

## Factors Inhibiting Sports Lecturer's Publication Productivity in International Journals

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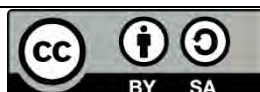
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**Abstract:** Scientific publication is an essential part of research dissemination, irrespective of the productivity effects on lecturers' careers. Therefore, this study aims to determine the internal and external factors inhibiting the productivity of sports lecturers' publication in international journals. This is qualitative descriptive research with a survey method and questionnaire used to collect data from 74 sports lecturers in Indonesia by using Google form. The data were further analysed to reduce the number of the original variables using the factor analysis method with the validity tests includes KMO (Kaiser Meyer Olkin), Bartlett, and MSA (Measure of Sampling Adequacy) used for reliability. The results showed that the sports lecturer's writing ability and cost are responsible for inhibiting publications' productivity in international journals as opposed to gender analysis. The majority had limited time to write because most of their activities were carried out in the field. Grants offered by both the government and universities are expected to be absorbed to support the sports lecturers' publication activities in Indonesia. Further studies need to be carried out by analysing the college type, academic position, and age as considerations for stakeholders to take strategic steps to overcome publication challenges.

**Keywords:** inhibitors, publications, lectures, sports.

### Introduction

Scientific writing is one of the essential ways used to disseminate research, evaluate academic performance, and analyse lecturers' career development (Abbott et al, 2010; Chang et al, 2017; Lippi & Mattiuzzi, 2017). According to the Indonesian Ministry of Research, Technology and Higher Education (Kemenristekdikti, 2016), it explicitly regulates the academic atmosphere in which publications' needs are a priority for lecturers. An increase in the publications leads to a rise in productivity. Bowman & Kinnan (2018) stated that citations indicate the authority of the academic expertise in a particular field. Research becomes barren without publication, which tends to affect academics' career and funds acquisition (Curzon & Cleaton-Jones, 2012; Duracinsky et al, 2017). In writing scientific articles, the materials need to be adequately prepared and analysed to avoid being rejected for journal publication (Maiorana & Mayer, 2018). Scientific articles are a combination of a comprehensive literature search, statistical data collection, and clear and concise structured writing



while avoiding common mistakes (Maiorana & Mayer, 2018). Therefore, adequate knowledge and implementation of basic article writing rules, structure, and scientific papers' presentation are needed to increase chances for successful publication (Maiorana & Mayer, 2018).

Academic institutions are increasingly interested in determining and ranking research productivity methods (Wilkes et al, 2015). Lecturers as authors provide productive insight on their profession in terms of development opportunities, investments in knowledge, and approaches to advanced practices (McKellar & Currie, 2015). However, it is ideal to note that publication productivity or quantity differs from quality.

The Science and Technology Index (SINTA) is a Web-based information system used to rapidly, efficiently, and comprehensively evaluate research, institutions, and journals' performance in Indonesia (Kemenristekbrin, 2018). SINTA displays the lecturers' publication history (author profiles) from various databases, including Google Scholar, Web of Science (WoS), Scopus, Intellectual Property Right (IPR), books, and networking. Furthermore, it displays authors' publication quartile and type in Scopus, and determines whether the articles are proceedings or scientific journals. Since 2011, SINTA has recorded and displayed publications' history in Indonesia with benchmarks and analysis used to identify institutions' rights to elaborative partnerships and an expert's directory. According to 2015-2019 data obtained from SINTA, 925 lecturers from 24 State and 74 Private Universities produced 19 document publications in an international journal, and 17 in Scopus indexed proceedings (Hanief et al, 2020). The criteria used to determine international articles are Web of Science-indexed journals or Scopus with an Impact Factor (IF) from the Thomson Reuters or Scimago Journal Rank (SJR). This is also confirmed by data from Kemenristekdikti (2016), showing that authors write many publications produced by authors from Indonesia in the fields of science, technology, health and medicine, such as Engineering (15.14%), Medicine (10.64%), Computer Science (10.2%), Agriculture and Biological Sciences (9.57%), and Physics and Astronomy (5.39%), while publications in the field of Social Sciences, which include Applied Linguistics and Language Education (4.74%), and in the field of Arts and Humanities — only (0.91%). This means that very few Indonesian academics in the social sciences and humanities have succeeded in publishing their articles in international journals compared to other fields.

Some relevant research shows that three main factors have hindered the lecturers in Indonesia from submitting their articles to international journals, namely a lack of self-confidence in the quality of their research and articles, experiencing difficulties in preparing a paper in English, and there is no adequate reward for those who successfully publish in journals internationally (Arsyad et al, 2019). Meanwhile, in Malaysia, the external inhibitors to doctoral candidates' publication at several universities in Malaysia are limited funds, translator and proofread service fees, response time by reviewers, discouraging review results, and difficulty in working with co-authors. Internal factors are: limited English language ability, inadequate writing time and ability, and restrictions associated with sending the manuscripts (Habibi et al, 2019). Furthermore, from a DIAzePAM survey on 1191 researchers working at AP-HP (Assistance Publique – Hôpitaux de Paris), almost all had difficulty in publication (Duracinsky et al, 2017). Approximately 79% stated that they had limited time to write a script, while 40% had inadequate English language skills. According to the Psychology study programme of UIN Sunan Kalijaga, 20 lecturers and students stated that they experienced lots of inhibitors in making a publication, with the main factor being poor technology (Julianto, 2019). In

recent years, the Vietnamese government has also attempted to encourage publication by its academic staff, however, Tran et al (2020), in their study, state that factors related to policies, factors related to ability, and factors related to networks are the inhibiting factors for publication productivity in Vietnam. The option of open access is also a consideration for writers to publish their work in a journal. The consideration is that some open access journals impose publication costs on the author, while those that do not apply open access can be reached free of publication fees but the manuscript queue is very long. One interesting fact is that some publications with open access have a disincentive in the form of fees (Warlick & Vaughan, 2007), so the authors consider publishing their work in journals that do not apply for open access.

Several previous studies have mentioned several factors inhibiting scientific publication in each country (Habibi et al, 2019; Tran et al, 2020; Warlick & Vaughan, 2007). This study seeks to determine the inhibiting factors for scientific publication focused on sports in Indonesia, especially research aimed at lecturers in Departments of Physical Education, Health, and Recreation in Indonesia. Researchers attempt to investigate inhibiting factors that are both internal and external. The subjects involved are those who have published articles in international journals. This research is important due to its ability to determine the factors hindering publications' productivity of sports lecturers in Indonesia. Identifying these factors can ensure that stakeholders, as well as the Directorate General of Higher Education and Culture Ministry of Indonesia, can implement policies in an effort to promote sports lecturers' publication.

This study aims to determine the factors that inhibit sports lecturers' publications productivity in Indonesia. In this study, researchers investigated the internal and external inhibiting factors. Interestingly, not a few lecturers are good trainers at regional, provincial, national, and even international level competitions. However, it is important to academically determine the factors that make them less productive when they become coaches. Besides subjects at the national level, this research also uses factor analysis as a differentiator from previous studies to explore the publication's inhibiting factors. However, this study reduces many original variables to new numbers called a factor or latent. Based on the above explanation, this study aims to determine the factors inhibiting the sports lecturer publications' productivity in international journals.

## **Methods**

### **Research Design**

To reach our research objectives and answer our research questions, this study uses mixed methods, simple quantitative methods, and with an emphasis on following simple qualitative methods, as indicated by Creswell (2009). Simple quantitative methods are used to determine the level of agreement or disagreement among the studied subjects related to certain statements. For example, the higher the percentage of the population who voted 'strongly agree', the higher the support for that statement. A simple qualitative method was carried out by conducting interviews with 5% of all participants, selected randomly.

### **Participants**

The sampling procedure was conducted by inviting participants who work as sports lecturers from various universities to participate in this study, especially for lecturers who have difficulty publishing and have a history of having their articles rejected by international journals. Ninety-six participants

from both state and private universities in Indonesia accepted the invitation to be involved in this study. Out of the 96, 74 were further analysed with these criteria: 1) have never published articles in international journals (indexed Scopus in Quartile 1 to 4 or indexed by Web of Science in Core Collection SSCI / SCIE), and 2) are sports lecturers.

The research related to human use complied with all the relevant national regulations and institutional policies, followed the tenets of the declaration of Helsinki, and was approved by the Committee for Ethical Health Research of Universitas Nusantara PGRI, Kediri, Indonesia with the number 054/LPPM UNP KD/EC/V/2020. All subjects were required to fill in and sign informed consents when they decided to participate in this study.

### Instrument

Data were obtained using a questionnaire, compiling the literature, as well as conducting face-to-face and telephone interviews with three experts. The three experts are scientific publication experts — as indicated by their history of many publications in international journals — the head of the scientific publication centre from one university, and two collaborative research experts. The question grid referred to the objective of knowing the internal and external inhibiting factors. The number of questions was 14. The questionnaire was tested for validity with Sig. < 0.05 for all questions, with a Cronbach's Alpha value of 0.902, used to examine its reliability.

**Table 1: Question instrument grid of factors inhibiting sports lecturer’s publication productivity in international journals**

No.	Measured Aspects	Indicator	Question Number	Question Type
1.	Internal factors	1. Language ability / mastery	1-5	Positive
		2. Limitations in writing good articles		
		3. Ability / mastery of research procedures and techniques		
		4. Age		
		5. Lack of motivation		
2.	External factors	1. Limited publication costs	6-14	Positive
		2. Limited access to journals relevant to articles		
		3. Collaboration network limitations		
		4. Incredible teaching load		
		5. Limited reference sources that support the article		
		6. Limitations in adapting to the template style		
		7. Limitations in the submission process on the journal website		
		8. The article was submitted to an international journal but was rejected		
		9. Was busy taking care of the family		

## Data Collection

This research was carried out during the COVID-19 pandemic with the application of Large-Scale Social Restrictions. Therefore, areas in the red zone were prohibited from holding meetings that involved many people. The research subjects, comprising 96 participants, were invited to attend an online meeting using the Zoom cloud application on May 16, 2020. They were asked to fill out the questionnaire based on their experience using Google forms. The questionnaire's estimated completion time was less than five minutes, and no compensation was offered to the participants. The factor analysis results in the first stage involved 14 items. We tested the validity of the question items using Aiken's validity coefficient. Three raters were involved in the content assessment. The validity test can be seen in Table 2.

**Table 2: Validity test results**

Item	Rater			S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	Σs	V	Category
	I	II	III						
Item 1-14	64	58	37	50	44	23	117	0.696	Medium

The results of the calculation of the validity test using Aiken's coefficient of 14 items obtained values of 0.696, so that the 14 items were declared valid and could be used as research instruments.

## Data Analysis

Only complete questionnaires were submitted and analysed. Factor analysis was used to explain the relationship between several independent changes to determine the dominant factor. Hypothesis testing in this study was to determine the correlation coefficient for each predictor, the Y regression equation for each predictor variable, and the Y regression equation for all predictor variables simultaneously with multiple correlation coefficients. Calculations in hypothesis testing used Kaiser-Meyer-Olkin and Barlett's test of sphericity, the Anti-image correlation test, Total variance explained test, Communalities, Component matrix, and Component score coefficient matrix. Data were processed with the help of SPSS 23 software.

The results of the interviews were analysed qualitatively. This aims to find the main reasons regarding the factors inhibiting the productivity of publications in international journals. Reasons that are often presented with logical explanations are indicators of the main reasons. The analysis carried out included three stages. First, tagging data based on recurring themes. Second, count recurring themes. Third, interpret from the analysis of the first and second stages. The analysis was carried out to synchronise the findings on the quantitative analysis, which was fundamentally supported by the open comments of the respondents.

## Results and Discussion

### Results

Factor analysis in this study is used to factor together a set of variables that are deemed worthy of analysis. The measurement sub-variables were determined long before the analysis was carried out. The analysis used was the R Factor — to see the correlation between the sub-variables, after obtaining the value of the R factor. Then Data Reduction is carried out to produce a new variable that includes several other variables. The variables which are the dominant determinants of the Factors Inhibiting

will be tested to see whether all of them are important variables, or only part of it deserves to be analyzed and grouped into the main factors.

### Factor Analysis I

Table 3 shows the Kaiser-Meyer-Olkin (KMO) and Bartlett Test used to determine the 14 factor items. The KMO and Bartlett's Test output results show that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy value is 0.820 and the Sig. = 0.000 < 0.05. This shows that the set of variables in this study is significant and can be further processed.

**Table 3: KMO and Bartlett's Test results analysis of factors inhibiting the sports lecturers publication**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.820
Bartlett's Test of Sphericity	Approx. Chi-Square	729.954
	Df	91
	Sig.	.000

Furthermore, the data will be processed by looking at the partial correlation between the two variables, while still including all variables. This detection is done by looking at the Anti Image Correlation, which produces a Measure of Sampling Adequacy (MSA) value between 0 and 1. If MSA = 1, the variable can be predicted without error by other variables, if MSA > 0.5, the variable can still be predicted and can be analysed further, and if the MSA < 0.5, then the variable must be eliminated and cannot be further analysed or excluded from the other set of variables.

The partial correlation magnitude between variables is determined by analyzing the Anti-Image Correlation, as shown in Table 4. The result produces an MSA value above 0.5, therefore, variables are predictable and were analysed further. This means that all these variables can be tested further using the extraction process with the Principal Component Analysis method, which results in the value of *communalities* (Table 5).

**Table 4: Measure of sampling adequacy (MSA) value**

Variables	Anti-Image Correlation Value
English ability	0.796
Publication cost	0.799
Limited writing ability	0.770
Limited access to journals relevant to the article	0.716
The lack of collaboration networks	0.812
Excess teaching burden	0.871
Limitations in determining references relevant to the article	0.874
Limitations in adjusting articles with templates	0.861
Difficulties in submitting articles	0.814
Articles rejected by the Editor	0.804
Limited time due to busy schedules with family	0.871
The limited ability/mastery of research procedures and techniques	0.809
Age	0.891
Motivation	0.745

**Table 5: Communalities result**

Variables	Initial	Extraction
English ability	1	0.830
Publication cost	1	0.671
Limited writing ability	1	0.901
Limited access to journals relevant to the article	1	0.448
The lack of collaboration networks	1	0.652
Excess teaching burden	1	0.666
Limitations in determining references relevant to the article	1	0.628
Limitations in adjusting articles with templates	1	0.662
Difficulties in submitting articles	1	0.538
Articles rejected by the Editor	1	0.582
Limited time due to busy schedules with family	1	0.342
The limited ability/mastery of research procedures and techniques	1	0.798
Age	1	0.707
Motivation	1	0.477

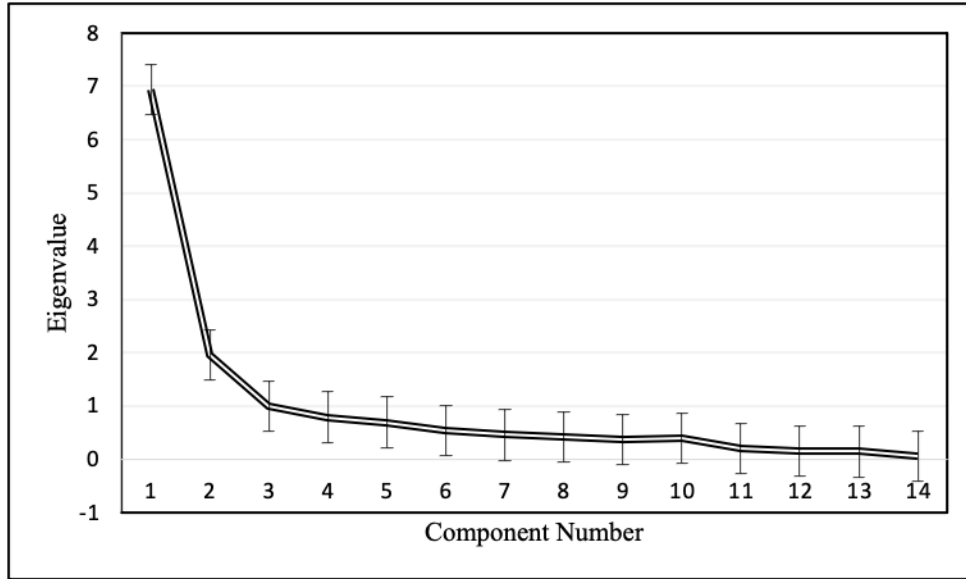
From Table 5 it can be seen that the highest extraction value is the limited writing ability sub-variable, with a value of 0.901 or 90.1%, and the lowest extraction value is limited time due to busy schedules with family, with a value of 0.342 or 34.2%. Then to find out the contribution of each variable to each component, it is necessary to carry out a rotation process that produces a component matrix.

Furthermore, to determine how many possible factors can be formed, is shown in Table 6.

**Table 6: Total variance explained**

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
English ability	6.944	49.603	49.603
Publication cost	1.958	13.987	63.589
Limited writing ability	.988	7.061	70.650
Limited access to journals relevant to the article	.786	5.613	76.263
The lack of collaboration networks	.691	4.936	81.199
Excess teaching burden	.541	3.863	85.062
Limitations in determining references relevant to the article	.453	3.235	88.298
Limitations in adjusting articles with templates	.421	3.007	91.305
Difficulties in submitting articles	.364	2.602	93.907
Articles rejected by the Editor	.298	2.131	96.038
Limitation time due to busy family schedules	.205	1.465	97.503
The limited ability/mastery of research procedures and techniques	.153	1.095	98.598
Age	.141	1.005	99.603
Motivation	.056	.397	100.000

Table 6 shows the total variance with two factors formed from 14 variables. The first and second are initial eigenvalues with values of 6,944 (49.603%), and 1,958 (13.987%), respectively. The following screen plot picture (Figure 1) also shows the component numbers formed with initial eigenvalues above 1.



**Figure 1: Screen plot for two factors formed in component numbers 1 and 2**

Therefore, to determine each variable's contribution, it is necessary to carry out a rotation process that produces a component Matrix.

**Table 7: Component matrices**

Variables	Component	
	1	2
English ability	.668	.620
Publication cost	.684	-.451
Limited writing ability	.793	.522
Limited access to journals relevant to the article	.518	-.424
The lack of collaboration networks	.700	-.403
Excess teaching burden	.782	-.232
Limitations in determining references relevant to the article	.667	.429
Limitations in adjusting articles with templates	.806	-.112
Difficulties in submitting articles	.728	-.095
Articles rejected by the Editor	.743	-.173
Limited time limitation due to busy family schedules	.569	-.134
The limited ability/mastery of research procedures and techniques	.764	.463
Age	.827	.150
Motivation	-.516	.460

Table 7 shows the component matrix of the relationship of each variable to the factors to be formed. Variable 1 has a correlation value of 0.668 and 0.620 in factors 1 and 2.



**Table 8: Rotated component matrix**

No.	Variables	Component	
		1	2
1.	English ability	.060	.909
2.	Publication cost	.807	.142
3.	Limited writing ability	.217	.924
4.	Limited access to journals relevant to the article	.668	.047
5.	The lack of collaboration networks	.785	.187
6.	Excess teaching burden	.728	.369
7.	Limitations in determining references relevant to the article	.190	.770
8.	Limitations in adjusting articles with templates	.662	.472
9.	Difficulties in submitting articles	.594	.431
10.	Articles rejected by the Editor	.659	.385
11.	Limited time due to busy family schedules	.506	.293
12.	The limited ability/mastery of research procedures and techniques	.237	.861
13.	Age	.498	.677
14.	Motivation	-.690	-.020

Table 8, which consists of the Rotated Component Matrix results, confirms the variables classified as factors 1 or 2. The correlation value of item 1, with factor 1 and 2 are 0.060, 0.909, respectively. Item 1 is included in factor 2 because the correlation value is higher, with the remaining variables adjusted in accordance with the magnitude. Therefore, variables included in factor 1 are items 2, 4, 5, 6, 8, 9, 10, 11, and 14 because the correlation value is higher than factor 2, while the variables included in factor 2 are items 1, 3, 7, 12, and 13 because the correlation value is higher than factor 1.

Factors with more than one variable combination are named using the surrogate approach by determining those that represent these factors. This selection of these variables is based on the highest loading factor or with a new name that represents the characteristics of these variable combinations. In factor 1, item 2 is the highest loading factor with the inability to write articles properly according to international journal criteria, while in factor 2, item 3 is the highest loading factor, which is publication cost is an inhibitor.

**Table 9: The relationship gender with several item variables**

No.	Variables	Chi-Square Value	Sig.
1.	English ability	3.359	0.339
2.	Publication cost	1.812	0.612
3.	Limited writing ability	2.416	0.491
4.	Limited access to journals relevant to the article	1.476	0.688
5.	The lack of collaboration networks	1.243	0.743
6.	Excess teaching burden	1.969	0.741
7.	Limitations in determining references relevant to the article	6.837	0.145
8.	Limitations in adjusting articles with templates	1.240	0.744
9.	Difficulties in submitting articles	0.860	0.835
10.	Articles are rejected by the Editor	2.837	0.585
11.	Limited time due to busy family schedule	0.279	0.964
12.	The limited ability/mastery of research procedures and techniques	3.555	0.470
13.	Age	5.362	0.252
14.	Motivation	4.707	3.19

A Chi-square test was carried out to determine the correlation between factors and gender. Table 9 shows that the Chi-square test results have a Sig. value above 0.05 for all factors, which means that they are not correlated with gender.

## Discussion

This study aims to determine the factors that inhibit sports lecturer publication productivity in Indonesia. The findings show that there are two main factors in inhibiting sport lecturers from writing articles, namely, internal and external factors. The first factor is related to issues such as publication cost, limited access to journals relevant to the article, lack of collaboration networks, excess teaching burden, limitations in adjusting articles with templates, difficulties in submitting articles, articles rejected by the editor, limited time due to busy family schedules, and motivation. The second factor is related to issues such as English ability, limited writing ability, limitations in determining references relevant to the article, the limited ability/mastery of research procedures and techniques, and age.

The ability to write scientific articles is one of the obstacles to publishing in international journals. This finding is in line with a previous study carried out by Habibi et al (2019), which stated that post-graduate students at Malaysian universities also experience issues regarding the writing ability factor. Poorly written articles cast doubts on the results interpreted by the study on scientific value (Maiorana & Mayer, 2018). Julianto (2019) also stated that one of the factors inhibiting the publication of lecturers and students is issues pertaining to the ability to write. The main reasons for rejection are: 1) inappropriate, incomplete, and poorly explained statistics, 2) overly interpreted results, 3) incorrect population or instruments, 4) small and non-representative samples, and 5) text that is not properly written or is difficult to understand (Bordage, 2001; Pierson, 2004).

According to Maiorana & Mayer (2018), surgeons' writing difficulty is caused by various factors, such as inadequate writing time because most of them spend most of their time in practice and consultation. Sports lecturers in Indonesia experience a similar situation because they spend extensive time teaching and carrying out studies. Most lecturers also spend time channeling hobbies, such as playing tennis, badminton, and futsal, with computers only used for administrative purposes. Some of the sports coaches at organisations are lecturers, therefore, most of their time is spent in field activities such as teaching and training. Under these conditions, time limitations become part of the inhibiting factors for writing (Duracinsky et al, 2017; Habibi et al, 2019; Scherer et al, 2015; Walker, Roberts, & Gill, 2019).

In this study, the collaboration network was the second inhibiting factor due to its importance in promoting research. A study in pre-hospital emergency care concluded that decision-makers' collaboration benefits are significant (Johnson et al, 2017). Walker et al (2019) stated that 97% of respondents agreed that collaboration is important in promoting research due to its ability to enable researchers to exchange knowledge. Therefore, government needs to promote research activities which encourage researchers to work collaboratively, both in science and other fields. Studies conducted by Dükling et al, (2018) attempted to integrate sensors in competitive sports to maximise the athletes' role, which is inseparable from collaboration across disciplines.

Another finding was that the highest loading attribute in factor 2 is publication costs, which is undeniably becoming the latest trend for publication in journals. This funding factor caused journals to develop rapidly since the launch of Open Access (OA) in 2000 (Pinfield, Salter, & Bath, 2016; Solomon & Björk, 2016). This finding was also corroborated by Habibi et al (2019) who stated that a lack of funds is one of the inhibiting factors of publication for PhD students at three Malaysian universities. Publication costs make it difficult to increase the number (Duracinsky et al, 2017; Scherer et al, 2015) and over the last decade, the budget has grown, with an increase in the number of OA

journals that allow free access to readers but not to the authors (Boumil & Salem, 2014; Tzarnas & Tzarnas, 2015). One of the reasons why cost is a publication inhibitor is due to the increase in the number of publications expected and the need for quality in all these publications (Tzarnas & Tzarnas, 2015).

The second factor was mastering language ability, which was found to be the most inhibiting by several researchers (Berendt et al, 2017; Duracinsky et al, 2017; Habibi et al, 2019). This is because English, one of the significant requirements for articles published in many journals, is not a native language; therefore, writing is difficult (Maiorana & Mayer, 2018). Despite the numerous available native language speakers who can provide translation and editing services, it is expensive using their services (Habibi et al, 2019). Duracinsky et al (2017) and Scherer et al (2015) also confirmed that limited English language skill is one of the main publication obstacles.

Chi-square test results showed no correlation between all factors and gender, therefore, it is concluded that gender is not an inhibiting factor. However, several other studies stated that women show increased publications at the Faculties of Academic Urology (Mayer et al, 2017) and Radiation Oncology (Holliday et al, 2014). However, in early 2006, men published nearly twice as many articles in accredited journals than women (Prozesky, 2006). Career guidance that leads to publicity makes women more productive than men in some contexts.

## Research Limitations

The use of Google form prevents respondents from filling out the online questionnaire multiple times. Furthermore, this study was carried out for a short time with limited budget (Cunningham et al, 2015; Fan & Yan, 2010). The research was also limited due to poor Internet access because the subjects studied came from various regions spread throughout Indonesia with various types of network providers.

## Conclusion

The study showed that the main inhibiting factors for the publication of articles in international journals by sports lecturers in Indonesia are insufficient writing ability and publication costs. The majority had limited time to write because most of their activities were carried out in the field. Grants offered by both the government and universities are expected to be absorbed to support the sports lecturers' publication activities in Indonesia. Furthermore, the universities need to promote and encourage them to take part in scientific article writing training organised by both the universities and the government.

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