that the computer literacy skills of users have a positive relationship with the awareness of e-resources.

After reviewing the literature, it was identified that only few studies were conducted on the use of e-resources its impact on the pharmacy students and faculties. It was also found that none of the studies have been carried on use of e-resources and its impact on the students and faculties of pharmacy colleges in Tumkur districts, Karnataka. Therefore, the present study has been undertaken to investigate the use and impact of e-resources on the students and faculty members of pharmacy colleges in Tumkur district.

3. OBJECTIVES OF THE STUDY

The following are the primary goals of the current study:

- To assess the current usage patterns of e-resources among faculty and students in Pharmacy Colleges of Tumkur City, Karnataka State.
- To identify the types and sources of e-resources commonly utilized by faculty and students in Pharmacy Colleges of Tumkur City.
- To evaluate the effectiveness and impact of e-resources on teaching and learning outcomes in Pharmacy education.
- To examine the perceived benefits and challenges associated with the use of e-resources by faculty and students in Pharmacy Colleges.
- To enhance the overall quality of pharmacy education and promote the digital literacy skills of faculty and students through the effective integration of e-resources.

4. HYPOTHESES OF THE STUDY

The following null hypotheses were formulated and tested using ANOVA statistical tool

H1 - The group's opinions on how the internet affects academic activities are not significantly different from one another.

H2 – There are no significant differences among the viewpoints of users who prefer using various e-resource types.

H3: The degrees of satisfaction with e-resources are not significantly different from one another.

H4 – There is no appreciable difference between the satisfaction and e-resource usage levels.

5. METHODOLOGY

This study aimed to investigate the use and impact of e-resources by faculty and students of Pharmacy Colleges in Tumkur City, Karnataka State. There were 8 pharmacy colleges (**See Appendix**) selected in Tumkur city and the total student's population was 1161 including undergraduate and post-graduates and faculty population was 124. A total of 180 participants was selected for this study. To achieve this, 200 questionnaires were distributed among potential participants. The study utilized a quantitative research design to gather data and analyze the use and impact of e-resources. A survey questionnaire was used to collect data from the participants.

   A stratified random sampling technique was employed to select the sample. The total population of 1161 individuals were divided into strata based on faculty and students. From each stratum, participants were randomly selected to ensure representation from both faculty and students. A structured questionnaire was developed based on existing literature and previous studies related to e-resource utilization. The questionnaire consisted of multiple-choice and Likert scale questions. It was designed to assess the frequency of e-resource usage, perceived impact on teaching and learning, challenges faced, and suggestions for improvement. A total of 200 questionnaires were distributed among the selected participants. The questionnaires were handed out personally to ensure a high response rate. Participants were provided with a cover letter explaining the purpose of the study, assurance of confidentiality, and

instructions for completing the questionnaire. The data collection process took place over a defined period. Participants were given adequate time to complete the questionnaires and return them. Reminders were sent to encourage participants to submit the completed questionnaires promptly.

The collected data were analyzed using statistical software. Descriptive statistics, such as frequencies and percentages, were calculated to summarize the participants' responses. The study adhered to ethical guidelines. Participants' informed consent was obtained before their participation. Confidentiality and anonymity of the participants' responses were ensured throughout the research process.

Data analysis and interpretation

Table 1: Gender-Wise Distribution of Respondents

Gender	No. of Respondents	Percentage
Male	98	54%
Female	82	46%
Total	**180**	**100%**

Table-1 shows the gender-wise distribution of the respondents. There were 180 respondents, of whom 98 (54.44%) were male and 82 (45.56%) were female. The study was adequately represented by both male and female categories who could use the library's e-resources for a variety of purposes.

Table 2: Academic Status-Wise Distribution of Respondents

Academic Status	No. of Respondents	Percentage
Faculty Members	21	11.67
Students	159	88.33
Total	**180**	**100.00**

Table-2 shows that the academic status-wise distribution of the respondents. There were 180 respondents, of whom 21(11.67%) were faculty members and 159 (88.33%) were students.

Table 3. Statements of the respondents regarding e-resources

Table 3 the purpose of the question was to determine whether the respondents' educational pursuits had benefited from their use of the internet. 7 uplifting statements are included in the question. There were 5

groups formed to receive the respondents' opinions. The majority of respondents (51.75%) firmly agreed that the internet had a beneficial impact on their studies, however some (32.06%) were neutral about the claims and fewer (16.19%) answered negatively. Full details you can find in the below table.

Table 3. Statements of the respondents regarding e-resources

Statements		SA	AG	UN	DA	SD	TOTAL
I feel information sources on Internet like audio, video lectures are more useful for my studies	NR	43	61	53	11	12	180
	%	23.89%	33.89%	29.44%	6.11%	6.67%	100%
Use of internet enables me to get the needed information quickly	NR	45	79	31	16	9	180
	%	25.00%	43.89%	17.22%	8.89%	5.00%	100%
Use of internet has increased my academic productivity	NR	48	62	37	25	8	180
	%	26.67%	34.44%	20.56%	13.89%	4.44%	100%
Use of internet has increased my chance of getting better grade	NR	19	55	83	19	4	180
	%	10.56%	30.56%	46.11%	10.56%	2.22%	100%
Use of internet has decreased the dependency on print sources	NR	33	20	84	12	31	180
	%	18.33%	11.11%	46.67%	6.67%	17.22%	100%
Improved quality of work	NR	37	67	48	21	7	180
	%	20.56%	37.22%	26.67%	11.67%	3.89%	100%
Use of Internet allows me to remain well informed in subject information	NR	26	57	68	13	16	180
	%	14.44%	31.67%	37.78%	7.22%	8.89%	100%
TOTAL	NR	251	401	404	117	87	1260
	%	19.92%	31.83%	32.06%	9.29%	6.90%	100%
MEAN/AVERAGE	A	35.86	57.29	57.71	16.71	12.43	180
ANOVA - VARIENCE	AV	112.1429	332.9048	449.2381	26.90476	81.61905	

Note: SA=Strongly Agree AG=Agree   UN=Uncertain DA=Disagree   SD=Strongly Disagree

Table 3.1 Impact of Internet on user academic activities

ANOVA one-way result					
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	12965.14	4	3241.286	16.16102	3.68E-07	2.689628
Within Groups	6016.857	30	200.5619			
Total	**18982**	**34**				

Table 3.1 displays the P-value for the ANOVA test is 3.68E-07. The probability value (P) is more than 0.05 Thus the difference is significant. H1 has been rejected.

Table 4: What type of E-resources do you prefer to use the most?

E- Resources	NR / P	Most Frequently	Frequently	Uncertain	Less Frequently	Don't use	TOTAL
E-books	NR	23	61	63	21	12	180
	%	12.78%	33.89%	35.00%	11.67%	6.67%	100%
E-journals	NR	35	89	17	31	8	180
	%	19.44%	49.44%	9.44%	17.22%	4.44%	100%
E-databases	NR	42	67	28	36	7	180
	%	23.33%	37.22%	15.56%	20.00%	3.89%	100%
E- Abstracts & Indexes	NR	19	55	83	19	4	180
	%	10.56%	30.56%	46.11%	10.56%	2.22%	100%
E-Theses/Dissertations	NR	38	15	84	12	31	180
	%	21.11%	8.33%	46.67%	6.67%	17.22%	100%
E-news paper	NR	99	30	10	23	18	180
	%	55.00%	16.67%	5.56%	12.78%	10.00%	100%
E-magazines	NR	15	52	82	25	6	180
	%	8.33%	28.89%	45.56%	13.89%	3.33%	100%
Audio-Visuals	NR	43	87	32	13	5	1260
	%	23.89%	48.33%	17.78%	7.22%	2.78%	100%
GROUP TOTAL	NR	**314**	**456**	**399**	**180**	**91**	**1440**
	%	**21.81%**	**31.67%**	**27.71%**	**12.50%**	**6.32%**	**100%**
AVERAGE	A	**39.25**	**57.00**	**49.88**	**22.50**	**11.38**	**180.00**
ANNOVA –VARIANCE	AV	**696.21**	**651.71**	**990.7**	**68**	**83.41**	
STANDARD DEVIATION	SD	**26.38579**	**25.52861**	**31.47539**	**8.246211**	**9.132908**	

Table – 4 shows the respondents' favorite types of e-resources as well as how frequently they use these resources. The chart clearly shows that a modest number of respondents are using all the e-resources from combined the selections most frequently and frequently, with the exception of the E-Theses/Dissertations (ETDs), as just 53 of them, or 29.44 percent, are doing so. After that, more than 130 (72.22%), 129 (71.67%), 124 (68.89%), and 109 (60.56%) of the respondents use audio and video, electronic newspapers, electronic books, and electronic magazines, respectively. The chart also shows that a considerable portion of respondents are still uncertain of how frequently they use various e-resources or use some of them less frequently. Exclusively group of opinion view point wise, There were 1440 total responses from all 5 choices, of which 314 (21.81%) were chosen for Most frequently, 456 (31.67%) were chosen for frequently, 399 (27.21%) were uncertain, and 180 (12.50%) less often. Overall, 91 (6.32%) said they wouldn't use it. Though

If we combine only frequently and most frequently group of data also 770(53.48%) of users completely using e-resources. They are positive about using e-resources.

In the auxiliary table showing the ANOVA test results, ANOVA showed 696.21 in the most frequent group, 651.71 in the frequent group, 990.70 in the uncertain group, 68.00 in the less frequent group, and 83.41 in the group that does not use intensively.

Table 4.1: ANOVA – One-way test results

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	11461.75	4	2865.438	5.753808	0.001146	2.641465
Within Groups	17430.25	35	498.0071			
Total	**28892**	**39**				

Table 4.1 displays the P-value for the ANOVA test is 0.001146. The probability value (P) is less than 0.05 Thus the difference is not significant. H2 has been accepted.

Table 5: User Satisfaction about E-resources

E- Resources		Highly Satisfied	Satisfied	Neutral	Dissatisfied	Highly Dissatisfied	TOTAL
E-books	NR	25	82	52	15	6	180
	%	13.89%	45.56%	28.89%	8.33%	3.33%	100.00%
E-journals	NR	42	67	28	17	26	180
	%	23.33%	37.22%	15.56%	9.44%	14.44%	100.00%
E-databases	NR	38	72	27	31	12	180
	%	21.11%	40.00%	15.00%	17.22%	6.67%	100.00%
E- Abstracts & Indexes	NR	23	21	99	27	10	180
	%	12.78%	11.67%	55.00%	15.00%	5.56%	100.00%
E-Theses/Dissertations	NR	18	37	82	28	15	180
	%	10.00%	20.56%	45.56%	15.56%	8.33%	100.00%
E-news paper	NR	35	89	17	31	8	180
	%	19.44%	49.44%	9.44%	17.22%	4.44%	100.00%
E-magazines	NR	19	29	83	45	4	180
	%	10.56%	16.11%	46.11%	25.00%	2.22%	100.00%
Audio-Visuals	NR	40	86	36	13	5	180
	%	22.22%	47.78%	20.00%	7.22%	2.78%	100.00%
GROUP TOTAL	**NR**	**240**	**483**	**424**	**207**	**86**	**1440**
	%	**16.67**	**33.54**	**29.44**	**14.38**	**5.97**	**100.00**
AVERAGE	**A**	**30**	**60.375**	**53**	**25.875**	**10.75**	**180**
ANOVA –VARIENCE	**AV**	**96**	**743.41**	**963.43**	**112.41**	**51.64**	

Table- 5 displays the respondents' degree of satisfaction with the library's electronic information offerings. Table 5 shows that, on average, respondents are happy with all of the electronic resources provided by pharmacy college libraries, with the exception of the e-Theses and Dissertation service, for which only 18 respondents (10%) express high satisfaction. A total of 89 respondents (49.44%), 86 (47.78%), 72 (40%) and 67 (37.22%) are satisfied with the e-newspapers, audio-visual content, e-databases, and e-journals, respectively. Also, the chart shows that a substantial portion of respondents either stayed neutral or expressed opinions in the area of dissatisfied, which fully determines that the majority of respondents are unhappy with the e-resources provided by the libraries of pharmacy colleges.

In line with the group-wise summary chart, there were 1440 replies total from all 5 options, with 240 (16.67%) being extremely satisfied, 483 (33.54%) being satisfied, 424 (29.44%) neutral, 207 (14.38%) being dissatisfied, and 86 (5.97%) being severely dissatisfied. Just about 50% of users reported being satisfied, indicating that the majority of respondents were either neutral or dissatisfied.

5.1 ANOVA One-way Result on user satisfaction

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	13273.75	4	3318.4375	8.435735	7.1E-05	2.641465
Within Groups	13768.25	35	393.3785714			
Total	27042	39				

Table 5.1 displays the P-value for the ANOVA test is 7.1E-05. The probability value (P) is more than 0.05 Thus the difference is very significant. So, H3 has been rejected.

Table 6: The comparison between the utilization and satisfaction rates of e- resources

	E-resources Frequently Using Rankings			Satisfaction Wise Rankings		
	Most Frequently & Frequently			Highly Satisfaction & Satisfaction		
S No.	E-resources	NOR	%	E-resources	NOR	%
1	Audio-Visuals	130	72.22%	Audio-Visuals	126	70.00%
2	E-news paper	129	71.67%	E-news paper	124	68.89%
3	E-journals	124	68.88%	E-databases	110	61.11%
4	E-databases	109	60.55%	E-journals	109	60.56%
5	E- Books	84	46.67%	E-Books	107	59.44%
6	E-Abstracts & Indexes	74	41.12%	E-Theses/Dissertations	55	30.56%

7	E-magazines	67	37.22%	E-magazines	48	26.67%
8	E-Theses/Dissertations	53	29.44%	E-Abstracts & Indexes	44	24.44%
Total Responses 1440		**770**	**53.48%**	**Total Responses 1440**	**723**	**50.21%**

Table 6 the comparison between the utilization and satisfaction rates of e- resources is shown in Table 6. This information is taken from Tables 4 and 5. Table 6 demonstrates obviously that there is little distinction between utilization and satisfaction. According to the table's summary, the usage-to-satisfaction ratio is as follows. E-newspaper usage is 129 (71.67%) & satisfied is 124 (68.89%), e-databases usage is 109 (60.55%) & satisfied is 110(61.11%), and e-resource of Audio-visual usage is 130(72.22%) with satisfied is 126(70.00%) While e-books, e-theses/dissertations had lower usage rates than satisfaction rates. The usage rate for electronic articles and journals is higher than user satisfaction.

The group-wise summary table shows variance between the two groups. There were 770(53.48%) replies for the usage of the e-resource and 723 (50.21%) responses for satisfaction. Comparing the two reveals a difference of roughly 6%, whereas doing so on the entire produces a difference of about 3%.

Table 6.1: Variance between the Usage & satisfaction rates

S No.	E-Resources	Usage	Satisfaction	*Sum*	*Average*	*Variance*
1	Audio-Visuals	130	126	256	128	8
2	E-news paper	129	124	253	126.5	12.5
3	E-journals	124	109	233	116.5	112.5
4	E-databases	109	110	219	109.5	0.5
5	E- Books	84	107	191	95.5	264.5
6	E-articles	74	44	118	59	450
7	E-magazines	67	48	115	57.5	180.5
8	E-Theses/Dissertations	53	55	108	54	2

Table 6.2: P- value of Variance between the Usage & satisfaction rates

ANOVA - One way testing						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	14229	7	2032.705357	15.78034	0.000425	3.500464
Within Groups	1031	8	128.8125			
Total	**15259**	**15**				

Table 6.2 displays the probability value (P) as per the ANOVA test is 0.000425. The P-value is less than 0.05 Thus the difference not significant. So, H4 has been accepted

Table 7: Opinion about the impact of E- Resources on your academic activities

Statements		SA	AG	UN	DA	SD	TOTAL
E-resources help in getting up-to-date information	NR	23	23	57	22	55	180
	%	12.78%	12.78%	31.67%	12.22%	30.56%	100%
E-resources satisfy my information needs	NR	61	33	56	21	9	180
	%	33.89%	18.33%	31.11%	11.67%	5.00%	100%
E-resources facilitate faster access to information	NR	46	34	61	28	11	180
	%	25.56%	18.89%	33.89%	15.56%	6.11%	100%
E-resources provide wide range of information	NR	29	38	55	44	14	180
	%	16.11%	21.11%	30.56%	24.44%	7.78%	100%
Use of e-resources reduced the cost of information	NR	41	55	43	18	23	180
	%	22.78%	30.56%	23.89%	10.00%	12.78%	100%
E-resources have improved my academic competence	NR	53	61	23	24	19	180
	%	29.44%	33.89%	12.78%	13.33%	10.56%	100%
E-resources help in acquisition of highest knowledge.	NR	23	36	78	32	11	180
	%	12.78%	20.00%	43.33%	17.78%	6.11%	100%
E-resources have improved my learning skills	NR	59	22	49	27	23	180
	%	32.78%	12.22%	27.22%	15.00%	12.78%	100%
E-resources help in career development	NR	37	54	58	21	10	180
	%	20.56%	30.00%	32.22%	11.67%	5.56%	100%
E-resources constitute an essential part of my course/project works/assignments	NR	34	86	31	15	14	180
	%	18.89%	47.78%	17.22%	8.33%	7.78%	100%
Portability & anywhere access make learning more effective	NR	42	57	48	16	17	180
	%	23.33%	31.67%	26.67%	8.89%	9.44%	100%
Add-on features make e-resources better than print resources	NR	25	29	74	32	20	180
	%	13.89%	16.11%	41.11%	17.78%	11.11%	100%
Dependency on libraries is decreased	NR	26	51	48	25	30	180
	%	14.44%	28.33%	26.67%	13.89%	16.67%	100%
GROUP TOTAL	**NR**	**499**	**579**	**681**	**325**	**256**	**2340**
	%	**21.32%**	**24.74%**	**29.10%**	**13.89%**	**10.94%**	**100%**
AVERAGE	**A**	**38.38**	**44.54**	**52.38**	**25.00**	**19.69**	**180**
ANOVA VARIENCE	**AV**	**178.59**	**329.94**	**227.42**	**62**	**150.56**	
STANDARD DEVIATION	**SD**	**13.37**	**18.16**	**15.08**	**7.87**	**12.27**	

  Note: NR= Number of Respondents   **%** = Percentage, **SA**= Strongly Agree,   **AG**= Agree,   **UN**=Uncertain
DA=Disagree   **SD**=Strongly Disagree

Table 7 The respondents' opinions on the statements on how using electronic information resources has affected their academic activities are shown in Table. According to the data, the vast majority of respondents—more than 45%—agree or strongly agree that using electronic resources has improved their various academic pursuits. Nonetheless, an below average percentage of respondents (29%) remained unsure about all the statements because they were unsure whether or not the use of e-resources had any effect. 24% of viewpoints are completely disagree.

Table 8. Opinion of the respondents areas need to improve

Areas need to improve		SA	AG	UN	DA	SD	TOTAL
Infrastructure should be developed	NR	62	67	28	17	6	180
	%	34.44%	37.22%	15.56%	9.44%	3.33%	100%
Library services should be improved	NR	38	84	15	31	12	180
	%	21.11%	46.67%	8.33%	17.22%	6.67%	100%
Attention should be given to subscription of required e-resources	NR	23	21	99	27	10	180
	%	12.78%	11.67%	55.00%	15.00%	5.56%	100%
IT infrastructure needs to be improved	NR	38	53	51	27	11	180
	%	21.11%	29.44%	28.33%	15.00%	6.11%	100%
A frequent user training program should be conducted	NR	33	83	32	16	16	180
	%	18.33%	46.11%	17.78%	8.89%	8.89%	100%
GROUP TOTAL	**NR**	**194**	**308**	**225**	**118**	**55**	**900**
	%	**21.56%**	**34.22%**	**25.00%**	**13.11%**	**6.11%**	**100%**
AVERAGE	**A**	38.8	61.6	45	23.6	11	
ANOVA -VARIENCE	**AV**	205.7	677.8	1077.5	44.8	13	

Note: SA= Strongly Agree, **AG**= Agree, **UN** =Uncertain, **DA**=Disagree, **SD**=Strongly Disagree

Table 8 Respondents expressed their thoughts on the following five areas that needed to be improved for the best possible use of e-resources. i.e., regarding infrastructure, library services, e-resource subscriptions, IT infrastructure, and user training program. The findings show that, out of 900 opinions more than 55% (502) of opinions agreed or strongly agreed that the aforementioned areas needed improvement. Nonetheless, a below-average proportion of opinions (225) 25% expressed uncertainty regarding all the propositions and stayed neutral. 19% (173) of opinions are in complete or strongly disagree. So, the majority of the viewpoints show that needs to be improved.

6.   FINDINGS, RECOMMENDATIONS AND CONCLUSION

According to the study, 180 respondents who were all aware of e-resources took part in the survey. 93.89% of users access social networking sites, followed by 55% e-newspapers, 53.89% e-mail, and 97% general information. The Internet, 51% of users agreed that the internet had a good influence on their studies. E-resources are used by 23% of users for teaching, 75% of users as an additional resource, and 77% of users for other purposes. Around 60% of respondents utilize e-books and e-journals, while 70% of users use audio-visual resources and they are happy for that. Almost 60% of users were satisfied with e-journals, e-magazines, and e-databases, the gap between utilization and satisfaction is about 3%. While 29% of users are neutral and 24% of users disagree. Regarding the impact of e-resources, 46% of users believe that e-resources have a beneficial impact on academic activity, in remaining some of them are neutral and do not agree. A lot of users have run into a lot of issues while using electronic materials. Users then expressed their opinions that 55% of users agreed that a few areas needed improvement for the optimal use of e-resources, while 19% did not, and the remaining were neutral.

After carefully examining the use and access of e-resources in the Pharmacy colleges of Tumkur city College libraries, the following recommendations are made regarding the improvement of ICT infrastructure, subscription of e-resources library services, end-user training, etc. that might assist this library in strengthening and improving the facilities for meeting the needs of their users.

- Enhance computer terminal availability: Address the inadequate availability of computer terminals by increasing the number of terminals in libraries. This will ensure that more users can access e-resources without difficulty.

- Provide training programs: Develop and implement training programs to address the lack of knowledge and skills in utilizing e-resources effectively. These programs should focus on training library staff and users on how to navigate and make the best use of various e-resources.

- Improve database subscriptions: Address the issue of inadequate database subscriptions by expanding the range and quality of available databases. This will provide users with a wider array of reliable and relevant resources to enhance their research and academic activities.

- Enhance internet connectivity: Improve the internet infrastructure to address issues related to poor connectivity and slow response. This can be achieved by upgrading the network infrastructure and ensuring sufficient bandwidth to support the growing demand for e-resource access.

- Streamline information retrieval: Take steps to reduce the retrieval of irrelevant information by implementing advanced search functionalities and optimizing the search algorithms of e-resource platforms. This will improve the accuracy and relevance of search results, saving users' time and effort.

- Ensure regular power supply: Address the issue of irregular power supply by implementing backup power solutions, such as generators or uninterruptible power supply (UPS) systems. This will minimize disruptions and ensure uninterrupted access to e-resources.

- Improve user-friendliness of e-resources: Work with e-resource providers to make their platforms more user-friendly and intuitive. Simplify the interfaces and provide clear instructions and user guides to help users navigate and utilize e-resources effectively.

- Foster cooperation among library staff: Encourage collaboration and cooperation among library staff members to address any issues related to teamwork and coordination. Promote a supportive and cooperative work culture that enhances the user experience and ensures efficient management of e-resources.

- Focus on infrastructure development: Invest in improving the overall infrastructure of the library, including physical spaces, equipment, and technology. Create a conducive environment that facilitates easy access to e-resources and enhances the overall user experience.

- Strengthen library services: Continuously assess and enhance library services to meet the evolving needs of users. Offer personalized assistance, reference services, and user support to ensure that users can make the most of the available e-resources.

- Expand e-resource subscriptions: Based on user feedback and needs, explore options to expand the range of e-resource subscriptions. This could involve acquiring new databases, e-journals, e-books, and other relevant resources to meet the diverse academic requirements of the users.

- Implement an effective user training program: Develop and implement a comprehensive user training program that equips users with the necessary skills to effectively utilize e-resources. Provide regular workshops, tutorials, and online resources to educate users on how to access, evaluate, and utilize e-resources for their academic pursuits.

The findings of the study indicate that the rapid advancement of information and communication technologies, along with electronic resources, has significantly transformed the landscape of scholarly information research, storage, retrieval, and communication. Users are now required to utilize various technological and digital resources to access relevant information. The report suggests that the use of electronic resources has had a positive impact on the academic activities of faculty and students in Tumkur

City Pharmacy Colleges. These resources encompass a wide range of information presented in diverse formats and methods. The study demonstrates that most of the younger generation has embraced electronic resources, with minimal neutral or non-usage responses. Overall, the usage of e-resources among users is approaching its maximum potential. However, there is a notable percentage of respondents who have not utilized certain essential resources such as online theses and dissertations, abstracts and indexes, e-magazines, e-books, and e-journals for their research and studies. To address this, the library should take the initiative to organize additional orientation programs, seminars, workshops, and user awareness initiatives to enhance users' understanding and maximize their utilization of these resources.

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APPENDIX

List of some of the e-resources accessed by users of Tumkur City Colleges of Pharmacy

E-books (Indian Author)

1. Dr. K. D. Tripathi - Author of the book "Essentials of Medical Pharmacology"
2. Dr. C. K. Kokate - Author of the book "Pharmacognosy"
3. Dr. V. N. Raje - Author of the book "Pharmaceutical Analysis"
4. Dr. S. S. Agrawal - Author of the book "Pharmaceutical Engineering"
5. Dr. B. M. Mithal - Author of the book "Pharmaceutical Dosage Forms and Drug Delivery Systems"
6. Dr. S. N. Pandeya - Author of the book "Medicinal Chemistry"
7. Dr. V. K. Kapoor - Author of the book "Pharmaceutical Biotechnology"
8. Dr. P. V. Kasture - Author of the book "Pharmacology and Pharmacotherapeutics"
9. Dr. A. V. Yadav - Author of the book "Pharmaceutical Microbiology"
10. Dr. N. K. Jain - Author of the book "Pharmacognosy"

Other Authors:

1. Dr. Derek G. Waller - Author of the book "Medical Pharmacology and Therapeutics"
2. Dr. Jonathan B. Crowther - Author of the book "Pharmaceutical Practice"
3. Dr. Roger Walker - Author of the book "Clinical Pharmacy and Therapeutics"

4. Dr. Joseph T. DiPiro - Author of the book "Pharmacotherapy: A Pathophysiologic Approach"

5. Dr. Linda E. Tatro - Author of the book "Drug Interaction Facts"

6. Dr. Rang and Dale - Authors of the book "Rang & Dale's Pharmacology"

7. Dr. Lippincott Williams & Wilkins - Publisher of various pharmacy books and journals

8. Dr. Karen Davis - Author of the book "Pharmaceutical Calculations for Pharmacy Technicians"

9. Dr. Richard Finkel - Author of the book "Pharmacology"

10. Dr. Barry L. Eppley - Author of the book "Pharmaceutical Product Development"

E-journals (Indian Publishers)

1. Elsevier - Offers a wide range of pharmaceutical e-journals such as "Journal of Pharmaceutical Sciences," "European Journal of Pharmaceutical Sciences," and "International Journal of Pharmaceutics."

2. Springer India - Publishes e-journals like "Pharmaceutical Research," "Drug Delivery and Translational Research," and "Journal of Pharmaceutical Innovation."

3. Wolters Kluwer India - Provides e-journals like "Indian Journal of Pharmaceutical Sciences," "Journal of Pharmacy and Bio allied Sciences," and "Indian Journal of Pharmaceutical Education and Research."

4. Jaypee Brothers Medical Publishers - Publishes e-journals such as "Indian Journal of Pharmacology" and "Indian Journal of Pharmaceutical Sciences."

5. Thieme India - Offers e-journals like "Drug Research," "Planta Medica," and "Methods and Findings in Experimental and Clinical Pharmacology."

6. Medknow Publications - Publishes e-journals like "Journal of Pharmacology and Pharmacotherapeutics" and "Journal of Young Pharmacists."

7. Indian Pharmacopoeia Commission - Provides e-journals related to pharmacopoeial standards, including the "Indian Pharmacopoeia" and "Pharmacopoeial Forum."

8. Bentham Science Publishers - Offers e-journals like "Current Drug Metabolism," "Current Pharmaceutical Design," and "Current Drug Targets."

9. Indian Journal of Pharmaceutical Sciences (IJPS) - The official publication of the Indian Pharmaceutical Association, offering e-journals on various pharmaceutical topics.

10. Indian Journal of Pharmaceutical Education and Research (IJPER) - Publishes e-journals focusing on pharmacy education and research in India.

Other Publishers:

1. American Chemical Society (ACS) - Offers e-journals like "Journal of Medicinal Chemistry," "Molecular Pharmaceutics," and "Pharmaceutical Research."

2. Royal Society of Chemistry (RSC) - Provides e-journals such as "Organic & Biomolecular Chemistry," "Drug Discovery Today," and "MedChemComm."

3. Wiley - Publishes e-journals like "Pharmacoepidemiology and Drug Safety," "Pharmaceutical Statistics," and "British Journal of Clinical Pharmacology."

4. Taylor & Francis - Offers e-journals such as "Journal of Pharmacy and Pharmacology," "Pharmaceutical Development and Technology," and "Pharmaceutical Biology."

5. Nature Publishing Group - Provides e-journals like "Nature Reviews Drug Discovery" and "Nature Chemical Biology."

6. Oxford University Press - Offers e-journals such as "British Journal of Pharmacology" and "Journal of Antimicrobial Chemotherapy."

7. Informa Healthcare - Publishes e-journals like "Expert Opinion on Drug Metabolism & Toxicology" and "Expert Opinion on Drug Delivery."

8. Mary Ann Liebert, Inc. - Provides e-journals such as "Assay and Drug Development Technologies" and "Pharmaceutical Gene Therapy."

9. Lippincott Williams & Wilkins - Offers e-journals like "Pharmacogenetics and Genomics" and "Pharmacogenetics and Genomics."

10. Cambridge University Press - Provides e-journals such as "Journal of Pharmacy Practice" and "International Journal of Technology Assessment in Health Care."

Information about E-Databases & Abstracts

1. PubMed: A widely used database maintained by the U.S. National Library of Medicine (NLM), offering abstracts and full-text articles from a range of biomedical literature, including pharmacy-related research.

2. Embase: A comprehensive biomedical and pharmacological database that provides abstracts and indexing for a wide range of pharmaceutical literature.

3. Scopus: A multidisciplinary database that includes abstracts, citations, and references from scientific,

technical, medical, and social sciences literature, covering pharmacy-related research.

4. Web of Science: A leading citation database that offers access to abstracts and references from a wide range of scientific journals, including pharmaceutical research.

5. Cochrane Library: A collection of databases that provide high-quality, evidence-based information on healthcare interventions, including pharmaceutical interventions.

6. International Pharmaceutical Abstracts (IPA): A database dedicated to pharmacy literature, offering abstracts and indexing for pharmaceutical science, practice, and related topics.

7. Chemical Abstracts Service (CAS): A comprehensive database that covers chemical literature, including abstracts and indexing for pharmaceutical research and related fields.

8. Pharm GKB: The Pharmacogenomics Knowledgebase, which provides curated information on how genetic variations impact drug response, including drug-gene interactions and clinical guidelines.

9. Micromedex: A database that offers drug information, including drug interactions, dosages, and pharmacokinetics, to support clinical decision-making in pharmacy practice.

10. ClinicalTrials.gov: A database that provides information about ongoing and completed clinical trials, including those related to pharmaceutical interventions, enabling access to trial protocols, results, and other relevant data.

List of selected Pharmacy Colleges in Tumkur city for study

1. HMS College of Pharmacy, Tumkur

2. Mayur College of Pharmacy, Tumkur

3. Pinnacle Institute of Pharmacy, Tumkur

4. Shri Devi Institute of Pharmaceutical Sciences, Tumkur

5. Shri Krishna College of Pharmacy, Tumkur

6. Sofia College Pharmacy, Tumkur

7. Sree Siddaganga College of Pharmacy, Tumkur

8. Varadaraja Institute of Pharmaceutical Education and Research, Tumkur