**Type of article:** Original research article

Title Page

**Title of the article:** Attitude towards plagiarism among postgraduate students studying at a tertiary care teaching and research institute

**Running title**: attitude towards plagiarism in postradute students in medical school

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Total number of pages: 17 pages

Total number of photographs: 0

Word counts

for abstract: 200

for the text: 2238

No of tables: 04

No of figures: 03

Source(s) of support: Nil

Presentation at a meeting: None

Conflicting Interest : Nil

**Abstract**

**Title of the article:** Attitude towards plagiarism among postgraduate students studying at a tertiary care teaching and research institute- an exploratory study

Abstract:

Academic integrity is an essential quality to uplift the standards of higher education and plagiarism destroys it. This study explores the attitude towards plagiarism and its association with gender, hours of internet use among postgraduate students in a tertiary care teaching and research institute.

Post-graduate students from different disciplines (N=383) studying at a tertiary car teaching hospital, in South India formed sample for cross-sectional study and we used the attitude towards plagiarism questionnaire (ATP-Q) that consisted of 29 statements measuring three attitudinal factors: positive, negative attitude, and subjective norms.

Our study noted that only 17.2% had the attitude that seems to approve plagiarism (fell in the high score category of positive attitude factor, high score category of subjective norms factor, and low score category of negative attitude factor). We did not see any association between approving attitude towards plagiarism with gender or hours of internet use. However, significant proportion of students in the third year had approving attitude towards plagiarism compared to those in the preceding years (Chi-square (df), p-value: 18.05(2), <0.001). Participants stated that increasing awareness and training on scientific writing skills as the most common ways to reduce plagiarism.

**Key-words:** Attitude, Plagiarism, Academic integrity, scientific writing, research

**Key Messages:**

* Postgraduate students from medical teaching institute participated in the survey
* Most had favourable attitude towards plagiarism: most belong to moderate to high score category of positive attitude, negative attitude, and subjective norms attitude factor
* Only 17% of students seemed to show attitude of approval towards plagiarism
* Approval attitude towards plagiarism increased in the third-year students compared to their junior year students
* No relation of attitude to plagiarism with either gender or hours of internet use per day

**Introduction:**

Plagiarism is the practice of using someone else's ideas, language, or other original material (not common knowledge) without acknowledging its source.It is the process or practice of using another person’s concepts or works and pretending that it is our own. This definition applies to texts published in print or online, manuscripts, and other student writers.[1] Such practices interfere with critical thinking and investigative spirit towards research.[2] Plagiarism is a problem that can affect the reputation of any educational and research institute.[3] However, students seem to consider it a non-serious issue and don't consider self-plagiarism as a form of plagiarism.[4–7]

Gender can influence attitude towards plagiarism.[8] Females being more morally abiding, tend to favor plagiarism lesser than males. However, increased competence in academia might change this equation.

Internet resources are the most important contributing factors to plagiarism. An increase in internet use with easy access to academic resources, including scientific publications, has increased plagiarism chances. However, the literature on this is debatable.

Various factors determine the extent of plagiarism. Institutional factors include pressure from academia on publication, access to the internet and use of plagiarism detection software, and the policy on the consequences of plagiarism. Lack of academic zeal or laziness, low moral values or poor awareness about plagiarism, poor academic skills account for personal factors influencing the extent of plagiarism. The language difficulties, lack of note-taking skills, curtailed creative thinking in early educational years for non-native English speakers all add to the minimizing of the plagiarism as an issue .[9–13]

We undertook this study to explore the attitude towards plagiarism among postgraduate students belonging to medical, nursing, and allied health disciplines in a tertiary care teaching and research institute. The study also assessed the link between attitude to plagiarism with gender, year of study, and internet use hours. We also asked each participating student's opinion on a common reason for plagiarism and way to avoid it.

**Subjects and Methods:**

We did our cross-sectional, descriptive study in a tertiary care teaching and research institute. Participants were postgraduate (PG) students (N=383) of medical, nursing, and allied health disciplines. At our medical Institute of national importance, students from different states pursue various courses. Students who were present during the study period of either gender were included in the study using the convenience sampling technique. We excluded students who had already undergone some workshop or training in plagiarism from the survey. There were none.

We used the attitude towards plagiarism questionnaire (ATP-Q), a validated instrument (Mavrinac et al., 2010).[2] The ATP is a self-administered questionnaire that consists of 29 statements, and each statement is measured on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). It comprises three attitudinal factors (positive-12 statements, negative-7 statements, and subjective norm-10 statements). The higher the score in each factor higher the endorsement of that attitude. Each factor's score range is divided into three equal parts representing low, moderate, and high score categories.

Students with a low score category (12-28) of the positive attitude factor or low score category (10-23) of the subjective norms factor or a high score category (27-35) of the negative attitude factor are considered as having a favorable attitude towards plagiarism with less approval of the plagiarism.

We collected limited sociodemographic data (age, gender, course, year of PGs) and average hours of daily internet use and purpose of internet use. After completing the scales, they were asked to mention one important reason why students tend to plagiarize and one significant way to avoid the same, based on their subjective perception.

We sought prior approval from Institute Ethics Committee (IEC) before the commencement of the study. Each student gave written informed consent after reading the study information sheet. An educational pamphlet containing information on plagiarism, its sources, and reasons to avoid plagiarism, and ethical issues related to plagiarism was circulated among the students. They were instructed to read the same before taking part in this study. They completed the questionnaire independently. Privacy and confidentiality were assured throughout the study period.

Statistical analysis: Data analyses performed using SPSS 18 software (SPSS Inc. Released 2009. PASW Statistics for Windows, Version 18.0. Chicago: SPSS Inc.) We categorized each student score under each attitudinal factor into three groups: low, medium and high. We re-categorized entire participants as those with the attitude of approval (approvers) and those not having the attitude of approval (non-approvers) towards the plagiarism based on the category of scores in different attitudinal factors. Those falling in the high score categories of both the positive attitude factor and the subjective norms factor, and the low score categories of the negative attitude factor were termed as approvers of the plagiarism (Approver of plagiarism: Yes), and rest as non-approvers of the plagiarism (Approver of plagiarism: No). Then we tested for association between the approval of plagiarism status with gender, year of the course with chi-square tests, and an association between the approval of plagiarism status with time spent on the internet using independent student's t-test. Any statistical test result with a corrected p-value of < 0.008 was considered significant.

Can be included as Supplementary: We converted responses on each statement from a five-point Likert scale to a three-point Likert scale (Disagree, Neutral, Agree) for better understanding, similar to that done by a previous researcher .[13]

**Results:**

Overall, we recruited 383 postgraduate students pursuing different medical and paramedical courses (Table 1). Only MD, MS courses are of three years, while the rest are of two-years duration. The median duration of internet use per day was 3.00 hours. Most of them used the internet for various purposes, including academic purposes.

Only around 8.6% of the participants endorsed a favorable attitude towards plagiarism on the positive attitude subscale, 9.7% expressed a favorable attitude towards plagiarism on the negative attitude subscale, and 19.3% showed a favorable attitude to plagiarism on the subjective norms subscale. Many participants had a moderate category score on all the three attitudinal factors, suggesting a cautious reply and can be considered fence-sitters (Table 2). Only 17.2% of the participants had the attitude of approval towards plagiarism.

Chi-square test showed a significant association between attitude of approval status towards plagiarism and, year of the course, and not with the gender. Post-hoc analysis revealed a significantly high proportion of the approvers of the plagiarism in the third year compared to the first two years (Table 3). There was no significant association of attitude of approval towards the plagiarism with the average hours of internet use per day.

Students stated that lack of time and inadequate knowledge as the two most common reasons for plagiarism (Table 4). Among the various ways to prevent plagiarism, students stated the following two as most important: creating awareness of students on plagiarism and its seriousness and improving the student's ability to read, understand(scientific writing and reading skills).

Can be considered as Supplementary: At least 25% of the subjects having the same opinion can change the majority's view, called a tipping point in social convention.[14] On positive attitude factor statements, the percentage of students agreeing with statements varied from 21.7% to 60.6% (Fig 1). students with more than 25% (that is considered a tipping point) agreed with arguments favoring plagiarism on all 12 statements except P8(I could not write a scientific paper without plagiarizing, 21.7%). We saw the highest agreement favoring plagiarism on the statement P1 (Sometimes one cannot avoid using other people's words without citing the source because there are only so many ways to describe something, 60.6%).

On Subjective norms statements of the scale, the percentage of students agreeing with the statement favoring plagiarism ranged from 9.7% to 55.4% (Fig.2) . >25% of the Students agreed on (tipping point) seven of the total 10 subjective norms statements. We saw the least endorsement on statement SN23 (I keep plagiarizing because I haven't been caught yet, 9.7%). We noted the highest approval of plagiarism with the statement SN21 (Those who say they never plagiarized are lying, 55.4%).

On the negative attitude factor statements, the percentage students endorsing the comments with the disapproval of the plagiarism varied from 27.4% to 75.2% (Fig 3). More than 25% (considering tipping point for making opinion) of students endorsing on all statements. The study saw the lowest endorsement on N21 agreeing with this statement (Plagiarists do not belong in the scientific community, 27.4%) and the highest agreement on statement N15 (In times of moral and ethical decline, it is important to discuss issues like plagiarism and self-plagiarism with 75.2%).

Overall, students tend to have both positive views and negative views towards plagiarism. However, they are willing to consider these as important issues to discuss.

**Discussion:**

Our cross-sectional study was done in an Institute running a tertiary care hospital and research center in South India and assessed postgraduate students' attitude towards plagiarism using a validated scale.

The majority seem to have the right attitude towards plagiarism. Scores for most students fell in the moderate to high score categories on the positive attitudinal factor, the subjective norms factor, and in moderate to low score categories on the negative attitudinal factor. Overall, 17.2% of the participants in the study seem to have the attitude that approves plagiarism. The prevalence of plagiarism varied from 23.8% among undergraduate students[15] to 35% in an online survey of researchers.[16] In an anonymous survey of a mixed group consisting of a medical Institute faculty and students, it was 38%.[8] Though we assessed only the attitude towards plagiarism and not actual instances of plagiarism, these attitudes are likely to lead to such behavior.[17]

Most of our students supported positive statements towards plagiarism, statements that endorsed plagiarism as subjective norms, and statements of negative view towards plagiarism.

We did not find any association between attitude towards plagiarism and gender. However, some studies reported that male students had a more liberal attitude towards plagiarism.[6,8,18–21] These gender differences may result from specific personal characteristics of men and women, not only in the field of education but also in society in general.[20]

There was an association between attitude towards plagiarism and the year of the course. A significant proportion of students had an approving attitude towards plagiarism in the third year of the course, compared to that in the first and second year of the course. Some studies have reported that positive attitude towards plagiarism decreased in students with more years in the course and older.[21,22] We did not find any association with age. So, instead of the age, the contexts of the third year of the course would have influenced the attitude, that is, as years pass by, and in the third year, students tend to become softened towards plagiarism. Change in attitude towards plagiarism during the third year is an alarming trend. The third-year involves completing thesis analysis, writing up, and preparing for the upcoming final exam, creating academic pressure for students.

There was no association between attitude towards plagiarism and hours of internet use. A previous study tried to find whether plagiarism has increased during the internet era in 2010.[11] Contrary to popular belief, they did not find such an association while examining dissertations published before and during the internet era. The use of technology has made easy access to scientific literature and has helped ease plagiarism detection, which is considered essential before publication.

Participants stated that lack of time and inadequate knowledge as the two most common reasons for plagiarism (Table 4). An online survey of researchers[16] noted lack of time (16%) was the most commonly stated reason for plagiarism. Many students in a medical college voiced the same, along with heavy workload.[5] Low awareness is another common reason for unintentional plagiarism.[20,23] Even in the extent of awareness to plagiarism there can be three types of students (1)students who are unaware of plagiarism, (2) students who are aware of plagiarism but do not consider it wrong or unethical, and (3) students who are aware of plagiarism but continue to plagiarize despite knowing it to be wrong.[20]

Among the various ways to prevent plagiarism, students stated the following two as most important: increasing knowledge among students on plagiarism and its seriousness and improving the student's ability to read, understand (Table 4). Creating awareness during their first year in the form of education in plagiarism by providing leaflets, workshops, and mandatory courses,[24] providing enough time for research assignments,[5] and use of software to detect plagiarism [5,15] may be useful. Besides these, there can be workshops to improve academic writing skills[13] for non-native speakers of English along with appropriate guidelines from the Institute.[22] The software can help in detecting different types of plagiarism. However, we need to be clear on the terms that differentiate between the extent of plagiarism and ethical-research-work.[5,15]

Limitation: We did not include faculty and Ph.D. scholars involved in the publication of scientific research papers. We could not quantify how many hours of internet use was for academic purposes per day.

Conclusion: Our study noted that only 17.2% had the attitude that seems to approve plagiarism. We did not see any association between approving attitude towards plagiarism with either gender or hours of internet use. However, students in the third year seem to have more inclined attitudes towards plagiarism than those in the preceding years.

Increasing awareness among students and giving adequate time for research assignments may reduce the instances of plagiarism. Conducting scientific writing workshops is one way to address the same. Besides, these Institute guidelines and the use of plagiarism detection software can change the attitude towards plagiarism.

Acknowledgement: We thank the Dean(academic) for permitting us to condut the survey.

Funding statement: This study did not received any form of finanaical support

Conflict of interest: None

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Table 1. Sociodemographic data

|  |  |  |  |
| --- | --- | --- | --- |
| Variable name | | mean ±SD/n(%) | median |
| Age in yrs | (Range: 20-41) | 26.16±2.9 | 26.00 |
| Gender | Male | 158(41.3) |  |
|  | Female | 225(58.7) |  |
| Course | M.Sc Nursing | 69(18) |  |
|  | MPH, MD, MS | 270(70.5) |  |
|  | M.Sc Allied health Science, M.Sc Physiology | 44(11.5) |  |
| Yr of postgraduation | First-year | 157(41.0) |  |
|  | Second-year | 164(42.8) |  |
|  | Third-year | 62(16.2) |  |
| Internet use | Academic purpose also | 355(92.7) |  |
|  | No academic purpose | 28(7.3) |  |
|  | Hours of internet use per day (range: 1-16) | 4.06±2.80 | 03.00 |

Source: original

Table 2. Profile of attitude towards of plagiarism among postgraduate students (N=383)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Altitudinal factors | Categories of scores | n (%) | mean ±SD (range) | median |
| Positive attitude | Low (12-28)\* | 33(8.6) | 36.04±6.90(14-53) | 36.00 |
| Moderate (29-45) | 304(79.4) |
| High (46-60) | 46(12.0) |
| Negative attitude | Low (7-16) | 11(2.9) | 22.55±3.09(11-31) | 23.00 |
| Moderate (17-26) | 335(87.5) |
| High (27-35)\* | 37(9.7) |
| Subjective norms | Low (10-23)\* | 74(19.3) | 29.15±5.38(10-50) | 29.00 |
| Moderate (24-37) | 291(76.0) |
| High (38-50) | 18(4.7) |
| Attitude of Approval towards plagiarism | No | 317(82.8) |  |  |
| Yes# | 66(17.2) |  |  |

\* favorable attitude towards plagiarism- i.e. disapproval of the plagiarism

# Overall approvers of plagiarism (those in the high score category in Positive attitude, Subject norms factors, and low score category on Negative attitude factors)

Source: original

Table 3. Association of the approval status of plagiarism with the gender, year of the course, and hour of internet use per day

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | No  n (%) | Yes  n (%) | Chi-suare value(df)/ t value (df) | p value |
| gender | male | 128(81.00) | 30(19.00) | 0.581(1) | 0.446 |
|  | female | 189(84.00) | 36(16.00) |  |  |
| Year | First-year | 144(91.70) | 13(8.30) | 18.05(2) | 0.00012\* |
|  | Second-year | 130(79.30) | 34(20.70) |  |  |
|  | Third-year | 43(69.40) | 19(30.60)\* |  |  |
| Internet hours spent per day |  | 3.98±2.75 | 4.41±3.00 | -1.05(89.14) | 0.293 |

\* significant at Bonferroni corrected p-value of < 0.008. a significantly high proportion of approvers in the third year

Source: original

Table 4. Reasons for plagiarism and ways to avoid as stated by the students

|  |  |  |  |
| --- | --- | --- | --- |
| Reasons for plagiarism n (%) | | Ways to avoid plagiarism n (%) | |
| Lack of time | 127(33.2) | Training and guidance | 131(34.2) |
| Inadequate knowledge | 79(20.6) | Read, understand, and then write | 68(17.8) |
| Lack of interest | 42(11.0) | by giving proper citation | 46(12.0) |
| Language problem | 40(10.4) | Adequate time | 42(11.0) |
| Other reasons (lack of curiosity, workload, time-saving, laziness, lack of guidance) | 95(20.8) | Plagiarism rectifier software | 40(10.4) |
|  |  | Other ways (small punishment, improving language skills, select simple topics | 56(14.6) |

Source: original

Supplementary Material

Fig 1. **opinion of students on statements on positive attitude to plagiarism (P=positive statement)**

|  |  |
| --- | --- |
| P1 | Sometimes one cannot avoid using other people's words without citing the source, because there are only so many ways to describe something. |
| P2 | It is justified to use previous descriptions of a method, because the method itself remains the same |
| P3 | Self-plagiarism is not punishable because it is not harmful (one cannot steal from oneself). |
| P4 | Copied parts of a paper may be ignored if the paper is of great scientific value. |
| P5 | Self-plagiarism should not be punishable in the same way as plagiarism is |
| P6 | Young researchers who just started their study/ research should receive milder punishment for plagiarism |
| P7 | If one cannot write well in a foreign language (e.g., English), it is justified to copy parts of a similar paper already published in that language. |
| P8 | I could not write a scientific paper without plagiarizing |
| P9 | Short deadlines force me to plagiarize a bit. |
| P10 | When I do not know what to write, I translate a part of a paper from a foreign language. |
| P11 | It is justified to use their own published work without providing citation in order to complete the current work |
| P12 | If a colleague of mine allows me to copy from her/his published articles, I'm NOT doing anything bad, because I have his/her permission. |

Source: original

Fig.2 **opinion of students on Subjective norms towards plagiarism statements (SN=subjective norm statement)**

|  |  |
| --- | --- |
| SN20 | Authors say they do NOT plagiarize, when in fact they do |
| SN21 | Those who say they never plagiarized are lying |
| SN22 | Sometimes I'm tempted to plagiarize because everyone else is doing it (students, researchers, physicians). |
| SN23 | I keep plagiarizing because I haven't been caught yet |
| SN24 | I work (study) in a plagiarism-free environment |
| SN25 | Plagiarism is not a big deal |
| SN26 | Sometimes I copy one or two sentences just to become inspired for further writing |
| SN27 | I don’t feel guilty for copying verbatim a sentence or two from my previous papers. |
| SN28 | Plagiarism is justified if I currently have more important obligations or tasks to do |
| SN29 | Sometimes, it is necessary to plagiarize |

Source: original

Fig 3. **The opinion of students on Negative attitude to plagiarism statements (N=negative statement)**

|  |  |
| --- | --- |
| N13 | Plagiarists do not belong in the scientific community |
| N14 | The names of the authors who plagiarize should be disclosed to the scientific community. |
| N15 | In times of moral and ethical decline, it is important to discuss issues like plagiarism and self-plagiarism. |
| N16 | Plagiarizing is as bad as copying in an exam. |
| N17 | Plagiarism decreases the curiosity to search. |
| N18 | A plagiarized paper does no harm to science |
| N19 | Since plagiarism is taking other people's words only and not their valuable stuff, it should NOT be considered as a serious issue. |

Source: original