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The Reality Of Publishing Scientific Research: Quantity And Mechanisms In International Journals And Their Role In Enhancing Scientific Knowledge And Sustainable Development In Jordanian Universities

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Abstract

The aim of this study was to investigate the current status of publishing scientific research in international journals, examining the quantity and mechanisms involved, and to assess its role in enhancing scientific knowledge and serving sustainable development in Jordanian universities. To achieve this goal, a descriptive survey methodology was employed, and a questionnaire comprising 38 items was developed and distributed to 276 faculty members working in both public and private Jordanian universities, selected using a simple random sampling method. The [1]validity and reliability of the questionnaire were confirmed by a panel of experts. The study's results showed that the reality of publishing scientific research in international journals and its role in increasing scientific knowledge and serving sustainable development were highly significant. Additionally, the results indicated no statistically significant differences related to university, position, or experience. However, statistically significant differences were found based on college, favoring scientific colleges, academic rank, favoring assistant professors, and the number of published research papers, favoring those who published 5-10 research papers.

Keywords: *Scientific Research, Publishing Journals, Sustainable Development*

Introduction

Scientific research has garnered significant attention in recent years, especially in developing countries. Special bodies, ministries, and institutions have been established to foster its development and prioritize it, even though it was previously the prerogative of advanced nations. Consequently, these institutions are now tasked with improving the quality of scientific research, transitioning it from a theoretical state aimed at meeting promotion and career advancement requirements to a practical application aimed at serving society and enhancing services, particularly in the fields of education, training, and knowledge dissemination. Scientific research and its technological applications play a vital

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role in the development and well-being of any society. Conducting scientific research can be considered a gauge of a country's progress and its social and economic growth. Countries that know how to apply the outputs of scientific research consistently excel in various scientific domains
(Al-Damour, 2021).
The nature of scientific research necessitates a continuous and cumulative scientific production and research effort by faculty members to enrich the body of knowledge and provide practical additions that can be utilized. Since any scientific output holds no value unless it is published, scientific publishing outlets, especially international journals and specialized magazines, have played a vital role. These outlets are the quickest and most comprehensive sources of information and the effective means through which rigorous scientific research enters the world of publication
(Dhiab & Baqzoula, 2023).
Furthermore, these journals and magazines significantly contribute to maintaining the quality of scientific publications, addressing negative aspects such as scientific plagiarism and uncontrolled publication. This is particularly true when these publishing outlets are peer-reviewed and classified, making them adhere to various standards and criteria in the process of peer review and article selection for publication. They also adhere to scientific standards set by relevant authorities for classifying scientific journals at the global level. Given that publishing in international outlets has become an urgent requirement for every faculty member, as demanded by their universities (Aps, 2020).

At the Arab level, the concept of relying on knowledge production in Arab societies remains somewhat unclear. This may be attributed to the inability of scientific research to address many of the social problems afflicting these societies, including areas related to sustainable development, poverty reduction, unemployment, and the prevention of crime and its associated fear. Additionally, scientific research is considered one of the most essential factors in the processes of education, creative thinking, and scientific communication with others. It is also an indicator of the advancement and prestige of universities in global rankings. As a result, some universities have adopted specific strategies to encourage professors and researchers to engage in scientific publishing and authorship, in accordance with the conditions and requirements of international organizations and institutions concerned with university classification and the quality of scientific publications (Al-Kamari, 2019).

In the Hashemite Kingdom of Jordan, higher education institutions, represented by universities, still face various challenges that hinder scientific research and its quality. Overcoming these challenges is essential for earning the trust of society and establishing scientific research as a reliable resource for solving individuals' problems. These challenges encompass both personal aspects related to the researcher themselves and institutional factors within the university, whether they are administrative, economic, social, or otherwise.

Study Problem and Its Questions

Scientific publishing is like the scientific path and a catalyst, being one of the most critical metrics used to evaluate scientific productivity and vital mechanisms for participating in and enriching scientific knowledge. It also serves as a means of delivering it to those who require it, while achieving the requirements of knowledge exchange. There is no value to knowledge unless it is published and made available to serve humanity. Moreover, it has become one of the most important international criteria for university rankings. Most university ranking standards now rely heavily on the contributions of faculty members, the quality and quantity of publications attributed to the university, the impact of these publications, and the extent to which they are cited by researchers worldwide.
Consequently, universities and research centers have placed significant emphasis on disseminating the results of their scientific research through peer-reviewed outlets that adhere to rigorous scientific standards. These outlets often consist of specialized scientific

journals. This emphasis on publication aims to facilitate the exchange of knowledge and research findings, ensuring that research endeavors continue to progress and that their results and objectives become more integrated.

Scientific research conducted by Jordanian universities continues to face numerous obstacles, hindering its progress and development, which often proceed at a slow pace. These challenges are shared across all components of the research process, particularly within institutions of higher education. Universities and other institutions concerned with scientific research and higher education bear a significant responsibility for leading development and modernization programs within society, especially in the fields of education, training, and knowledge dissemination. Achieving this requires advanced systems built upon the foundations of scientific research and its components.

The results of previous studies addressing the subject of scientific research, such as the study conducted by Al-Damur in 2021, Al-Otaibi in 2022, Aliwi in 2022, and Ziyab and Buqzoula in 2023, indicate the persistence of certain challenges. Among the most prominent of these challenges are inadequate funding and management, insufficient attention from researchers to research activities and publication in reputable international peer-reviewed journals. A notable issue highlighted in this study pertains to the quantity demanded by universities, whether private or government, from faculty members regarding their publication in international journals, particularly those indexed in databases like Scopus, without adequate consideration of research quality. Furthermore, there is a lack of alignment with sustainable development, and there is a need for monitoring and tracking scientific output from faculty members.

Therefore, this study aims to address the following questions:

1.What is the current state of scientific research publication in international outlets, and how does it contribute to increasing scientific knowledge and serving sustainable development in Jordanian universities, as perceived by faculty members?

2.Does the reality of scientific research publication in international outlets and its role in increasing scientific knowledge and serving sustainable development in Jordanian universities differ based on various factors, including university, college, experience, position, and the number of research papers published in international outlets, according to faculty members' perspectives?

3.What are the challenges encountered by faculty members when publishing research papers in accredited international outlets within both government and private universities in Jordan?

This study aims to achieve the following objectives:

- To uncover the current state of scientific research publication in international outlets.
- To understand the reality of scientific research publication concerning various variables, including the university, college, experience, job position, academic rank, and the number of research papers published in international outlets.
- To investigate the challenges faced by faculty members when publishing research papers in accredited international outlets within both government and private universities, as perceived by faculty members.

Significance of the Study

The importance of the current study lies in the following aspects:

Providing a contemporary study that examines the reality of scientific publication in international outlets from the perspective of faculty members in Jordanian universities.Assisting decision-makers in Jordanian universities in understanding the real

challenges facing scientific research, particularly when it comes to publishing in international outlets.

Study Terminology

1.International Publishing Outlets: These are scholarly publishing outlets that adhere to high scientific standards and include specialized scientific journals. Research papers are disseminated through various publications, including unindexed scientific journals, peer-reviewed scientific journals, and other diverse publications.
2.Sustainable Development: It refers to the responsible and balanced utilization of all available resources, whether human or material, with a focus on ensuring a better quality of life for present and future generations. It emphasizes the value of long-term well-being.
3.Jordanian Universities: These are academic institutions, both government-funded and private, established for higher education. They aim to fulfill core university functions in teaching, contributing to the local community, and conducting distinguished scientific research.
4.Scientific Research: A systematic set of procedures followed by faculty members to investigate all aspects related to a scientific topic or problem. The ultimate goal is to solve that problem through rigorous inquiry and investigation.

- **Study Boundaries and Limitations:**

- **Human Boundaries:** This study was limited to faculty members in both government-funded and private universities in Jordan, encompassing individuals with various academic ranks and positions.

- **Geographical Boundaries:** The study focused exclusively on Jordanian universities, both public and private.

- **Temporal Boundaries:** The study was conducted during the second semester of the 2022/2023 academic year.

- **Methodological Boundaries:** The findings of this study are contingent on the accuracy of the tool used for data collection and the authenticity and objectivity of the participants' responses to its items.

Previous Studies

The researchers reviewed several relevant previous studies on the subject of this research. For example, they referred to the study by Dhiab and Bqazoula (2023). This study aimed to identify the formal, methodological, and scientific criteria adopted by journals listed in the Algerian Portal for Scientific Journals to assess the quality of the articles published therein and the extent to which these criteria align with international standards, particularly Scopus criteria, in light of the increasing demand for publication. The study used an analytical approach and its tools. The results concluded that the criteria for evaluating the quality of scientific publications significantly impact the classification of scientific journals, especially in the absence of a balance between the quantity and quality of these scientific publications.

The study by Aliwi et al. (2022) aimed to explore the role of scientific research in supporting sustainable development from the perspective of faculty members at An-Najah National University. To achieve the study's objectives, a descriptive approach was used, and a survey instrument was applied to a random sample of 100 faculty members. The study found that the overall ratings for all aspects related to the role of scientific research in

supporting sustainable development, as perceived by faculty members at An-Najah National University, were very high. Additionally, the study revealed that there were no statistically significant differences attributed to variables such as gender, academic qualifications, age, teaching experience, college of affiliation, or place of residence.

The study conducted by Hamadneh (2021) aimed to assess the role of scientific research at Jordan University of Science and Technology in achieving sustainable development. To achieve this goal, a questionnaire was developed and administered to a stratified random sample of 460 faculty members from the study population. The study employed a descriptive survey methodology.

The results of the study indicated that the perceived role of scientific research in achieving sustainable development was significant. Furthermore, there were statistically significant differences attributed to the gender variable, with males having a more favorable perception of the role of scientific research in this regard. Additionally, differences were observed based on the academic rank variable, with both associate professors and assistant professors holding a more positive view of the role of scientific research in achieving sustainable development.

In their study, Halim and Rizk (2021) aimed to review the status and importance of scientific research in general and its role in Saudi universities in achieving the goals of sustainable development, especially in light of Saudi Arabia's Vision 2030. The study adopted a descriptive methodology to assess scientific research, its significance, and its role as one of the tools for achieving sustainable development goals.

The study concluded several important findings, including that scientific research in Saudi universities plays a crucial and fundamental role in sustainable development within the Kingdom, particularly considering the ambitious Vision 2030 plan. However, it also faces various challenges and obstacles.

In their study, Alawneh and Samarah (2021) aimed to understand the role of scientific research and postgraduate studies at the University of Jordan in achieving sustainable development from the perspective of postgraduate students. To achieve this goal, they developed a questionnaire consisting of 25 items, which was distributed to 117 male and female students. The study utilized a descriptive approach, and the following results were obtained:

According to the perspective of postgraduate students at the University of Jordan, the role of scientific research and postgraduate studies in achieving sustainable development is significant.

The study found that there were no statistically significant differences in the perceived role of scientific research and postgraduate studies in achieving sustainable development based on gender, educational level, or nationality among the surveyed students.

The study conducted by Al-Damour (2021) aimed to identify the challenges faced by scientific research from the perspective of faculty members at Jordanian universities. The study had a sample size of 460 faculty members from both public and private universities in Jordan. Some of the key findings from the study include:

Insufficient financial funding for scientific research.The lack of alignment between scientific research and the essential needs and issues of society.The emigration of scientific talents among specialized professors.The absence of a centralized information bank within educational institutions.The perceived lack of seriousness among academic administrations in implementing the results of scientific research in practical applications.Some individuals' resistance to technological advancements in education and their insistence on adhering to

traditional methods.These findings shed light on the challenges faced by scientific research within the Jordanian academic context.
The study conducted by Al-Bashir (2020) aimed to uncover the difficulties (organizational, financial, and personal) faced by faculty members in the Educational Administration department at Saudi universities when it comes to publishing research in peer-reviewed scientific journals. The study used a descriptive survey method and administered a questionnaire to 99 faculty members from various government-run Saudi universities. The results of the study revealed the following:Financial difficulties in publishing peer-reviewed scientific research were reported as high.
Personal difficulties were reported as moderate.Organizational difficulties were also reported as moderate.These findings highlight the challenges that faculty members in the field of Educational Administration at Saudi universities encounter when trying to publish their research in peer-reviewed scientific journals.
The study conducted by Khamaiseh (2020) aimed to identify the contributions of higher education programs in Jordanian universities to the development of scientific research for sustainable development. The study followed a descriptive approach and used a questionnaire administered to a sample of 710 participants. The results of the study indicated that there is a moderate level of contributions by higher education programs in Jordanian universities to the development of scientific research for sustainable development, as perceived by faculty members.

The study conducted by Arias (2015) focused on measuring the expectations and perceptions of academic communities at Corporacion University in Turkey regarding supporting student research processes and their application. The study's results indicated several issues, including the separation of scientific research from the practical field in the Arab world, low expenditure on scientific research in the Arab world, and the absence of strategic plans to develop scientific research and enhance researchers' skills and productivity.Reviewing previous studies, it becomes evident that most of them examined scientific research from various perspectives, with some linking research to sustainable development. Many studies also focused on specific universities. What sets this study apart is its examination of both government and private universities while addressing the important topic of publishing in international journals and highlighting the challenges faced by researchers in this regard.

Study Methodology and Procedures:
Study Method: This study adopted a descriptive survey-analytical methodology due to its suitability for the study's purposes.

Study Population and Sample:
The study population consisted of faculty members in Jordanian government and private universities during the first semester of the academic year 2022/2023. **The questionnaire** was distributed to a simple random sample of (276) faculty members in Jordanian government and private universities through an official communication channel after obtaining the approval of the Jordanian Ministry of Higher Education, as indicated in Table (1).

Table 1: Distribution of Study Sample Individuals by Their Variables

Variable	category	Count	Percentage
university	public	114	% 42
	privet	162	% 58
College	Humanities	152	% 55

	% 45	148	Scientific	
% 23	62		Less than 5 years	Experience
% 77	212		5years or more	
% 80	222		Teaching only	occupation
% 14	36		Academic Department Head	
% 6	16		Dean and Vice Dean of College	
% 21	60		Professor	Academic Rank
% 40	106		Associate Professor	
% 31	86		Assistant Professor	
% 8	22		Lecturer	
% 38	104		5 researches or fewer	Number of Research Papers Published in International Journals
% 41	112		5 to 10 researches	
% 21	58		More than 10 researches	
%100	276		Total	

The table (1) shows that the sample included (276) faculty members distributed according to whether they belong to a public or private university. chart:

Study Tool:

The researchers designed the study tool (questionnaire) after reviewing the relevant theoretical literature and previous studies on the topic. The questionnaire consisted of two sections: the first section dealt with preliminary data, while the second section included the study variables. The questionnaire comprised (38) items and was designed based on a five-point Likert Scale
(very high, high, moderate, low, very low), as illustrated in Table (2).

Tool Validity:

Content validity was established by presenting the tool to ten faculty members in Jordanian universities. They reviewed the items in the tool and provided feedback on their clarity and relevance to the field. Based on their suggestions, some items were modified or removed, resulting in a total of (38) study items.

Reliability of the Study Tool:

The reliability of the study tool was assessed using Cronbach's Alpha coefficient, and the reliability coefficient obtained was (0.9830). This level of
reliability is considered suitable for the current study's application.

Statistical Analysis:

The appropriate statistical procedures were used to address the study's research questions as follows:

1.To answer the first question, the mean (average) and standard deviation were calculated for the responses of the study sample on the study items.

2.To answer the second question, an independent samples t-test and one-way analysis of variance (ANOVA) were employed.

3.To answer the third question, frequencies and percentages were used to analyze the responses of the study sample to the study items.

Results and Discussion of the Study:

Question 1: What is the current status of scientific research publication in terms of quantity and quality in international journals, and what is its role in increasing scientific knowledge and serving sustainable development in Jordanian universities as perceived by faculty members?

To answer this question, the study extracted the mean values, standard deviations, and levels for each item of the study tool. Table (3) illustrates these results.

Table 2: Arithmetic Means and Standard Deviations of Scientific Research Publication Practices in International Journals and Their Role in Increasing Scientific Knowledge and Serving Sustainable Development in Jordanian Universities from the Perspective of Faculty Members.

	Assessment Vocabulary.	Average	Standard Deviation	Level
.1	Quality and quantity of scientific research published in international journals help disseminate scientific knowledge in Jordanian society.	3.38	0.83	Middle
.2	The quality and quantity of globally published research contribute to various scientific fields, serving sustainable development.	3.44	0.72	high
.3	The process of international publishing enriches the scholarly journals in Jordanian universities.	3.47	0.75	high
.4	The effectiveness and global ranking of Jordanian universities increase when publishing in peer-reviewed international journals.	3.72	0.68	high
.5	The global publishing process enriches university libraries with modern books, references, and journals.	3.50	0.77	high
.6	Internationally published research empowers researchers' professional growth and enhances their capabilities.	3.50	0.78	high
.7	Internationally published research helps researchers in their professional and career growth, enhancing their capabilities.	3.58	0.75	high
.8	Global publishing practices enable researchers to develop their academic personalities capable of critical scientific thinking.	3.51	0.79	high
.9	Researchers are able to employ informatics and harness modern information technology in diagnosing problems and envisioning the future when selecting a study issue.	3.50	0.74	high
10	Internationally published research contributes by providing educational ideas that aid in the development of academic programs.	3.50	0.75	high

high	0.75	3.45	Globally published scientific research contributes to the development of knowledge related to the content of sustainable development.	11
high	0.74	3.48	Globally published scientific research enhances the ability to identify challenges in sustainable development.	12
high	0.78	3.43	The priorities for sustainable development opportunities are determined based on the available geographic resources through globally published scientific research.	13
Middle	0.84	3.39	Globally published scientific research contributes to supporting national programs focused on achieving sustainable development.	14
high	0.77	3.45	They aim to meet the requirements of sustainable development by guiding global research and linking it to comprehensive and sustainable development plans.	15
Middle	0.90	3. 28	Universities continue to collaborate in the field of global scientific publishing to serve the process of sustainable development.	16
Middle	0.83	3.36	Collaborative research and its publication in international journals are encouraged with other Arab and global universities through research teams that work together across various fields with a team spirit.	17
high	0.75	3.42	Universities provide the necessary resources and funding for conducting scientific research and studies to benefit from their results through publication in international journals.	18
Middle	0.96	3.22	Globally published scientific research helps reduce the brain drain and the migration of talents and minds abroad.	19
Middle	0.82	3.32	Jordanian universities guide researchers towards scientific research related to finding comprehensive solutions for achieving sustainable development.	20
high	0.78	3.42	Globally published scientific research helps cultivate a culture of reading among researchers in Jordanian universities.	21
Middle	0.84	3.28	Jordanian universities monitor globally published research results related to development in general and sustainable development in particular.	22
high	0.68	3.55	The university gains a prestigious academic reputation by guiding its professors to publish in peer-reviewed international journals.	23
high	0.83	3.43	The process of international publishing enables faculty members to acquire the ability to write in another foreign language.	24
high	0.74	3.53	Publishing in international journals helps increase the importance and reputation of universities and scientific colleges at the international level.	25
high	0.75	3.55	International scientific publishing helps develop a researcher's skills in writing academic and professional research papers and studies.	26
high	0.70	3.50	Publishing scientific research in international journals can lead to competition among researchers to accomplish and publish scientific studies in these journals.	27
high	0.74	3.49	Publishing scientific research in peer-reviewed international journals contributes to researchers' knowledge of each other.	28

high	0.67	3.57	Publishing scientific research in international journals contributes to the protection of the researcher's intellectual property.	29
high	0.67	3.57	Superficiality in scientific research, its repetition, and individual performance become evident when published in international publications by inexperienced researchers.	30
high	0.75	3.63	Global publishing raises promotion standards for faculty members and links it to research productivity through publication in highly-ranked databases.	31
high	0.69	3.53	Researchers use the number of views as a criterion in international rankings.	32
high	0.67	3.59	Researchers learn optimal language auditing techniques when directing their focus towards global publishing.	33
high	0.68	3.56	Global publishing enhances the mental and psychological state of the scientific researcher, as scholarly journals only publish original and valuable research.	34
high	0.64	3.56	It contributes to spreading the ideas and discoveries of scientific researchers to readers around the world.	35
high	0.71	3.66	The global publishing process improves the university's international ranking.	36
high	0.74	3.75	Researchers face numerous challenges in publishing in international journals, such as falling into predatory journal traps, long publication times, and the financial consequences borne by the researcher.	37
high	0.71	3.64	Researchers often struggle to access globally ranked journals due to limited training.	38
high	0.60	3.49	**the survey as a whole**	

The information from Table (2) indicates that the arithmetic means of responses towards the content of the survey assessment vocabulary ranged from (3.22) to (3.75). This suggests that the levels of survey vocabulary were within the medium to high range. The highest means were in favor of item (37), which states, "Researchers face significant challenges in publishing in international journals, such as falling into the trap of predatory journals, long publication periods, and the financial implications borne by the researcher." The arithmetic mean for this item was (3.77), and these results were consistent with the study by Al-Damour (2021), which pointed out the financial constraints of scientific research.

On the other hand, the lowest arithmetic mean was for item (19), which states, "Scientific research published internationally reduces brain drain from the country." The arithmetic mean for this item was (3.22), which falls within the medium range. Additionally, the overall arithmetic mean for the survey content vocabulary was (3.49), indicating a high level overall. There were no vocabulary items in the very low or low range.

It is also noteworthy that the arithmetic means for the survey vocabulary were relatively close and somewhat homogeneous. The standard deviation for the entire survey was (0.60). Respondents' opinions about their views were somewhat consistent, with an overall medium-to-high level. These results align with the studies conducted by Alawneh and Smara (2021), Haleem and Al-Zaq (2021), and Alyawi, Al-Zyoud, and Abu Ayash (2021), which found that scientific research plays a significant role in supporting sustainable development through universities. These findings differ from the study by Al-Bashir (2020), which showed that university faculty members face moderate difficulties in publishing peer-reviewed scientific research.

The second question addresses whether the reality of publishing scientific research differs in terms of how and to what extent it contributes to increasing scientific knowledge and serving sustainable development in Jordanian universities. This perspective is explored through the views of faculty members, considering various variables such as the university, college, experience, job position, academic rank, the number of research publications in international journals.To investigate this, the researchers employed an Independent Sample t-test for university and college variables, a One-way ANOVA test for the job position, academic rank, and the number of research publications. The results for each variable are explained below based on the findings of the study.

Firstly, regarding the variable of "university," Table (4) presents the results attributed to this variable.

Table 3: Differences in the Reality of Publishing Scientific Research Attributed to the University Variable

Statistical Significance	Degrees of Freedom	T_value	Standard Deviation	Mean	number	category	variable
0.838	272	-0.204	0.58	3.483	114	public	university
			0.60	3.498	160	privet	

From Table 3, it is evident that the mean score was (3.483) for government universities, which is lower than the mean score for private universities, where it was (3.498). This difference is not statistically significant at the significance level. In other words, there are no statistically significant differences attributed to the university variable. Researchers attribute this to the fact that both government and private universities follow the policies of the Ministry of Higher Education in promoting and supporting scientific research and all of them have a unified budget for research support.

Secondly, concerning the college variable, Table 4 illustrates the results attributed to the college variable**.**

Table 4: Differences in Research Publication Patterns Attributed to the College Variable

.Statistical Significance	Degrees of Freedom	T_value	Standard Deviation	mean	number	category	variable
0.042	272	-2.041	0.66	3.42	122	Humanities	College
			0.49	3.57	150	Scientific	

From Table 4, it is evident that the mean score was (3.42) for humanities colleges, which is lower than the mean score for scientific colleges, where it was (3.57). This difference is statistically significant at the significance level. In other words, there are statistically significant differences attributed to the college variable in favor of scientific colleges. This result can be attributed to the fact that the publication outlets for scientific research are wider than humanities research. Additionally, faculty members in scientific colleges are proficient in a second language, with most of their publications being in English, rather than Arabic, which is the case in humanities colleges.

Thirdly, regarding the experience variable, Table 6 presents the results attributed to the experience variable.

Table 5: Results of Difference Examination Attributed to the Experience Variable

Statistical Significance	Degrees of Freedom	T_value	Standard Deviation	mean	number	category	variable
0.32	272	0.997	0.59	3.56	62	Less than 5 years	Experience
			0.60	3.47	212	more than 5 years	

From Table 5, it is evident that the mean score was (3.47) for respondents with more than 5 years of experience, which is lower than the mean score for respondents with less than 5 years of experience, where it was (3.56). This difference is not statistically significant, indicating that there are no statistically significant differences attributed to the experience variable. This result suggests that experience does not make a difference in the opinions of faculty members and that prior experience is not a requirement, as there are principles shared by all faculty members. This finding is consistent with the study conducted by Aliwi and others in 2021

Fourthly, regarding the job position variable, Table 6 presents the results attributed to the job position variable.

Table 6: Results of One-Way ANOVA for the Job Position Variable

Statistical Significance	F-Value	Mean Squares	Degrees of Freedom	Sum of Squares	Source of Variance
0.376	0.982	0.350	2	0.699	Between-Group Variance
		0.356	271	96.504	Within-Group Variance
			273	97.203	Total Variance

From Table 6, it becomes evident that there are no statistically significant differences attributed to the job position variable. This result is logical concerning the primary role of a faculty member in the university, which includes teaching, scientific research, and community service.

Fifthly, the academic rank: Table 7 illustrates the results attributed to the academic rank variable.

Table 8: Means and Deviations Attributed to the Academic Rank Variable

Standard Deviation	Mean	Academic Rank
0.7007	3.34	Professor
0.57	3.51	Associate Professor
0.50	3.71	Assistant Professor
0.09	2.97	Lecturer

Table 7 indicates the reality of scientific research publication, both in quantity and quality, in international publishing outlets and its role in enhancing scientific knowledge and serving sustainable development in Jordanian universities from the perspective of faculty members with the rank of Assistant Professor, with an average score of (3.71), which was better than the reality of scientific research publication in international publishing outlets and its role in enhancing scientific knowledge and serving sustainable development in Jordanian universities from the perspective of faculty members with the rank of Professor, with an average score of (3.34). The results also show that faculty members with the rank of Associate Professor, with an average score of (3.51), had a more favorable view compared to faculty members with the rank of Lecturer, with an average score of (2.97).

To ensure the validity of these results, the t-test and Chi-square test were used, as shown in Tables (9, 10).

Table 8: Results of One-Way Analysis of Variance for the Academic Rank Variable

Statistical Significance	F-Value	Mean Squares	Degrees of Freedom	Sum of Squares	Source of Variance
0.000.	11.915	3.788	3	11.364	Between-Group Variance
		0.318	270	85.839	Within-Group Variance
			273	97.203	Total Variance

From Table 8, there are statistically significant differences attributed to the academic rank variable regarding the reality of scientific research publication in international publishing outlets and its role in enhancing scientific knowledge and serving sustainable development in Jordanian universities, from the perspective of faculty members.

To identify the sources of these differences, a post hoc test was conducted, as indicated in Table 10.

Table 9: Results of the Chi-Square Test for Detecting the Significance of Differences Between Means Attributed to Academic Rank

lecturer	Assistant Professor	Associate Professor	professor	Academic rank
0.3584	-0.3731*	-0.1731	_	Professor
0.5315*	-0.2000	_		Associate Professor
0.7314*	_			Assistant Professor
_				lecturer

From Table 9, it can be observed that:

The difference between the mean score of the reality of scientific research publication, as perceived by faculty members with the rank of Professor, and the mean score of faculty members with the rank of Associate Professor is (0.1731-), which is not statistically significant at the 0.05 level. This suggests a convergence in the perspectives of faculty members with the rank of Professor and Associate Professor.

The difference between the mean score of the reality of scientific research publication, as perceived by faculty members with the rank of Professor, and the mean score of faculty

members with the rank of Assistant Professor is (0.3731*), which is statistically significant at the 0.05 level. This indicates a difference in the perspectives of faculty members with the rank of Professor and Assistant Professor.

The difference between the mean score of the reality of scientific research publication, as perceived by faculty members with the rank of Professor, and the mean score of faculty members with the rank of Lecturer is (0.3584), which is not statistically significant at the 0.05 level. This suggests a convergence in the perspectives of faculty members with the rank of Professor and Lecturer.

The difference between the mean score of the reality of scientific research publication, as perceived by faculty members with the rank of Associate Professor, and the mean score of faculty members with the rank of Assistant Professor is (0.2000-), which is not statistically significant at the 0.05 level. This indicates a convergence in the perspectives of faculty members with the rank of Associate Professor and Assistant Professor.

The difference between the mean score of the reality of scientific research publication, as perceived by faculty members with the rank of Associate Professor, and the mean score of faculty members with the rank of Lecturer is (0.5315*), which is statistically significant at the 0.05 level. This suggests a difference in the perspectives of faculty members with the rank of Associate Professor and Lecturer.

Finally, the difference between the mean score of the reality of scientific research publication, as perceived by faculty members with the rank of Assistant Professor, and the mean score of faculty members with the rank of Lecturer is (0.7314*), which is statistically significant at the 0.05 level. This indicates a difference in the perspectives of faculty members with the rank of Assistant Professor and Lecturer. The results suggest that Assistant Professors have a more favorable view compared to Lecturers, which aligns with the findings of Hamadneh (2021).

Table 11: Results attributed to the variable "Number of Published Research Papers"

Standard Deviation	Mean	Number of Published Research Papers
0.64	3.46	Postgraduate Research 10
0.54	3.62	5to 10 research
0.59	3.36	5 research or less

Table (11) indicates the perception of faculty members who publish 5 to 10 research papers on the current state of scientific publication, its nature, and its role in increasing scientific knowledge and serving sustainable development in Jordanian universities. The average rating for this group was (3.62), which is higher than the perception of faculty members who publish 5 or fewer research papers, with an average rating of (3.36). To confirm this result, both the t-test and the Chi-square test were used, as shown in Tables (12, 13).

Table 12: Results of the One-Way Analysis of Variance (ANOVA) for the Variable Number of Published Research Papers

Statistical Significance	F-Value	Mean Squares	Degrees of Freedom	Sum of Squares	Source of Variance
0.005	5.374	1.854	2	3.708	Between-Group Variance
		.0345	271	93.495	Within-Group Variance

	273	97.203	Total Variance

Table (12) reveals statistically significant differences attributed to the variable of the number of published research papers in assessing the current state of scientific publication, its nature, and its role in increasing scientific knowledge and serving sustainable development in Jordanian universities, as perceived by faculty members. To uncover the sources of these differences, a multidimensional Chi-square test was conducted, as shown in Table (13).

Table 13: Results of the Chi-Square Test for Detecting the Significance of Differences in Means Attributed to the Number of Published Research Papers

5research or less	5to 10 research	Postgraduate Research 10	Number of Published Research Papers
0.0988	-0.1613	_	Postgraduate Research 10
-0.2601*	_		5to 10 research
_			5 research or less

From Table 13, it can be observed that the difference between the mean values of the perception of faculty members who publish 10 or more research papers and the mean values of those who publish 5 to 10 research papers is not statistically significant (0.1613), indicating a convergence in the viewpoints of faculty members in these two groups. Similarly, the difference between the mean values of faculty members who publish 10 or more research papers and those who publish 5 or fewer research papers is not statistically significant (0.0988), suggesting a convergence in their viewpoints as well. On the other hand, the difference between the mean values of faculty members who publish 5 to 10 research papers and those who publish 5 or fewer research papers is statistically significant (0.2601*), indicating a difference in their perceptions at a significance level of (α=0.05).

Question Three: What are the challenges facing a faculty member in publishing research in accredited international journals at government and private universities? To answer this question, an open-ended question was directed to the study sample, and the frequencies and percentages of their responses were extracted. Table (14) illustrates this

Table 14: Frequencies and Percentages of Challenges Facing a Faculty Member in Publishing Research in Accredited International Journals

The percentage	The repetition	category	number
26.17%	28	The lack of financial support and adequate incentives, both for publication fees and conducting laboratory experiments.	1
9.35%	10	The language of publication and the difficulty of writing research in a rigorous scientific language, especially when the researcher does not have excellent command of that language.	2
3.74%	4	The reliance on all journals that focus on the humanities, regardless of their scope.	.3
8.41%	9	Imposing a certain number of research publications on faculty members without considering their type, while focusing on a single Scopus-indexed journal.	4
3.74%	4	The absence of a global academic team contributing to research publications and the	5

		university's lack of support for collaborative publications with foreign universities.	
14.02%	15	The high and escalating publication costs.	.6
11.21%	12	Lack of familiarity with specialized and reliable publishing outlets, as well as periodic removal of journals from their classifications.	.7
8.41%	9	Directing publications towards sustainable development goals and related training.	.8
5.61%	6	The length of the publication process and changes in publication instructions.	9
7.48%	8	The scarcity of internationally ranked journals published in Arabic and the need to not exclusively focus on publishing in international outlets.	10
1.87%	2	The publication culture is solely for promotion and not for knowledge.	11
100%	107	**Total**	

From Table (14), it can be observed that the highest percentage of challenges faced by a faculty member in publishing research in accredited international journals was in favor of the challenge that states "lack of financial support and sufficient incentives for publication fees and laboratory experiments," with a percentage of 26.17%. This was followed by "high and escalating publication costs," which accounted for 14.02%. This indicates that financial constraints significantly hinder the improvement of scientific research publication rates for faculty members in both government and private universities. On the other hand, the lowest percentage of challenges in publishing research in accredited international journals was related to the statement "publication culture is solely for promotion and not for knowledge," with a percentage of 1.87%.

Recommendations: Based on the study's findings, the researchers recommend the following:

- Consider the results of the open-ended question and work on finding solutions to the issues raised by faculty members within different universities in Jordan.
- Direct research towards issues related to societal problems and sustainable development goals.
- Establish effective communication channels with international universities and institutions in the field of scientific research and encourage faculty members to collaborate with these institutions, particularly in the context of sustainable development.

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