

## Understanding of Authorship by the Post Graduate Medical Students at a Center in Bangladesh

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**Abstract:** Education on authorship was delivered and evaluated by pre test and post test questionnaire on 30 post graduate medical students at the Department of Anesthesiology, Dhaka Medical College, Bangladesh between January and June 2019 to understand the knowledge, skill and attitude of post graduate medical students on authorship. Result: Before intervention, majority (60%) of the students felt that who perform the research work should be the author of the article. But 40% students were divided and felt that who advised the design of the research (20%), who provided the grants (10%) and Chief/Head of the division (10%) should be the author of the article respectively. Maximum (70%) respondents did not know the order of authorship. Of 40% respondent felt that the PI should be always the first author and 40% don't know the answer. Half of the students (50%) felt that keeping honorary author increased the opportunity of acceptance of publication. Of 36.7% and 13.3% of students felt that keeping honorary author increased the article's value and made good relation to them to get some extra facility from them respectively. Of 20% participants were pressurized by lab head/head of department for inclusion of their name as an author. Half of the (56.7 %) respondents felt that the author's contribution should be stated in the article. Only few 4 (13.3%) respondents said that their institute had guideline for authorship. However, after education 100% of students felt that who perform the research work should be only the author of the article. All (100%) respondents understood the order of authorship. Most of the students (86%) felt that PI should be always the first author. Of 100% respondent felt supervisor of the research should be the last author. All students (100%) felt author's contribution should be mentioned in the article. All (100%) students did not want to include as author those who help in research design and secured grant; and they did not like to keep honorary author in their article. All (100%) students expressed that their institute had no guideline for authorship. After intervention, three groups of students were asked to write one page of article on Anesthesiology. Interestingly, they did not include any name in the author by line who were not participate or had any contribution in the writing. Conclusion: The comparative data between pre- and post-text have highlighted a general lack of understanding of the basic concept of authorship ethics which significantly improved after

the intervention. The results also indicate that the education on authorship improved the awareness of postgraduate medical students in a particular centre.

**Key word:** Authorship, medical student, publication ethics, Bangladesh

**Introduction:** Authorship is a basis of success for a researcher. But authorship process needs integrity. Violation of ethics, authors dispute arises during pre and post publications of the article. This may decrease the trust of reader toward academic society.

In the ancient times, articles generally had no authorship<sup>1</sup>. From middle ages, individuals started to feel the senses of authority, ownership and concern with plagiarism over their writing<sup>1</sup>. It is the printing press made the development of the concept of authorship as intellectual property rights in 1440<sup>1</sup>. However, in 1978, a group of medical journal editors in Vancouver, British Columbia established publication guidelines for authors and editors. They developed International Committee of Medical Journal Editors (ICMJE), who designed the Uniform Requirements for Manuscripts Submission to help the authors and editors of the biomedical science to promote integrity in authorship<sup>2</sup>. Currently, most of the journals of biomedical, science, social science and other journals follow the ICMJE definition of authorship<sup>2</sup>. According to ICMJE, the authors are those who have substantial contribution in research and can take responsibility for a specific section of the research during any allegation. Single contribution is not satisfied the authorship principles universally e.g. procurement of funding, providing technical services, supplying research materials or chemicals, administration of a research

group, data collection and analysis; writing or editing manuscript etc<sup>2</sup>.

But a research found that more than half of the articles did not satisfy ICMJE criteria of authorship<sup>3</sup>. Another study also reported that 40% article among 6,686 manuscript published in Lancet did not meet the ICMJE criteria of authorship<sup>4</sup>. However, there are some authors who neither do work for the research, nor met the authorship criteria have been attributed as honorary authors or gift authors or guest authors<sup>5</sup>. *Honorary authorship is widely condemned and in the extreme is considered as misconduct*<sup>6</sup>.

From above literature, it is obvious that there is gap in basic knowledge of authorship ethics especially in early career academics. No date has yet been available regarding the knowledge, skill and attitude of post graduate medical students on authorship in Bangladesh. There is no systematic education on authorship for the post graduate medical students in Bangladesh as well. Therefore, this research has been undertaken to aware the post graduate medical students about the norms and regulation of authorships principles to avoid inadvertent violations of ethics in writing. This research will generate evidence of first time about the knowledge, skill and attitude on authorship. The evidence of the research may assist in policy decisions regarding authorship in medical curriculum in Bangladesh.

**Materials and Methods:** A cross-sectional study was done on 30 post graduate medical students at the department of Anesthesiology, Dhaka Medical College, Dhaka, using 30 self-administered questionnaires between January to June 2019. Education was given on authorship in a 4 hours long workshop starting from 8 am to 12 pm. Survey was done by pretest and post-test questionnaire to evaluate the current knowledge of authorship principles among students. At the end of the post-test, all students were divided into three groups. They were given a writing task in group to understand their skill. It was a pilot study.

Sample were taken purposively according to the selection criteria. During workshop, in a class room setting, lectures and video demonstration on authorship were delivered. Students took approximately 15 minutes to complete the questionnaire. Questionnaire was validated by applying feedback form three post-graduate students. Questionnaire consisted of two parts: The first part concentrated on demographic data about the age, sex, and educational qualification of participants; number of the publications, course or training on publication ethics. The second part was dedicated to a self-assessment questions to evaluate the knowledge by multiple choice questions. Skill was assessed by 3 level of Likert scale by 'yes', 'no or 'not sure' questions.

Ethical clearance was obtained from Bangladesh Medical Research Council (BMRC). All the participants were given an explanation about the objectives of the study, risk/ benefit of the study and right to withdrawal of their participation from the

study. Those who provided their written consent could participate in this study only. Participants received a copy of IC form for their own reference. Confidential were maintained properly and results were anonymous. Questionnaire and IC form were kept in a sealed envelope and were stored in a locked and secured place for the period of three years. After three year, all the survey forms will be destroyed by burning.

Statistical basis of the sampling technique was estimated by Raosoft, where marginal error-5%, CI-95%, response distribution-100%. Data were analyzed using SPSS version 22.0 software and MS-Excel 2007. Demographic and other variables were analyzed by frequency and percentage distribution. The knowledge on authorship before and after was compared by using a Chi-square test. A  $P < 0.05$  was considered statistically significant. No questionnaire was included for analysis when it was not properly filled out.

**Results and Discussion:** A pilot study was done by pre-test and post-test questionnaire to understand the awareness of Post Graduate Medical Students on authorship by judging their knowledge, attitude and skill.

**Demography:** The mean $\pm$ SD age of the respondents was  $32.52 \pm 3.37$ , range between 28-42 years. There were 17 (56.70%) male and 13 (43.30%) females among 30 students. All the respondents were at thesis part of their post graduate study. They did not have any previous course or training on principles of authorship. There was also no provision for systematic education on authorships ethics by the institution. Majority (93.3%) of

respondents learn authorships ethics from their teachers/friends during Post graduate course.

**Authorship criteria:** In our study, before education students were asked whether they know the authorship criteria. Majority students 23 (76.87%) said that they did not know the authorship criteria. But after education all the respondents (100%) felt that they understood the authorship criteria (Table 1). The difference was significant. In another question, before intervention, students were asked what could be the criteria for authorships. Majority (60%) of the respondents felt that who perform the research work should be the author of the article. But other (40%) were divided before education. Some felt that who design the research 6 (20%), who provide grants 3 (10%), and chief/Head of the division 3 (10%) should be the author of the article respectively. But after education all the respondents (100%) felt that who perform the work should be the author of the article (Table 1).

No similar interventional research has been found to compare our research. However, research regarding the authorships criteria on different academics were seen. A research said that 21% of the first authors and 34% of last authors did not meet ICMJE criteria for authorship. Whereas, 50% of the authors in between in the author by-line did not meet the criteria for authorship<sup>3</sup>. At a question to corresponding author whether the name was mentioned in acknowledgement who had not make substantial contribution to the work. Of 54% of the corresponding authors said

that this statement was not applicable to their manuscript and 12 corresponding authors did not answer this question<sup>3</sup>. In a statement Vesna et al said that who did not fulfil authorship criteria are more prone to commit other types of scientific misconduct<sup>3</sup>.

**Order of author:** In our study, before education, respondents were asked about the order of authorship. More than half of the respondent 18 (60%) felt that they did not know the answer. But only 2 (6.7) felt they knew the order of authorship. But after education all respondents (100%) felt that they understood the order of authorship (Figure 1, Table 1). At another question, students were asked about the sequence of authorship. Majority 21 (70 %) felt that according to contribution authorship should be awarded. But 8 (26%) felt it should be depended on chief of the research team. only one (3.3%) felt sequence of the authors should be write according to Seniority. But after education all respondents (100%) felt that sequence of authorship should awarded according to contribution authorship (Table 1). Balaji thought that researchers with less than six years of research experience found authorship decisions more difficult than more experienced researchers (48% vs 30%). More experienced researchers found decisions on authorships and order of authors easier than less experienced researchers<sup>7</sup>.

In our research, when we asked whether PI should be always the first author. Students were divided in their opinion in this question before education. Of 12 (40%), 5 (16.7%)

**Table 1: Comparisons on questions of authorship between before and after education on authorship ethics delivered (N=50).**

Question	Before Education			After Education			P<0.05***
	Yes	No	Don't Know	Yes	No	Don't know	
Do you know authorship criteria?	23.33%	76.67%		100%			0.008***
Do you understand the meaning of the order of authors?	6.7%	60%	18 %	100%			0.000***
Should a principal investigator always be a 1 <sup>st</sup> author on papers?	58%	12%	30%	86%	14%		0.000***
Are you keep honorary authors/ guest practices in your article?	20%	20%	60%		100%		0.030***
Are you pressurized by lab head/ head of department for include their name as an author?	20%	20%	60%	20%	80%		0.006***
Do you like to accept authorships when you didn't deserve it?	3.3%	70%	26.7%		100%		0.006***
Did you do reciprocal agreement with colleague/friends to exchange authorship to increase the number of publications?	3.3%	73.3%	23.3%		100%		0.000***
Should authors contribution be required to state in the article?	56.7 %	20%	23.3%	100%			0.000***
Are there guidelines to determine who should be listed as an author in your institute/ country?	20%	10%	70%	80%	10%	2%	0.000***
Are there guidelines who should be listed in the Acknowledgments section in your institute/ country	13.3%%	23.3%	63.3%	100%			0.009***

and 12 (40%) felt yes, no, don't respectively. But after education most of the respondents (86%) felt that PI should be always the first author and 14% felt that PI should not be always the first author (Table 1). Before education, at a question of who should be the

last author? Of 15 (50%), 7 (23.3%), 26 (26.7) felt supervisor, who supervise overall research and assistant of research could be the last author respectively (Table 1).

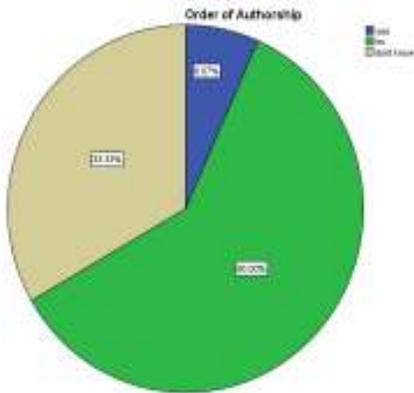


Figure 1 shows the response of a question of whether students know the order of authorship

Author credit when not deserve it: At a question of whether they were offered an author credit when they didn't deserve it. Of 27 (90%) respondents felt that they had never been offered an author credit when they didn't deserve it. It may happen because of they were post graduate level students and they had not had any publication yet. But one respondent (3.3%) expressed that he got the request. But after education all the respondents (100%) felt that they should not offered an author credit when they didn't deserve it (Table 1). At another question whether they were maintained request for unauthorized authorship. Majority 21(70%) respondents felt they did not maintain request for unauthorized authorship. But 1 (3.3) respondent felt that he maintained the request for unauthorized authorships. Of 8 (26.7) said that they don't know answer. But after education most of the respondents (100%) felt that they should not accept undeserved authorship (Table 1). One respondent who expressed that he got a undeserve request and he maintained the unauthorized authorship; we did not know why he latter denied. Our

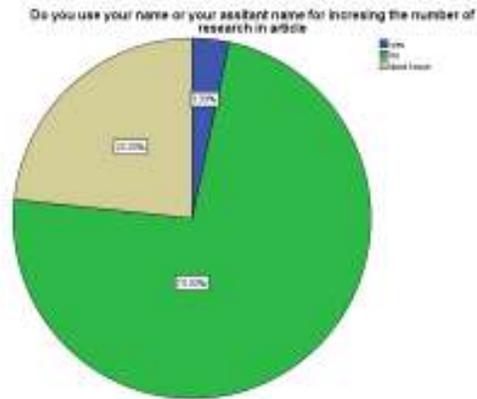


Figure 2 shows that what respondents felt in case of question of reciprocal agreement with colleagues to exchange authorship to increase the publication (N=30).

study protocol did not permit us to go for in-depth interview of that particular student.

Reciprocal agreement: In case of question of reciprocal agreement with colleagues to exchange authorship to increase the number of publications, of 22 (73.3%) respondents felt they did not do this whereas 7(23.3%) were not sure on this question. But only one person (3.3%) felt he did reciprocal authorship (Figure 2). But after education All respondents (100%) felt that they did not do the reciprocal agreement with college to exchange authorship to increase the publication, (Table 1).

Honorary authors: In our study, regarding the honorary authors, we found that almost half 13 (43.3%) of respondents felt that honorary author should be the most experience person in their field. Other felt that the Chief of the Davison 6 (20%); who give permission to use lab or materials 7(23.3%); internationally known persons 4 (13.3%) were the honorary author respectively (Figure 3).

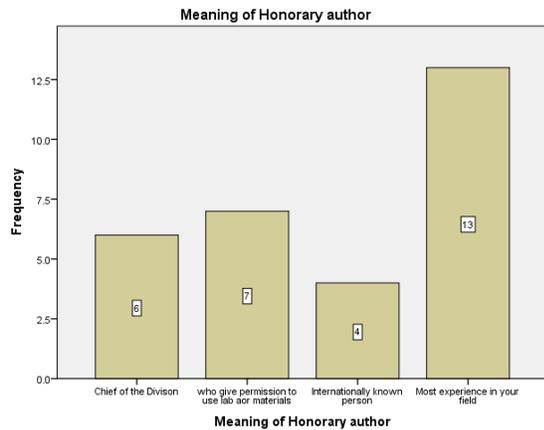


Figure 3 shows the response of a question of students whether they know the meaning of honorary authorship (N=30).

At a question of why did you like to keep honorary author? Half of respondents 15 (50%) felt that keeping honorary author opportunity would increase the number of publications. Of 11 (36.7%) and 4 (13.3%) felt that keeping honorary author, article value would increase and make good relation to get some extra facility for them respectively (Figure 4). But after education, all respondents (100%) felt that they did not like to keep honorary author (Table 1). Almost similar result has been found. Vesna pointed out that 18% of authors were honorary authorship in their study and 55% were ICMJE-defined honorary authorship<sup>3</sup>. Another survey reported that the prevalence of guest/honorary authorship varies up to 60%. Articles with more than five authors have more gift or honorary authors than articles with three authors. If excludes the honorary / guest and gift author number would decline into two<sup>8</sup>.

In our study 20% participants were pressurized by lab head/head of department for inclusion of their name as an author. No

similar researched had not been found to compare our research. But research from Balaji found that preclinical teachers (Basic science) experienced more (46%) pressure to include undeserved authors in their papers than in paraclinical (community medicine) (25%)<sup>7</sup>. In our study, half of the (56.7 %) respondents felt that the author's contribution should be stated in the article. But after intervention all students (100%) felt author's contribution should be mentioned in the article.

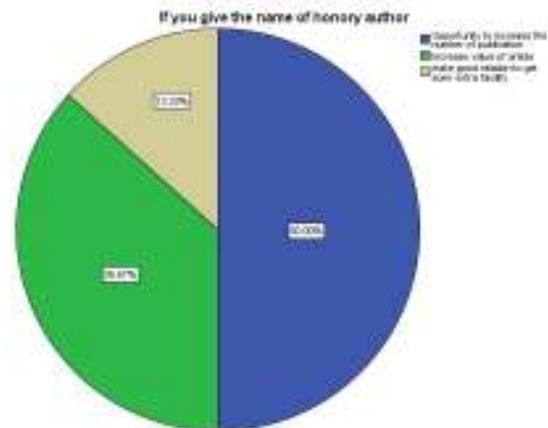


Figure 4 shows the reasons to keep honorary authorship (N=30).

The causes of misconduct in authorships are poorly understood. Actually, academic promotion systems put substantial pressure on researches to produce numerous research publications<sup>9</sup> that may include undeserve authorships. The judgment systems for funding also considers quantity rather than quality of publications<sup>6,10</sup>. In addition, pressure to publish with lack of time, tight deadlines and other competing pressures may be the case of misconduct in authorship<sup>11</sup>. Publish or perish is the today's competitive world's maxim. Therefore, it is tremendous pressure of researchers to publish significant number of articles per year to ensure

continuity in academia, funding, and fulfill the expectations of institution. This is another leading cause of increase inappropriate authorships<sup>12</sup>. Lacanian emphasizes that the individuals involved in misconduct in face of more fundamental and devastating forms of crisis, which fail researcher to abide by codes and guidelines<sup>13</sup>. According to Freudian-psychoanalytical perspective, when scientific research emerges as an impossible profession and challenged and frustrated to succeed by the researchers (the scientific super-ego) that conflicting imperatives and may easily become tormented the subjects<sup>13</sup>.

Some researchers believe that research is a group work. Where some arrange to work part by part such as thesis writing or manuscript writing or publication (author tasks), others conduct out research in allocation by part or data collection or data analysis of (non-author tasks) to give more effort and time in individual section to achieve scientific goal and considers each author should be listed in author byline. However, this arguments of “passive contribution” are not accepted by the most of the journals<sup>8</sup>.

How can a junior handle in an unethical request of seniors in authorships who do not have any substantial contribution? Daniel K Sokol suggested that it will not be wise to refuse senior to say using words such as honesty, trust, fairness, professionalism, or academic integrity rather it is better to say that the journal requires to sign an authorship form from all authors to satisfy authorship criteria. It may make the senior to feel morally attacked by highlighting the inappropriateness of the request<sup>14</sup>. In this

way, the junior can be able to avoid participating in an unethical practice. In addition, medical journals should adopt various measures to discourage the practice of inappropriate authorship<sup>14</sup>.

In our study, majority 25 (83.3%) respondents did not know whether they had faced any type of problem yet. Where one 1 (3.3%) student faced the situation that they did not include a name who was author mistakenly. Two (6.7%) included a person without his permission and 2 (6.7%) included a person but he/she did not do any research. At another question of who would be the responsible during authorships dispute? Half of the respondents 15 (50%) felt Chief Researcher would be the responsible during authorships dispute. Other 4 (13.3), 4(13.3), 4(13.3) and 3 (10%) respondents felt Senior of the research team, Chief of the division, grant institution and journal would be the responsible during authorship dispute respectively (Figure 5).

Our study population were postgraduate students, most of them had yet no publication. But it is interesting to compare study of Balaji that 29% respondents had been denied authorship they believed they deserved it. Only 41.5% responders were aware of ghost authorship. A gift or guest authorship was offered to 10.7 % study participants whereas 14.35% had been ghost author<sup>7</sup>. Actually, university set criterion on number of publications for researcher's career evaluation is the main cause of inappropriate authorships<sup>7</sup>. However, disputes cases regarding authorships were the most frequent scientific misconduct in the Nordic countries<sup>15</sup>.

Guidelines: Before education, respondents were asked whether their institute had any guideline for authorship. More than

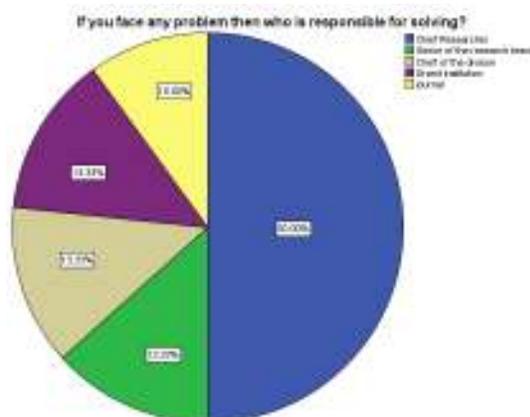


Figure 5 shows that response of a question of who would be the responsible during authorship dispute (N=30)

half 19 (63.3%) respondents did not know whether their institute had any guideline for authorship criteria. Some 7 (23.3%) said their institute had no guideline for authorship and few 4 (13.3%) said that their institute had guideline for authorship. But after intervention, Majority respondents (80%) felt that their institute had no guideline for authorship (Table 1). A study among 100 countries on authorship education result showed that 67% countries had received some publication ethics training, 41% country had received no course and only a small proportion rated training received as excellent<sup>9</sup>.

Writing to the students: After post-test on authorships ethics, all medical students were asked to divide into 3 groups. Each group contained 10 students. After group discussion, students were asked to write one page of article on Anesthesiology. Writings were checked. It is interesting to note down

that no name was included in the author by line who were not participate or had any contribution in the writing. It could be concluded that their skill on authorships were increased by intervention.

**Limitation of survey:** There were certain limitations in the present survey. This was a questionnaire-based survey and hence the results rely upon the replies that were received. However, as this was a first and pilot study from Bangladesh, an effort to capture the existing situation of the level of knowledge, attitude, and skill in authorships ethical in scientific writing in the Bangladesh. Hence it needs to be validated through further study by undertaking with large number of participants and more duration of time for training/workshop in the near future. The sample size of this study was limited. It may not represent the national scenario.

**Conclusions:** An interventional study was done on 30 post graduate medical students at the department of Anesthesiology, Dhaka Medical College, Dhaka, between January to June 2019. Survey was done by pretest and posttest questionnaires questionnaire to understand the current knowledge, attitude and skill of the postgraduate students on authorships ethics. The comparative data between pre- and post-text had highlighted a general lack of understanding of the basic concept authorships which improved after the intervention. Knowledge of students were significantly increased by the workshop on authorship. More workshops with large sample large number of students are needed on authorships to finally conclude substantial remark of success of the intervention.

**Recommendations:** We sanctioned four recommendations, e.g. 1. Supervisors should

recommend authorships principles, so that research students can be competence enough and can handle the issue of inappropriateness when it arises. 2. Institutions, universities should encourage in authorships ethics education. 3. Editors and publishers should endorse a policy on authorship to prevent wrongness with scientific medical writings. 4. Government should take policy to incorporate authorships ethics in post graduate curriculum at university level.

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**Author Contributions:** 1<sup>st</sup> author Shamima Lasker conceived the idea, planed the research design, did the literature review and wrote the 1st draft. 2<sup>nd</sup> author Muslema Begum did the research design, conducted the workshop, gathered the data and done the statistics wrote the manuscript and checked the manuscript meticulously. 3<sup>rd</sup> author Arif Hossain, 4<sup>th</sup> author Md Abdul Matin and 5<sup>th</sup> author Saiful Islam conducted the workshop, planed the research design, guided the research and checked the manuscript meticulously. Last author Darryl Macer guided the conception of the idea, the manuscript writing process, and checked the manuscript meticulously.

**Conflict of interests:** The authors declared that there is no conflict of interest in this study.