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Use of YouTube as an educational tool among undergraduate dental students in a dental college of Kathmandu, Nepal

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Abstract

The availability of free educational contents on YouTube has attracted medical/dental students to use it as an adjunct to their course materials. The aim of this study is to assess the use of YouTube as an educational tool among undergraduate dental students in a dental college of Kathmandu, Nepal. A questionnaire based cross-sectional study was conducted among 189 students. Ninety-seven percentage of the participants used YouTube for learning. Most of them prefer YouTube learning as a quick recap before any important examination. Although YouTube learning has flourished over years, not all the data shared on this platform is credible and validated by the specialists.

BACKGROUND

YouTube among various social media platforms, is seen as one of the most important and effective website for learning(1). YouTube has become a widely used educational resource among dental students, transforming their way of learning(2). Some students might require multiple revisions and clinical demonstrations and one time demonstration by tutor may not be sufficient(3). YouTube provides free-to-use content and the ability to view videos repeatedly in variety of settings, makes it more popular among students as sometimes single time clinical demonstration by the tutor might not be sufficient to grasp the content(4). One of the main advantages of using YouTube for learning is transforming cognitive input to long term memory(2). Ducan et al. concluded, YouTube helped students bridge the gap between theory and practical and promoted discussion and critical analysis(2). Studies have explored internet use for education among teenagers(5), among dental and medical students, describing patterns of use and potentially problematic use(6, 7). But as per author's knowledge there is no baseline data for YouTube being learning platform for undergraduate dental students in Nepal. Therefore, this study was conducted to assess use of YouTube as a learning tool among undergraduate dental students of Nepal.

METHODS

A descriptive, cross-sectional study was conducted among undergraduate dental students of Peoples Dental College and Hospital Pvt Ltd (PDCH), Kathmandu, Nepal to determine the use of you tube as an educational tool from 10th Jan 2024 to 12th Feb 2024. Study was conducted after ethical approval from institutional review committee, Peoples Dental College and Hospital (IRCPDCH) ref. no. 1 CH no. 7,2080/2081 dated on 12-10-2023.

Dental students of PDCH from 1st year, 2nd year, 3rd year, 4th year were included in the survey. Census sampling method was used.

Data was collected using a self-administered, semi structured questionnaire. Students were informed about the purpose and date of the survey. BDS 1st year, 2nd year, 3rd year, 4th year Ist phase and IInd phase students of People's Dental College and Hospital were asked to fill the informed voluntary consent form. Instructions regarding the questionnaire were provided to the volunteering students and were

informed that any queries can be asked at any time during the survey directly to the researchers. A written pretested questionnaire was given. The questionnaire had to be filled and submitted to the researchers immediately on its completion. It took about 10 minutes to fill out the questionnaire. Anonymity was maintained by avoiding participants' names on the questionnaire.

Data Collection Tools

The questionnaire was prepared after referring to similar articles in the literature (8–16) and modified according to the local needs. The questionnaire was subjected to pilot testing and was modified accordingly. The questionnaire comprised a total of 20 questions under 2 sections. The first section included question about participant's demographic details including age, sex, and academic level. The second section included screening questions related to the type of study tools students were using, details of using YouTube medical and dental videos, including their frequency, most important basic, clinical and dental subjects they were looking for, proportions of students using YouTube as primary or secondary source for their study and their perception regarding YouTube as an educational tool.

The English version of questionnaire used for data collection is provided as supplementary material.

Validity and Reliability of the study tools

For face validity of the questionnaire, panels of 4 experts comprising faculty members of PDCH were approached. The main purpose was to determine the qualitative and quantitative agreement of the questionnaire among the panel experts. Questions approved by at least 3 experts were included in the questionnaire. Pretesting of the questionnaire was done among 10% (n = 23) of the population which was not included in the final analysis.

Data were gathered and summed up using a standard form and entered in MS Excel 2016, and data analysis was performed using Statistical Package for Social Sciences (SPSS) version 22 (IBM, US)

Data were presented using frequency and percentage in the form of charts and tables.

All information was handled confidentially and refusal to participate or withdrawal from the study didn't result in any consequence for students.

RESULTS

The questionnaire was distributed to 208 undergraduate dental students of PDCH out of which 189 completed the questionnaire (response rate 90%). The demographic detail of students is illustrated in Table (I). Among the respondents 97.4% (184) students used YouTube at least once in their study while, 2.6% (5) students didn't use YouTube in their education. According to the survey, 9% students preferred only YouTube for studying, while 67.7% preferred class lectures, 66.1% YouTube, 59.3% coursebook, 28.6% internet and 3.2% other sources such as fast track, friends, and slides. Percentage of students

preferring YouTube for studying various basic science, clinical science and dental science subjects are represented in Figure ii, iii and iv.

According to the data 35.3% students had complete trust on the content YouTube videos provide. Around 1.1% students didn't trust upon YouTube content, while 63.6% had partial trust. The partial trust upon YouTube content is due to unsupervised content in 6.3%, wrong information in 2.1%, no authentic references for a particular video in 50.8% students and other problems like not all the topics are of their course or syllabus for 3.7% students.

Table. I. Demographic and academic details

Age	Mean	21.7 years
	Standard deviation	1.62
Gender	Male	20.6%
	Female	79.4%
Academic level	1st	20.1% (38)
	2nd	21.2% (40)
	3rd	22.2% (42)
	4th year Ist phase	18.5% (35)
	4th year IInd phase	18.0% (34)

DISCUSSION

YouTube educational resources are gaining mass popularity among dental students. This study shows that 97% of dental students watch YouTube videos for learning which is similar to a study conducted in Pondicherry, India among dental Undergraduate, Postgraduate, and PHD scholars where 96.7% students had seen YouTube educational videos(8), a study conducted in Saudi Arabia where 95.3% sample used YouTube in their education(1) and a study conducted among dental students in Riyadh, Saudi Arabia where 93.9% reported having used YouTube for dental learning(2). It could be due to online mode of education in universities during covid-19 pandemic, which ensured learning in secured environment. However, this study shows 34.4% students use YouTube for learning only before any important examination and 23.8% view daily. Similarly in a study conducted by Shimray R.S 26% students strongly agreed on using YouTube to prepare for examination(8). Similarly, Gayef mentioned in his study that student consider watching YouTube videos for examination as a highly important resource for revision and preparation(9). Majority of students watch YouTube as a quick recap before examination followed by learning after missing classes, main learning method for theories, adjunctive to lab/classes and main learning method for clinicals. It is evident that 62% students prefer intermediate videos (10–30 minutes).

This may be because a topic can be clearly described within this time frame. Too short videos may not provide complete information about a topic and on watching too long videos students may lack concentration on a particular topic. A majority of students (63.5%) preferred videos from a well-known channel run by an individual educator that offers subject content based on authentic textbook references. 48.7% students prefer Easy Dentistry, which is highest among other dental YouTube channels which may be because of authentic references and duration of video.

This study shows that 65.6% of students searched for anatomy, 52.4% students searched for physiology, 21.7% searched pharmacology, 24.3% for biochemistry 11.1% for microbiology, 52.4% for pathology, while in a study conducted by Aligh 57.1% searched for subjects related to pathology, 53.4% searched for physiology videos, 49.7% searched for biochemistry videos, 26.7% search pharmacology subject, 14.1% look for histology and microbiology video.

This study concluded 22.8% students watch YouTube videos relating to Oral medicine, 11.1% for pediatric dentistry, 28% for orthodontics, 0.9% community dentistry, 24.3% prosthodontics, 14.3% oral surgery, 12.2% periodontics, 14.3% conservative and endodontics and 9% students don't use YouTube for dental science subjects. While Khanagar found 75.3% of students watched clinical procedures related to restorative dentistry, 67.2% searched for fixed prosthodontics procedures, 65.3% for endodontic clinical procedures & 62.37% for removable prosthodontics videos(2).

Students who felt YouTube videos are best for theories of basic science subjects were around 73%. 66.3% of students share medical/dental videos with their friends. In a question asked about percentage of videos relating to medical/dental issues from all the YouTube videos they watched, the majority answer was less than 50% which reflects that student watch other contents along with YouTube educational videos.

Majority of students i.e. 61.9% preferred learning by watching YouTube videos after class lecture, while 49.7% watch before exam, 14.3% before class lecture, 3.7% watch if they don't understand any topic which is similar to a study conducted in Riyadh, Saudi Arabia where 54.4% answered that they always refer to YouTube videos to prepare for clinical procedures that they have never done before(2). A maximum of 57.1% understood the subject matter from initial level by watching the YouTube videos, 33.7% students had broadened their existing knowledge, 3.3% students were motivated for learning after watching YouTube videos.

This study suggests, for learning theory of basic science subjects students prefer YouTube which might be because examination of six different basic science subjects is difficult for students so correlation among subjects and basic concept formation is necessary which is provided through video learning.

Most of the students partially trust the content that YouTube provides for learning which is due to lack of authentic reference for a particular video. There are concerns regarding reliability and authenticity of health related information available on You Tube(17).

It is noticed that majority of students don't prefer studying through YouTube only. They combine YouTube videos with other resources such as course book, class lecture, internet, fast track, friends and slides. This may be because certain YouTube videos do not adhere to a standard textbook format and are considered unsafe for use without the guidance of a teacher.

Rajeh MT surveyed 300 medical consultants and residents of Saudi Arabia out of which 76% thought social media improves their knowledge and skills and should be incorporated as an educational tool for medical profession(18), however there is no substitute for a live physical examination or a clinical procedure as learning by doing is always better than learning by watching(19). Educators in medicine needs to embrace, adopt and integrate mobile apps in their teaching methodology blending technology with traditional methods which use both of them effectively(20).

CONCLUSION

The study concludes majority of students use YouTube as a learning tool as it is easier for searching specific topic. There is no doubt that YouTube enhances learning experience but viewers should be aware about origin of content to avoid any misleading information. It is suggested that further research should be carried out on incorporating YouTube in BDS curriculum and is essential for faculty to guide students in finding useful content.

Abbreviations

UG: Undergraduate

TU: Tribhuvan University

PDCH: People's Dental College and Hospital

SPSS: Statistical Package for Social Sciences

PhD: Doctor of Philosophy

PG: post graduate

Declarations

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Ethical approval was obtained from the Institutional Review Committee of Peoples Dental College and Hospital (IRC-PDCH), reference no. 1 CH no. 7, 2080/2081, dated 12 October 2023. Written informed consent was obtained from all participants.

CONSENT FOR PUBLICATION

Not applicable. The manuscript does not contain identifiable individual participants' data.

AVAILABILITY OF DATA AND MATERIALS

The data that support the findings of this study are available from the corresponding author upon reasonable request.

COMPETING INTERESTS

The authors declare that they have no competing interests.

FUNDING

Authors had not received any funding.

AUTHORS' CONTRIBUTION

Bandhana Regmi: Concept design, Literature review, Questionnaire, Data analysis, Manuscript preparation

Samana Koirala: Concept Design, Literature review, Questionnaire, Data analysis, Manuscript preparation

Prava Khanal: Concept design, Literature review, Questionnaire, Data analysis, Manuscript preparation

Dr. Sijan Poudyal: Concept design, Data analysis, Manuscript editing

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Figures

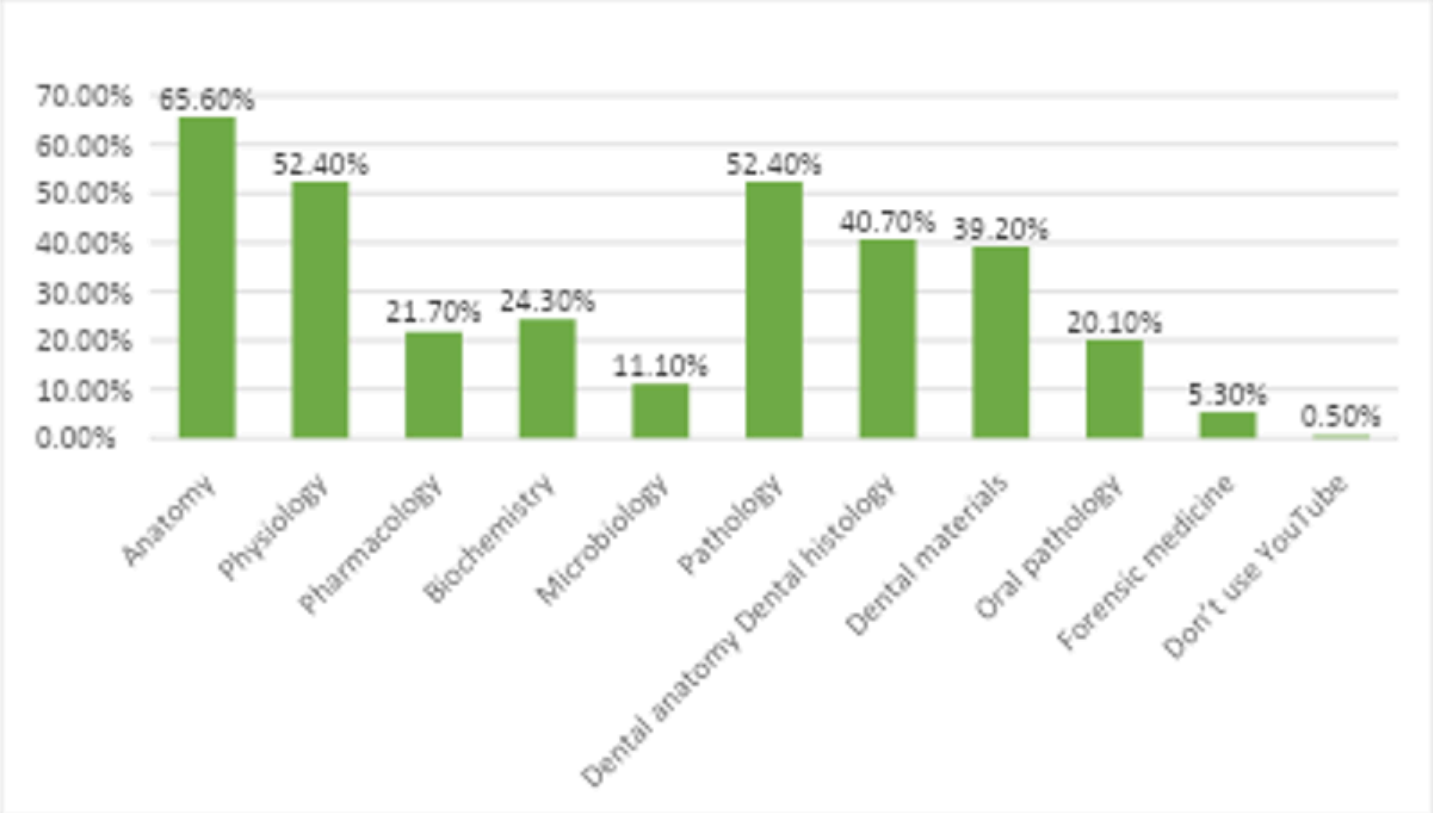

Figure 1

Fig.II. Students using YouTube for various basic science subjects

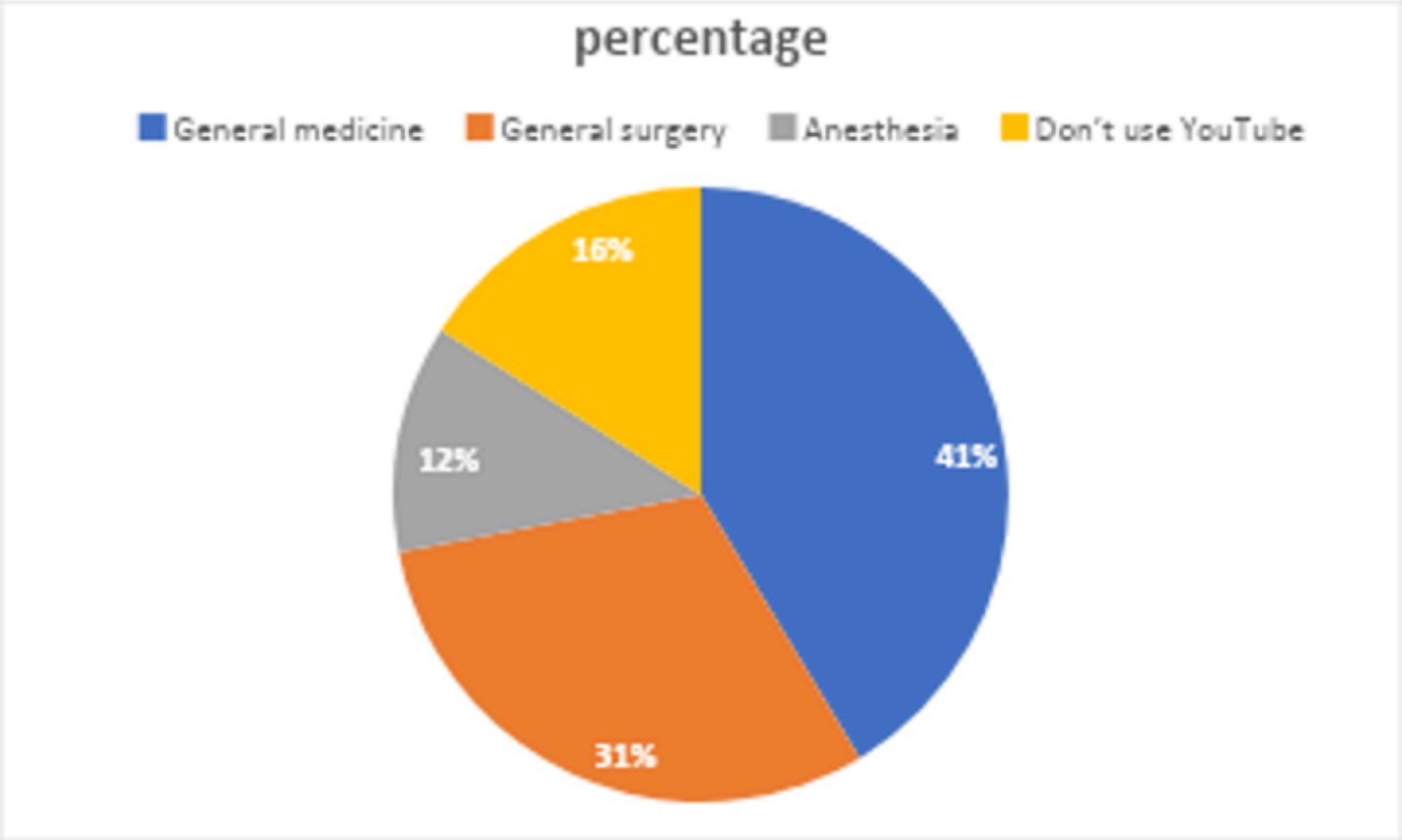

Figure 2

Fig.III. Students using YouTube for clinical science subjects

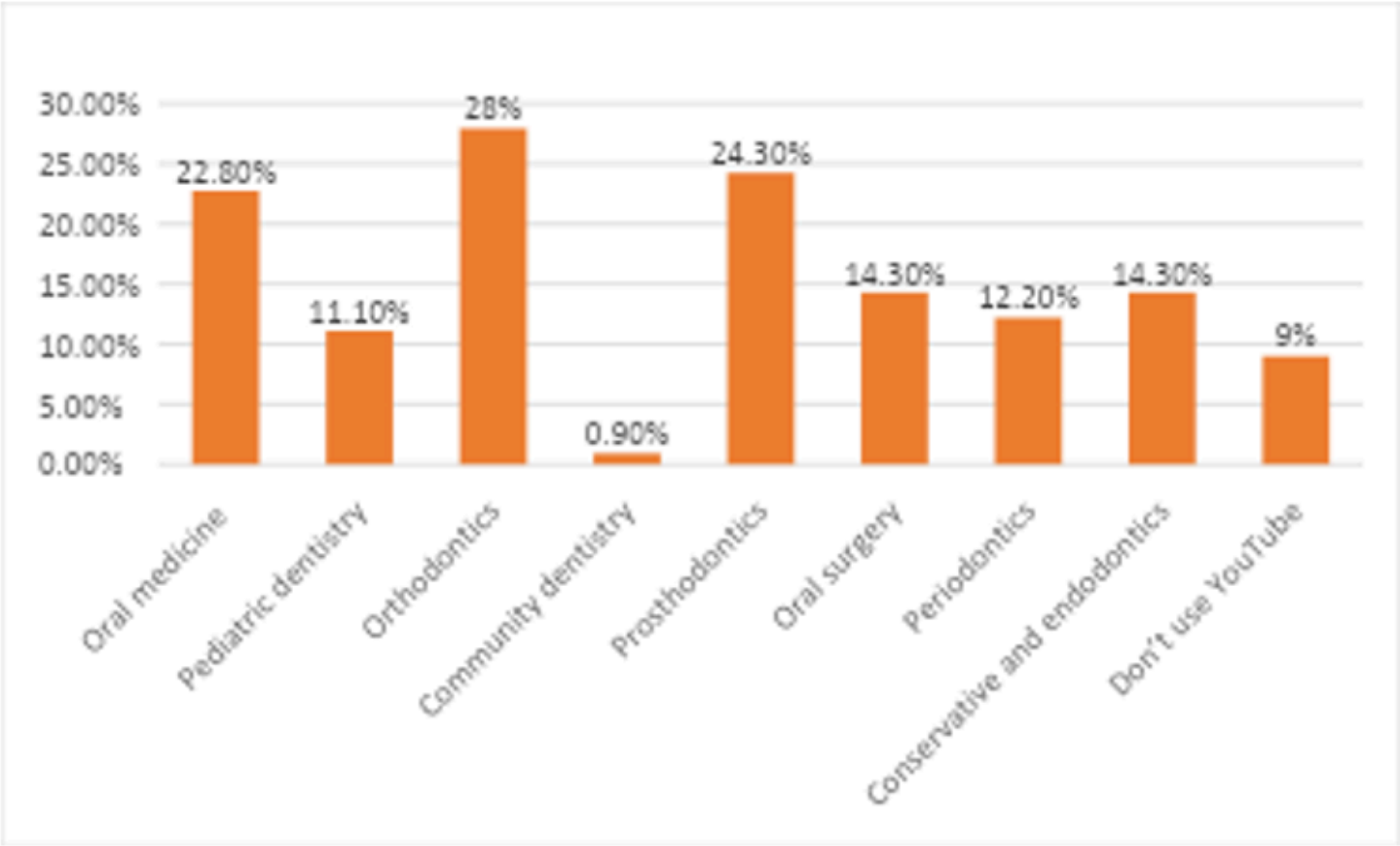

Figure 3

Fig.IV. Students using YouTube for dental science subjects

Supplementary Files

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