III. INTERNATIONAL ETHICS CONGRESS
OCTOBER 10-12, 2021 ANKARA, TURKEY

PROCEEDINGS BOOK

EDITORS
Assoc. Prof. Dr. Melike ÖZER KESKIN
Assoc. Prof. Dr. Hasan ÇIFTÇI

III. INTERNATIONAL ETHICS CONGRESS
OCTOBER 10-12, 2021 ANKARA, TURKEY

PROCEEDINGS BOOK

EDITORS
Assoc. Prof. Dr. Melike ÖZER KESKIN
Assoc. Prof. Dr. Hasan ÇIFTÇI

3rd INTERNATIONAL ETHICS CONGRESS

CONTENTS

3rd INTERNATIONAL ETHICS CONGRESS

THE MAJOR CAUSES OF RESEARCH MISCONDUCT

Asilah Al-Has
A. Rahman Fadzil
M. Shamin Shazwan
N. Syaheera Yunas
Prasana Bathumalai
Ibrahim Adam Ahmad Sorgar
Kulliyyah of Science, International Islamic University of Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200, Kuantan, Pahang, Malaysia

SUMMARY

Researchers' integrity is of the important roles as a responsible researcher as their main job scope is finding, presenting, and reporting new solutions for every aspect of life to the world. This integrity will receive serious damage because of misconduct acts among unethical researchers because of personal gains or fame. Research misconduct (RM) has been defined as fabrication, falsification, and plagiarism of scientific data along the process of completing the research objective. This study aims to discuss the type and cause of research misconduct and ways to overcome it. The causes of RM due to poor supervision, personal circumstances, inadequate training and competitive pressure. In order to overcome RM two parties are responsible which involve the researcher and administrative department. In addition, advanced technology applications i.e. Turnitin (Internet-based plagiarism detection) could help the administration to monitor the RM activities. Hence, the early awareness of RM would create quality research and responsible researchers in the future and among the public.

Keywords: research misconduct, fabrication, falsification, plagiarism, overcome

1. INTRODUCTION

Researchers' integrity is one of the main concerns in the world as they are finding, presenting and reporting new solution to the world for every aspects of life. This integrity will receive serious damage because of misconduct acts among unethical researchers because of personal gains or fame. Research misconduct (RM) has been defined as fabrication, falsification and plagiarism of scientific data along the process of completing the research objective as defined as Public Health Service (PHS) in the year 2000 (Wright et al., 2008). Briefly listed by Khadem-Rezaiyan & Dadgarmoghaddam (2017) that five main reasons of research misconduct are high expectation on academic rank, fame, "sloopy" science, financial gain and inability to determine right from wrong.

However, every organization and culture (university, research institute, government, country) has their own definition and understanding on the definition of scientific research misconduct based on their own nature and view. Thus, it is difficult to find the real meaning behind research misconduct. It is also mentioned in Resnik (2019) report that it is hard to investigate and adjudicate the research misconduct as different countries have contradictory research misconduct laws, regulations and policies.

One finding found 2% of scientists admitted they have done misconduct act at least once in their research journey and 14% of researchers are aware their colleagues have done so (Tavare, 2011; Fanelli, 2009). This issue is seriously a concern especially in the field of research related

to life science, biological science and plant science as these fields are directly linked to human and living things. In Islam teaching, virtuous conduct is gained and protected by having strong relation with God; as a result, human beings will be able to convey piety and righteousness in life with sincere faith towards others (Ebrahimi & Yusoff, 2017). Therefore, the aim of this study is to discuss the type and causes of research misconduct and way to overcome it.

2. TYPE OF RESEARCH MISCONDUCT

Research misconduct is major problem in research field. The need to understand the type of research misconduct is important as research involving the integrity, credibility and reputation of the researchers among the public. The major types of research misconduct are falsification, fabrication and plagiarism (FFP). Based on Bouter et al. (2016) study, falsification and fabrication are related to the impact of truth while plagiarism impact on trust. National Science Foundation (2020) has define the plagiarism, falsification and fabrication in proposing, performing or research reporting as research misconduct. Hence, research misconduct could occur in each step of research cycle (Figure).

Topic/Research Question → Literature Review

Study Design

Interpretation/Conclusion

Measurement

Data Analysis

Data Collection
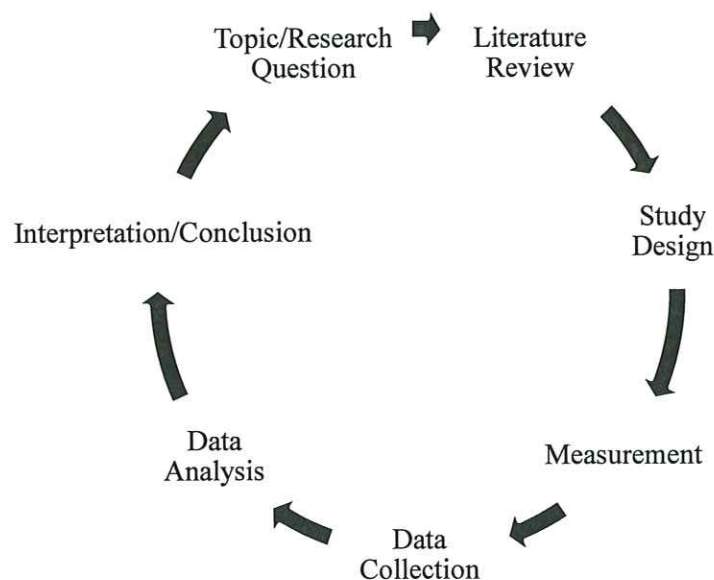
Figure 1: Research Cycle (http://www.unice.fr/crookall-cours/research/research_cycle.htm(accessed November 8, 2020).

2.1. Falsification

Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record. It can be classified as a broad categories, where one could invent data in low- budget studies with limited scientific impact or in highly expensive research with highly detailed and beyond (Dal-Ré et al., 2020).

2.2. Fabrication

Fabrication is making up data or results and recording or reported them. Nowadays, research is fast-paced and complicated, along with the application of advance technology. More data or information could be fabricated, with the usage of the advance technology such as digital image manipulation. According to Parrish and Noonan (2009), image manipulation is also considered as research misconduct and they highlighted several attempts in this manipulation such as image

enhancement from the original image, presenting an image from other source as ones' result and altering the image. One example is combining two images from different microscope field into a single image that will be interpret as a single field. The photo editing application such as Adobe photoshop is easy to learn and readily available to everyone. For publication purpose, data or image should be reported clearly and directly. Some adjustment is acceptable with evidence and justification. Hence, some of journal editor and peer-review will enquire the authors of a manuscript to send the original image and report how the image was manipulated with additional information. Therefore, an accurate manuscript could be published and avoiding argumentation or wrong accusations toward the author.

Example of falsification and fabrication case:

1. Haruko Obokata, 2014, stimulus-triggered acquisition of pluripotency" or STAP treatment.

Haruko Obokata is a former head of laboratory for Cellular Reprogramming, Riken Center for Development Biology had been found guilty of scientific misconduct by falsified and fabricated data of her research on "stimulus-triggered acquisition of pluripotency" (STAP) treatment. Her research finding has been published by prestige's journal; *Nature*. However, her papers were questioned and debated in science blog (Paul Knoepfler's and PubPeer) and twitter. They had found the similarity of the photographs in the *Nature* paper (original) and those found in Obokata's PhD thesis. In addition, no one was able to reproduce the "stimulus-triggered acquisition of pluripotency" or STAP treatment for an acid treatment to turn somatic cells (mouse blood cells) into pluripotent stem cells.

The investigation has been conducted by Riken foundation where Obakata's work was re-examined properly and resulted both of her paper was withdrawn from Nature in July 2014.

2.3. Plagiarism

In recent years there had been an increase in cases of plagiarism. This issue was picked up extensively within the research community. It is generally agreed that plagiarism is when you use another person's words, picture, video or ideas and try to pass them off as your own. According to the Merriam-Webster dictionary, plagiarism is to steal and pass off (the ideas or words of another) as your own, or use (another's production) without crediting the source. Zhang (2016) have found that these ten common types of plagiarism in research vis; 1) secondary source, 2) invalid source, 3) duplication, 4) paraphrasing, 5) repetitive research, 6) replication, 7) misleading attribution, 8) unethical collaboration, 9) verbatim plagiarism and 10) complete plagiarism. Convincing data from random survey of scientific researchers have demonstrated that paraphrasing was the most common while complete plagiarism was the most serious compared to others. One example of a notorious case of plagiarism is the resignation of Hungarian President, Pal Schmitt over a scandal involving his doctorate in 2012. He resigned after the university revoked his doctorate which was awarded in 1992. The university investigated on his thesis of modern Olympic games and found the evidence that his thesis was copied from two authors.

The consequences of this plagiarism have a huge impact on the learning process and academic profession. This culture has damaged the credibility of individual due to fraud in achieving success. Such an attitude will portray the negative impact on educational institutions of our country. Plagiarism behavior is an act that is very contrary to value and academic ethics because stealing other people's work and making it a personal job. The person who commits to this plagiarism was selfish because they don't appreciate others' efforts and struggles to produce original and quality work. This plagiarism is also contrary to religious values which strongly emphasize the moral element. Therefore, this behavior needs to be eradicated.

Previous studies had revealed a lot on the causative factors of plagiarism. Factors studied related to plagiarism behavior are more on the internal factors of students such as attitude and knowledge (Aida & Noor Raudhiah, 2019). In addition, the development of the latest technology that allows resources to be easily obtained through internet access also contributes to the occurrence of plagiarism (Kocdar et al., 2018). The e-books, e-journals and others are made to make it easier for students to access information but have been misused. This plagiarism behavior is becoming more prevalent but the optimal solution for this problem to the grassroots has yet to be found.

3. FACTOR OF RESEARCH MISCONDUCT

3.1. Poor supervision

Good research practices enable scientists to work together, build the relationship with the public and make use of their finding for society benefit. An experienced researcher will be advisors or mentors to the new researchers. Their role to guide their mentee to achieve the research objective or goals. At the same time, mentee should also be committed and responsible toward their mentors. They should concern about the meetings time and work with their mentor. Mentor behavior also could influence the new researcher.

Many new researches could not fully engage with the mentor or supervisor to make decision or gain best advice. The supervisors who are often head of department (HOD) have other responsibility for academic and administration work where it is difficult to ensure the communication between them are sufficient. For example, in clinical practice, the supervisor cum head of department is responsible for patient care, training activities and teaching the medical students. Thus, informal mentoring might not be the effective system and formal mentoring system is needed to ensure mentor-mentee relationship successfully. Close mentoring system and adequate ratio trainee to mentor would help increasing the supervision quality (Kornfeld, 2012).

Even if the new researchers were guided throughout their studies about the research works and fund management but still few of them were helped in emotional support particularly when were needed (Anderson et al., 2007). Some of the supervisor also believe that their judgement did not require verification (Kornfeld, 2012). Hence, conflict also can arise between a mentor and mentee. A young researcher who under pressure of promotion, publication and funding from the institution tend to commit misconducts (Yu et al., 2020 ; Kornfeld, 2012).The most critical issue of research misconduct cause by the intent to deceive. This action is the worst of moral conduct of scientific research.

3.2. Personal circumstances

3.2.1. Language skills

The importance of English proficiency cannot be disputed howbeit *Bahasa Melayu* is the national language in Malaysia. This lingua franca is widely used and needs to be mastered, especially for students who will explore the knowledge during study in the university, then be applied in the workplace as well as secure employment. It is apparent that problems with the level of language proficiency especially English make it difficult for students to interpret data and produce quality scholarly writing (Shak et al., 2016; Griffiths & Parr, 2001). Therefore, they tend to imitate the writing of others for reference purposes or simply copy the work. Sometimes students have their own ideas but the limitations of writing in English make them engaged with this research misconduct.

The major concern is the necessity to be proficient in the language which can reduce the difficulties. It is important for student to understand the theoretical basis of language learning,

which can be explained by 'practice makes perfect' and it is a long-life endeavor (Siti Hamin et al., 2007). However, there are tools in the form of downloadable software to help students make self-revisions on grammar. The ability to self-check the similarity with others works also offers a great advantage. The university can take the initiative by exposing them to technology towards better language proficiency.

3.2.2. Knowledge and literacy skills

Knowledge and literacy skills are very important for university students because almost all learning activities require those skills. The consequences of lack of knowledge and literacy skills had led to research misconduct. According to UNESCO (2009) in Literacy Assessment and Monitoring Programme (LAMP); literacy is the ability to identify, understand, interpret, create, communicate and compute using printed and written materials associated with varying contexts. Therefore, to succeed, individual students need to have the nature of learning and master the learning methods to get knowledge and literacy skills.

Learning is not just about adding knowledge and remembering re-learned information but is an activity of mastering concepts and understand knowledge information and subsequently be able to apply it in daily life (Hargreaves, 1996). Learning involves mastering skills and knowledge in addition to forming attitudes. Psychological and educational studies show that individuals have different skills in the processing of information. This will lead to larger variations in learning methods, particularly for finding, storing and multiplying known information (Felder & Henriques, 1995). Skills that requires to obtain good scholarly works are problem solving and synthesis skills. Those are also closely related to high-level thinking skills that can not only help students read and think quickly but can also build students' self-confidence in making a decision (Tsingos-lucas et al., 2017; Ayşegül, 2015). However, the skill of synthesizing reading materials to be translated into literary writing form requires ongoing training and assessment (Tsingos-lucas et al., 2017).

3.2.3. Time management skills

Failure in managing time well has been identified as one of the factors leading to stress and anxiety. Usually, the cause of students' frequent stress is due to work demands from workplace, poor time management, family factors, personal life and role conflict (Giancola et al., 2009). Time management is very important in producing good research. Some students take it easy by delayed the process of literature review and lab works. Thus, resulting in insufficient information and time. This causes them to take shortcuts to copying the existing work, fabricate and falsification the results.

In order to produce a good work, it requires reading and understanding from many sources. Hence it is necessary for students to use ample time to ensure the production of quality work. Someone must have their own technique and way to organize, manage and divide their daily time effectively (Janssen, 2006; Kopper, 2002). This skill is very much needed for student that has many tasks to perform in a limited time. It can be considered as a systematic method in determining what needs to be done according to priority. Someone who is smart in managing and using time will be able to achieve success and satisfaction in life.

3.3. Inadequate training

Researchers are obligated to collect accurate, clear and accessible data using proper technique. Data collection techniques are different among the research group or study. In some case, research data or materials will be required by the funding agencies or journals. Hence, proper training in recording, analyzing, storing or sharing data among the research group is needed. Regular meeting to discuss data issues and research progress can help monitoring the

researcher's performance. Supervisors and mentors are advised to use practical exercise and text-matching software in training, supervision and mentoring (Bouter et al., 2016).

3.4. Competitive Pressure

According to Fanelli (2010):

"Competition is encouraged in scientifically advanced countries because it increases the efficiency and productivity. The flip side of the coin, however, is that it might conflict with their objectivity and integrity, because the success of a scientific paper is more likely to be published, to be cited by colleagues and to be accepted by high-profile journals if they report results that are "positive" …"

The paragraph above tells that even though competitions can be good, often time it can lead to misappropriation of research. This shows that one of the factors that can contribute to research misconducts is competitive pressure. Examples of the pressure includes organizational climate, personal and professional pressure, and job insecurities (Davis et al, 2006). The environments in which a research is conducted are said to be contributive towards research misconducts. Besides the environment, the interpersonal relationships within the organisations have been identified as one of the important elements to the culture of an organisation. It is suggested by Morrison (1990) that the lack of relationship between supervisors and those who they supervise, and pressure to publish are the few factors contributing to fraud.

Based on a research done by Yu et al (2020), the top three factors for scientific misconduct are individual morality, pressure for promotion and pressure for publishing. Not only that, based on the same paper, more than 50% out of 278 subjects felt that the pressure for publication, promotion and external funding were high. This shows that the pressure for promotion can be considered as one of the main factors contributing to research misconducts.According to the study conducted by Parlangeli et al. (2019), it shows a worryingly clear relationship between stress and unethical behavior. The research was conducted with the participation of 793 researchers in Italy and the data indicates that the misconducts are happening at an alarming rate. The reported stress level is high, as is the perceived job insecurity, both impacts job satisfactions level.

4. HOW TO OVERCOME

The consequences of research misconducts can lead towards a cataclysmic effect, not only on the guilty party, but also their colleagues and the research institutes. A misconduct can create a distrustful environment among peers. Not to mention, the act of research misconducts is considered as a breach of trust between the researchers and their funding agencies. Most importantly, the act of research misconducts can cause the loss of confidence from the public in terms of the integrity of the researchers (Research Misconduct | Responsible Conduct of Research, n.d.). However, these consequences can be avoided through various methods.

There are two groups who are responsible in overcoming research misconducts which the researchers and the administrative body of the research institute.

According to Streefkerk (2020), there are four methods that can be taken to prevent research misconduct:

- Source tracking and keeping notes organized

  The sources are not limited to journals and thesis only. It can include videos and websites. One of the easier ways to track an idea is to append keywords, facts or phrases related to the idea.

- Quote and paraphrase

According to Ashford Writing Center website, quoting "involves copying short sentences or passages from the original text word-for-word". Paraphrasing, on the other hand, is to change the words and wording of the sentence without changing the meaning of the sentence. Paraphrasing can also be done by taking a part of the text and combine it with your own words.

- Citation of the original source

This can be done by using in-text citation or footnote citation that credits the original author. This citation would allow the readers to locate the sources themselves. It is very important to give credits where it is due.

- Use plagiarism checkers

The plagiarism checkers technology will scan through documents and compare them to its huge database, consisting of publications and websites. It will also highlight passages that are similar to other texts.

On the administrative perspective, there are several strategies that can be implemented to reduce the frequency of research misconducts in general, according to Ford (2018) and Horbach et al. (2020). The strategies include the enforcement of policies that govern academic research, set standards for supervision of all testing, enforce expectations for process rigor and establishing proper reporting procedure:

- Enforcement of policies that govern academic research

To enforce the policies governing academic research, it is important to make sure that everyone in the research environment knows that they each play a part to protect the integrity of the-research. Examples of actions that can be taken to raise the awareness of research misconducts include reminders by posters and discussions on this issue at every level in the research environment. Leaders should also play their role to make sure that there will be no retaliation for reporting concerns regarding misconducts and to take their comments seriously.

- Set standards for supervision for all testing

The expectations of transparency among team members should be clarified by the leader. Leaders should also look into the quality of mentoring programs provided for new researchers and lab assistants in an effort to strengthen the relationships between mentors and mentees. All in all, the main point is to foster a collaborative environment and establish the basis of communication and trusts among researchers.

- Enforce expectations for process rigor

This can be via providing checklists that must be abided when doing research, and holding the researchers accountable for their completion and adherence. On the researcher part, they should keep detailed notes on the tests and results achieved. These checklists and notebooks should record every research to avoid research misconducts.

- Establishing proper reporting procedure

The procedures should address the issues such as power imbalance and the fear of not being taken seriously, and it should take the position of an organization's less powerful members such as junior researchers. The implementation of the procedure could help to reduce the culture of complacency and cynicism that normalizes research misconducts.

REFERENCES

Aida, R. M. Z. & Noor-Raudhiah, A. B. (2019). Faktor-Faktor yang Mempengaruhi Tingkah Laku Plagiat dalam Kalangan Pelajar, Proceeding of the 6th International Conference on Management and Muamalah (ICoMM 2019), 130-140.

Anderson, M. S., Horn, A. S., Risbey, K. R., Ronning, E. A., De Vries, R., & Martinson, B. C. (2007). What do mentoring and training in the responsible conduct of research have to do with scientists' misbehavior? Findings from a national survey of NIH-funded scientists. *Academic Medicine, 82*(9), 853–860.

Ayşegül, K. (2015). Evaluation of the thesis based on critical thinking skill in terms of critical writing criteria. *Journal of Theory and Practice in Education,* 11(3), 1043–1060.

Bouter, L. M., Tijdink, J., Axelsen, N., Martinson, B. C., & Riet, G. (2016). Ranking major and minor research misbehaviors : results from a survey among participants of four World Conferences on Research Integrity. *Research Integrity and Peer Review,* 1–8.

Dal-Ré, R., Bouter, L. M., Cuijpers, P., Gluud, C., & Holm, S. (2020). Should research misconduct be criminalized? *Research Ethics,* 16(1–2), 1–12.

Ebrahimi M. & Yusoff K. (2017). Islamic Identity, Ethical Principles and Human Values. *European Journal of Multidisciplinary Studies,* 6(1): 325-336.

Fanelli D. (2009). How Many Scientists Fabricate and Falsify Research? A systematic review and meta-analysis of survey data. *PLoS ONE,* 4(5), e5738.

Felder, R.M. dan Henriques, E.R. (1995). Learning and Teaching Styles in Foreign and Second Language Education, *Foreign Language Annals,* 28(1), 21-21.

Ford, B. (2018). Strategies for Preventing Research Misconduct. Ankura. https://ankura.com/insights/strategies-for-preventing-research-misconduct/v (accessed November 9, 2020).

Giancola, J. K., Grawitch, M. J. & Borchert, D. (2009). Dealing with the stress of college: A model for adult students. *Adult Education Quarterly,* 59: 246-263.

Griffiths C. & Parr J. M. (2001). Language-learning strategies: theory and perception, *ELT Journal,* 55(3): 247–254.

Janssen, D. A. (2006). The ultimate self challenge: Time management. http://www.danieljanssen.com (accessed November 8, 2020).

Kocdar, S., Karadeniz, A., Peytcheva-Forsyth, R. & Stoeva, V. (2018). Cheating and Plagiarism in E-Assessment: Students' Perspectives. *Open Praxis, 10*(3), 221-235. International Council for Open and Distance Education.https://www.learntechlib.org/p/187315/ (accessed November 24,2020).

Khadem-Rezaiyan M. & Dadgarmoghaddam M. (2017). Research Misconduct: A Report from a Developing Country. *Iranian Journal of Public Health,* 46(10): 1374-1378.

Kopper. (2002). Ko-kaunselor pemimpin pelajar. Yayasan Nurul Yakin: Portal Pendidikan Utusan. http://www.tutor.com.my/tutor/kopper/index. (accessed November 24,2020).

Kornfeld, D. S. (2012). Perspective: Research misconduct: The search for a remedy. *Academic Medicine,* 87(7), 877–882.

National Science Foundation (NSF). *(2020). New Research Misconduct Policies.* https://www.nsf.gov/oig/_pdf/presentations/session.pdf (accessed November 11, 2020).

Olesen A. P., Amin L. & Mahadi Z. (2017). Malaysian researchers talk about the influence of culture on research misconduct in higher learning institutions. *Accountability in Research,* 24(8): 469-482.

Parrish D. & Noonan B. Image Manipulation as Research Misconduct. (2009). Scientific and Engineering Ethics, 15: 161-167.

Resnik D. B. (2019). Is it Time to Revise the Definition of Research Misconduct? *Accountability in Research,* 26(2):1-20.

Shak, P., Chang, S. L., & Stephen, J. (2016). Pronunciation Problems: A Case Study of English Pronunciation Errors of Low Proficient Students. *International Journal of Language Education and Applied Linguistics* (IJLEAL), 4: 25-35.

Streefkerk, R. (2020). How to avoid plagiarism. Scribbr. https://www.scribbr.com/plagiarism/how-to-avoid-plagiarism/ (accessed November 11, 2020).

Tavare A. (2011). Managing Research Misconduct: Is Anyone Getting It Right? *BMJ*. 343.

Tsingos-lucas, C., Bosnic-anticevich, S., Schneider, C. R., & Smith, L. (2017). Using Reflective Writing as a Predictor of Academic Success in Different Assessment Formats. *American Journal of Pharmaceutical Education*, 81(1), 1–8.

Wright D. E., Titus S. L. & Cornelison J. B. (2008). Mentoring and Research Misconduct: An Analysis of Research Mentoring in Closed ORI Cases. *Scientific and Engineering Ethics*, 14(3) : 323-336.

Yu, L., Miao, M., Liu, W., Zhang, B., & Zhang, P. (2020). Scientific misconduct and associated factors: A survey of researchers in three Chinese tertiary hospitals. *Accountability in Research*, 1-20.

Zhang Y. H. H. (2016). *Against Plagiarism*: A guide for Editors and Authors. Springer International Publishing, 3-12. http://www.springer.com/us/book/9783319241586 (accessed November 8, 2020)