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Current Challenges and Perspectives of Undergraduate Forensic Science Students in India – An Academic Survey

Rahul Das[1], Bipin Bosco[2], Revathy R S[3], Sreehari S[4]
[1]*Assistant Professor, Department of Forensic Science, Vivekananda Global University, Rajasthan, India*
[2, 3, 4] *BSc Forensic Science students, Department of Forensic Science, Nagarathinam Angalammal Arts and Science College (affiliated to Madurai Kamaraj University), Tamil Nadu, India*

Abstract: ***Forensic Science involves the application of scientific principles and theories to criminal justice system. Undergraduate Forensic Science course is offered by a number of Colleges and Universities in India. It includes both theory and practical aspects and is divided into six semesters. The syllabus contains a multi-disciplinary approach of study. An academic survey research was conducted to find out certain characteristics of the students currently pursuing the course in India. The study was conducted with the help of questionnaires, which contained close ended questions to analyse characteristics such as academic awareness of the students, perspective of the students, challenges faced by the students and satisfactoriness of the students. The interpretation of results was done through percentage analysis and the hypotheses were proved. Through this study, it is found that the students are satisfied with the course and majority of the students has opted for this course as a result of a genuine interest in providing justice through forensic analysis and a small section of them opted for this course due to CSI effect caused by the crime shows. However, most of the students are facing challenges with respect to laboratory facilities focused on Forensic Science at their institutions and also issues related to career guidance while pursuing the course. The findings from this research study can be utilised by different institutions which are currently offering or planning to offer UG Forensic Science courses in India. Educational implications can be made for bringing necessary modifications in the curriculum.***

Keywords: Forensic Science, Education, Curriculum, Academic, Survey

I. INTRODUCTION

Forensic science refers to the application of various areas of science to law. Forensic Science aids in the court procedures of civil and criminal cases by providing the accurate results and findings. This subject deals with the examination of evidences procured from a crime scene. Forensic Science is actually an umbrella term which covers various fields which help law enforcement agencies in their investigation [1].

The American Academy of Forensic Science has classified Forensic Science into eleven sections. The sections are as follows: Toxicology, Questioned Documents, Criminalistics, Digital and Multimedia Sciences, Psychiatry/Behavioral Science, Physical Anthropology, Engineering Science, Pathology/Biology, Odontology, General and Jurisprudence [1].

There are some other branches of Forensic. They include: Forensic Serology, Forensic Chemistry, Forensic Physics, Forensic Ballistics, Forensic Medicine, etc. The term Forensic refers to 'of the forum'. Thus, it basically means the application of science for the welfare of public [2].

In India, Forensic Science Laboratories are present at various levels across the country. The various types of FSLs in India are Central Forensic Science Laboratory, State Forensic Science Laboratory, Regional Forensic Science Laboratory and District Forensic Science Laboratory. These FSLs aid the law enforcement agencies by providing the results of evidence examination as well as expert witness in the court of law.

There are a number of Colleges and Universities which offer Undergraduate Forensic Science course in India. The courses are termed as – BSc Forensic Science and BSc (honours) Forensic Science. The course includes both theory and practical aspects. Both the courses are divided into six semesters. A multi-disciplinary approach can be found in the syllabus of almost all the leading Universities and Colleges offering these courses. The papers include – Introduction to Forensic Science, Crime and Society, Forensic Chemistry, Criminal Law, Forensic Anthropology, Forensic Psychology, Forensic Dermatoglyphics, Forensic Medicine, Technological Methods in Forensic Science, Forensic Toxicology, Criminalistics, Questioned Documents, Forensic Ballistics, Forensic Biology, etc.

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An academic survey research was conducted with undergraduate Forensic Science students as the samples. Academic research refers to the systematic investigation of a problem or situation with an intention to identify facts and/or opinions that will help to solve the problem or to deal with the situation concerned [3].

A survey research is the collection of information from individual samples with the help of their responses to certain questions [4]. This method involves the collection of data from participant samples with the use of questionnaires. The sampling methods can vary from probability sampling to non-probability sampling. Researchers can make use of different kinds of strategies such as - qualitative strategy, quantitative strategy and mixed strategy [5,6].

One of the primary purposes of survey research is to obtain information from a large sample of individuals describing the characteristics of interest [7]. The data collection from the samples can be achieved through a series of data collection methods. However, questionnaire method is the most widely used mode of data collection in case of survey research. This is due to the advantages of questionnaires, which include increased speed of data collection, reaching a large number of respondent samples, low cost requirements and higher levels of objectivity compared to other methods of primary data collection [8].

There are four basic types of questionnaires, they are – computer questionnaire, telephone questionnaire, in-house survey and mail questionnaire. Questionnaires generally consists of the following types of questions – Open ended questions and Close ended questions (multiple choice questions, dichotomous questions and scaling questions) [6].

With the advancement in digital technology, the traditional way of questionnaires made with paper is getting replaced to a certain extent with e-questionnaires. Google forms, Microsoft forms and SurveyMonkey are among the widely used e-questionnaires.

This research was conducted to find out the challenges and perspectives of undergraduate students pursuing Forensic Science in India. The questionnaire was made using Google forms and the responses from students from across India were collected [9-12].

The objectives of this research study were:

1) To find out the satisfactoriness of the students pursuing the course.
2) To find out the perspective and academic awareness of the students pursuing the course.
3) To find out the challenges currently faced by the students pursuing the course.

The hypotheses made in the study were:

a) H_o - The students are not satisfied with the course and they are not aware of the academic aspects.
b) H_A - The students are satisfied with the course and they are aware of the academic aspects.

II. METHODOLOGY

A. *Research Sample*

The selection of samples is done on the basis of their academic course enrolment. Undergraduate students pursuing Forensic Science in UG level are selected as samples. The total sample size was equal to 517.

B. *Research Design*

The research study was conducted using survey method. The responses were collected from the samples of the study using questionnaires.

Non-probability sampling method was used for data collection from the samples. This method was chosen in order to ensure that responses from only the desired section of undergraduate students were collected.

A Judgemental or Purposive sampling was carried out during the research study. Snowball sampling was also utilised to a certain extent in order to increase the sample size [13-16].

C. *Data Collection*

The data required for the study were collected using questionnaires. The selection of questionnaire was done by considering the pandemic situation. Google forms, which is an efficient type of e-questionnaire was chosen for data collection [17-20].

The link containing the Google form of our research study was sent to undergraduate students pursuing Forensic Science in various Colleges and Universities across India. To maintain integrity and in order to attain a decent sample size, faculties from different institutions were also involved in the process of sharing the Google form containing questionnaire with their students [21,22].

The data for this research was positively attained from undergraduate Forensic Science students from different parts of India which ensured validity in the research.

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The names of the Colleges/Universities were kept confidential during the research. The states in which the respective institutions of the students are located were collected through the same questionnaire. During the research, we were able to reach students pursuing their undergraduate courses from the states of Tamil Nadu, Madhya Pradesh, Karnataka, Maharashtra, Punjab, Kerala, Telangana, Uttar Pradesh, Odisha, Rajasthan and Andhra Pradesh,

The questionnaire comprised close ended questions viz. multiple choice questions and dichotomous questions. Close ended questions were selected in order to get a statistically relevant data for quantification. The questions were marked mandatory in the form to omit the factor of non-respondents. Therefore, there were no non-respondents during the study [23-25].

D. Data Analysis And Interpretation

The analysis and interpretation of data which were received from the responses from the samples were carried out using quantitative approach. Statistical technique, particularly 'Percentage analysis' was used for this purpose.

The data was interpreted with the aid of 'Pie-charts' for individual question. Based upon the percentage of the responses made by the samples, an interpretation was made to test the hypotheses and derive a conclusion or result.

III. RESULTS

An academic survey research was carried out to determine the challenges and perspective of undergraduate Forensic Science students in India. The data required for this study were attained with the help of questionnaire.

The following results were obtained from the responses. The data is shown below in the form of pie charts.

1) Question: Why did you choose to study BSc Forensic Science?



Chart 1

2) Question: Are you satisfied with the course?

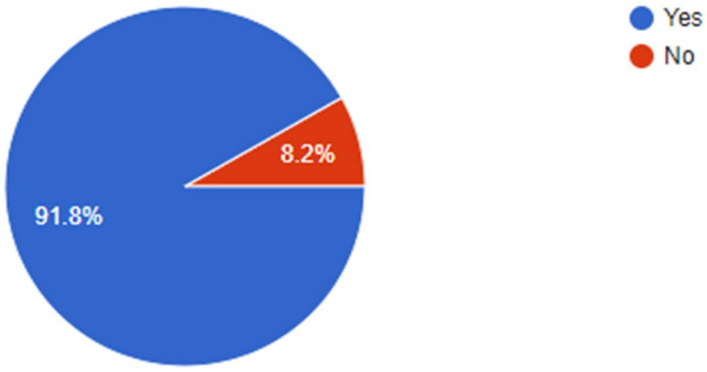


Chart 2

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3) Question: Are you aware of the recruitment rules of the government Forensic Science Laboratories of India?

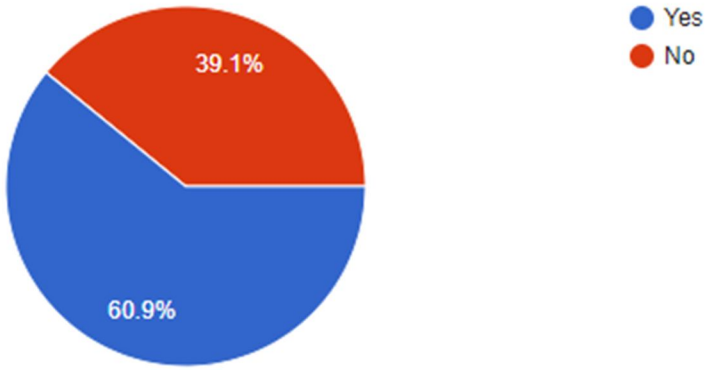


Chart 3

4) Question: What is/are the major challenge(s) which you are facing while studying this course?

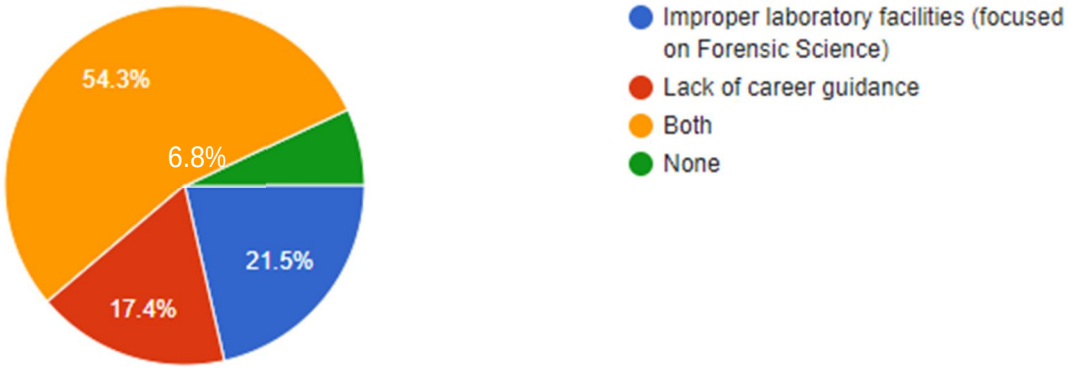


Chart 4

5) Question: Have you taken up any additional courses or inter-disciplinary courses for your career development?

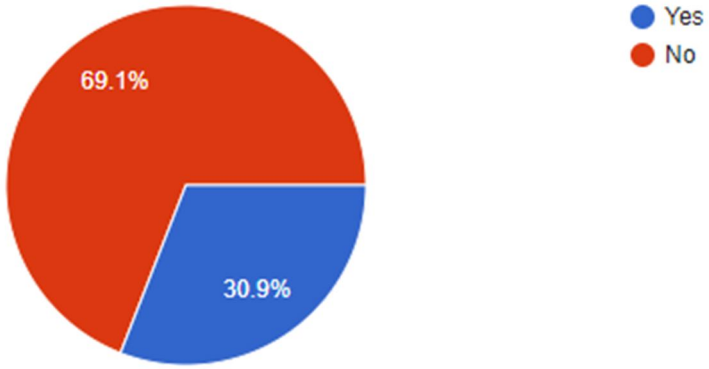


Chart 5

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IV. DISCUSSION

The results which are obtained from this research study can be segregated into four sections.

A. Academic awareness of the students
B. Perspective of the students
C. Challenges faced by the students
D. Satisfactoriness of the students

The academic awareness of the undergraduate students can be interpreted from Chart 3. It shows that 60.9% of the respondents are aware of the recruitment rules of the government Forensic Science Laboratories of India and 39.1% of the respondents are not aware of the same.
The perspective of the students can be interpreted from Chart 1. It shows that 81.4% of the respondents have opted for this course as a result of a genuine interest in providing justice through forensic analysis and only 18.6% of the respondents have opted for this course due to CSI effect caused by the crime shows.
The challenges faced by the students can be interpreted from Chart 4. It shows that maximum of the students are facing challenges while pursuing the course. 21.5% of the respondents face the issue of improper laboratory facilities focused on Forensic Science. 17.4% of the respondents have a lack of career guidance. 54.3% of the respondents face both the mentioned challenges. Only 6.8% of the respondents are not facing any kind of challenges while pursuing the course.
The satisfactoriness of the students can be interpreted from Chart 2. A large section of the sample is satisfied with the course i.e. 91.8% of the respondents. Only 8.2% of the respondents are not satisfied with the course.
Chart 5 shows that a noticeable number of students have not taken up any additional or inter-disciplinary courses for career development. Only 30.9% of the respondents have taken up such courses, while 69.1% of them have not enrolled into these types of courses.

V. CONCLUSION

Forensic Science is the application of science to legal terms. In India, various Colleges and Universities offer UG Forensic Science course. This research was conducted to find out various aspects dealing with the challenges, perspective, satisfaction and academic awareness of the students pursuing the course.
The research method used was survey method and data collection was achieved through questionnaires. Google forms were used to set up the questionnaire. It contained close-ended questions to make a quantitative and statistical interpretation of the results.
The null hypothesis (H_o) was rejected and the alternative hypothesis (H_A) was accepted. The statistical method viz. Percentage analysis was used to prove the hypotheses and derive a conclusion from this research study. H_o was rejected with respect to the data shown by Chart 2 and Chart 3. H_A was accepted with respect to the data shown by Chart 2 and Chart 3. Hence, the students are satisfied with the course and they are aware of the recruitment rules.
Maximum number of the students has opted for this course as a result of a genuine interest in providing justice through forensic analysis and a small section of them opted for this course due to CSI effect caused by the crime shows. A large section of the students are satisfied with the course and few of them are not satisfied with the course.
However, most of the students are facing challenges with respect to laboratory facilities focused on Forensic Science at their institution and also issues related to career guidance while pursuing the course.
The findings from this research study can be utilised by different institutions which are currently offering or planning to offer UG Forensic Science courses in India. Educational implications can be made for bringing necessary modifications in the curriculum. Laboratories which are built as per the requirements of a forensic student, proper career guidance sessions and additional courses for career development can help in improving and responding to the needs of the students.

A. Conflict Of Interest

There are no conflicts of interests known to us.

VI. ACKNOWLEDGEMENTS

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REFERENCES

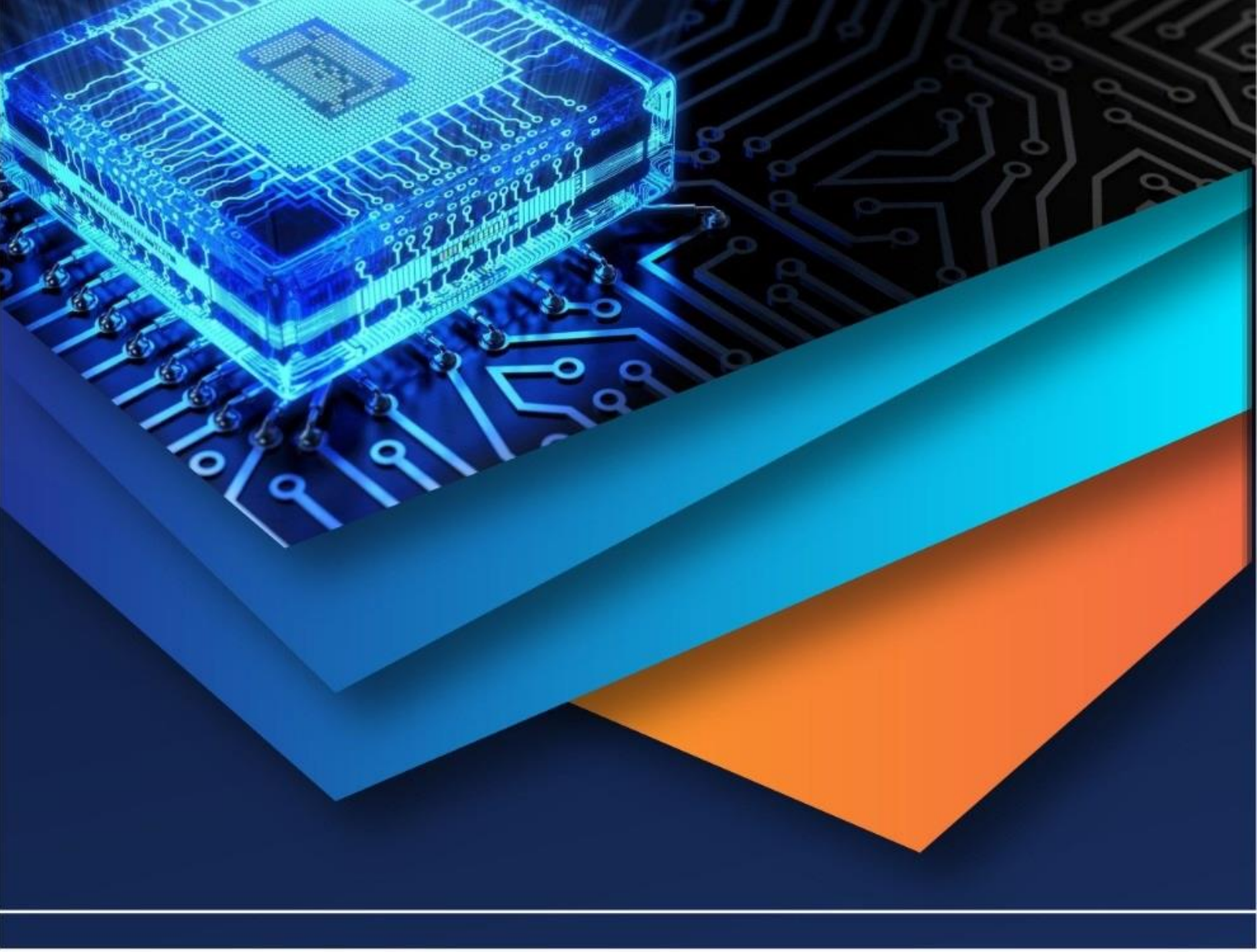
[1] Saferstein, R. (2015). Criminalistics : An Introduction to Forensic Science. Pearson.
[2] Sharma, B R. (2014). Forensic Science in Criminal Investigation & Trials. Universal Law Publishing.
[3] What is the difference between academic research and professional research?. PhD Assistance. https://www.phdassistance.com/blog/what-is-the-difference-between-academic-research-and-professional-research/
[4] Check, J. & Schutt, R. (2012). Teacher research and action research. In Research methods in education (pp. 255-272). SAGE Publications, Inc., https://www.doi.org/10.4135/9781544307725
[5] Siegel, JA. (1988). The Appropriate Educational Background for Entry Level Forensic Scientists: A Survey of Practitioners. Journal of Forensic Science, 33(4). https://doi.org/10.1520/JFS12534J
[6] Arthur, L. (2019). Evaluating student satisfaction - restricting lecturer professionalism: outcomes of using the UK national student survey questionnaire for internal student evaluation of teaching. Assessment & Evaluation in Higher Education, 45(3), 331-334. https://doi.org/10.1080/02602938.2019.1640863
[7] Ponto J. (2015). Understanding and Evaluating Survey Research. Journal of the advanced practitioner in oncology, 6(2), 168–171.
[8] Questionnaires. Business Research methodology. https://research-methodology.net/research-methods/survey-method/questionnaires-2/
[9] Gupta, S. et al. (2014). The attitudes and perceptions of medical students towards basic science subjects during their clinical years: A cross-sectional survey. International Journal of Applied & Basic Medical Research, 4(1), 16-19. https://doi.org/10.4103/2229-516X.125675
[10] Nathan, N. & Zeitzer, J. (2013). A survey study of the association between mobile phone use and daytime sleepiness in California high school students. BMC Public Health, 13. https://doi.org/10.1186/1471-2458-13-840
[11] Lungu, I. & Moraru, M. (2015). New Dimensions to the Analysis of Student Survey Results in the Instructional Process in Higher Education. Procedia – Social and Behavioural Sciences, 180, 376-382. https://doi.org/10.1016/j.sbspro.2015.02.132
[12] Joseph, A. & Sicily, A. (2019). A survey on the perception of secondary school students on the implementation of social constructivist approach in the learning of english language and its effectiveness. Journal of Emerging Technologies and Innovative Research, 6(2), 229-232. https://www.jetir.org/papers/JETIR1902340
[13] Douglas, J., Douglas, A. and Barnes, B. (2006), Measuring student satisfaction at a UK university. Quality Assurance in Education, 14(3), 251-267. https://doi.org/10.1108/09684880610678568
[14] Thomas, E. & Galambos, N. (2004). What satisfies students? Mining student-opinion data with regression and decision tree analysis. Research in Higher Education, 45, 251-269. https://doi.org/10.1023/B:RIHE.0000019589.79439.6e
[15] Mikolajczyk, R. (2008). Depressive symptoms and perceived burdens related to being a student: Survey in three European countries. Clinical Practice and Epidemiology in Mental Health, 4(19). https://doi.org/10.1186/1745-0179-4-19
[16] Rogers, S. & Goktas, RK. (2013). Exploring Engineering Graduate Student Research Proficiency with Student Surveys. The Research Journal for Engineering Education, 99(3), 263-278. https://doi.org/10.1002/j.2168-9830.2010.tb01061.x
[17] Stone D H. (1993). Design a questionnaire. British Medical Journal, 307 doi: https://doi.org/10.1136/bmj.307.6914.1264
[18] Leung W C. (2001). How to design a questionnaire. BMJ, 322. doi: https://doi.org/10.1136/sbmj.0106187
[19] Lietz, P. (2010). Research into Questionnaire Design: A Summary of the Literature. International Journal of Market Research, 52(2), 249–272. https://doi.org/10.2501/S147078530920120X
[20] Kristensen, T. S. (2010). A questionnaire is more than a questionnaire. Scandinavian Journal of Public Health, 38(3_suppl), 149–155. https://doi.org/10.1177/1403494809354437
[21] Kapade, D. (2017). Data collectionmethod in research Throughweb-Based questionnaire: Using google form. ZENITH International Journal of Multidisciplinary Research, 7(11), 237-241.
[22] Das, D., Shenoy, R., Mukherjee, M., Unnikrishnan, B., & Rungta, N. (2021). Awareness Among Undergraduate Students of Mangalore City Regarding Novel Coronavirus (COVID-19): A Questionnaire Study. Disaster Medicine and Public Health Preparedness, 15(1), e6-e9.
[23] Kumari, A., Ranjan, P., Chopra, S., Kaur, D., Upadhyay, A. D., Kaur, T., ... & Vikram, N. K. (2021). Development and validation of a questionnaire to assess knowledge, attitude, practices, and concerns regarding COVID-19 vaccination among the general population. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 15(3), 919-925.
[24] Kumari, A., Ranjan, P., Vikram, N. K., Kaur, D., Sahu, A., Dwivedi, S. N., ... & Goel, A. (2020). A short questionnaire to assess changes in lifestyle-related behaviour during COVID 19 pandemic. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 14(6), 1697-1701.
[25] Fink, A. (2002). How to ask survey questions (Vol. 1). Sage.

AUTHORS' CONTRIBUTIONS

Rahul Das has contributed to the main idea, methodology and design of the research. He has also written the entire manuscript and provided guidance to the other co-authors.

Bipin Bosco, Revathy R S and Sreehari S contributed in reviewing the previous literatures. They have also contributed in the data collection from some of the samples.

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