

KNOWLEDGE ATTITUDE AND PERCEIVED BARRIERS TOWARDS SCIENTIFIC RESEARCH : THE PERSPECTIVES OF UNDERGRADUATE DENTAL STUDENTS

Type of manuscript: Original study

Running title : knowledges , Attitude and perceived barriers towards scientific research

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ABSTRACT

BACKGROUND

Research is crucial for the scientific progress of the health of individuals, communities, and systems. The aim of this study was to assess the knowledge, attitude, motives and barriers among third year and final year dental students. Therefore, this study was conducted to assess the level of knowledge, attitude, motives and barriers toward scientific research among third and final year undergraduate dental students.

MATERIALS AND METHODS:

We conducted a cross-sectional study of 100 dental students using a convenience sampling method from various dental colleges. We used a validated self-report questionnaire to collect data and assess the knowledge of, attitude towards and barriers to scientific research

RESULTS :

Totally 100 participants were taken into consideration with equal distribution of third and final year undergraduate dental students . The third year dental students were not aware of the study design of research protocol; only 2 % of the participants were aware of it . Only final year students were aware of the study design of the research .Similarly the research protocol and the hypothesis was also all final year students was aware of it (50.99%) and only 2% of the third year was aware of the research protocol. 18.54% of the final year students strongly agreed that research should be a part of curriculum. Even though third year students didn't agree that research should be a part of curriculum , most third year students agreed that it helps in better understanding of the subjects. 24.5% of the third year students said that research is an extra burden , but compared to third years nearly 38.4% of the final years answered that research is an extra burden . The most common personal barriers was found to be lack of Awareness, lack of self interest , no funding for research among third year dental students and it is also strongly agreed by final year dental students

CONCLUSION:

The undergraduate third and final year students had a moderate level of knowledge and practice in research. More efforts are needed to facilitate scientific dental research including supervisors' availability and time allocation for research.

KEYWORDS : Knowledge, attitude, awareness, dental students, innovative analysis

INTRODUCTION:

Health research is defined as synthesizing new knowledge via scientific methods to reveal and deal with health issues.[1] Healthcare providers, especially physicians must have adequate knowledge of and skills for scientific research for optimal practice and high quality and delivery of healthcare services[2] . The concern toward scientific research has increased in both developing and developed countries because biomedical research can improve medical care[3]. The updated knowledge of scientific principles and methods is essential for the conduct of research[4]. The medical students should be aware of the methods in carrying out research as they will be future doctors who will have to practice evidence-based medicine in patient care[5].

Scientific research is the systematic approach by which theories and hypotheses can be proved or disapproved[6].

Research in medicine has an impact on prevention, diagnosis, and newer treatment for the medical ailments. It has brought reforms in policies for health-care programs[7]. Medical research can be basic, applied, or translational research conducted to aid and support the development of knowledge in the field of medicine[8]. Modern undergraduate education recommends early exposure to health training research. According to literature, the factors which play a key role in research are knowledge, attitude, experience, and barriers toward research[9]

Many studies have been conducted to assess the knowledge and attitude of health professionals and medical students toward scientific research[10]. In contrast, these types of studies among dental students are scarce[11]. Some studies assessed knowledge of dental professionals about research and found it to be between 52.3% to 56.7% among the Indian dentists[12]. It should be highlighted that each of the previous studies was conducted among students in a single governmental university, reducing the external validity of such a study[13]. Also, this study did not include graduated dentists.

Literature reported several barriers toward conducting research among dental professionals such as lack of interest by faculty members, technique problems, lack of undergraduate courses[14]. As many articles highlight the importance of research to the undergraduate medical students. Whereas, few studies were done among dental students and dentists investigating a larger geographical area.

Our team has extensive knowledge and research experience that has translated into high quality publications[15–23],[24],[25],[26,27],[28],[29],[30–34]. Thus, the aim of this study was to assess the knowledge, attitude, practice, motives and barriers among third and final year undergraduate dental students.

MATERIALS AND METHODS

This is a cross-sectional study aimed to assess the knowledge, attitudes, practice, motives and barriers towards research among undergraduate third and final year dental students. The participants were recruited from various dental colleges in Chennai. Data was collected from private hospitals. A convenience sampling method was used. The inclusion criteria included third and final year undergraduate dental students. The exclusion criteria include practitioners. The questionnaire was validated by a pilot study of third and final year undergraduates. The validation included language, content, organization, and logical flow. The data were collected,

tabulated and analysed using the SPSS version 23 were used to compare participants' responses from the questionnaire. The sample size was 100 participants. The survey is conducted for 100 individuals through a link by survey planet. The content of the questionnaire was adapted from the previous studies and modified for this study. It comprised 3 sections. The first section included demographic data. The second and third section assesses the respondent's knowledge about research.

RESULTS :

Totally 100 participants were taken into consideration with equal distribution of third and final year undergraduate dental students with an age group between 21-23 years (figure 1 and 2). The third year dental students were not aware of the study design of research protocol; only 2 % of the participants were aware of it. Only final year students were aware of the study design of the research (figure 3). Similarly the research protocol and the hypothesis also all final year students were aware of (50.99%) and only 2% of the third year students were aware of the research protocol (figure 4 and 5). 18.54% of the final year students strongly agreed that research should be a part of curriculum (figure 6). Even though third year students didn't agree that research should be a part of curriculum, most third year students agreed that it helps in better understanding of the subjects (figure 7). 24.5% of the third year students said that research is an extra burden, but compared to third years nearly 38.4% of the final years answered that research is an extra burden (figure 8). The most common personal barriers was found to be lack of Awareness (figure 9), lack of self interest (figure 10), no funding for research (figure 11), lack of faculty encouragement (figure 12) among third year dental students and it is also strongly agreed by final year dental students.

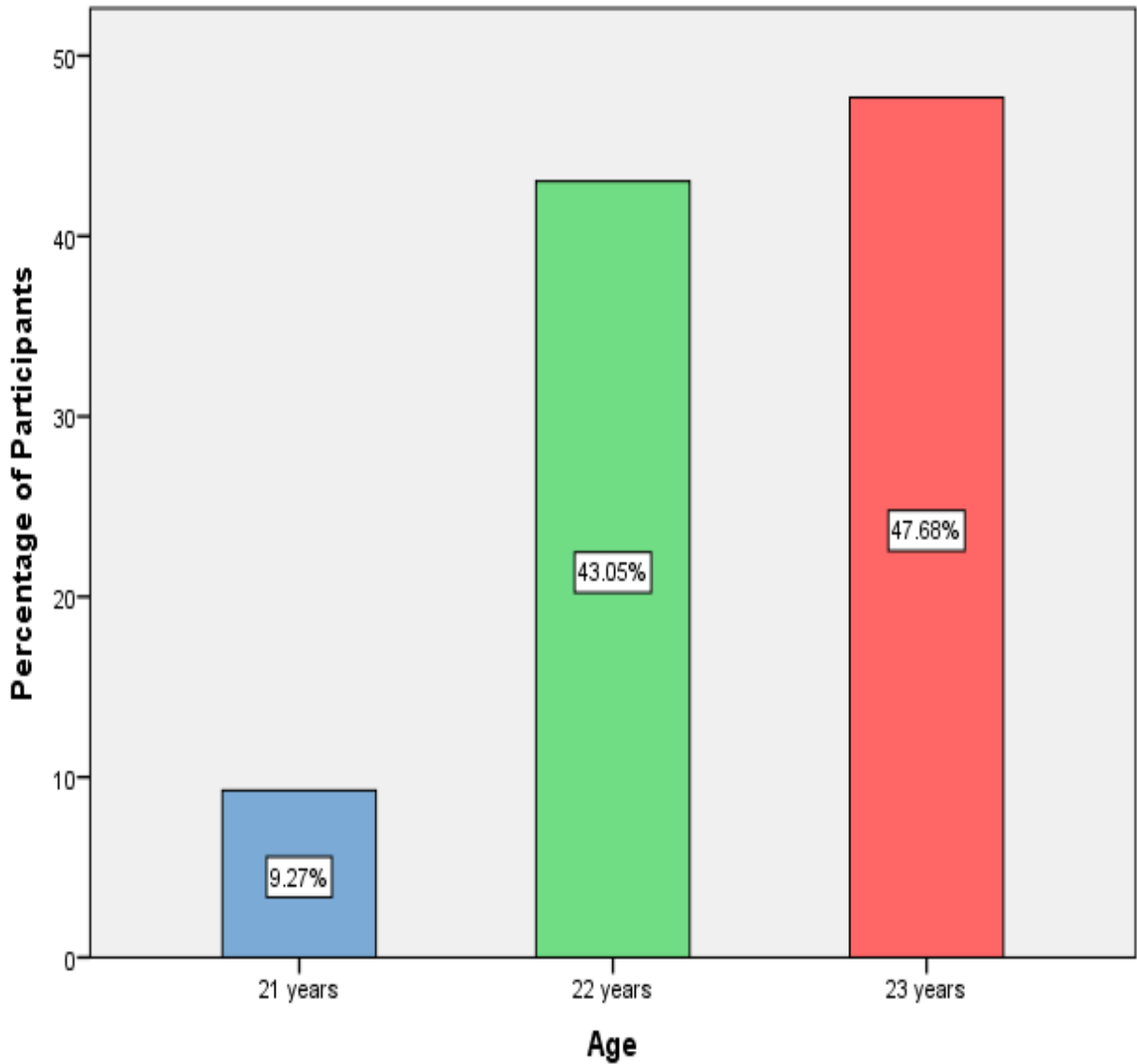


Figure 1 : Bar graph represents the age distribution of this study . The x axis represents the age groups of the subjects and the y axis represents the percentage distribution of participants. The blue colour represents 21 years of age , Green colour represents 22 years of age and the red colour denotes 23 years of age . The age group of 23 years (47.68%) participated more in this study than 22 years(43.05%)and 21 years.(9.27%).

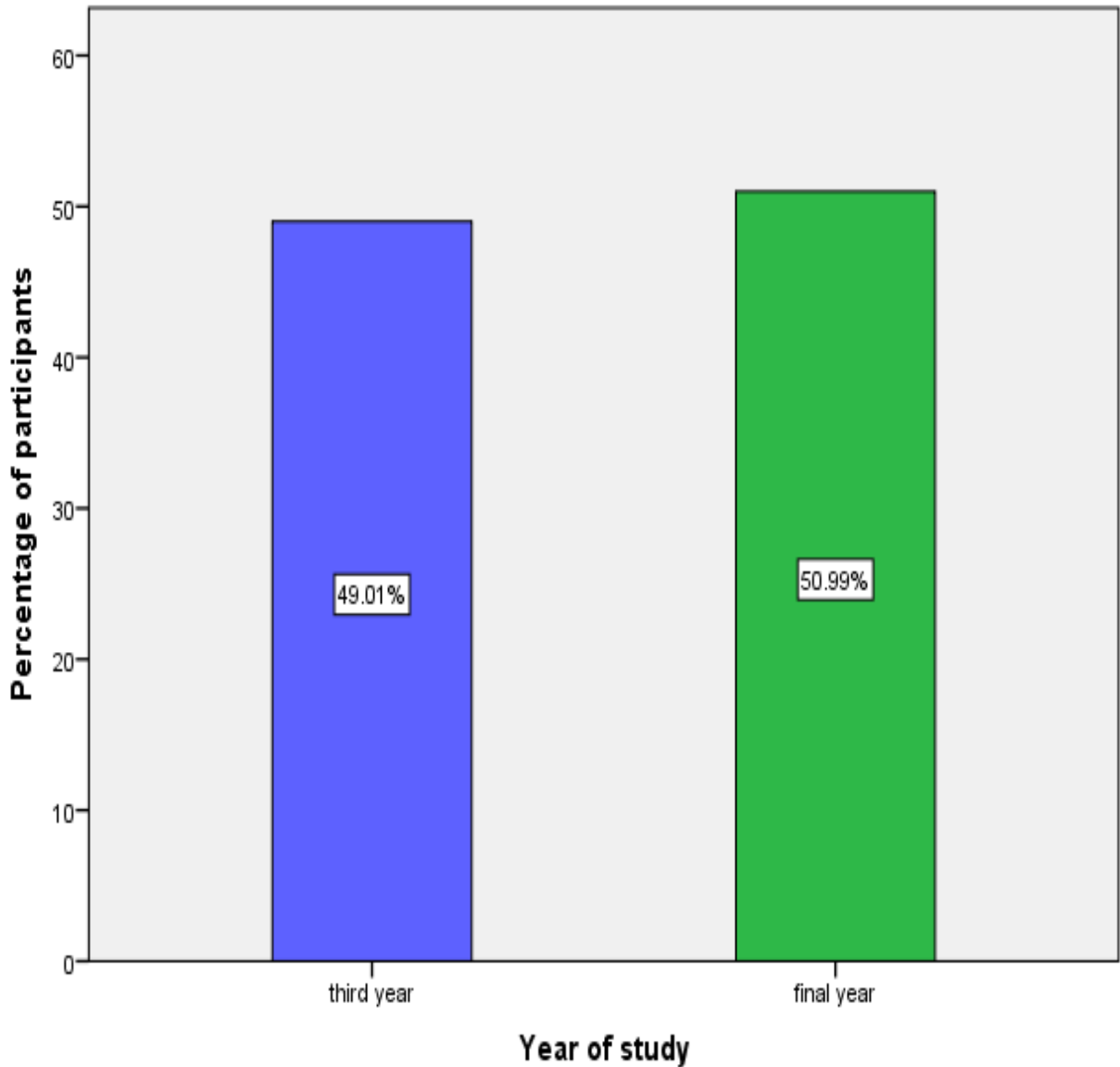


Figure 2: Bar graph represents the gender distribution of this study . The x axis represents the Year of study of the participants and the y axis represents the percentage distribution of participants. The blue colour represents third year undergraduate students and the green colour represents the final year undergraduate students. 50.99% of the participants was final year and the rest 49.01% of the participants was third years

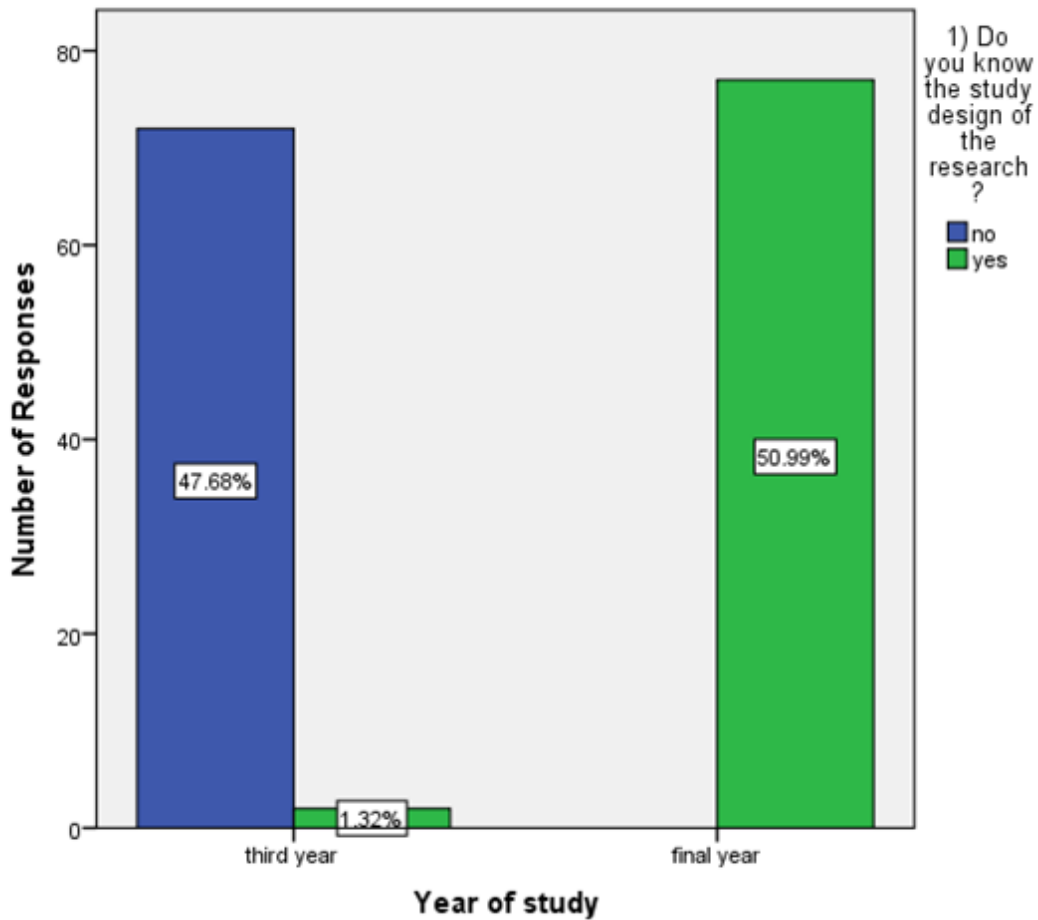


Figure 3. Bar graph represents the association of years of study and attitude towards scientific research .The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes the participants were not aware of the study design of the research and the green colour denotes they were aware of the study design of the research. The third year dental students were not aware of the study design of research protocol(47.68%) ; only 2 % of the participants were aware of it . Only final year students were aware of the study design of the research (50.99%) .(Chi square test -143.199 ; P Value <0.05, significant)

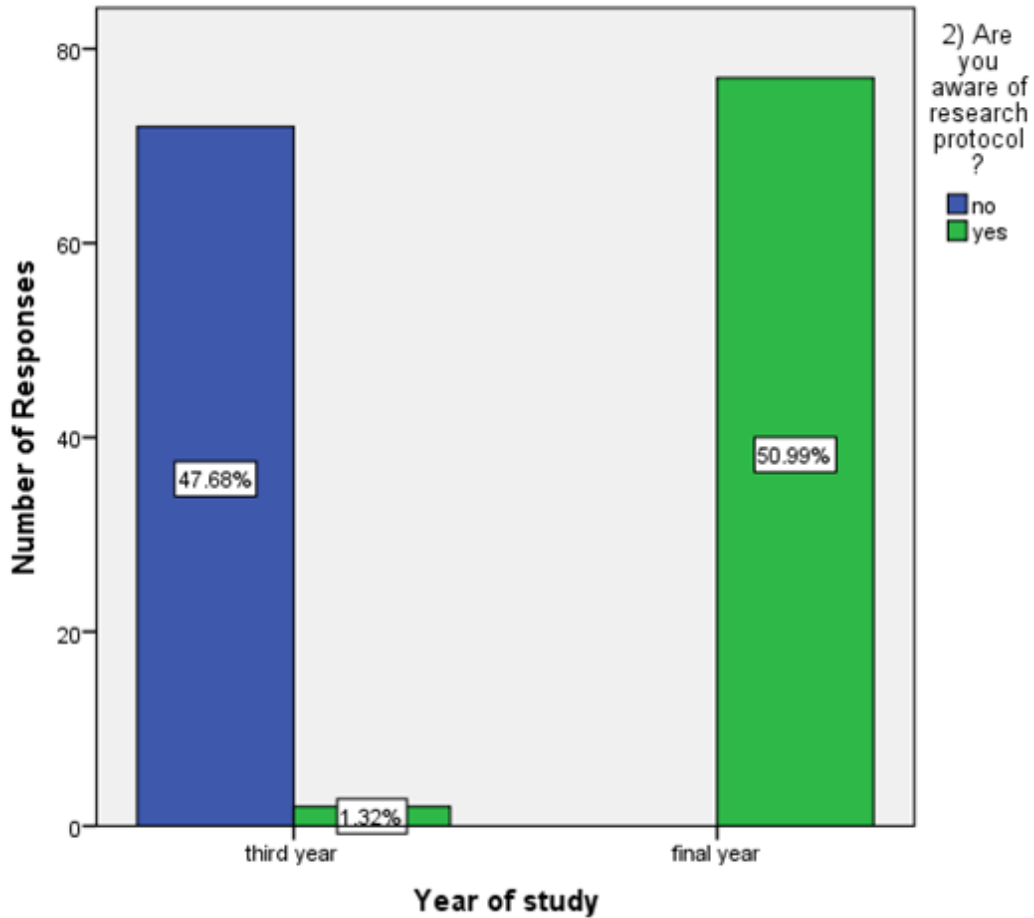


Figure 4 : Bar graph represents the association of year of study and attitude towards scientific research . The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes the participants were not aware of research protocol and the green colour denotes they were aware of the research protocol. The third year dental students were not aware of research protocol(47.68%) ; only 2 % of the participants were aware of it . Only final year students were aware of research protocol (50.99%) ..(Chi square test - 143.199; P Value <0.05, significant)

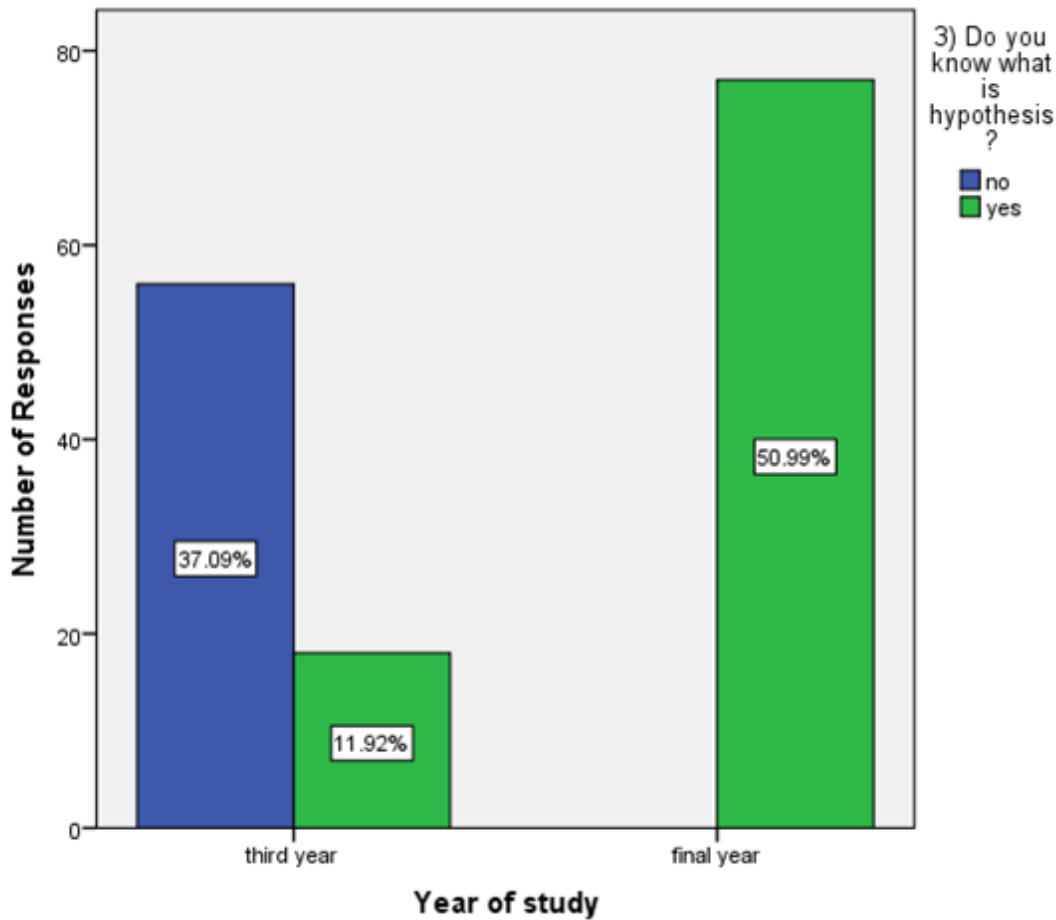


Figure 5 Bar graph represents the association of year of study and attitude towards scientific research .The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes the participants were not aware of the research hypothesis and the green colour denotes they were aware of the research hypothesis. The third year dental students were not aware of the research hypothesis (37.09%) ; only 12 % of the participants were aware of it . Only final year students were aware of the research hypothesis(50.99%) . .(Chi square test -92.619; P Value <0.05, significant)

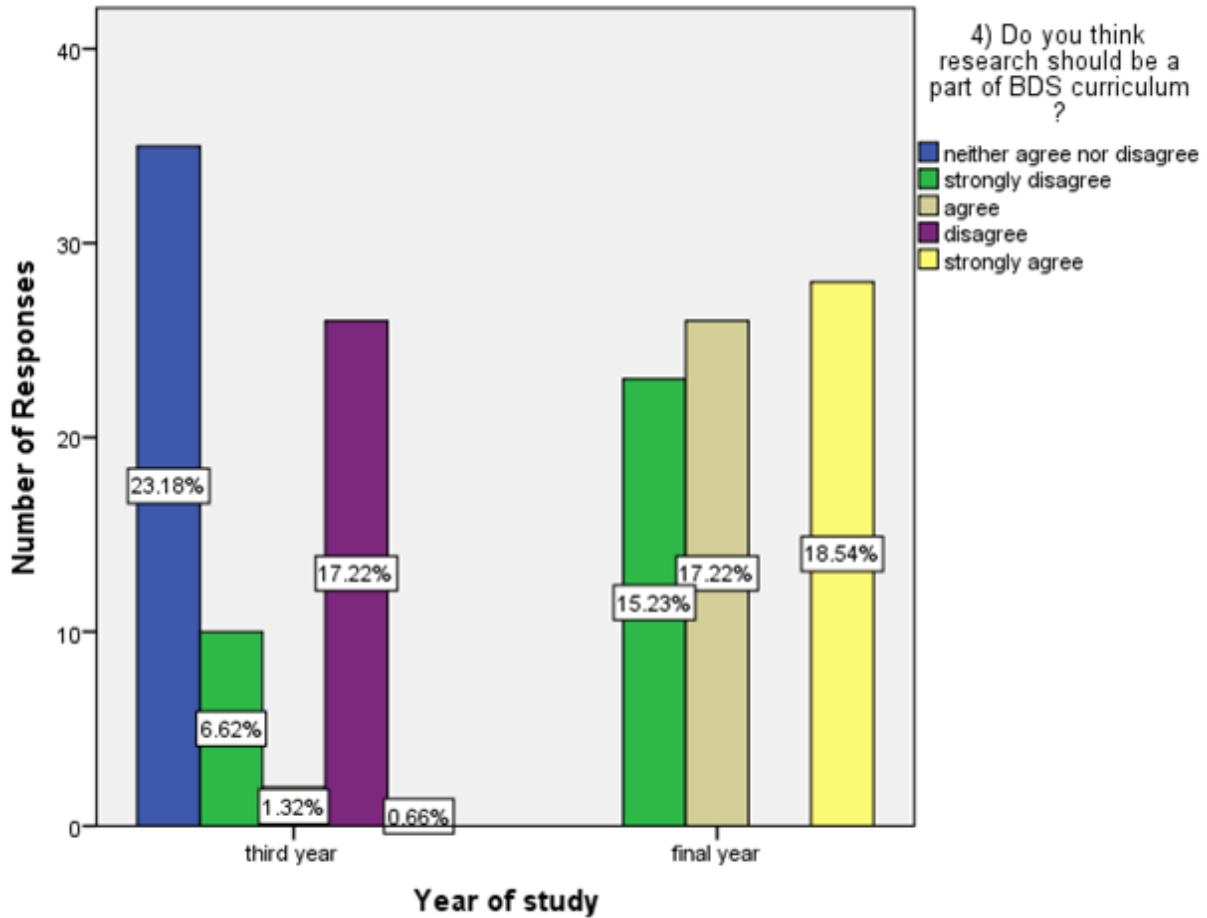


Figure 6 Bar graph represents the association of year of study and knowledge towards scientific research. The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes neither agree nor disagree , green colour denotes strongly disagree, Brown colour denotes agree, violet colour denotes disagree and the yellow colour strongly agree. 18.54% of the final year students strongly agreed that research should be a part of curriculum. Even though third year students didn't agree that research should be a part of curriculum .(Chi square test - 111.815 ;P Value <0.05, significant)

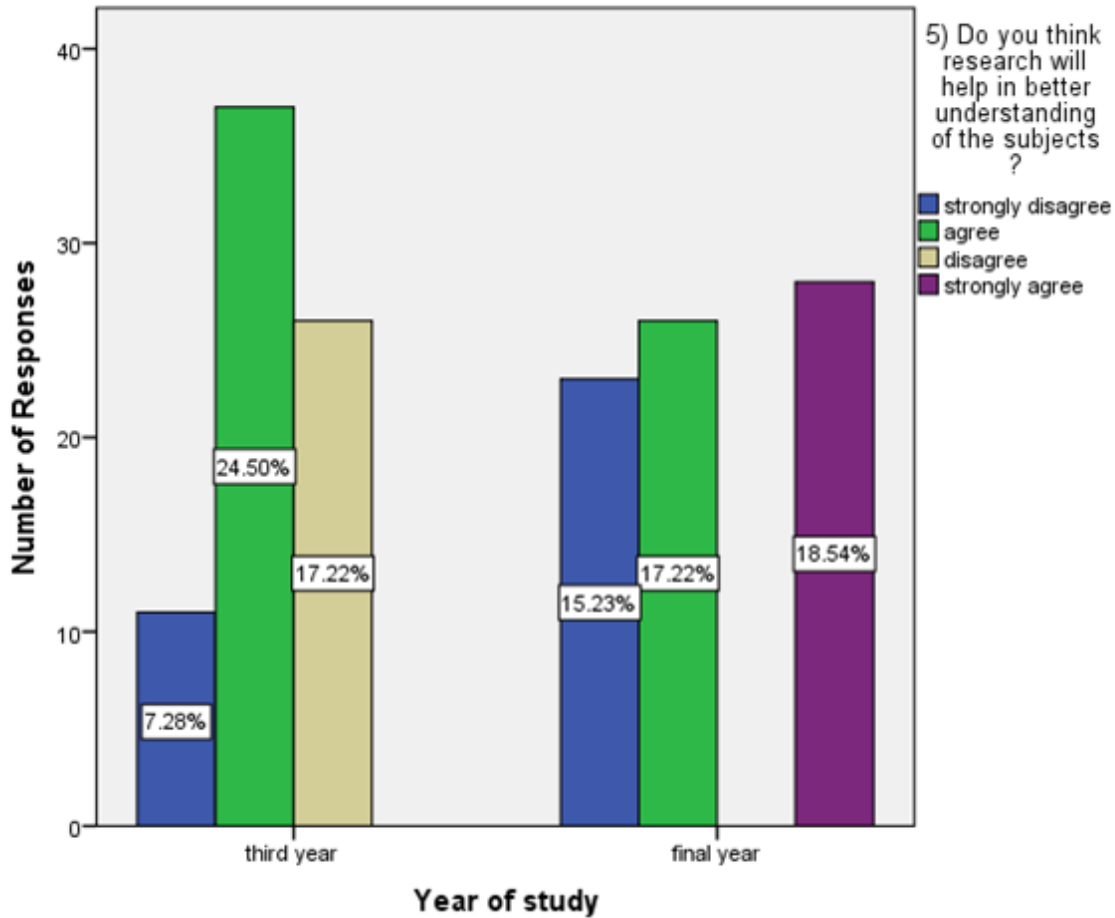


Figure 7 Bar graph represents the association of year of study and knowledge towards scientific research. The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes strongly agree, green colour denotes agree, Brown colour denotes disagree, violet colour denotes strongly agree .Most third year students agreed that it helps in better understanding of the subjects(24.50%). .(Chi square test -60.120; P Value <0.05, significant)

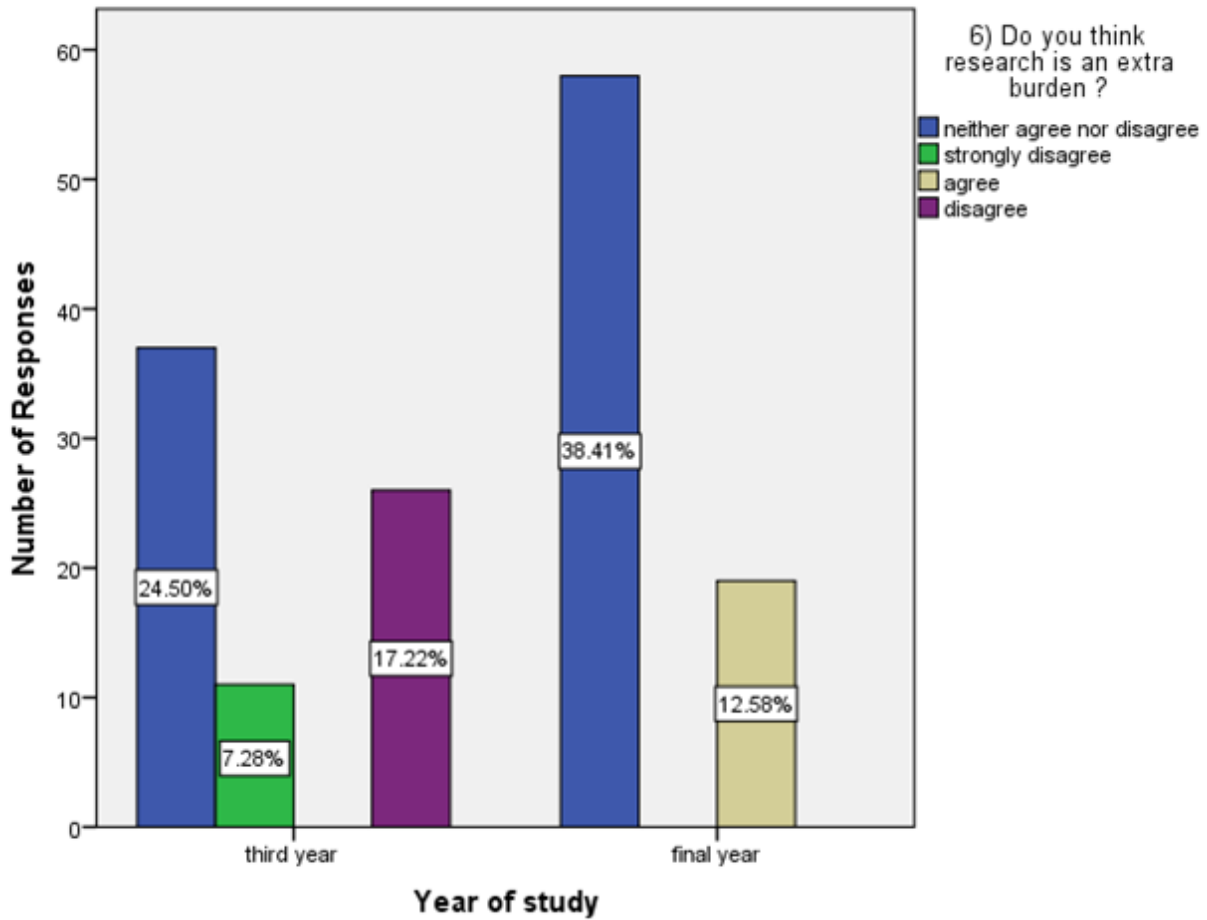


Figure 8 Bar graph represents the association of year of study and knowledge towards scientific research. The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes neither agree nor disagree , green colour denotes strongly disagree , Brown colour denotes agree, violet colour denotes disagree .24.5% of the third year students said that research is an extra burden , but compared to third years nearly 38.4% of the final years answered that research is an extra burden . .(Chi square test -60.606 ; P Value <0.05, significant)

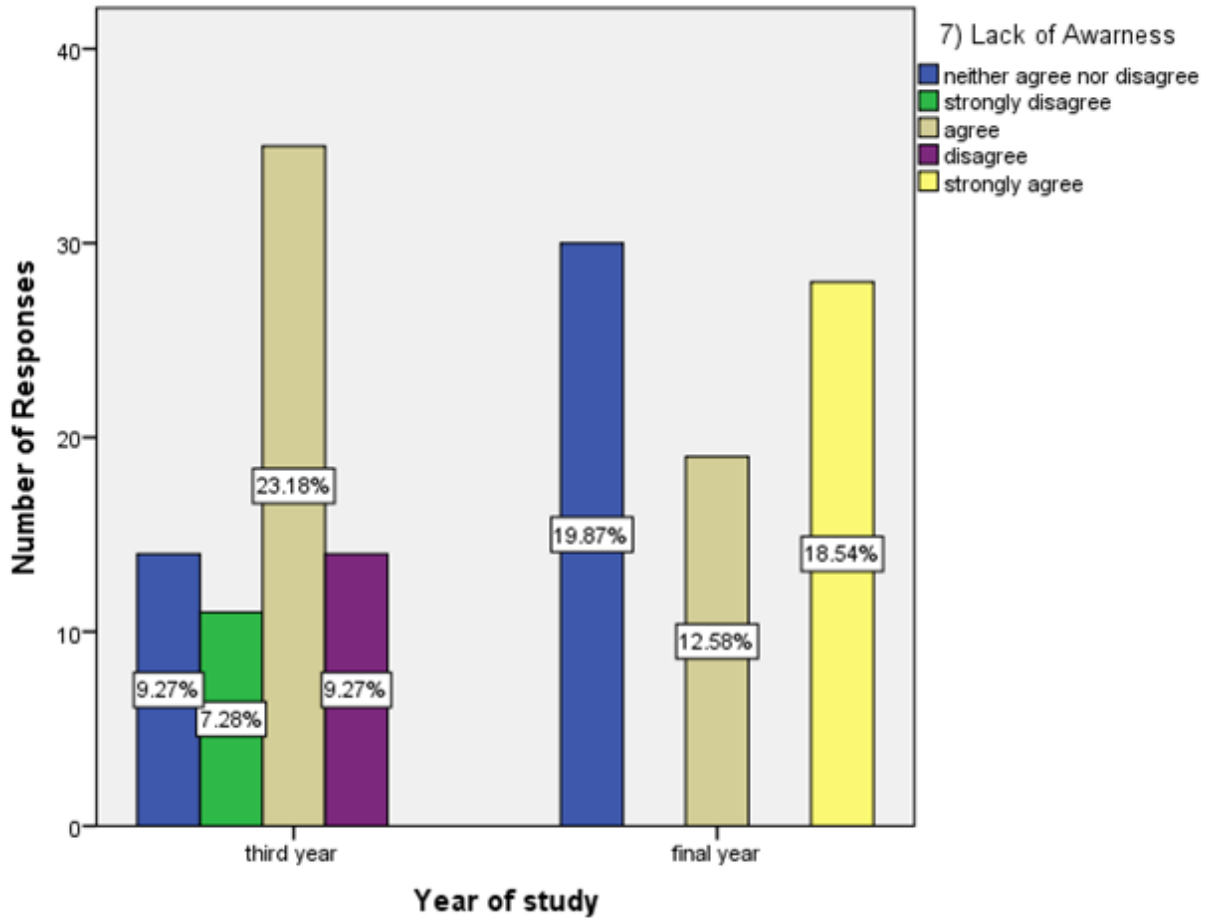


Figure 9 Bar graph represents the association of year of study and the personal barriers of participants towards research. The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes neither agree nor disagree , green colour denotes strongly disagree , Brown colour denotes agree, violet colour denotes disagree. Yellow colour denotes strongly agree . 23.18% of the third year students agreed that the most common personal barriers for research was due to lack of Awareness and also nearly 18.54% of the final year students strongly agreed for the lack of awareness. .(Chi square test - 63.524 ; P Value <0.05, significant)

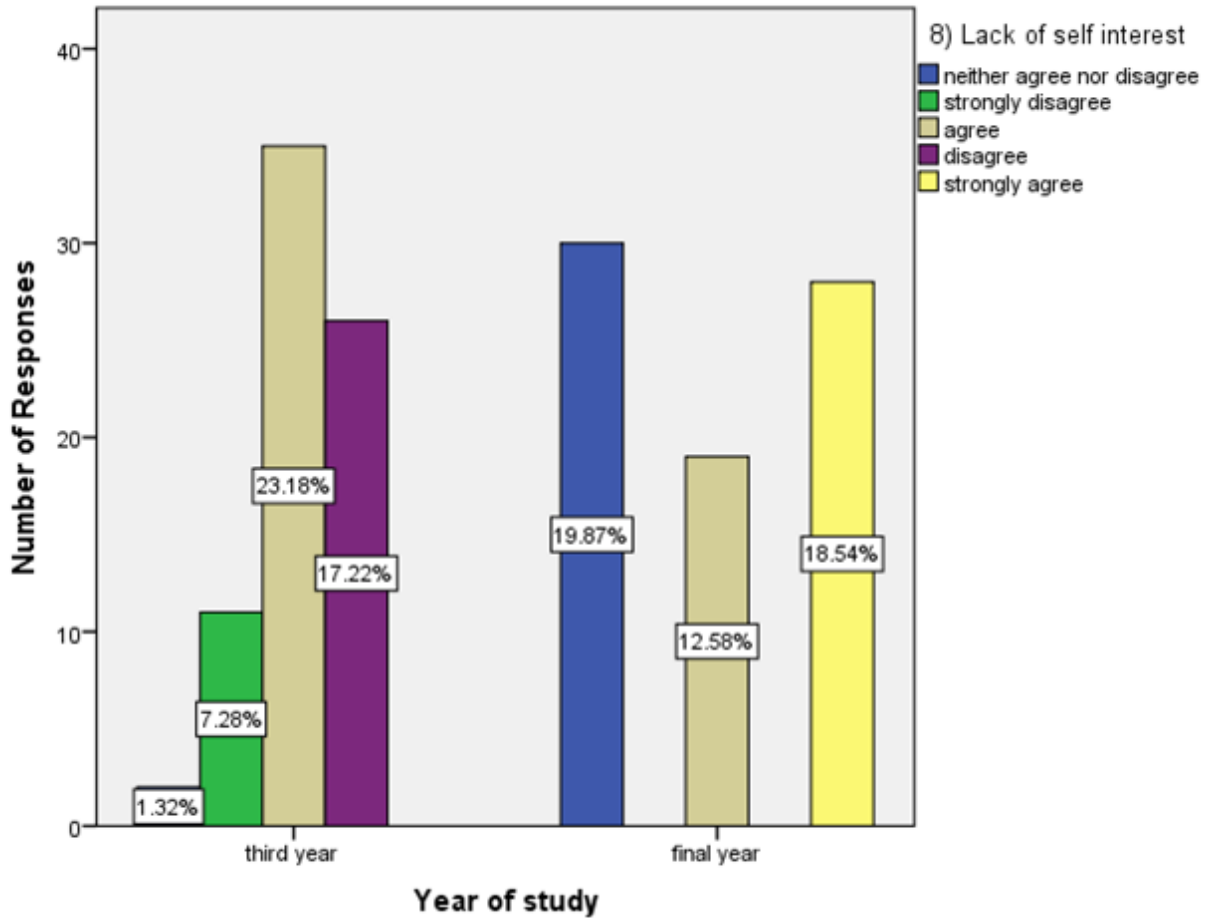


Figure 10 Bar graph represents the association of year of study and the personal barriers of participants towards research. The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes neither agree nor disagree , green colour denotes strongly disagree , Brown colour denotes agree, violet colour denotes disagree. Yellow colour denotes strongly agree . 23.18% of the third year students agreed that the most common personal barriers for research was due to lack of self interest and also nearly 18.54% of the final year students strongly agreed for the lack of self interest. .(Chi square test -94.218 ; P Value <0.05, significant)

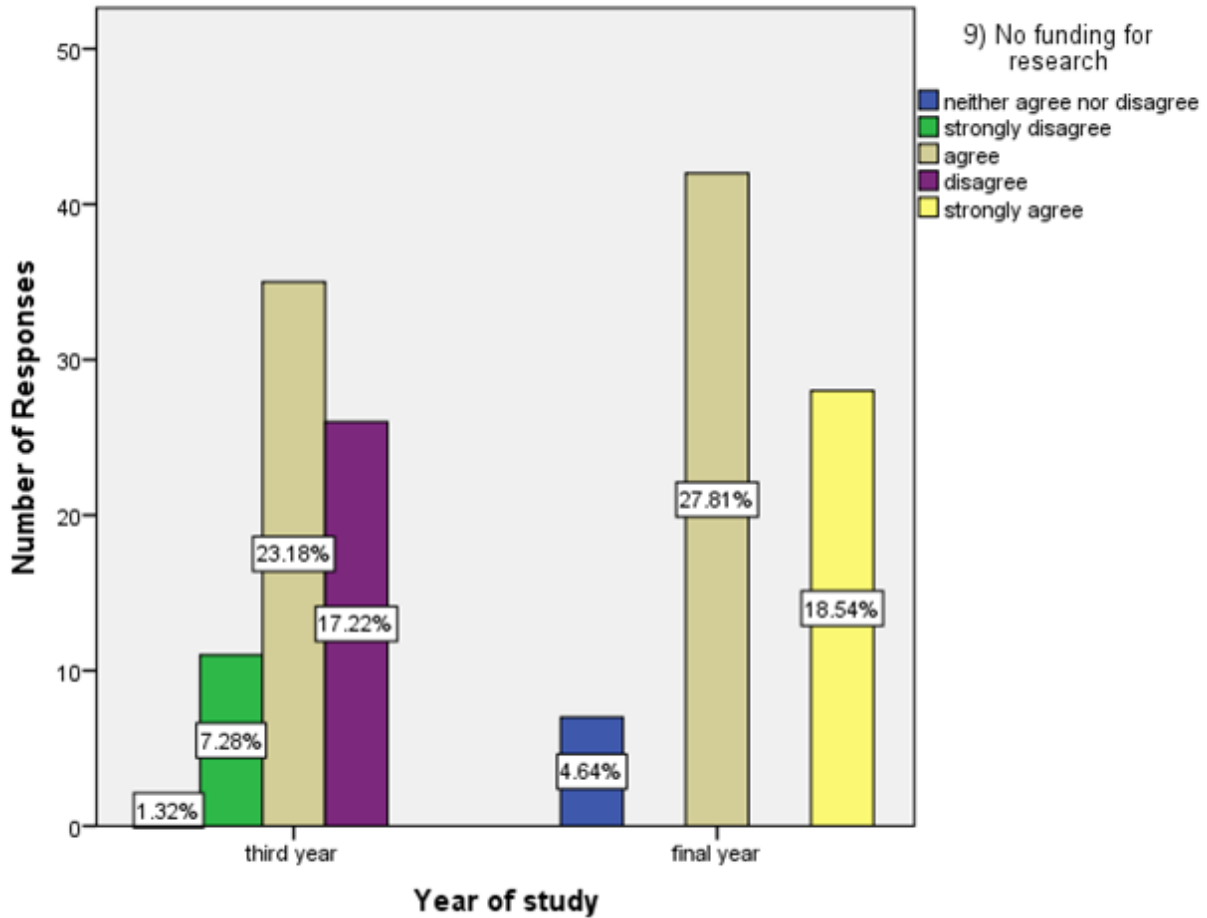


Figure 11 Bar graph represents the association of year of study and the personal barriers of participants towards research. The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes neither agree nor disagree , green colour denotes strongly disagree , Brown colour denotes agree, violet colour denotes disagree. Yellow colour denotes strongly agree . 23.18% of the third year students agreed that the most common personal barriers for research was due to lack of funding for research and also nearly 18.54% of the final year students strongly agreed for the lack of funding for research. .(Chi square test -68.382 ; P Value <0.05, significant)

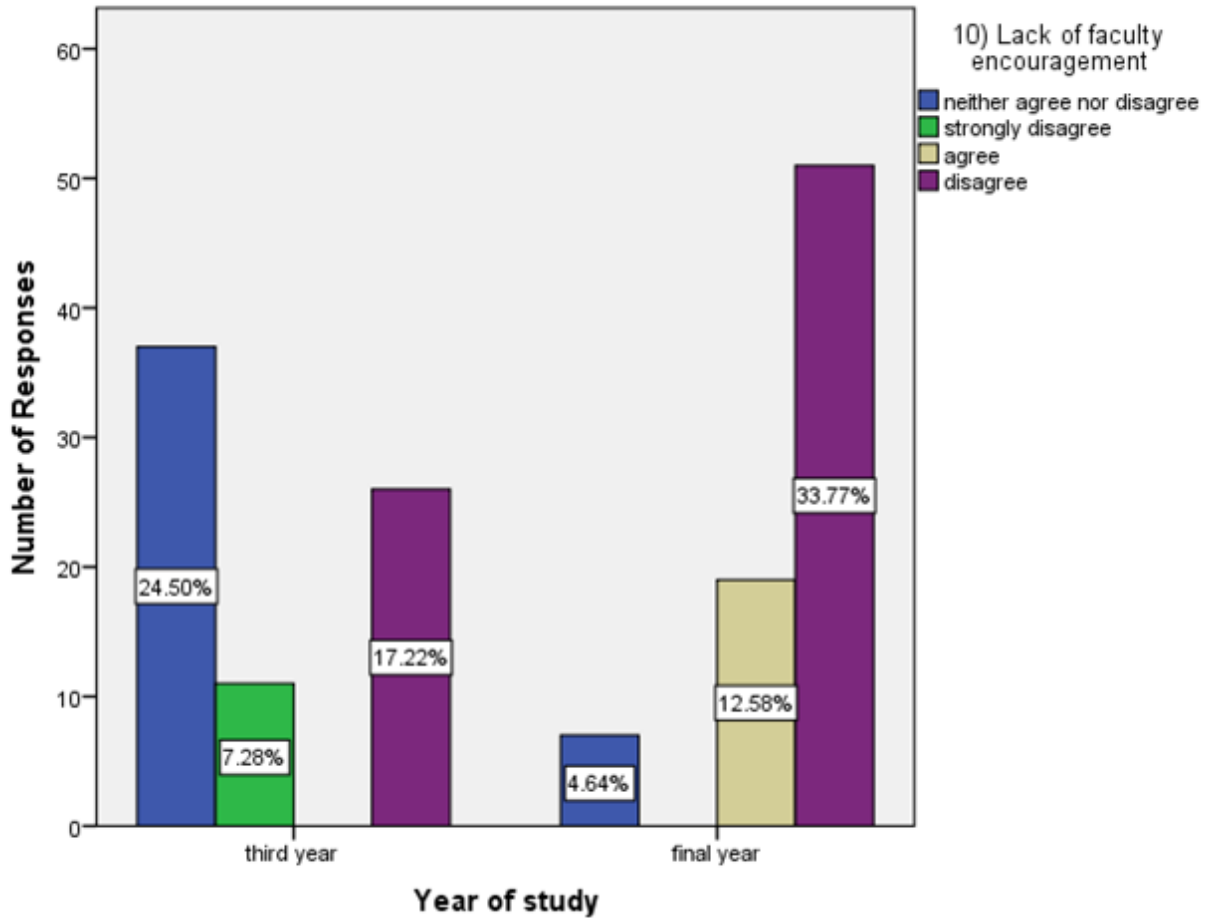


Figure 12 Bar graph represents the association of year of study and the personal barriers of participants towards research. The x axis represents the year of study of the participants and the y axis represents the number of responses. Blue colour denotes neither agree nor disagree , green colour denotes strongly disagree , Brown colour denotes agree, violet colour denotes disagree. 24.50% of the third year students neither agree nor disagree that the most common personal barriers for research was due to lack of faculty encouragement for research and also nearly. 12.58% of the final year students strongly agreed for the lack of faculty encouragement for research. .(Chi square test -58.535 ; P Value <0.05, significant)

DISCUSSION :

Research is an important element in the advancement and upgradation of the health-care system which is accessible to the general population[35]. To carry out research adequate knowledge, a positive attitude and acceptable skills are required[36]. We intended to assess the knowledge,

attitude, practice, and barriers to research among the third and final year undergraduate dental students in Chennai. Among the approached undergraduates, nearly 90% showed interest to participate in the study. This finding was similar to another study done on undergraduates in Saudi Arabia which showed good knowledge regarding research[37].The total knowledge score was better in final-year students followed by third year.This finding was in similar to a study done on undergraduates in Saudi Arabia and America which reported the increase in knowledge among students according to their advanced academic year[38].Few studies done on postgraduates and undergraduates in Iran, Arabian Countries, Australia, and Pakistan shows that the attitude and knowledge of the participants did not improve increasingly with their academic years[39]

Most of the students neither agree nor disagree with spending time for research. But the study done in South Africa reported the importance of research interest by most of the participants[40].The attitude score of the students was better with the advancement of their academic year. The reason could be the reward and encouragement by faculty for students involved in research which improved their attitude toward it. Most of the students agreed that research will help in better understanding of the subjects . Research is motivating when done in small groups as it enables them to share their thoughts and ideas and discuss different perspectives in research[2]. A study done in Sudan had similar findings and suggested that research is preferred in teams[14].Even though students felt that research helps for better understanding of the subjects , the same students felt that research is a burden to them due to lack of time and lack of self interest.

There are meager studies in India regarding the opinion of undergraduates on research. This study was an effort to know their knowledge and attitude regarding the same. The undergraduates should be exposed to the research methodology at regular intervals as it is an ongoing process for undergraduates. The students who complete their studies should be encouraged to present in undergraduate conferences and publish their work by providing incentives[41]. All the faculties should be trained in research methodology and encourage their students to take up projects. The study reports are limited to the university. These findings should be conveyed to students so as to encourage them to know about their knowledge and perception. The barriers need to be discussed at the administrative level to bring in changes to reduce the obstacles faced by students. The selection bias may be a major limitation of this study as only the participants who were willing to be a part of the study were included.

CONCLUSION

The undergraduate third and final year students had a moderate level of knowledge and practice in research. More efforts are needed to facilitate scientific dental research including supervisors'

availability and time allocation for research. The study has some limitations including using a convenience sample from one region and self-report questionnaire that decreases the external validity of the study and increases the potential for self-reported biases.

ACKNOWLEDGEMENT:

The authors would like to acknowledge the help and support rendered by the Department of Public Health Dentistry ,Saveetha Dental college and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University for their constant assistance with the research.

FUNDING:

The present project is funded by

- Saveetha Institute of Medical and Technical Sciences
- Saveetha Dental College and Hospitals
- Saveetha University
- Jembu Printers Private Ltd., Chennai.

CONFLICT OF INTEREST:

None declared

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