

Exploring attitude toward research and plagiarism among faculty members and senior residents in a medical school of North India: A cross-sectional study

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ABSTRACT


Background: Plagiarism is considered to be the most vicious type of academic misconduct as it constitutes the theft of intellectual property which is the hallmark of intellectual work. **Objectives:** The objectives of the study were to explore the attitude of Faculty members and senior residents toward research as well as plagiarism in a medical school of North India. **Material and Methods:** The questionnaire administered to the respondents consisted of three parts. The first part was related to sociodemographic details along with a number of publications and presentations (oral/poster). The second part was pertaining to attitude toward research (ATR) and the third part was related to attitude toward plagiarism (ATP). Both the scales were rated on a 5-point Likert Scale. The positive attitude reflects approval whereas negative attitude expresses disapproval of Plagiarism. Data were analyzed using SPSS version 20. **Results:** Response rate was 84.21%. A total of 160 respondents comprising 93 faculty members and 67 senior residents constituted our study population. A statistically significant difference was observed for negative domain of ATP in relation to the department (clinical/para or non-clinical), whether formal training in medical writing and research ethics received or not and whether they were conducting research due to personal interest or not ($P < 0.05$). A significant correlation of ATP score was observed with a number of publications and presentations and ATR score ($P < 0.05$). **Conclusions:** Training in medical writing and research ethics need to be incorporated in UG/PG curriculum. Awareness needs to be generated about academic integrity at all educational levels.

KEY WORDS: Research; Plagiarism; Attitudes; Medical Faculty

INTRODUCTION

In the late 19th century, the first academic revolution took place which made research a university function in addition to the traditional task of teaching. Research is a process comprised data collection, analysis, interpretation, and assessment procedures which are conducted in a phased

manner to find solutions to the problem under study and to increase human understanding. Over the past few years, the scientific and academic community across the world is facing ever-increasing issues regarding to scientific misconduct as well as academic dishonesty. Academic misconduct is defined as any type of cheating that comprises the educational process and academic integrity of the institute. It includes plagiarism, fabrication, deception, corruption, and sabotage whereas scientific misconduct usually includes fabrication, falsification, plagiarism, and other unethical behavior in professional scientific research.^[1-3] Out of all these, plagiarism is the most frequent type of academic misconduct^[4,5] and is defined as “unauthorized appropriation of author’s work, ideas, methods, results, or words without acknowledging the source and original author.”^[6] In the science and academic

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environment, plagiarism is considered to be of major ethical concern, as it is akin to theft of intellectual property which is the core achievement of intellectual work.

Many reasons have been put forward for this on the rise trend of plagiarism. First and foremost is the advent of computer technology with the availability of scientific papers and books in an electronic form facilitating the plagiarizing using “copy and paste” technique.^[7] It is pertinent to mention here that same technology paved the way for the development of software to detect plagiarism.^[8,9] Another reason for plagiarism is the pressure among few to enhance the number of publications. Lack of proficiency in English in non-English speaking countries has also been cited a reason for plagiarism.^[10] In India specific context, Medical Council of India (MCI) has made it mandatory for teaching faculty to be promoted only after a minimum set of research articles have been published. It may too have contributed to plagiarism to some extent in our country.

Although intentional plagiarism in low resource nations has not been reported, it may be more in these countries due to general lack of information regarding plagiarism among medical students and faculty members.^[11] Since the prevalence of plagiarism is very hard to measure, the investigations of attitudes can give an insight into this phenomenon. Recognizing attitudes toward plagiarism (ATP) is an important basis for educating as well as deterring students from plagiarizing.^[12-14] Positive attitudes toward research enable the problem to be solved quickly while a negative attitude hampers the efforts toward research.

While going through the literature, the authors observed paucity of studies on attitude toward research (ATR) and plagiarism in our country. Hence, the current study was planned in a medical school in North India with an aim to explore the attitudes of the faculty members and senior residents toward research and plagiarism.

MATERIALS AND METHODS

The present cross-sectional study was conducted in Government Medical College, Jammu, which is the only medical school in public set up in Jammu province of Jammu and Kashmir state of India. Due permission was sought from Institutional Ethical Committee, Government Medical College, Jammu, before the conduct of the study.

The research population of the present study was teaching faculty members and senior residents of the medical school. The study was conducted in the month of May 2017. All the faculty members and senior residents present on duty in the 1st week of that month were provided with a self-administered questionnaire after explaining them the purpose of the study. Informed consent in written was taken from those who

volunteered to participate in the study. In all, the authors distributed 190 questionnaires and after a week collected 160 duly completed responses. Thus, the response rate was 84.21%.

The questionnaire used for the current study included three components; (i) personal and professional information, (ii) ATR scale, and (iii) ATP scale. Personal and professional information included age, sex, teaching experience in years, number of research publications and presentation, and any training received in Research Ethics and medical writing. The second component of the questionnaire was ATR scale.^[15] It included 12 items. The third component consisted of ATP scale containing 29 statements.^[16] Both these scales are to be answered by respondents on a 5-point Likert scale (1- strongly disagree, 2- disagree, 3- neither agree nor disagree, 4- agree, and 5- strongly agree) for each statement. In the 29 item ATP scale, positive attitude is measured by 12 statements, negative attitude is measured by 7 statements and subjective norms are measured by 10 statements. A positive attitude reflects the approval and acceptance of plagiarism while negative ATP reflects condemnation of such act. The subjective norms toward plagiarism indicate personal perception of extent and acceptance of plagiarism in the society.

The scores for the questions under positive, negative, and subjective norms were summed up separately. The mean of the scores under each category was calculated separately for senior residents and faculty members.

Data were analyzed using SPSS version 20. The reliability of the questionnaire was calculated using Cronbach’s alpha. Descriptive and inferential statistical test was employed to analyze the data. An independent sample *t*-test was used to compare the means. Pearson’s Correlation was used to analyze correlations. $P < 0.05$ was considered as statistically significant.

RESULTS

A total of 93 faculty members and 67 senior residents participated in the study, among whom males were in the majority (56.9%) in the faculty group while females were predominant in senior resident group (77.6%). Majority of study population belonged to para-clinical and non-clinical departments in both the groups (56.9% and 61.2%). Only 22 participants had received formal training in medical writing and research ethics. Almost 2/3rd of participants were conducting research due to their personal interest. At the same time, 87.1% of faculty members and 59.7% of (Senior residents) SRs reported that mandatory MCI guidelines were responsible for their research. Mean age of participants was 47.13 ± 7.2 and 34.75 ± 4.9 years in faculty and SR, respectively. Faculty members had shown more number of publications as well as presentations (oral and poster) as compared to SRs. Cronbach’s alpha for ATR items

was 0.7798 and for ATP items was 0.8598. Mean score of ATP and research scale was almost comparable in both the groups [Table 1].

Table 2 summarizes that mean scores for the positive domain, negative domain, and subjective norms of ATP scale were 30.54 ± 6.7 , 24.34 ± 2.9 , and 28.72 ± 6.6 , respectively. These scores when compared among different variables, a statistically

significant difference was observed for the negative domain in relation to department whether clinical or para/non-clinical, training received or not and whether they were conducting research due to personal interest or not ($P < 0.05$).

Table 3 summarizes that a significant correlation of ATP score was observed with a number of publications, number of presentations and ATR score ($P < 0.05$).

Table 1: Demographic characteristics of Study population (Medical faculty and Senior Residents) $n=160$

| Variable | Faculty ($n=93$) | SR ($n=67$) |
|--|--------------------|------------------|
| Gender | | |
| Male | 53 (56.9) | 15 (22.4) |
| Female | 40 (43.1) | 52 (77.6) |
| Department | | |
| Clinical | 40 (43.1) | 26 (38.8) |
| Para/Non-clinical | 53 (56.9) | 41 (61.2) |
| Received Training in Medical Writing and Research ethics | 16 (17.2) | 6 (8.9) |
| Conducting research due to personal interest | 69 (74.2) | 46 (68.6) |
| Conducting research due to MCI Guidelines | 81 (87.1) | 40 (59.7) |
| Age in years (Mean \pm SD) | 47.13 \pm 7.2 | 34.75 \pm 4.9 |
| Number of Publications (Mean \pm SD) | 9.09 \pm 12.4 | 2.79 \pm 3.3 |
| Number of Presentations (Mean \pm SD) | 3.28 \pm 5.1 | 0.8 \pm 1.2 |
| ATP score (Mean \pm SD) | 83.14 \pm 12.9 | 84.46 \pm 11.8 |
| ATR score (Mean \pm SD) | 48.79 \pm 4.9 | 48.43 \pm 5.1 |

SD: Standard deviation, ATR: Attitude toward research, ATP: Attitude toward plagiarism, MCI: Medical Council of India, SR: Senior residents

Table 2: Comparison of mean scores of different domains of attitude toward plagiarism among various variables using student *t*-test

| Variable | Positive domain | | Negative domain | | Subjective norm | |
|--|---------------------|----------------|---------------------|----------------|---------------------|----------------|
| | Mean score \pm SD | <i>P</i> value | Mean score \pm SD | <i>P</i> value | Mean score \pm SD | <i>P</i> value |
| Designation | | | | | | |
| Faculty | 30.3 \pm 7.1 | 0.61 | 24.6 \pm 2.9 | 0.23 | 28.1 \pm 6.8 | 0.16 |
| SR | 30.8 \pm 6.2 | | 24.1 \pm 2.7 | | 29.6 \pm 6.2 | |
| Sex | | | | | | |
| Male | 29.2 \pm 5.8 | 0.12 | 24.5 \pm 3.1 | 0.65 | 28.8 \pm 6.7 | 0.91 |
| Female | 31.6 \pm 7.2 | | 24.3 \pm 2.8 | | 28.7 \pm 6.6 | |
| Department | | | | | | |
| Clinical | 29.7 \pm 5.7 | 0.22 | 23.8 \pm 3.1 | 0.04* | 27.9 \pm 7.6 | 0.21 |
| Para/Non-clinical | 31.1 \pm 7.3 | | 24.7 \pm 2.7 | | 29.3 \pm 5.7 | |
| Training | | | | | | |
| Yes | 28.1 \pm 6.3 | 0.06 | 25.6 \pm 3.3 | 0.02* | 28.1 \pm 7.3 | 0.63 |
| No | 30.9 \pm 6.7 | | 24.1 \pm 2.8 | | 28.8 \pm 6.5 | |
| Conducting research due to personal interest | | | | | | |
| Yes | 29.9 \pm 6.1 | 0.09 | 24.7 \pm 2.9 | 0.01* | 28.2 \pm 6.4 | 0.14 |
| No | 31.9 \pm 7.9 | | 23.4 \pm 2.8 | | 29.9 \pm 7.1 | |
| Conducting research due to MCI Guidelines | | | | | | |
| Yes | 30.3 \pm 6.9 | 0.49 | 24.4 \pm 3.1 | 0.79 | 28.3 \pm 6.8 | 0.13 |
| No | 31.2 \pm 5.9 | | 24.2 \pm 2.3 | | 30.1 \pm 5.7 | |

* $P < 0.05$ significant. SD: Standard deviation, MCI: Medical Council of India

Table 3: Correlation between ATP scores and different variables

| Variable | Correlation coefficient | P value |
|-------------------------|-------------------------|---------|
| Age | -0.125 | 0.115 |
| Teaching experience | -0.127 | 0.109 |
| Number of publications | -0.200 | 0.011* |
| Number of presentations | -0.182 | 0.022* |
| ATR score | -0.419 | 0.000** |

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (two-tailed). ATR: Attitude toward research, ATP: Attitude toward plagiarism

DISCUSSION

It is important to know the current situation in context of plagiarism especially in medical institutes where a lot of research activities are going on. In this study, 58.75% (94/160) of the participants belonged to para/non-clinical departments. Mean number of publications was far higher in faculty group as compared to senior residents (9.09 ± 12.4 vs. 2.79 ± 3.3). Senior residents have presented very few papers (oral and poster) in contrast to faculty group with a mean score 0.8 ± 1.2 versus 3.28 ± 5.1 . The results in the present study also revealed that mean score of ATR among faculty members was 48.79 ± 4.9 . At the same time, senior residents have also shown almost comparable mean ATR scores (48.43 ± 5.1).

The scores for ATP scale were again almost equal among faculty members and senior residents. These results are in consonance with those reported by Rathore *et al.* from Pakistan.^[17] Mean scores for positive domain, negative domain, and subjective norms of ATP scale were 30.54 ± 6.7 , 24.34 ± 2.9 , and 28.72 ± 6.6 , respectively, in the current study. Pupovac *et al.* also reported moderate positive attitude and subjective norms toward plagiarism with moderate to high negative attitude (36 ± 7 , 26 ± 4 , and 32 ± 6 , respectively).^[18] Gomez *et al.* in a study among dental faculty and postgraduates reported ATP scores in a moderate category which translates into an insufficient level of seriousness and awareness.^[19] Shirazi *et al.* reported that majority of respondents confessed that they had plagiarized at least once in their life.^[11]

The results have further revealed that 17.2% of the faculty members and 8.9% of senior residents had received formal training in medical writing and research ethics, respectively, and the results were statistically significant for the negative domain ($P < 0.05$). In this context, Shirazi *et al.* have attributed lack of training in research methodology and referencing techniques among students and faculty of Pakistan as a cause of plagiarism in most of the cases.^[11] Rathore *et al.* have also reported that only one-quarter of students in the sample had formal training in medical writing and research ethics whereas most of the faculty members had received this training probably due to involvement in Continuing Medical Education (CME),

self-directed learning and revision of faculty promotion rules.^[17] Results of the current study have shown that 87.1% of the faculty members and 59.7% of senior residents were conducting research due to personal interest and this finding was found to have statistical significance for negative ATP.

The role of imparting information related to policies on academic honesty is also equivocal. Jocoy and DiBiase in an online case study discussing plagiarism by adult learners found no significant association between the incidence of plagiarism and educational interventions on policies related to academic honesty.^[20] In the same vein, Anderson *et al.* also reported no significant association between attending formal courses on research ethics and academic dishonesty.^[21] However, these studies were conducted in developed nations, and therefore, these results may not be generalizable in our set up where culture and academic environment are different. Pupovac *et al.* reported that plagiarism was perceived as not very important (63%), harmless (59%), justified under special circumstances (42%), and sometimes necessary by 35% of respondents.^[18]

A significant correlation of ATP scores was found to be present with a number of publications, no. of presentations and ATR score ($P < 0.05$) in the present study. Also Rezaei and Zamani-Miandashti N reported a positive significant relationship between age, number of published papers and ATR.^[22] In contrast, Ghajarzadeh *et al.* found no significant correlation between plagiarism acceptance and self-plagiarism.^[23]

Strengths and Limitations

The strength of our study was that this is first of its kind in North India and especially in our state (Jammu and Kashmir). However, sampler sample size and convenience sampling technique limit the generalizability of our results. Therefore, more and more such type of studies is needed to validate our findings.

CONCLUSION

There is a need for regular CME programs and workshops on research ethics and medical writing. Dedicated modules on research methodology, analytical, and referencing techniques should be integrated into medical curriculum to further develop the research environment in the country. The need of the hour is to revise the UG/PG curriculum with emphasis on faculty training in the context of current practices and ethics of medical research and writing.

REFERENCES

1. Committee on Academic Misconduct. Code of Student Conduct. Columbus: COAM; 2007. Available from: <http://www.oaa.osu.edu/procedures/1.0.html>. [Last accessed on 2018 Jan 02].

2. Office of Research Integrity. Policy on Plagiarism. Rockville: ORI; 2009. Available from: <http://www.ori.dhhs.gov/policies/plagiarism.shtml>. [Last accessed on 2017 Jun 02].
3. Petrovecki M, Scheetz MD. Croatian medical journal introduces culture, control, and the study of research integrity. *Croat Med J* 2001;42:7-13.
4. Titus SL, Wells JA, Rhoades LJ. Repairing research integrity. *Nature* 2008;453:980-2.
5. Benos DJ, Fabres J, Farmer J, Gutierrez JP, Hennessy K, Kosek D, *et al.* Ethics and scientific publication. *Adv Physiol Educ* 2005;29:59-74.
6. Bilić-Zulle L, Frković V, Turk T, Azman J, Petrovecki M. Prevalence of plagiarism among medical students. *Croat Med J* 2005;46:126-31.
7. Cross M. Policing plagiarism. *BMJ* 2007;335:963-4.
8. Couzin-Frankel J, Grom J. Scientific publishing. Plagiarism sleuths. *Science* 2009;324:1004-7.
9. Braumoeller BF, Gaines BJ. Actions do speak louder than words: Deterring plagiarism with the use of plagiarism-detection software. *Polit Sci Polit* 2001;34:835-9.
10. Vasconcelos S, Leta J, Costa L, Pinto A, Sorenson MM. Discussing plagiarism in Latin American science. Brazilian researchers begin to address an ethical issue. *EMBO Rep* 2009;10:677-82.
11. Shirazi B, Jafarey AM, Moazam F. Plagiarism and the medical fraternity: A study of knowledge and attitudes. *J Pak Med Assoc* 2010;60:269-73.
12. Comas R, Sureda J. Academic Cyber Plagiarism: Tracing the Ecauses to Reach Solutions. *Digithum* 2008;10:1-7. Available from: http://www.uoc.edu/digithum/10/dt/eng/comas_sureda.pdf. [Last accessed on 2018 Jan 05]
13. Jones KO, Reid J, Bartlett R. Cyber Cheating in an Information Technology Age. *Digithum* 2008;10:19-29. Available from: http://www.uoc.edu/digithum/10/dt/eng/jones_reid_bartlett.pdf. [Last accessed on 2018 Jan 05].
14. Pupovac V, Bilic-Zulle L, Petrovecki M. On academic plagiarism in Europe. An analytical approach based on four studies. *Digithum* 2008;10:13-9. Available from: http://www.uoc.edu/digithum/10/dt/eng/pupovac_bilic-zulle_petrovecki.pdf. [Last accessed on 2018 Jan 05].
15. Walker DA. A confirmatory factor analysis of the attitudes toward research scale. *Mult Linear Regression Viewp* 2010;36:18-27.
16. Mavrinac M, Brumini G, Bilić-Zulle L, Petrovecki M. Construction and validation of attitudes toward plagiarism questionnaire. *Croat Med J* 2010;51:195-201.
17. Rathore FA, Waqas A, Zia AM, Mavrinac M, Farooq F. Exploring the attitudes of medical faculty members and students in pakistan towards plagiarism: A cross sectional survey. *PeerJ* 2015;3:e1031.
18. Pupovac V, Bilic-Zulle L, Mavrinac M, Petrovecki M. Attitudes toward plagiarism among pharmacy and medical biochemistry students-cross-sectional survey study. *Biochem Med* 2010;20:307-13.
19. Gomez MS, Nagesh L, Sujatha BK. Assessment of the attitude towards plagiarism among dental postgraduate students and faculty members in Bapuji Dental College and Hospital, Davangere-a cross sectional survey. *IOSR J Dent Med Sci* 2014;13:1-6.
20. Jocoy CL, DiBiase D. Plagiarism by adult learners online: A case study in detection and remediation. *Int Rev Res Open Distance Learning* 2006;7:1-15.
21. Anderson MS, Horn AS, Risbey KR, Ronning EA, De Vries R, Martinson BC. What do mentoring and training in the responsible conduct of research have to do with scientists' misbehavior? FindingsA1 from a National Survey of NIH-funded scientists. *Acad Med* 2007;82:853-60.
22. Rezaei M, Zamani-Miandashti N. The relationship between research self-efficacy, research anxiety and attitude toward research: A study of agricultural graduate students. *J Educ Instr Stud* 2013;3:69-78.
23. Ghajarzadeh M, Norouzi-Javidan A, Hassanpour K, Aramesh K, Emami-Razavi SH. Attitude toward plagiarism among Iranian medical faculty members. *Acta Med Iran* 2012;50:778-81.

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