IMPLEMENTATION AND USE OF AUDIO VISUAL AIDS IN DISTANCE LEARNING PHARMACOLOGY IN A TERTIARY CARE HOSPITAL BEFORE AND AFTER COVID 19 OUTBREAK.

RAGHUPRASADA MALLADAR SHIVAMURTHY, GEETHA. S, DEEPA PATIL*

Associate Professor, Department of Pharmacology, SS Institute of Medical Sciences and Research Center, Davangere, Karnataka, India-577005. Mail id – raghuprasada@gmail.com

Associate Professor, Department of Pharmacology, East Point College of Medical Sciences and Research Centre, Bangalore, Karnataka, India – 560049. Mail id – drsgeetha94093@gmail.com

Assistant Professor, Department of Pharmacology, Basaveshwara Medical College and Hospital, Chitradurga, Karnataka, India – 577502. Mail id – dcpatil1988@gmail.com

Corresponding author:DEEPA PATIL**,**dcpatil1988@gmail.com

ABSTRACT

Objectives: To assess the use of power point presentations (slide share) utilization of the pharmacology medical syllabus topics and compared them before and after covid epidemic. **Materials and Methods:** In this study we have analysed the power point presentations utilization in pharmacology medical syllabus topics and compared them for number of views, downloads, actions taken, sources of online utilization and subscribers added in the same period. **Results**: There were significant difference in the utilization pattern of power point presentations year on year from pre-covid to post covid era with significant p value (<0.005) on applying paired sample t test. The actions taken that is download and utilization was better in the post covid era. The number of views for each presentation and the subscribers added was more post covid era. **Conclusion:** There is both scope for knowledge, enhancement and knowledge retention by using audio visual aids in teaching methods. There is a need to keep students motivated by giving introductory information videos, complete academic course ideas, inculcating basic ideas on core concepts in general pharmacology. Further such studies on use of

audio visual aids in medical education is needed to enhance the use of slide share, author stream and other online platforms providing power point presentations as a part of curriculum for better understanding of abstract subjects like pharmacology.

Keywords: Audio-visual aids, Presentations, Medical education

INTRODUCTION

Utilization of audio-visual aids for online learning and teaching pharmacology among students and academicians is a known mode for understanding of abstract topics. The availability of effective educational power point presentations on various online platforms has helped students in the covid era more than before. Millennial (people born between 1980 and 1995) are involved in better utilization of the digital videos making upto 95% of audience. Millennial are the post graduates, educating staffs, marketing and communication industry trainers, university professors and so on[1]. Cognitive science behind educational videos is that, since they are observed through both the visual/pictorial and auditory/verbal processing channels, learners are able to make more relevant associations. The fifth generation (5G) wireless cellular technology launched in 2019, promises high speed network of about 60mbps (megabytes per second) to 1 gbps (Gigabytes per second) to phones, residential Wi-Fi, robots, virtual reality and self-driving cars[2]. Social networking tools are now part of educating tools providing opportunities to integrate and acquire knowledge without reference to time and place. For academicians, public, patient and health care professionals, utilization of audio-visual aids like power point presentations for online learning and teaching pharmacology among students and academicians is a known mode for understanding of abstract topics. The availability of effective educational power point

presentations on various online platforms has helped students in the covid era more than before.[3,4]

In this study we have analysed the use of power point presentations (slide share) utilization of the pharmacology medical syllabus topics and compared them before and after covid epidemic.

MATERIALS AND METHODS

This is a cross sectional study conducted in a tertiary care hospital after obtaining approval from institutional ethics committee. The slideshare analytics was obtained from author's channel slideshare (https://www.slideshare.net/raghuprasada with 101 power point presentations and 408 followers). The content of the presentations is the academic syllabus of medical dental and nursing pharmacology classes on general pharmacology, systemic pharmacology and antimicrobial therapy. These slideshare presentations are periodically updated since 2011 till date. The slideshare views of the most viewed top 100 videos and slideshare presentations were matched for the year 2018, 2019, 2020 and 2021.The presentations in year 2018 and 2019 are considered as pre covid views and 2020, 2021 and 2022 are considered as post covid views. The data regarding number of views is provided by slide share in the author's dashboard. These data were compared and analysed using paired sample 't' test. All the calculations were done using EPI info software.

RESULTS

Slideshare analytics for views in 2018 and 2019 showed significant difference with 't' value of -7.5 and 'p' value <0.05. There was no difference between slideshare views of 2019 and 2020 with insignificant p value. There was very high number of users of slide share in 2021 compared to 2020 with 't' value of -2.79 and 'p' value of <0.05.

The paired sample t test comparing the views on year for 2017-2018, 2018-2019, 2020-2021 and 2021-2022 are having significant 'P' value but for the year 2019-2020 (with insignificant P value). The total number of views irrespective of the topics shows that rather there was decrease in the number of views in 2020. This could be due to the covid apprehension, after which there were confusion regarding the new mode of learning.Both teachers and students were victims of

covid infection which actually might have decreased the academic and learning activities. The massive increase in the slideshare views in 2021 may be attributed to the need of power point presentations for online mode of learning for both teachers and trainers. There was significant increase in the number of views in 2022 with significant 'p' value (0.00) owing to the needs of the digitally enabled and oriented online learning of teachers and students.

DISCUSSION

The world health organisation declared the coronavirus pandemic as a public health emergency of International concern on March 2020. All the universities faced many challenges as the distance education replaced traditional face-to-face education. According to UNESCO, by April 2020, 186 countries went for nationwide closures and disabling 74% enrolled students.[5,6] The necessity of social distancing promoted massive use of technologies and home confinement compromised the academic study. COVID-19 made educational institutes to explore online teaching platforms like Microsoft teams, Zoom, Whatsapp, YouTube, Google classroom, WebEx and so on.[3,7] The technology driven short comings in teachings such as delays in launch of classes, delays in hearing due to uncertain network or sometimes recorded classes decreased the active participation of students. According to report 826 million students kept out of classroom did not have house hold computer and 706 million did not have internet at home. Internet penetration in India stood only at 40% compared to USA (88%) and China(61%).[8] About 2100 government colleges with 9 million students had problems with internet connectivity. This was well substantiated in our study showing insignificant p value for the comparison year 2019-2020. This can also be attributed to physical isolation led to lack of interaction, emotional and social support causing mental depression and higher anxiety more in female students.[9] The stability of family income was more important reason for anxiety among students. Lessons without face-to-face contact with teachers and other students, decreased students ability to learn. Difficulties in attending professional laboratories and internships were also contributing factors. But later the uncertainty about length of pandemic and chances of reinfections, the social distancing became a new normal.[10]

The government of India swing into action with draft new education policy emphasizing on expertise and exposure to ICT (Information and Communication technology) with use of

online education as a part of compulsory teaching learning process at tertiary level. SWAYAM PRABHA (Study Webs of Active-Learning for Young Aspiring Minds) is a programme or Massive Open Online Courses (MOOC) platform initiated by government of India with a group of 32 DTH channels dedicated to telecasting of high quality educational programmes throughout the week. ARPIT (Annual Refresher Programme in Teaching by in Teaching by MHRD (Ministry of Human Resource Development is for professional development. E-PG patshala by UGC (University Grants Commission) provided high quality curriculum based and interactive e-content in 70 subjects across all disciplines. UGC also mandated that they should complete at least 25% syllabus though online teaching mode.[11,12] This brought many changes in the way we look at e-learning to be considered as formal mode of learning rather as informal mode. This also paved the way for Learning Management System (LMS) by schools and colleges. Teachers started using Google classrooms, zoom, Cisco, Web-Ex, Google meet, Skype platform for taking online class. All the teachers logging in into LMS and uploaded the study material and students are required to upload their assignments. The concept of flipped classroom is also a similar strategy wherein articles, pre-recorded classes, videos and YouTube links were shared with the class. With all these efforts of supra-system(UGC, MHRD), system(universities and colleges) and sub-systems (different departments like Anatomy, Physiology and Pharmacology in Medical schools) efforts in the direction of continuing learning even when colleges and schools were shut down helped students in India and other countries to overcome covid debacle.[12,14] One of the study showed that about 54% respondents liked recorded class upload and 53% students preferred teachers to use PowerPoint for teaching. Most teachers could aptly prepare powerpoint in time and they preferred to upload related material already available on internet. Slide share was one of the popular sites for download of such power point presentations for class presentations and study material uploads in LMS. This was prudent in our study that number of views year on year for 2020-2021 and 2021-2022 was significant with P value < 0.05.

PowerPoint presentations were originally developed by Bob Gaskins and software developer Dennis Austin under the namepresenter for forethought. The important part of any presentation is the content. The content can later be transformed into graphical presentations.A good presentation needs acceptable design, engaging content and positive delivery. Instructional technology is a complex integrated process involving people, ideas, devices, organisation for analysing problems, devising, implementing, evaluating and managing solutions to these

problems in too detailed purposive situations.[15] The instructional technology has its own requirements such as availability of digital devices, use of team platforms, problems with overlap in the family environment. Visual effects should support but not distract from the concept.Here we should remember that lot of education material provided by teachers for further understanding included many video links which could also disengage the students. The delivery of distant education was eased with the sharing of power point presentations with the students without distracting the students to the visual effects.[4,13]

There are lots of challenges in online education involving the key players here, the task of online education with lots of technological and connectivity hurdles, the teachers with skills which needs to be empowered by technical know-how and very important the students which in most of the studies showed that they were victims and also the sufferers due to the need of innovation to make them attentive in online classes. In one the studies, it was observed that only 24% of students were attentive.[16] Power point presentations nevertheless helped the teachers in overcoming limitations of virtual learning and prepare the system for uncertainties of post-covid e-learning.[17]

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Table 1: Total slide share views in each year

Year	Slideshare views total	Downloads
2018	2301	113
2019	4606	276
2020	4272	329
2021	15988	351
2022	71033	286

Table 3: Source of slide share

2022	SLIDE SHARE	SEARCH	PERCENTAGE

	SOURCE		
1	SEARCH ENGINE	45358	63.67
2	SLIDE SHARE SEARCH	12992	18.24
3	REFERRAL	8953	12.57
4	DIRECT	3906	5.48
5	SOCIAL	25	0.04

Table 3: The views on year for 2017-2018, 2018-2019, 2020-2021 and 2021-2022

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	SLSH2017 - SLSH2018	12.10891	34.79624	3.46235	5.23970	18.97812	3.497	100	.001
Pair 2	SLSH2018 - SLSH2019	-22.91089	30.73958	3.05870	-28.97927	-16.84251	-7.490	100	.000
Pair 3	SLSH2019 - SLSH2020	3.38614	61.75872	6.14522	-8.80581	15.57808	.551	100	.583
Pair 4	SLSH2020 - SLSH2021	-116.00990	416.58201	41.45146	-198.24842	-33.77139	-2.799	100	.006
Pair 5	SLSH2021 - SLSH2022	-527.38614	1036.04671	103.09050	-731.91476	-322.85752	-5.116	100	.000