



## Awareness of importance of research in undergraduate dental students

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### ABSTRACT

Research can be defined as a study on a particular topic in detail in a systematic and scientific method. The purposes of research are to find something new, to prove or support a theory, to contribute knowledge in a field, or to increase awareness about something. Medical research includes basic research to clinical research which leads to advancement in the pharmaceutical industry, to improve healthcare and public health. Research among undergraduate students will expand knowledge in their field, increases interest in their career and improves their resume for job search. A cross-sectional survey was conducted among undergraduate dental students to evaluate the awareness of the importance of research. The study population in the study are the undergraduate dental students with a sample size of 100. The questionnaire consisted of 20 questions and was shared to undergraduate dental students using online survey platform. 80% of the participants college encourage students to do research, 11% of the students college does not and 9% of the students college partially encourages the students to do research. 48% of the participants said they would continue doing research, 17% said they would not continue doing research and 35% said they might continue doing research. From the results obtained, we can conclude that moderate to a good level of awareness is seen in undergraduate dental students. More awareness should be created and undergraduate students should be encouraged to do research and make the best use of their college years.



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### INTRODUCTION

Research can be defined as a study on a particular topic in detail in a systematic and scientific method (Dellis *et al.*, 2014). The purposes of research are to find something new, to prove or support a theory, to contribute knowledge in a field, or to increase awareness about something. Medical research includes basic research to clinical research which leads to advancement in the pharmaceutical industry, to improve healthcare and public health (Röhrig *et al.*, 2009). It also includes developing tools and techniques for patient care, gathering information about diseases, its risk fac-

tors (Sriram *et al.*, 2015; Menon and Thenmozhi, 2016). Some studies are conducted to find the presence or absence of some anatomical structures (Keerthana and Thenmozhi, 2016; Pratha and Thenmozhi, 2016). The measurements from these studies are useful in surgeries (Nandhini *et al.*, 2018; Subashri and Thenmozhi, 2016; Kannan and Thenmozhi, 2016) and also useful in forensics especially to solve criminal cases (Krishna and Babu, 2016). Some of the benefits of medical researches are the invention of vaccines, insulin treatment for diabetes, antibiotics, medications, new surgical techniques and new treatment of diseases. Clinical trials are done to check whether it works in the human body or not and find the side effects (Seppan *et al.*, 2018). While carrying out clinical trials in humans, the researcher must strictly follow the principles of medical ethics (Masic *et al.*, 2014).

Research among undergraduate students will expand knowledge in their field, increases interest in their career and improves their resume for job search. There is a decrease in the number of medical graduates pursuing research as a career (Moraes *et al.*, 2016). Incorporating research work along with the academics in students, enables them to develop independent critical thinking skills along with oral and written communication skills (Petrella and Jung, 2008). It also allows students to oppose preconceived ideas. Many countries offer scientific research programs when undergoing medical residency (Kuhnigk *et al.*, 2010). The other benefits of doing research could be to gain the personal satisfaction of contributing something to the society and getting recognition in the profession, etc. (Nayak, 2009). Studies have found that involvement in research as an undergraduate medical students have a strong association with postgraduate initiatives (Vallabhajosyula *et al.*, 2014). Hence, undergraduate students should be very much encouraged to do research along with their academics. Over the past years, various research done by our team was on osteology (Hafeez and Thenmozhi, 2016; Choudhari and Thenmozhi, 2016), on RNA (Johnson *et al.*, 2020; Sekar *et al.*, 2019) and in few other fields (Samuel and Thenmozhi, 2015).

Benefits of being a part of research among undergraduate students are that they develop their learning skills (Thejeswar and Thenmozhi, 2015), exposes students to other researches done in different parts of the world. It improves teamwork, communication skills and also teach students about how to defend their topic. All these skills are essential in professionals and have to be incorporated in them instead of focusing only on academics. When the students apply for jobs, the job recruiters does not

check the marks obtained rather researches done adds value to the resume and favourably impresses the interviewer. Doing researches also shows the person's interest and passion in their career as they are done voluntarily. Very few colleges have included research as part of the curriculum, while many colleges have not given any importance to research which has to be changed. The aim of this study is to evaluate the awareness of the importance of research in undergraduate dental students.

## MATERIALS AND METHODS

### Study design

A cross-sectional survey was conducted among undergraduate dental students to evaluate the awareness of the importance of research. The sampling method is simple random sampling method. The sample size of this study is 100. The participants did the survey voluntarily and no incentives were given to them. The study was conducted in May 2020. Ethical approach and informed consent from the participants were obtained.

### Survey Instrument

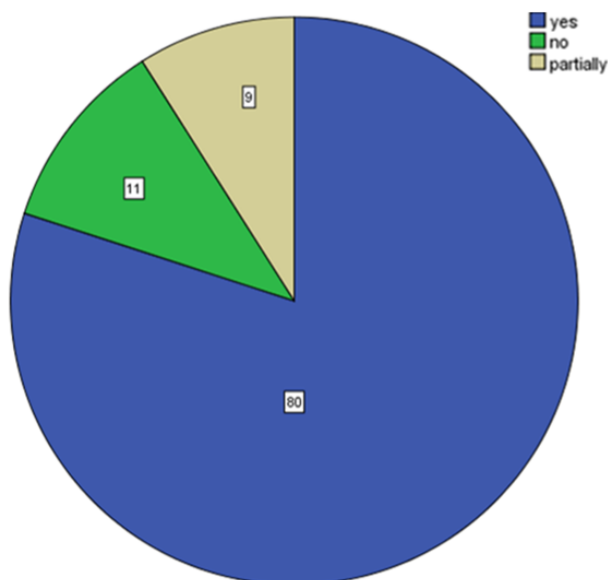
The survey instrument, which was a questionnaire, was prepared after an extensive review of the existing literature. The questionnaire was reviewed and amendments were made to improve the clarity of the questions to eliminate ambiguous responses. The questionnaire consisted of 23 questions with both open and closed-ended questions. The questionnaire was shared to undergraduate dental students using online survey platform.

### Data analysis

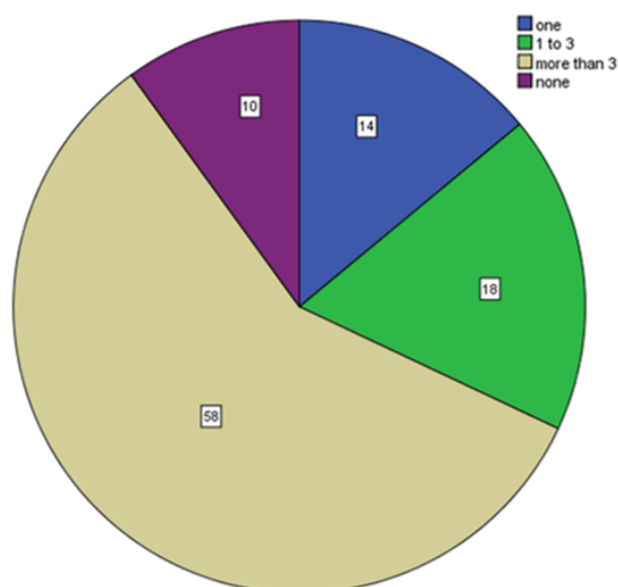
Only completed surveys were taken for analysis and the incompleting surveys were eliminated. Frequency table was prepared for each question using SPSS Statistics 19 data analysis software. Descriptive statistics used to create pie charts. All the responses obtained were tabulated and the reliability of the data was checked.

## RESULTS AND DISCUSSION

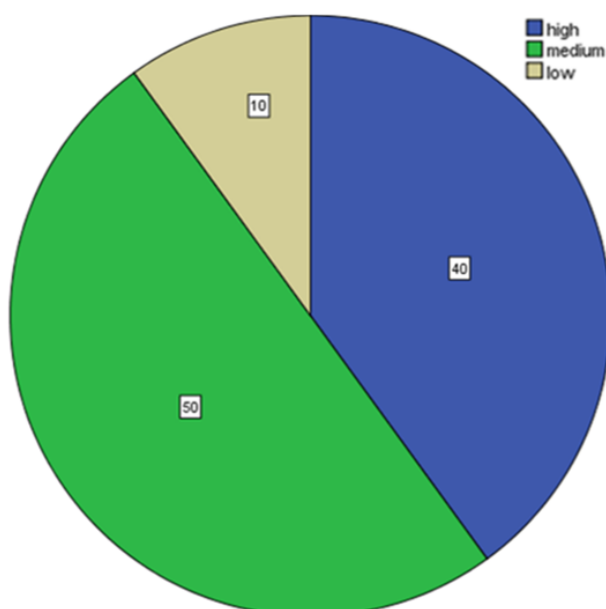
Out of the 100 participants, 71% were first-year dental students, 18% were in the second year, 4% in the third year, 2% in the fourth year and remaining 5% were interns. 80% of the participants were females, while 20% were males. 79% of the participants belong to the age group 17 to 20 years, 17% were between 20 to 22 years and the remaining 4% were more than 22 years (Table 1). 80% of the participants college encourage students to do research, 11% of the students college does not and 9% of the



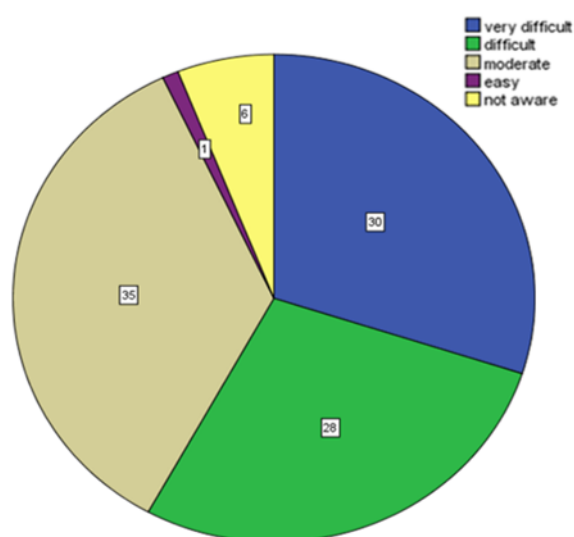
**Figure 1: College encourages students to do research. The majority said yes (80% blue), some said no (11% green) and some said partially (9% cream)**



**Figure 3: Number of researches done by the participants. One (14% blue), 1 to 3 (18% green), more than 3 (58% cream) and none (10% violet)**



**Figure 2: Interest of research in students. Interest is high (40% green), medium (50% green) and low (10% cream)**

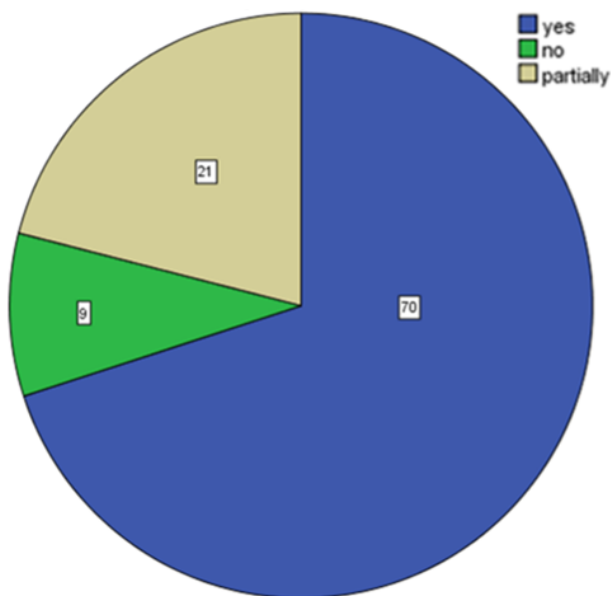


**Figure 4: Difficulty level in publishing an article**

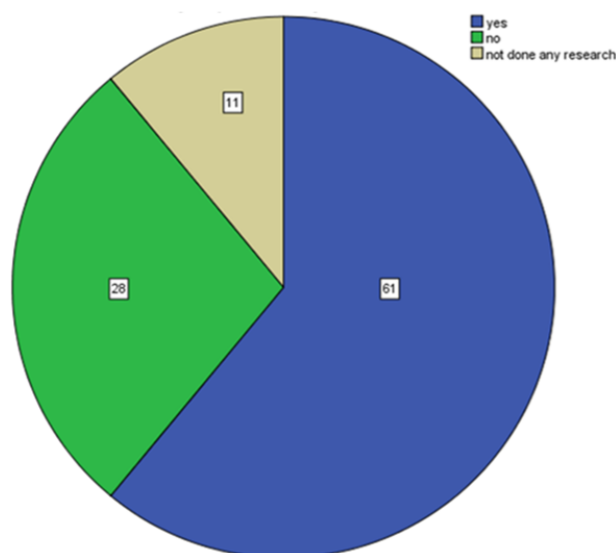
students college partially encourages the students to do research (Figure 1). When asked about their interest in doing research, 40% said they have high interest, 50% medium level of interest and 10% low level of interest (Figure 2).

58% of the participants have done more than three researches, 18% have done one to three researches, 14% have done one research and 10% have not done any research (Figure 3). 67% of the participants agreed that publishing researches in undergraduate

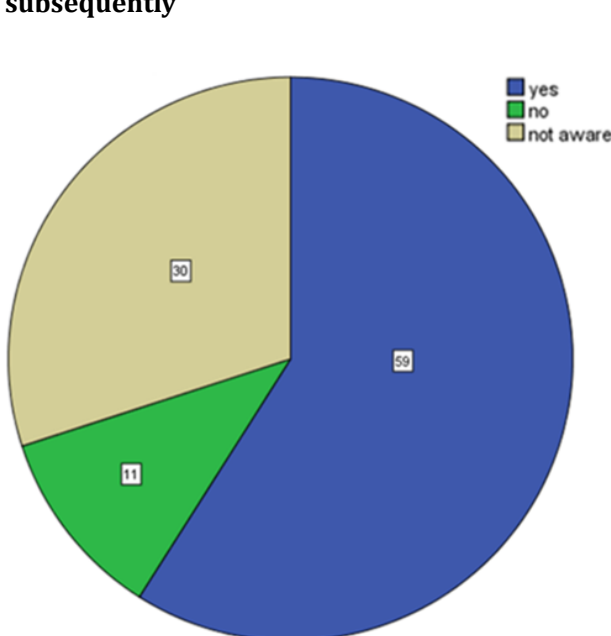
level will give more job opportunities, 10 % disagreed and 23% said maybe it will give more job opportunities (Table 2). 58% of the participants felt that research methodology knowledge would be helpful in competitive exams, 21% did not feel that way and 21% said that they are not aware. When asked about the difficulty in publishing a research article 30% described it as very difficult, 28% as difficult, 35% as moderate, 1% as easy and 6% were not aware (Figure 4). 70% of the students who have done more than one research, found the process get subsequently easier, 9% did not and 21% partially felt it getting subsequently easier (Figure 5). 66% of the undergraduate dental students agreed that



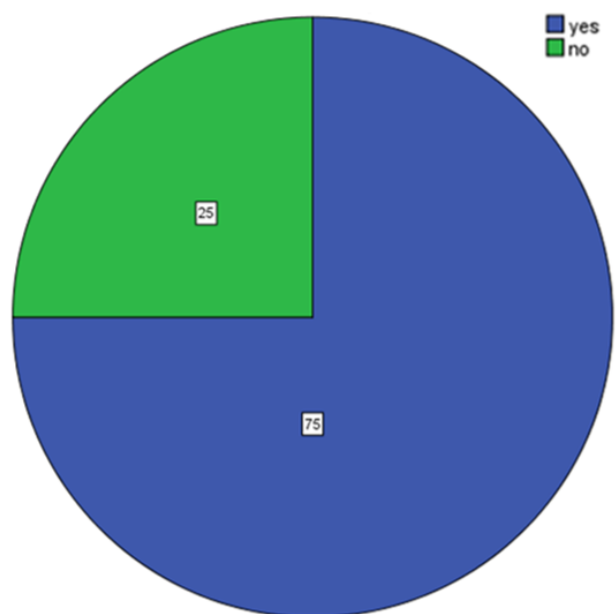
**Figure 5: Find the process gets easier subsequently**



**Figure 7: Presented any research in a conference**



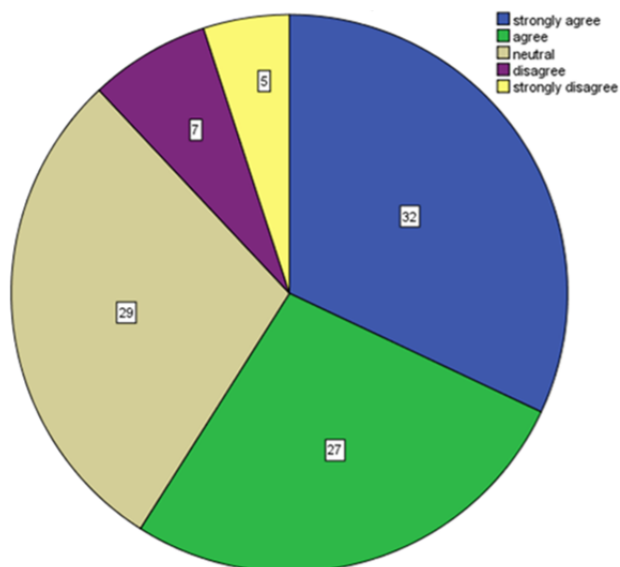
**Figure 6: Increase in self-confidence after doing research**



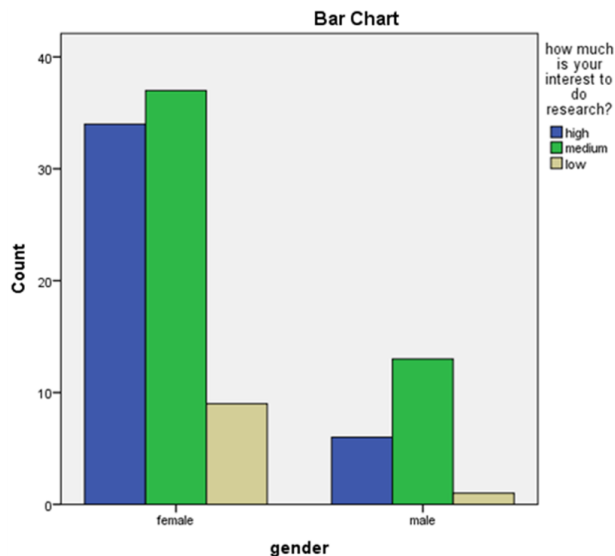
**Figure 8: Research should be included as a part of the college curriculum**

researching at undergraduate level increases passion for the carrier, 9% disagreed and 25% said maybe. 67% of the participants agreed that research methodology in college develops independent critical thinking skills and problem-solving skills, 10% disagreed and 23% said maybe. 64% of the participants felt that researches improve oral and written communication skills, 7% did not feel that way and 29% said maybe. 59% of the students said that they felt an increase in their self-confidence after doing researches, 11% did not feel any increase in self-confidence and 30% of the participants were not aware (Figure 6). 35% of the participants said they

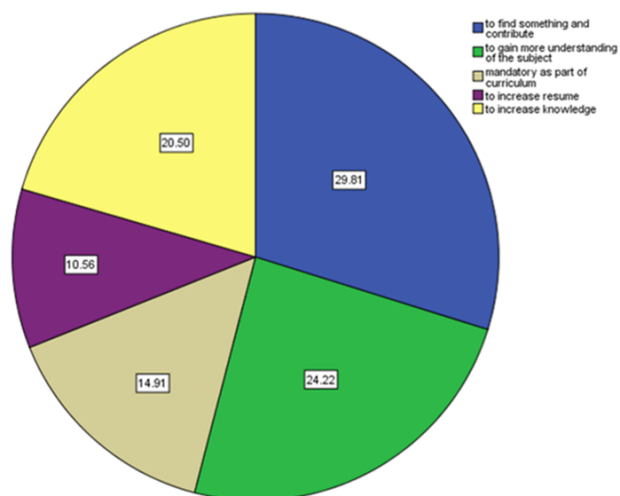
would choose research as a career, 31% said they wouldn't choose research as a career and 34% said maybe that maybe they would pursue research as their career. 71% agreed that research benefits not only the students but also the faculties to gain more knowledge in their field, 4% disagreed and 25% said maybe it benefits the faculties. 61% of the participants have presented their research in a conference, 28% have not and the remaining 11% have not done any research (Figure 7). 75% of the participants said that research is included as part of the curriculum and 25% said no (Figure 8). 32% of the participants strongly agree that researches should be a part of the dental curriculum, 27% agreed, 29%



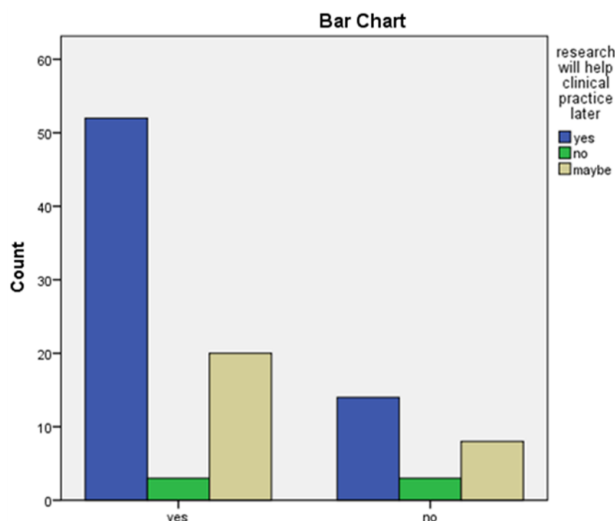
**Figure 9: Researches should be part of the dental curriculum**



**Figure 11: Bar graph represents the association between gender and interest in research**



**Figure 10: Reasons to research undergraduate dental students**



**Figure 12: Bar graph represents the association between gender and awareness if research would help in their clinical practice**

were neutral, 7% disagreed and 5% strongly disagreed (Figure 9). 66% of the participants felt that research would help clinical practice later, 6% said no and 28% said maybe. 48% of the participants said they would continue doing research, 17% said they would not continue doing research and 35% said they might continue doing research.

When asked about the reasons to do research, 29.8% said that they are doing to find something and contribute to the world, 24.22% said to gain more understanding of the subject, 14.9% said that they are doing since it is mandatory as part of the curriculum, 10.5% said to improve resume, 20.5% said to increase knowledge (Figure 10). When asked about the barriers faced while doing research, 16.2% said lack of interest, 24.5% said inadequate knowledge

**Table 1: Age group of survey respondents**

Age Group	Percentage
<22 years	96%
>22 years	4%

about research methodology, 8.3% said inadequate facilities and funds, 10.06% said lack motivation, 6.7% said lack guidance by faculties, 22.3% said lack of time, 6.7% said other reasons and 5.02% were not aware (Table 3). From analysing in spss software, no significant difference was seen in interest to do research among males and females. (Figure 11). There was no significant difference seen in responses of students whose college has research as

**Table 2: Awareness and perception of survey participants towards research**

Questions	Yes	No	Maybe
Job opportunities will increase after publishing research	67%	10%	23%
Are you aware of the benefits of research in competitive exams?	58%	21%	21%
Research publication increases passion for one's career.	66%	9%	25%
Research develops independent critical thinking skills and problem-solving skills.	67%	10%	23%
Exposure to research improves oral and communication skills.	64%	7%	29%
Would you pursue research as a career?	35%	31%	34%
Are you aware of the benefits of research to the faculties?	71%	4%	25%
Are you aware that research will help clinical practice later?	66%	6%	28%
Will you continue researching after completing your degree?	48%	17%	35%

**Table 3: Barriers to doing research faced by the participants**

Barriers faced by students for doing research	Percentage of responses
Inadequate knowledge about research methodology	24.58%
Lack of time	22.35%
Lack of interest	16.2%
Lack of motivation	10.06%
Inadequate facilities and funds	8.38%
Lack of guidance by faculties	6.7%
Other reasons	6.7%
Not aware	5.02%

part of the curriculum and those students whose college does not have research as part of the curriculum (Figure 12).

From the data obtained and analysed of the present study, the awareness about research among undergraduate dental students is moderate and it has to be improved. This will make the students more productive and provide an opportunity to improve their skills. In a study conducted among medical students, the barriers faced for doing research was asked, 53% said that lack of awareness was a study. 44% of the participants in our study said that inadequate knowledge about research methodology as a barrier. 54% of them said lack of interest and 29% of the participants in our study said lack of interest as a barrier. In the previous study, 59% of the participants had a lack of time and 40% of the participants in our study said lack of time as a barrier. 62% of the participants in the previous study said lack of funds as a barrier. In the present study, 15% of the participants said the lack of facilities and funds as a barrier. The results were similar to our study (Basavareddy and Pallamparthi, 2019). A study was conducted among final year medical students in which the majority of the students, 88.6% agreed that research is important in the medical

field. In our study, 32% of the participants strongly agreed that research should be a part of the dental curriculum, 27% agreed, and 29% were neutral about it. The results are similar to our study (Kini *et al.*, 2017).

Figure 4, Some said it is very difficult (30% blue), some said it as difficult (28% green), some as moderate (35% cream), some as easy (1% violet) and some were not aware (6% yellow)

Figure 5, The majority said yes (70% yes), few said no (9% green) and some as partially (21% cream)

Figure 6, The majority said yes (59% blue), some said no (11% green) and some were not aware (30% cream)

Figure 7, The majority have presented their research in a conference (61% blue), some have not (28% green) and some have not done any research (11% cream)

Figure 8, The majority agreed (75% blue) and some disagreed (25% green)

Figure 9, Some of the participants strongly agree (32% blue), some agree (27% green), some neutral answer (29% cream), some disagree (7% violet) and some strongly disagree (5% yellow)

Figure 10, Some said that to find something and

contribute (29.81% blue), some said to gain more understanding of the subject (24.22% green), some said as mandatory as part of curriculum (14.91% cream), some said to improve resume (10.56% violet). Some said as to increase knowledge (20.50% yellow)

Figure 11, The X-axis represents gender Y-axis represents the number of participants interested towards research. Association between gender and their interest in doing research was done using the Chi square test. P value = 0.305 (>0.05) hence not significant. There was no statistical significance most of the participants in both genders had an either high or medium interest in doing research

Figure 12, The X-axis represents gender and Y-axis represents the number of participants. Association between gender and their awareness if research would help in their clinical practice was done using Chi square test. P value = 0.28 (>0.05) hence not significant. There was no statistical significance most of the people in both genders responded that research would help in their clinical practice

In a previous study conducted among students in a medical college in southern India, most of the students felt that research is essential, but 75% of them were not exposed to doing research which is quite a large number. In our study, only 10% of the participants have not done any research, which is significantly less. Majority of the students in our research have done research compared to a previous study (Vallabhajosyula *et al.*, 2014). In another study conducted among medical students, 12% had attended an international conference. In the present study, 61% of the participants have presented their research at any conference, which is significantly much higher than the previous study (Möller and Shoshan, 2017).

Some of the limitations in the present study are the small sample size of 100, homogeneous population, response bias, survey fatigue. Large sample size would give more accurate data. The study population was undergraduate dental students and hence a wide variety of population could be included to get more information.

## CONCLUSION

From the results obtained, we can conclude that the awareness of the importance of research among dental students is convincing. Many of the dental students are aware of its importance, but there is still some group of participants who are not aware of. More awareness should be created and undergraduate students should be encouraged to make

best out of their years spent in college. Young researchers tend to have more innovative ideas which can be brought up and used in the research world. Some colleges have made research mandatory as part of the curriculum while many colleges have not given any importance to research which has to be changed.

## Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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The authors declare that they have no funding support for this study.

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