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Investigating the effects of individual and institutional factors on the research productivity of university academics: A comprehensive analysis

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ABSTRACT

Purpose: This study aims to examine the factors influencing the research productivity of academics in Malaysian universities. Specifically, this study examines whether individual and institutional factors can influence academics' research productivity.

Design/Methodology/Approach: This study utilized a questionnaire survey as the research instrument, which was distributed to university academics in Malaysia.

Findings: This study demonstrates that institutional factors significantly influence the research productivity of university academics. The findings of this study suggest that institutional factors should be taken into consideration when developing strategies to increase the research productivity of university academics. However, the study did not find significant evidence to support the influence of individual factors on research productivity.

Conclusion: The results of this study constitute a timely addition to the body of knowledge on academic research output, which educational leaders of Malaysian public institutions can utilize.

Research Limitations/Implications: The outcomes of this study are expected to assist universities in developing strategies to assist and support academics in improving their research productivity.

Practical Implications: The findings imply that universities could raise awareness of the value of research among academics and support them through publication funding or training programs.

Contribution to Literature: This study contributes to the existing literature by providing evidence on the effect of individual and institutional factors on the academics' research productivity.

Keywords: *Individual, Institutional, Malaysia, Research productivity, Universities.*

1. INTRODUCTION

The rise of global university rankings has changed research from a professional mission of university academics into a vital strategic human capital resource (Ryazanova & Jaskiene, 2022). As a result, the role of the university academics has become more complex, with increased responsibilities in teaching, research, and service (James, Krause, & Jennings, 2010). They are referred to as all-rounders because they have multiple roles that are influenced by a variety of factors related to the academic, department, and the university they are affiliated with. One of the primary expectations of universities throughout the world for their academic staff is their ability to conduct and perform research, and subsequently, achieve research productivity. For example, in Malaysia, since the introduction of the Malaysia Research Assessment (MyRA) by the Ministry of Higher Education in 2009, academics have been encouraged to be involved in research productivity. This is because the universities receive performance scores based on two main components of MyRA: the quality and quantity of the academics and their research productivity.

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Consequently, research has become an important and compulsory mission of the universities, encouraging their academics to be actively engaged in research activities in order to increase their research productivity.

Despite the encouragement as well as the implementation of a punitive policy against those who do not meet the expectation of publication in a year; a large number of university academics have not been engaged in research (Basiru, 2018; Nguyen, 2015; Uwizeye et al., 2022) and, as a consequence, have not published. Several studies have found that academics have low levels of research productivity (Bexley, James, & Arkodis, 2011; Nguyen, 2015; Uwizeye et al., 2022). For example, in one of the public universities in Malaysia, only 24% of the 140 accounting academics conducted research and managed to publish in 2021, indicating that a large number of the accounting academics have not engaged in research and consequently have not published. To deal with the current low level of research productivity among the academics, it is imperative that the university leaders gain an understanding of the factors that influence the academics' low research productivity. In addition, the university leaders also need to identify the factors that can motivate the academics to be actively engaged in research. Hence, there is a need for a study to explore the factors influencing the research productivity of university academics, as it is not only urgent but also necessary in this context.

The next section, Section 2, provides the literature review relevant to this study. This is followed by Section 3, which explains the research design, and Section 4, which provides the results and discussion. The last section, Section 5, concludes this study.

2. LITERATURE REVIEW

One of the most important responsibilities of academics is to actively participate in scientific investigation in order to foster the growth of new information and ideas (Nguyen, 2015). In order to achieve this goal, the academics need to shift their focus from teaching to research (Brew, 2006). Therefore, one of the most important activities for academics in universities is to engage in research (Cummings & Shin, 2014). According to the concepts that have been presented up until this point, academics who are employed by universities are required to devote a significant amount of their working time to research in addition to the time they spend teaching and working in administration in order to meet the research goals that are mandated by their universities. Webber (2012) also noted that research productivity has become increasingly important due to institutional rankings and prestige seeking. However, one may pose a question. What is research productivity?

Research productivity is defined as the output of a research process, which can be measured in a variety of publishing outputs such as journal articles, book chapters, and also dissertations and theses (Raston, 1998). Conference presentations and grant acquisition are also included in Kaya and Weber's (2003) definition of research productivity. Nguyen (2015) opined that journal publication is the most common measure to evaluate the research productivity of academics as it is considered the main channel of intellectual products used to disseminate new knowledge to the world. Research productivity, particularly journal publication, is becoming a main criterion in recruiting and promoting academics at research universities globally. This is to ensure that the newly recruited academics are productive researchers who can contribute to the research goals of their universities (Cummings & Shin, 2014).

According to Nguyen (2015), research productivity may be measured quantitatively or qualitatively. The qualitative measurements assess the influence or effect of a publication by tallying the total number of citations made to it by scholars throughout the world. Quantitative metrics, on the other hand, concentrate on the quantity of publications produced by academics over a certain time period. Both metrics are used by global ranking organisations when rating institutions annually. The citation indicator is regarded as the most significant of the 13 variables now utilised by Times Higher Education in its yearly review and ranking of global research institutions (Times Higher Education, 2014).

Research productivity, particularly journal publication, has become a main criterion in recruiting and promoting academics at all research universities globally to ensure their future contribution to the universities' research goals (Cummings & Shin, 2014). Despite its significance, studies have shown low levels of publications among academics, with various factors suggested to influence their research productivity (Goodwin & Sau[illegible]995; Nguyen, 2015; Tien & Blackburn, 1996). Bexley et al. (2011) reported that 38.9% academics preferred both teaching and research equally, with a preference for research, while 23.1% preferred both teaching and research equally, with a preference for teaching. The percentage of academics who indicated that they were interested in research alone was 25.9%, whereas the number of academics who indicated that they preferred teaching only was 7.4%. This study focuses on two main factors that may influence research productivity, namely, individual and institutional factors.

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A group of studies have examined the influence of individual factors on the research productivity of academics (Lertputtarak, 2008; Sulo, Kendagor, Kosgei, Tuitoek, & Chelangat, 2012; Uwizeye et al., 2022). The results are mixed. Sulo et al. (2012) conducted a study to determine the factors that contribute to the low research productivity of academics in a Kenyan university. The factors include the credentials of the academics, the length of time devoted to research, and levels of expertise possessed by the researchers. Both descriptive and inferential statistical methods such as Analysis of Variance (ANOVA), Pearson correlation, and multiple regression were used in the analysis of the data. Based on their analysis, a significant positive correlation between the amount of time spent on research and the credentials of the academics was found. Among the factors examined in their study, the academic's qualifications had the greatest impact on research productivity.

Another study conducted on the effect of individual factors and research activities was by Blackburn, Bieber, Lawrence, and Trautvetter (1991). Using various samples from different colleges and universities, they examined whether self-competence, self-efficacy, commitment to research, personal preferences, and interest in research influence research productivity. According to the results of the study, the individual factors that influence research productivity include self-efficacy and self-competence. Research self-efficacy was shown to be the most significant predictor among them, as reported by each and every respondent. Similar results were discovered by Bentley and Kyvik (2012) and Smeby and Try (2005), who found that personal factors such as time spent and research interest influence academics' research productivity. Consistent with previous studies, this study anticipates that individual factors influence academics' research productivity in Malaysian universities. Therefore, the following hypothesis is developed:

H1: Individual factors significantly influence academics' research productivity in the Malaysian universities.

Several studies have investigated the relationship between institutional factors and research productivity (Bland, Center, Finstad, Risbey, & Staples, 2005; Lertputtarak, 2008). Most of these studies have shown that institutional factors do influence academics' research productivity. For example, Lertputtarak (2008) investigated the reasons why academics at a Thai public institution do not engage in as much research as they might. He found that the majority of instructors at their institution did not value research, and that academics lacked university support and had heavy teaching loads. Furthermore, the academics lacked individual research self-efficacy. These three factors contributed to the poor research output of academics. In another study, Bland et al. (2005) examined the correlations between institutional characteristics and the research output of 465 academics in the field of medicine. They discovered that the research knowledge of departmental heads, their leadership style, and their professional experience had a substantial impact on the research output of academics.

Teodorescu (2000) conducted a similar study using a larger context across Australia, Brazil, Chile, Hong Kong, Israel, Japan, Korea, Mexico, the UK, and the USA. The results of the study highlighted how significant it is to either be a part of a professional society or attend conferences, which encouraged academics to improve their research abilities and overall performance by engaging in professional groups (Nguyen, 2015). Teodorescu (2000) found that there is a strong connection between the availability of library resources and research equipment on the one hand, and the amount of research that academics produce on the other. This conclusion lends credence to the one that was published by Blackburn et al. (1991), which highlighted the advantages of a research environment in which academics could obtain support from their contemporaries and work with one another. Similar to previous studies, this one anticipates that institutional factors also influences academics' research activities. Therefore, this study developed the following hypothesis:

H2: Institutional factors significantly influence academics' research productivity in the Malaysian universities.

3. RESEARCH DESIGN

3.1. Sample Study

The target sample of this study is the academics at all universities in Malaysia, who have held the position of at least a lecturer and have been employed by their respective universities for the past three years (2019-2021). This criterion was chosen to ensure that all participants have sufficient experience and understanding of their responsibility in conducting research.

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3.2. Research Instrument

The quantitative data for this study was gathered through a questionnaire survey. The questionnaire was developed based on a review of previous studies, such as those by Nguyen (2015), and Mokhtar and Noordin (2019). The questionnaire is divided into six sections. The first section requested that respondents provide their range of research productivity based on the total number of publishing outputs that they have published over a 3-year period from 2019 to 2021. In this section, the respondents were requested to identify the range of their research productivity, such as the number of times they were the sole author for national and international refereed journals or book chapters and the number of times they were the principal researcher or team member on national and international grants. The respondents were required to complete this section using a 5-point scale. For example, if a respondent had less than 1 publication, he would respond on a scale of 1. If, on the other hand, he had published between 7 and 9 papers in the last three years, he would respond on a scale of 4.

The second section requested that the respondents provide their opinion on the influence of institutional factors on research productivity. The respondents were requested to respond to a series of questions, such as the support fund provided by the university for publishing articles in international refereed journals, the research fund provided by the university for research projects at the university level, and the support fund provided by the university to attend international conferences.

The third section requested that the respondents provide their opinion on the influence of individual factors on research activities. Respondents were asked to complete a series of questions in this section, such as having a heavy teaching load, a lack of opportunities to collaborate with international researchers, and a low proficiency in a foreign language. Sections 2–3 were completed on a 6-point scale by the respondents. The final section, Section 4, requested the respondents' demographic profiles.

3.3. Data Collection Procedures

The data collection for this study involved the distribution of the questionnaire to the university accounting academics at public and private universities in Malaysia. The questionnaire was distributed through a Google Form, which was shared through email, WhatsApp, and Telegram. A total of 196 questionnaires were completed and returned. However, four completed questionnaires were from respondents who were tutors or assistant lecturers and were, therefore, excluded from this study. The final number was 192.

4. RESULTS AND DISCUSSION

4.1. Demographic Profile

Table 1 shows the descriptive statistics for the study's sample. The survey covered 192 academics from universities, public and private, throughout Malaysia. The results show that more than half of the respondents are below 30 years old (58.3%), followed by the respondents who are between 41 and 50 years old (20.8%), and respondents who are above 50 years old (14.6%). These results indicate that the age group below 30 dominates the survey and that the academics have just started doing research. Most of the respondents are female, with 72.9%, and only 27.1% of the 192 respondents are male. In terms of academic rank, Table 1 shows that slightly more than half of the respondents are senior lecturers (54.2%). This is followed by respondents who are lecturers, with 25.0%, and associate professors, with 14.6%. Only 6.30% of the respondents are professors. This was also expected because the number of professors in Malaysia is small and approaching retirement age. Thus, the possibility of them refusing to participate in the study exists.

This study also requested the respondents to identify their faculty, and the results show that 84 respondents (43.8%) are from the economics and business faculty, while 68 are from the science and technology faculty. Only 20.8% of the respondents are from the social science faculty. Regarding the highest teaching level, 43.8%, of the respondents have taught only undergraduate courses, while 39.6% of respondents have taught up to and including the PhD level, which is frequently associated with sole supervision. The remaining 32 respondents, or 16.7%, have taught up to the master's level.

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Table 1. Descriptive statistics

Item	Frequency	Percent
Age		
Below 30	112	58.3
31 to 40	12	6.30
41 to 50	40	20.8
Above 50	28	14.6
Gender		
Male	52	27.1
Female	140	72.9
Academic rank		
Lecturer	48	25.0
Senior lecturer	104	54.2
Associate professor	28	14.6
Professor	12	6.30
Faculty related		
Science & technology	68	35.4
Social science	40	20.8
Economics and business	84	43.8
Highest teaching level		
Undergraduate students	84	43.8
Masters students	32	16.7
PhD students	76	39.6

4.2. Descriptive Analysis

All the data for each variable were initially evaluated using descriptive analysis. The respondents selected their options based on a six-point Likert scale, with 1 indicating strong disagreement and 6 representing strong agreement. Table 2 provides the descriptive statistics for research productivity, which was measured using 10 statements. According to Table 2, most of the academics who published in international refereed journals as co-authors had a mean score of 2.813, followed by those who published in national refereed journals as sole authors, with a mean score of 2.292.

Table 2. Descriptive statistics of research productivity.

Item	Mean	Std. deviation
Sole author for national refereed journal	2.2927	1.310
Co-author for International refereed journal	2.813	1.368
Principal researcher for research project at university level	2.167	1.030
Principal researcher for research project at ministry level	1.542	0.914
Principal researcher for research project at international level	1.563	0.936
Team member for research project at university level	2.208	1.001
Team member for research project at ministry level	1.750	0.992
Team member for research project at international level	1.729	1.116
Sole author for textbooks, books and book chapters	1.667	0.852
Co-author for textbooks, books and book chapters	1.708	0.867

The academics also participated in research projects as principal researchers (mean score: 2.167) and as team members (mean score: 2.208), although they tended to participate more frequently in research projects at the university level than at the ministry or international level. The academics also authored or co-authored textbooks, books, and book chapters, with mean scores of 1.667 and 1.708, respectively. However, Table 2 shows that the research productivity among the academics was still low since most of them were involved in fewer than three research activities within the three years (2019–2021).

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Table 3 provides the descriptive statistics for each individual factor, which was measured using 12 statements. The results in Table 3 show that the statement "*having a heavy teaching load*" received the highest mean score from the respondents, with 5.167, followed by "*having a heavy managerial load*" with a mean score of 5.104. These results indicate that the respondents feel that they cannot produce research outputs due to a heavy workloads in terms of teaching and holding management positions.

Table 3 also shows that a lack of funding is one of the reasons why the respondents do not produce research output. This is demonstrated by the statement "lack of funding support to attend conference" which received a mean score of 4.792. In addition, the respondents feel that a *"lack of research equipment"* and *"lack of opportunities to collaborate with international researchers"* also contribute to their lack of research output, with a mean score of 4.500 and 4.458, respectively.

Table 3. Descriptive statistics of individual factors.

Statements	Mean	Std. deviation
Having a heavy teaching load	5.167	0.967
Having a heavy managerial load	5.104	1.282
Lacking books	3.542	1.675
Lack of research articles in national refereed journals.	4.000	1.611
Lack of research articles in international refereed journals.	3.896	1.653
Having a low salary	3.979	1.754
Lack of funding support to attend conference	4.792	1.461
Lack of research equipment (Lab equipment)	4.500	1.761
Lack of office facilities for research (Computer)	4.396	1.745
Lacking opportunities to collaborate with international researchers	4.458	1.517
Having a low proficiency of foreign language	3.792	1.724
Having a low research capability	4.146	1.558

In terms of the institutional factors, this study provided nine statements to the respondents in relation to the support and facilities of their universities. Table 4 presents the results of the descriptive statistics of the institutional factors. In general, the respondents agreed that their universities provide adequate resources in terms of equipment and funding. The statements "*availability of research articles in national refereed journals*," and "*availability of research articles in international refereed journals,"* received the highest mean score, with a mean score of 4.712, and 4.806, respectively. However, the respondents provided the lowest mean score for the statement "*support is provided by the university to attend international conferences,"* with a mean score of 3.723.

Table 4. Descriptive statistics of institutional factors.

Statements	Mean	Std. deviation
Availability of research articles in national refereed journals	4.712	0.818
Availability of research articles in international refereed journals	4.806	0.929
Research equipment (Lab equipment)	4.131	1.289
Office facilities for research (Computers, printers)	4.199	1.362
Supporting fund provided by university for publishing articles in international refereed journals	4.141	1.336
Supporting fund provided by university for publishing articles in national referred journals	4.131	1.353
Supporting fund provided by the university to attend international conferences	3.723	1.437
The research fund provided by the university for research projects at university level	3.995	1.397
The reward policy for academics who have good research outputs	3.990	1.361

This study then proceeds to provide descriptive statistics of the variables in terms of a mean score for each main variable. The results are displayed in Table 5. The mean score for the elements of research productivity was 1.944,

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with a standard deviation of 0.827. Based on these findings, academics produce fewer than two articles and work on fewer than two projects per year on average, indicating low research productivity.

Table 5. Descriptive statistics of variables.

Variable	Research productivity	Individual factors	Institutional factors
Mean	1.944	4.314	4.194
Std. deviation	0.827	1.263	0.989
Minimum	1.00	1.25	1.67
Maximum	4.60	6.00	6.00

Twelve statements were used to assess each component, and the cumulative mean score for these assertions is 4.314, with a standard deviation of 1.263, as shown in Table 5. The majority of participants agreed with the assertions, as indicated by the mean score. Although the dispersion of mean scores is the greatest of all variables, it is still rather modest. The comments for this variable addressed various issues, including a heavy teaching load, a shortage of books, a heavy management burden, a lack of fluency in other languages, and a lack of research capacity. Nine statements were used to assess the institutional elements, including support money given by the university for publishing papers in national and international refereed journals, money for research programs, and incentive schemes for academics who produce high quality research output. Table 5 displays the aggregate mean score for these statements, which is 4.194 with a standard deviation of 0.989. The majority of participants agreed with the assertions, as indicated by the mean score, and the means do not differ much from the central trend. However, it is possible that the universities' ambition to obtain high rankings has only been realised in recent years, resulting in a low mean score and a larger standard deviation.

Preliminary Analyses

Cronbach's alpha was used to examine whether or not the study's variable measurements could be trusted. According to Sekaran and Bougie (2016), Cronbach's alpha is used to assess the average correlation between the items used to gauge the concepts. It is noted that Cronbach's alpha is less reliable when there are gaps in the data. Due to the fact that it is the ratio of two separate variants, alpha's possible range is between 0 and 1. Nonetheless, estimates of alpha may take on any value less than or equal to 1, including negative values, despite the fact that only positive values make sense. This is due to the fact that the estimation method defines the range of probable alpha values. It is recommended to have greater alpha values. Many industry experts demand that an instrument should have a reliability of 0.70 or greater, as established by a large sample, before they use it (Malhotra, Hall, Shaw, & Oppenheim, 2004). As a result, alpha is used in the most suitable way when the items assess many substantive domains within the framework of a single concept (Field, 2005).

The findings of Cronbach's alpha for each variable are shown in Table 6. The Cronbach's alpha score for the ten assertions describing the research output of academics is 0.931. The findings for the 12 statements representing individual variables are likewise shown in Table 6. The Cronbach's alpha for the overall scale is 0.950, and for the institutional factor, it is 0.916 as shown in Table 6. As all values are greater than 0.70, indicating an appropriate level of consistency, the variables are considered reliable.

Table 6. Reliability statistics.

Variable	Cronbach's alpha	N of items
Research productivity	0.931	10
Individual factors	0.950	12
Institutional factors	0.916	9

A normality test was carried out to determine whether the data was normally distributed or not. It was conducted by using the skewness and kurtosis values. According to George and Mallery (2010), the values for skewness and kurtosis that range from -2 to +2 are acceptable to be considered as normal distributions. Table 7 shows that the values of skewness and kurtosis for all variables in this study are within the range of -0.759 to 2.112. This outcome demonstrates that all variables, except for research productivity, are within the acceptable range of -2 to +2. However, the Skewness and Kurtosis values for research productivity do not significantly deviate from the acceptable range of -2 to +2.

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Table 7. Reliability statistics.

Variable	Normality test		Mean
	Skewness	Kurtosis	
Research productivity	1.586	2.112	1.9438
Individual factors	-0.570	-0.557	4.3142
Institutional factors	-0.250	-0.285	4.1935

4.4. Correlation Analysis

The Pearson correlation matrix was used in this study with a significance threshold of p = 0.05 to determine the direction, strength, and significance of the connections between the variables. The results of this analysis are presented in Table 8. According to Table 8, the correlation between individual factors and research production is -0.130 at a significance level of p=0.072, indicating a significant but negative correlation between the two variables. Furthermore, the study also found that the correlation between institutional characteristics and research production is 0.395 at a significance level of 0.000, indicating a positive and strong association between the two variables. Based on these two characteristics, the data indicate that respondents have difficulty achieving high research productivity.

Table 8. Correlation analysis.

Variable		Individual factors	Institutional factors	Research productivity
Individual factors	Pearson correlation	1	-0.215**	-0.130
	Sig. (2-tailed)	NA	0.003	0.072
Institutional factors	Pearson correlation	-0.215**	1	0.395**
	Sig. (2-tailed)	0.003	NA	0.000
Research productivity	Pearson correlation	-0.130	0.395**	1
	Sig. (2-tailed)	0.072	0.000	NA

Note: **. Correlation is significant at the 0.01 level (2-tailed).

4.5. Multiple Regression Analysis

Table 9 provides the model summary of the multiple regression analysis. The results show that the R^2 value is 0.158. This value indicates that individual factors and institutional factors together account for 15.8% of the variation in the research productivity of the academics in the public universities in Malaysia. The remaining 84.2% of the variation in research productivity could be explained by other factors not included in this study.

Table 9. Model summary.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.398[a]	0.158	0.149	0.763

Note: a. Predictors: (Constant), Institutional factors, Individual factors.

The linear relationship between the independent variables and the dependent variable is represented by the regression coefficients in Table 10. According to Table 10, individual factors have no significant influence on academics' research productivity (β=-0.031; p=0.485). Resultantly, H1 is rejected, suggesting that individual factors do not influence the research productivity of the academics in Malaysia. In addition, this study shows that institutional factors significantly and positively influence research productivity of the academics in the universities in Malaysia (β= 0.322; *p = 0.000*), suggesting that H2 is accepted.

Table 10. Multiple regression coefficients[a].

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		β	Std. error	Beta		
1	(Constant)	0.730	0.343	NA	2.128	0.035
	Individual factors	-0.031	0.045	-0.048	-0.700	0.485
	Institutional factors	0.322	0.057	0.385	5.627	0.000

Note: a. Dependent variable: Research productivity.

Therefore, the regression model can be stated as:
Research productivity = 0.730 - 0.031 (individual factors) + 0.322 (institutional factors).

Nurture: *Volume 17, Issue 2, 93-102,* ***2023***
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5. CONCLUSION

This study aims to examine the factors that influence the research productivity of academics in Malaysian universities, specifically individual factors and institutional factors. The findings show that institutional factors significantly influence research productivity of academics in universities. This is consistent with previous research (Goodwin & Sauer, 1995; Henry, Ghani, Hamid, & Bakar, 2020) and highlights the importance of collaboration among academics and universities in order to enhance research capability and productivity.

However, this study shows that individual factors do not significantly influence research productivity. One plausible explanation for the findings in this study could be that the majority of the respondents are under 30 years of age, indicating that they are most likely novice researchers who have only recently begun to learn and conduct research. It is also common that academics who have just joined the university have a higher workload in terms of teaching and learning and to be committed as committee members in their universities. Therefore, individual factors may have an indirect influence on their research productivity.

This study is not without limitations. Firstly, the sample size is small, with only 192 academics participating in this survey. Conducting comparable research with a larger sample size might increase the generalizability of the results. Secondly, the questionnaire used for this study was developed based on a review of the relevant prior research, and there is potential for future refinement for each variable to improve their validity and reliability. In addition, this study examined only two factors that influence research productivity, and future studies could incorporate other factors that may impact the research output of academics.

In summary, this study makes a timely contribution to the understanding of research productivity among academics, which can be used by educational leaders of the universities in Malaysia. The outcomes of this study are expected to assist the universities in formulating strategies on how to assist the university academics in improving their research productivity and identify ways in which the universities can support their academics in promoting research productivity.

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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AUTHORS' CONTRIBUTIONS

All authors contributed equally to the conception and design of the study.

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