



Views of postgraduate students regarding research ethics in Turkey¹

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Abstract

This research aimed to examine the level of knowledge of master and doctorate students regarding scientific research ethics and the frequency of scientific deception identification in scientific publications. The research was conducted using descriptive methods. The group under examination consisted of 112 randomly chosen students who pursued their postgraduate degree in physical education and sports fields. The validity and reliability were determined in the framework of this study. Item total correlation and factor analyses were conducted for the construct validity of the assessment tool. The Alpha Coefficient, which was calculated for the scale reliability as .96, indicated the scale is valid and reliable. The Shapiro-Wilks test was also conducted to determine whether the data were normally distributed. Because the data did not exhibit a normal distribution, a non-parametric Mann-Whitney U test was utilised. “Writing more than one article using the same data”, “citing without providing a reference”, “reporting findings that are only consistent with expectations”, “publishing someone else’s ideas without providing references as if they are one’s own”, “presenting the same research in more than one conference or symposium”, and “publishing the same research in more than one journal” are the most non-ethical behaviours perceived in scientific research. All of the participants indicated that “presenting falsified findings of research and publishing someone else’s research with own name” represent non-ethical behaviours. According to the research results, “citing without providing a reference” and “writing more than one article using the same data” were the most unethical behaviours identified in scientific studies.

Keywords: Falsification; plagiarism; postgraduate student; research ethics.

1. Introduction

In addition to facilitating an understanding of the universe, science is a guide that directs many aspects of scientific and social life. Scientists, who are characterised as followers of non-self-seeker information, integrate theoretical advancements into practical projects that concern the entire world (Belsey & Chadwick, 1998). Scientific studies comprise the intellectual efforts and practices of scientists that aim to identify answers regarding nature, human and society specific questions (TÜBA, 2002). To be accepted as a scientific study, one necessary condition is the suitability of ethics. The word “ethics” has become more of an issue in scientific research similar to many other fields. The main reason that underlies the recent increase in attention regarding ethics is

¹ This study submitted in 2nd International Social Sciences in Physical Education and Sport Congress, Gazi University

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the increase in ethical problems or the realisation of increasing problems (Tepe, 2000). Ethics comprises concepts, such as good, bad, and wrong, and represents a system of moral principles, values and standards that defines what is good and bad in individual or group behavioral relations (Hatcher, 2004). Individuals who behave and conduct ethically do not perform transmitted action rules and value standards without questioning; in contrast, these individuals understand and think about these concepts and then turn them into habits to perform the requested good (Pieper, 1999).

Scientific research ethics indicates the application of a higher degree of moral, honesty and clarity principles at all stages, ranging from the identification of a research subject to the post-publication period (Erzan et.al., 2008). In its simplest form, it can be defined as a sub-branch of ethics that concerns the application of the principles of ethics in scientific research (Uluoglu, 2008). Academic research writers should be up to par with defined standards and value criteria, and they should exhibit certain characteristics, such as objectivity, honesty, openness, and professional ethics (Kansu & Ruacan, 2002). Yannacone (1999) emphasises that academics are responsible for providing neutral information and guidance to society because of their scientist identity. Ethical problems regarding scientific studies and publications have emerged during previous years and have increasingly attracted the interest of researchers in scientific research ethics (Ongun, 2006). Any type of initiative that reduces the value or reliability of research is defined as scientific deception (Kansu & Ruacan, 2002). There are many reasons why individuals engage in scientific deception. Academic promotions, job applications, scientific fund applications and concerns regarding academic prestige have pressured individuals to publish increasingly more scientific papers. There are papers and studies of all natures, including studies that were conducted entirely in good faith but incorrectly, as well as studies that include deliberate deceptions to gain individual or institutional benefits (Ruacan, 2003).

Major scientific deceptions are classified as follows: inventing (fabrication), warping (falsification) information and data, and stealing data from other individuals (plagiarism) (Ülman, 2006). Furthermore, the replication of publication, multi-publication (duplication), slicing, segmented publication (salamisation), slanted or missing references, disrespect for human-animal ethics, partial selection of sources, partial publication, and the utilisation of author names in non-authentic ways are also considered scientific deception (Kansu & Ruacan, 2002; Ülman, 2006; İnci, 2009). These dubious actions are consciously performed by authors with the intention of deception. If research is conducted without substantial knowledge regarding research planning, appropriate research methods, or analysis of results, this approach is considered undisciplined research, and the related scientific deceptions are assumed to occur in good faith. It is supposed that with the appropriate education, these researchers can be scientifically retrained (Kansu & Ruacan, 2002).

When behaviours against scientific research ethics emerge and are proven, penal sanctions are enforced. Opinions vary regarding whether different quantities of plagiarized study reflect different intensity levels of academic fraud, and with regard to criteria for what creates plagiarism (Roig, 2001). For example, in Turkey, under the head of the 7th items of the Inter-university Board Regulation on Associate Professorship Appointments, the application of an associate professor candidate, who is the subject of a plagiarism claim, falls into abeyance until a decision has been made regarding the claim (YÖK, 2015). Moreover, the 11th items of the Disciplinary Code of Higher Education Institutions states that any instructor “showing somebody else’s scientific work or a part of it without giving appropriate reference or as if it is their own work” is punished with “dismissal of university instruction profession” (YÖK, 1982). In universities increasing number of complaints from hard-working students who see fellow students willing to ignore ethical codes only to be awarded for their behavior (Martin et al., 2009).

The number of studies regarding the amount of information related to ethical problems encountered during scientific studies in Turkey is very low. In this study, postgraduate students who receive their education in physical education and sports fields were assessed regarding their views of non-ethical behaviours in the framework of scientific research ethics. Furthermore, the prevalence of scientific deception in scientific publications was assessed and subsequently measured.

In this context, the study aimed to examine postgraduate students were assessed regarding their views of non-ethical behaviours in the framework of scientific research ethics in terms of some variables (occupation, status of publishing scientific work, status of education)

Answers to questions provided below were sought in line with this purpose:

1. What are the views of postgraduate students regarding research ethics?
2. Do views of students postgraduate students regarding research ethics show significant differences based on independent variables (occupation, status of publishing scientific work, status of education)

2. Methods

2.1. Participants

This research was conducted using descriptive methods. The group under examination consisted of 112 randomly chosen students who pursued their postgraduate degree in the physical education and sports fields in Turkey. The participants were divided into five age categories: 25 years old or younger ($n=21$; 18.8%), 26-30 years old ($n=54$; 48.2%), 31-35 years old ($n=28$; 25%), 36-40 years old ($n=7$; 6.2%) and older than 40 years ($n=2$; 1.8%). The participants comprised 43 females (38.4%) and 69 males (61.4%); when the education state was analysed, 67 participants (59.8%) were pursuing master degrees, and 45 (40.2%) were pursuing doctoral studies. Regarding student occupations, 33 participants worked as academic staff, and 79 worked as non-academic professionals. In addition, 69 students (61.6%) had never taken research ethics lectures, whereas 43 (38.4%) had taken research ethics lectures. When the scientific paper publication status of the students was analysed, 55 students (49.1%) had published scientific papers, whereas 57 (50.9%) had not published. When the postgraduate students were analysed, 50 students (44.6%) were enrolled in physical education and sports programs, 11 (9.8%) were physical education teachers, 15 (13.4%) were sport managers, 26 (23.2%) were undergoing kinesis training, 3 (2.7%) were involved in psychosocial areas, 2 (1.8%) were physical educators and sports scientists, and 5 (4.5%) were involved in sport and health activities.

2.2. Ethical clearance

The required applications were submitted to the universities and the necessary permission was obtained. Before the study was conducted, a short description was provided to the entire participants. Participants were obtained permission with informed consent form.

2.3. Measures

The scale questions were substantially prepared by benefiting from the works of Köklü (2003). Twenty-one items were identically replicated, 4 items were modified, and 7 new items were added to the scale by the authors. The scale options and relevant scores were as follows: I have no idea (1 points), Never (2 points), Occasionally (3 points), Frequently (4 points), and

Always (5 points). In addition, on a separate form, the research group was asked to answer whether the 32 items in the scale were (1) or were not (2) in accord with research ethics.

2.4. Statistical analysis

The validity and reliability were assessed in the framework of this study. Item total correlation and factor analyses were performed for the construct validity of the assessment tool. The Alpha Coefficient was assessed for the reliability. A threshold value of $r=0.30$ between the items was used to determine whether an item should be included in the scale. No item was excluded from the scale because of this inclusion criteria. The item total correlation values of the items situated at the scale varied between .47 and .77.

Prior to the factor analysis, to determine the conformity of the data, the Kaiser-Meyer-Olkin (KMO) value was identified as .89. This value indicates that the conformity of the data with the factor analysis is perfect (Sipahi et al., 2010). Furthermore, the Barlett test was conducted for the factor analysis of all items in the scale, and a [2.690 ($p<0.001$)] result was obtained. The KMO and Barlett test results justified that the factor analyses can be performed with these data. A factor loading value greater or equal to .45 is a good choice of selection (Büyüköztürk, 2011). When deciding which items should be included in the scales, factor loading values greater or equal to .45 were set as the standard. No item was excluded from the scale because of this standard. The factor loading values of the 32 items in the scale varied between .49 and .79. According to the factor analysis, 45.12% of the total variance in which the scale is one dimension was explained. The Alpha Coefficient was calculated for the scale reliability, and a value of .96 indicated that the scale is valid and reliable.

The frequencies and percentages were analysed. The Shapiro-Wilk test indicated that the data did not exhibit a normal distribution; thus, the results were analysed with a non-parametric Mann-Whitney U test.

3. Results

The mean values, standard deviations, and score order are provided in Table 1 in relation to the level of occurrence of non-ethical behaviours of the postgraduate students in scientific research and the percentage of individuals who disapprove of these behaviours. Thus, “writing more than one article using the same data” ($M=2.58$) and “citing without providing a reference” ($M=2.38$), “reporting findings that are only consistent with expectations” ($M=2.24$), “publishing someone else’s ideas without providing references as if they are one’s own” ($M=2.18$), “presenting the same research in more than one conference or symposium” ($M=2.18$), and “publishing the same research in more than one journal” ($M=2.17$) are reported as the most observed behaviours in scientific research. In contrast, “concealing research findings that harm participants” ($M=1.45$) and “exercising hidden experimental treatment on participants” ($M=1.17$) are identified as the least identified behaviours in scientific research.

According to Table 1, when the viewpoints of the postgraduate students regarding research ethics and behaviours that they found contrary to ethics were examined, “presenting falsified research findings” and “publishing someone else’s research with own name” were identified as non-ethical by 100% of the participants, which indicates the most affirmed non-ethical behaviours by the participants. “Presenting falsified research findings” is identified as non-ethical by 28.2% of the participants, “publishing the same research in different languages” was identified as non-ethical by 45.5%, “writing more than one article using the same data” was identified as non-ethical by 75%, “presenting the same research in more than one conference or symposium” was identified as non-ethical by 77.7%, “citing without providing a reference” was identified as

non-ethical by 97.3%, “presenting research findings in multiple publications in such a way research is disintegrated” was identified as non-ethical by 92.9%, “using someone else’s quantification approach without permission” was identified as non-ethical by 92%, and “using someone else’s quantification approach without providing a reference” was identified as non-ethical by 96.4% of the participants.

Table 1: Mean values, standard deviations, and score orders

<i>Items</i>	<i>Percentage of individuals who characterise behaviour as non-ethical</i>	<i>M</i>	<i>SD</i>	<i>Score order</i>
1.Fabricating data at desk without conducting research	97.3	1.91	1.32	15.5
2.Reporting falsified research data	28.2	1.86	1.23	18
3.Publishing someone else’s ideas without providing references as if they are one’s own	96.4	2.18	1.25	4.5
4. Breaking a confidentiality agreement	96.4	1.74	1.29	23
5.Destroying data that are contradictory to researcher	97.3	1.91	1.35	15.5
6.Providing false information regarding the research method	99.1	1.61	1.17	26.5
7.Deliberatively using improper statistical techniques when analysing research data	98.2	1.64	1.34	25
8.Using a quantification tool without demonstrated credibility and legitimacy	93.8	1.77	1.22	22
9.Precluding repeatability of research method by deficient reporting	97.3	1.67	1.20	24
10.Reporting findings that are only consistent with expectations	96.4	2.24	1.37	3
11.Citing without providing a reference	97.3	2.38	1.33	2
12.Writing more than one article using the same data	75.0	2.58	1.44	1
13.Forcing other individuals to participate in research	95.5	2.09	1.42	10
14.Including a reference that is not cited in the bibliography section of the research report	94.6	2.04	1.42	12
15.Publishing the same research in more than one journal	77.7	2.17	1.40	6
16.Presenting falsified research findings	100	1.83	1.26	21
17.Exercising hidden experimental treatment on participants	94.6	1.17	1.05	32
18.Concealing research findings that harm participants	95.5	1.45	1.26	31
19.Adding individuals whose contributions are incompatible with authorship as co-authors to the research report	95.5	2.07	1.48	11
20.Reasonless or inappropriate changing of the order of research authors	98.2	1.93	1.50	14
21.Using another researcher’s data without permission	93.8	1.84	1.46	20.5
22. Not stating institutional or organisational support on publications that contain findings of supported studies	97.3	1.51	1.28	28
23.Hiding aim of researcher	98.2	1.49	1.10	29
24.Publishing an article by translating it without the permission of its author	97.3	1.84	1.42	20.5
25.Using someone else’s quantification approach without permission	92.0	2.11	1.48	8
26.Using someone else’s quantification approach without providing a reference	96.4	1.89	1.30	17
27.Presenting the same research in more than one conference or symposium	68.8	2.18	1.50	4.5
28. Including supportive data only while comparing own data with data from other studies	92.0	2.10	1.37	9
29. Testing, experimenting or measurement on children without parental permission	97.3	1.46	1.28	30

30.Publishing someone else's research with own name	100	1.61	1.25	26.5
31.Presenting research findings in multiple publications in such a way that research is disintegrated	92.9	1.99	1.41	13
32.Publishing the same research in different languages	45.5	2.16	1.44	7

No significant difference was identified as a result of the Mann-Whitney U test regarding the views of postgraduate students on the level of occurrence of behaviours that are against research ethics, according to the variables of gender and their status of participation in a research ethics lecture.

A significant difference in one item was identified as a result of the Mann-Whitney U test, i.e., individuals who do or do not work as academic staff. In addition, the Mann-Whitney U test indicated the views regarding the item “presenting research findings in multiple publications in such a way that research is disintegrated” were significantly different ($U=990.5, p<.05$). When the rank averages are considered, the postgraduate students who worked as academic staff indicated that the level of occurrence of “presenting research findings in multiple publications in such a way that research is disintegrated” is higher with respect to the students who are not academic staff (Table 2).

Table 2: Results of the Mann-Whitney U test regarding the views of postgraduate students with respect to occupation variable

<i>Items</i>	<i>Occupation</i>	<i>M</i>	<i>Mean rank</i>	<i>Sum of ranks</i>	<i>U</i>	<i>P</i>
Presenting research findings in multiple publications in such a way that research is disintegrated	<i>Academic staff (1)</i>	2.39	65.98	2177.5	990.5	.042*
	<i>Non-academic staff (2)</i>	1.82	52.54	4150.5		
	$n_1=33$	$n_2=79$	$N=112$	$*p<.05$		

Significant differences were identified as a result of the Mann-Whitney U test regarding the views of the postgraduate students who do and do not publish scientific work on the level of occurrence of behaviours against research ethics. Regarding the Mann-Whitney U test performed on the views related to “publishing an item by translating it without the permission of its author”, a significant difference was identified ($U=1.15, p<.05$). When the rank averages are considered, the postgraduate students who work as academic staff indicated that the level of occurrence of “publishing an article by translating it without permission of its author” is higher with respect to the students who do not work as academic staff.

Regarding the Mann-Whitney U test on views related to the item “using someone else's quantification approach without providing a reference”, a significant difference was identified ($U=1.13, p<.05$). When the rank averages are considered, the postgraduate students who publish scientific work indicated that the level of occurrence of “using someone else's quantification approach without providing a reference” behavior is higher with respect to the students who do not publish scientific work. Regarding the Mann-Whitney U test on the views related to the item “presenting research findings in multiple publications in such a way that research is disintegrated”, a significant difference was identified ($U=1.17, p<.05$). When the rank averages are considered, the postgraduate students who do not publish scientific work indicated that the level of occurrence of “presenting research findings in multiple publications in such a way that research is disintegrated” is higher with respect to the students who publish scientific work (Table 3).

Significant differences were identified as a result of the Mann-Whitney U test regarding the views of the doctorate and master students. Regarding the Mann-Whitney U test of the views related to the item “citing without providing a reference”, a significant difference was identified ($U=1.18, p<.05$). When the rank averages are considered, the doctorate students indicated that the level of occurrence of “citing without providing a reference” is higher with respect to the master students. Regarding the Mann-Whitney U test on the views related to the item “reasonless or inappropriate changing of the order of research authors”, a significant difference was identified ($U= 1.16, p<.05$).

Table 3: Results of the Mann-Whitney U test regarding the views of the postgraduate students with respect to the status of publishing scientific work

Items	Status of Publishing Scientific Work	<i>M</i>	Mean Rank	Sum of Ranks	U	<i>P</i>
Publishing an article by translating it without the permission of its author	<i>Does not publish</i> (1)	2.18	63.96	3518	1.15	.015*
	<i>Publishes</i> (2)	1.52	49.30	2810		
Using someone else’s quantification approach without providing a reference	<i>Does not publish</i> (1)	2.29	64.43	3543	1.13	.009*
	<i>Publishes</i> (2)	1.94	48.85	2784		
Presenting research findings in multiple publications in such a way that research is disintegrated	<i>Does not publish</i> (1)	1.67	49.27	2710	1.17	.018*
	<i>Publishes</i> (2)	2.29	63.47	3618		
$n_1=55$ $n_2=57$ $N=112$		$*p < .05$				

When the rank averages are considered, the doctorate students indicated that the level of occurrence of “reasonless or inappropriate changing of the order of research authors” is higher with respect to the master students (Table 4).

Table 4: Results of the Mann-Whitney U test regarding the views of the postgraduate students with respect to the status of the education variable

Items	Status of Education	<i>M</i>	Mean Rank	Sum of Ranks	U	<i>P</i>
Citing without providing a reference	Master(1)	2.19	51.67	3462.0	1.18	.049*
	Doctorate(2)	2.66	63.69	2866.0		
Reasonless or inappropriate changing of the order of research authors	Master(1)	1.68	51.44	3446.5	1.16	.040*
	Doctorate(2)	2.31	64.03	2881.5		
$n_1=67$ $n_2=45$ $N=112$		$*P < .05$				

5. Discussion

Scientific deception is deliberately performed for a variety of reasons, and it can emerge because of improperly presented research methods. Because of the challenges regarding data collection, the number of works in the literature regarding scientific deception is very limited. Fanelli (2009) concluded that when data are collected via email, the ratio of individuals who accept that they perform scientific deception is lower than individuals who provide direct answers.

“Writing more than one article using the same data”, “citing without providing a reference”, “reporting findings that are only consistent with expectations”, “publishing someone else’s ideas without providing references as if they are one’s own”, “presenting the same research in more than one conference or symposium”, and “publishing the same research in more than one journal” are the most identified non-ethical behaviours in scientific research. May et al.’s (1998) study of 36 British authors indicated that 17 of the authors had heard about non-ethical behaviour in scientific research within the previous 4 years. The findings of May et al. (1998) also support our study. Sisti’s (2007) study on 160 high school students, approximately 35% of respondents indicated that they had directly copied and pasted material into an assignment, without citation. Of these students, approximately 46% indicated they considered it plagiarism or cheating. Hayes and Introna’s (2005) study on 46 students who are Master of Science (MSc) students from different country at Lancaster University Management School, described that many international students believe cheating is incorrect, but they still apply in it in quite a prevalent way. Within Köklü’s (2003) work, 22.9% of academics indicated that research ethics had been violated very few times, whereas 37.1% indicated occasionally and 40% indicated very frequently. Meyer and Macmahon (2004) evaluated 30 behaviours encountered during studies conducted through surveys in their study regarding 70 experienced and 106 beginning academics. “Making changes to the order of authors of research inappropriately and in a non-realistic way”, “trying to learn a panel member’s identity who presents negative views”, and “publishing someone else’s ideas without providing references as if they are one’s own” are evaluated as non-ethical behaviours.

In this study, “presenting the same research in more than one conference or symposium”, “publishing the same research in different languages”, “writing more than one article using the same data” and “publishing the same research in more than one journal” are not evaluated as non-ethical behaviours per some participants. The lack of adequate information in postgraduate students regarding research ethics can be the reason for them not acknowledging these non-ethical behaviours, which can also be referred to as duplications. “Citing without providing a reference”, “presenting falsified research findings”, “presenting research findings in multiple publications in such a way that research is disintegrated”, “using someone else’s quantification approach without permission”, and “using someone else’s quantification approach without providing a reference” were identified as non-ethical by almost all participants. Supporting results have been obtained in similar studies. For example, according to Erdemir et al., (2004), “citing without providing a reference” was detected as non-ethical against occupational ethics. In Civaner et al.’s (2000) study, “gift authorship” and “publication of falsified research findings” were identified by the majority of instructors as non-ethical behaviours against publication ethics, whereas “publication of research piece by piece” and “honorary authorship” were not perceived as non-ethical per publication ethics. Stephens et al.’s study (2007) also performed between 1,305 students in two universities. The results showed that students used conventional means more often than digital means on copying homework. All participants indicated that “presenting falsified research findings and publishing someone else’s research with own name” are non-ethical behaviours. Plagiarism and falsification, which require the imposition of heavy sanctions (YÖK, 1982) among non-ethical behaviours, were indicated as non-ethical behaviours by all participants, which is a positive status. In contrast to research findings in a study of academics by Köklü (2003), changing research findings, destroying data that are contradictory with researchers, providing false information on research methods, citing/picking without providing a reference, and the addition of individuals whose contributions are incompatible with authorship as co-authors to the research have been identified as non-ethical behaviours by all participants.

In various studies that examined non-ethical behaviours against research ethics, participants have indicated that they either performed scientific deception or witnessed it. For example, in a

study by Gardner et al. (2005) of 322 researchers in the field of medicine, 1% of the writers indicated that they performed scientific deception, whereas 5% stated they had encountered data fabrication or scientific deception in the previous 10 years, and 17% had personally witnessed an action of scientific deception. In Fanelli's (2009) meta-analysis of 21 scientific articles, 1.97% of the scientists indicated that they had fabricated or falsified data, and 33% used research methods that are open to disputes. In Rankin and Esteves's (1997:270-276) research regarding 88 coordinators and managers at the master and doctorate levels, which was conducted to identify the perceptions of nurses regarding scientific deception, 45.5% of the participants indicated that they rarely encounter data fabrication in scientific studies, 27.2% believe that they have similar events in their institutions, and 33.2% stated they believe research data are falsified. In research financed by the UK Department of Health and Human Services (DHHS), which was undertaken by Titus et al. (2008), 2212 scientists participated in the DHHS's studies; 59.7% of the scientists stated they encountered data fabrication and falsification, 46.3% encountered plagiarism, and 4% encountered other types of scientific deception in their departments in the previous 3 years. Hu and Lei (2015) found significant main influence of year of study on different attitudes toward plagiarism. Third-year students were meaningful more tolerant against plagiarism than were first year students.

Graduate students who work as academic staff indicated that the level of occurrence of "presenting research findings in multiple publications in such a way that research is disintegrated" is higher with respect to the students who do not work as academic staff. Conditions of academic promotion may have forced individuals who are under "publish or perish" pressure. Doctorate students who do not publish scientific work indicated that the level of occurrence of "Publishing an article by translating it without permission of its author" is higher with respect to the students who publish scientific work. Doctorate students who do not publish scientific work indicated that the level of occurrence of "Presenting research findings in multiple publications in such a way that research is disintegrated" is higher with respect to the students who publish scientific work. According to Sümer (1998), presenting integrated data collected from the same sample in parts results from the struggle to publish more scientific work rather than contributing to the scientific literature.

The level of occurrence of the "citing without providing a reference" behaviour in the scientific research of doctorate students was greater than the master students. The level of occurrence of the "reasonless or inappropriate changing of the order of research authors" behaviour in the scientific research of doctorate students was greater than the master students. This situation may have originated because doctorate students have observed more individuals in their environment who publish scientific work.

6. Conclusion

As a result, more non-ethical behaviours against research ethics will be presented in the future. Academic incompetency, the lack of work discipline or bad habits, personal ambitions, and rashness in academic promotion may drag individuals towards non-ethical behaviours. If these causes are reduced to a minimum level, non-ethical behaviours would also decrease. In addition to legal sanctions, scientific research education should be provided to undergraduate and postgraduate students to prevent scientific deception in scientific research.

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