Researchers' Quest for Productivity and Visibility: the Growing Problem of Predatory Publishing in the Republic of Moldova

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ABSTRACT

Publishing is one of the central components of scientific endeavor and has undergone significant developments lately, due to the digitisation of scholarly communication and consequent emergence and uptake of open access movement. This also led to the rise of "predatory publishing", motivated by profit and compromising research integrity. Similar to fake news, predatory publishing outlets "are characterized by false or misleading information", often spreading misinformation in the academic community and corrupting science. Evidence shows that the Global South and low-resources, developing countries (e.g. Republic of Moldova) are particularly prone to predatory journals and conferences. This paper examines the extent to which the scientific community in the Republic of Moldova is affected by predatory, pseudo-scientific publications, based on a case study. It then comes with several recommendations to tackle the issue of predatory publishing, tailored to the national academic environment.

CCS CONCEPTS

• **General and reference** → Cross-computing tools and techniques; Performance; Cross-computing tools and techniques; Evaluation; • **Social and professional topics** → Computing / technology policy; Intellectual property; Digital rights management; Computing / technology policy; Intellectual property; Copyrights.

KEYWORDS

Scholarly publishing, predatory conferences, pseudo-science, developing countries

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1 INTRODUCTION

Academic publishing, based on sound peer-review as the key quality control mechanism, is the central pillar of the research environment. Scholarly publishing has traditionally employed certain channels of communication such as scientific journals, conference proceedings, monographs, etc. With the expanding opportunities offered by digital technologies and the Internet, the publishing landscape has changed significantly, witnessing the emergence of open access.

Consequently, the speed of scientific knowledge generation and dissemination has increased exponentially, stimulating researchers' quest for productivity, as well as visibility. Both of these extremely interrelated and interdependent dimensions are an integral part of research evaluation [1]. Academic advancement in most countries is currently dependent on the number rather than the quality of scholarly works [2], and developing countries such as the Republic of Moldova is no exception to the phenomena of „publish or perish".

Author-pays open access journals and conferences have emerged worldwide to take advantage of researchers who are eager to publish and are often in the early stages of their careers. Shifting paradigms of research communication, evaluation, peer-review, institutional rankings, metrics, and business models, have created more space for predatory academic practices to take root and thrive [3]. Similar to fake news, predatory publishing outlets "are characterized by false or misleading information" [4], often spreading misinformation in the academic community, damaging the reputation of the publishing enterprise, corrupting science and posting online pseudoscientific papers. Despite an ambitious and quite successful e-government agenda, implemented by the Government of Moldova with support from the World Bank since 2010, the R&D sector, unlike the education sector, has been consistently left out of the ICT policy making framework. This in turn leads to uncoordinated efforts of ICT implementation in the research sector undertaken by individual research organizations and universities, such as establishment of institutional repositories or capacity building regarding digital tools for researchers.

This paper aims to address the growing issue of predatory publishing, especially in developing countries, such as the Republic of Moldova. It examines the extent to which the scientific community in the Republic of Moldova is affected by predatory, pseudo-scientific publications, based on a case study. In addition, the study touches upon the problem of journals from small research communities, such as Moldova, being perceived as predatory. Our paper also comes with several recommendations to tackle the issue of predatory publishing, tailored to the national academic environment.

2 DEFINING PREDATORY PUBLISHING

Defining predatory publishing is challenging: some suggest that the term "predatory" is too broad, confusing misconduct with poor quality [5]. After the term "predatory" regarding journals was coined by Beall in 2012 [6], a multitude of other terms has emerged: "dubious", "deceptive", "fake" or "sham". The many defining characteristics of "predatory journals" are often too ambiguous and subjective.

The most widely accepted definition is the international consensus definition in Nature, which defines predatory journals and publishers "as entities that prioritize self-interest at the expense of scholarship and are characterized by false or misleading information, deviation from best editorial and publication practices, a lack of transparency, and/or the use of aggressive and indiscriminate solicitation practices" [4].

Explored relatively less than predatory journals are the predatory conferences, another significant predatory publishing outlet. With no agreed definition by the research community, these publishing channels are mainly profit-driven, with very little concern for scientific value, lack of peer-review, fake editorial boards and aggressive marketing [7]. At the same time, some authors argue that there can be no "black and white" definition because predatory publishing encompasses a spectrum of activities, wide-ranging in type and degrees of ethicality and legitimacy [8, 9].

The most encompassing definition so far has emerged in 2022, as a result of the two-year study led by the InterAcademy Partnership (IAP), which focused on combatting predatory academic journals and conferences. Predatory journals and conferences are described here as a spectrum or typology of journal and conference practices; a broad set of dynamic predatory behaviors that range from genuinely fraudulent and deceitful to questionable and unethical ones, with varying degrees of unacceptable to well-intentioned low-quality practices in the middle [3].

3 LITERATURE REVIEW

The growing problem of predatory publishing and researchers' need to deal with the ever-increasing academic publishing requirements, especially in the Global South and the low-resources, developing countries have been explored to a certain extent.

On the one hand, researchers argue that an increase in publishing with predatory journals, which is common in developing counties, will affect the quality of science, excellence, development, and individual researchers' and institutions' professional reputation [10]. On the other hand, some studies state that the rapid growth of Open Access (OA) facilitated opportunities for predatory publishing [11]. Proponents of open access publishing have emphasized its particular importance to scholars in the global South, as well as developing countries. It is considered the rise of OA publication in Africa for instance, plays a key role in addressing "local" problems, making scholarship visible and available to all [12]. The same applies to national research communities in developing countries, e.g. Republic of Moldova.

It is considered that the issue of wasteful publishing practices primarily affects non-mainstream science countries and rapidly growing academic disciplines. Regional awareness campaigns to inform stakeholders of science communication about the importance of ethical writing, transparency of editing services, and permanent archiving can help eradicate unethical publishing practices [13]. The predatory conferences are often aimed at researchers from developing countries and researchers suggest various strategies for avoiding such publishing avenues, e.g. journal editors from developing countries should enhance education about highly growing predatory conferences [14]. Some studies point this situation should be highly concerning for early-career researchers who may lack support from well-resourced research groups and experienced mentors, particularly those from developing countries [15].

Various analysis and study reports focused on the Central and Eastern Europe countries have emphasized some common issues with regard to predatory publishing practices and their implications. For instance, because publishing criteria in the field of economics and business have developed in seven CEE countries since 2000, the economists have responded by altering their publishing behavior, choosing to publish mostly in local or "predatory" journals [16]. The case of "predatory" journals was used by some less-productive institutes of the Czech Academy of Sciences to question the system of the world's established academic metrics such as Scopus and Web of Science, mainly because currently there are many controversial lists and registries of "predatory" journals, which often contradict each other. It appears that indexing academic journals in Scopus and Web of Science databases is still more relevant for their academic worthiness than any other factors [17]. On the other hand, even the indexing in WoS is not a bullet-proof guarantee of research quality, as revealed by a paper that aimed to warn the whole Serbian community of the long-lasting damage when journals with low publishing ethics are taken seriously. It presented the details of an experiment of publishing a hoax article in a particular international journal with an impact factor, that blew the whistle for its devastating influence on Serbian academic affairs, compromising the whole system. Hundreds of Serbian scientists published hundreds of articles in that particular journal in only a couple of years [18].

Increasing the awareness of the problem among stakeholders of science communication in vulnerable regions is considered to be one of the important strategies for tackling the issue of predatory publishing. An analysis of publication charges and transparency of editorial policies in Croatian open access journals argues that small doesn't equal predatory and not be perceived as predatory, the journals and publishers from small scientific communities should not only operate on non-commercial bases, but also have transparent editorial policies [19]. This transparency, coupled with upgrading standards of editing and publishing scholarly journals from regional and other non-mainstream science countries is also the main focus of the Sarajevo Declaration on Integrity and Visibility of Scholarly Publications, adopted in 2016. The declaration drafted and endorsed by editors from South Eastern European countries encouraged editors to adopt and incorporate in the journal instructions recommendations of the most influential editorial associations, such as the ICMJE, COPE, and CSE [20].

4 DATA AND METHODS

This paper aims to analyse the extent to which the scientific community in the Republic of Moldova is affected by predatory, pseudo-scientific publications, based on a case study. The case study focuses

on a scientific activism-inspired experiment on a predatory conference series, which attracted a significant number of Moldovan academics.

Moldova is a republic in Eastern Europe, bordering Ukraine and Romania, with a resident population of 2.64 million in 2020 [21] and a GDP per capita at $12,941 in 2020 [22]. The R&D sector in 2020 consisted of 61 organisations (including 39 research institutes and centers and 15 universities) and 2900 researchers [23]. The R&D expenditures in 2020 were at $27.6 million, which represents a meager 0,23% of GDP [24]. The reform carried out in the R&D sector in 2018, followed by a round of controversial competition-based funding in 2020, in the context of decreased financing, had a significant negative impact on the sector as a whole, putting research institutes at a clear disadvantage, attempting to concentrate the bulk of research activities within universities.

The selection of a case study as our research method was conditioned by two factors:

- Popularity among researchers from the Republic of Moldova, so that the examined predatory publication is representative of the local scientific community;
- Clear, noticeable practices of a predatory publication, allowing no controversy as to the scientific nature of the predatory publication.

The papers from the "InterConf" conference proceedings meet both of the above-mentioned criteria and were chosen as the subject of the case study.

"InterConf" conference, as one of the predominant predatory publishing channels, has been identified based on the analysis of the publication lists submitted to the National Agency for Quality Assurance in Education and Research (ANACEC), by applicants for research degrees (doctor of science and doctor habilitate), academic titles (associate professor and university professor) and doctoral supervisor positions. On the one hand, this publishing outlet managed to attract the highest number of pseudo-scientific publications from Moldovan researchers. On the other hand, the analysis of the "InterConf" conference website revealed evident traits of predatory conferences, as described in relevant publications and recommendations for avoiding these types of publishers [3, 25–27]. To name just a few, the publication time is very short, suggesting the lack or simulation of peer-review or any kind of proper evaluation; fake editorial board and editor-in-chief, who are absent from the websites of mentioned affiliations or belong to nonexistent institutions; papers are accepted in an extensive range of research disciplines; no authors from the countries where the conference is supposedly taking place etc.

The analysis was limited to the 55 conference proceedings volumes published in 2021. The proceedings, available in the archive on the predatory conference website (https://interconf.top/archive.html), were analysed to extract the publications written by authors affiliated with organisations from the Republic of Moldova. The publications metadata have been verified, systematised and analysed based on different criteria. The results have been examined in relation to the current national legal framework and the existing practices adopted by the academia in the Republic of Moldova.

5 RESULTS AND DISCUSSIONS

5.1 Case study results

The analysis has revealed that authors from the Republic of Moldova have published in 53 out of the 55 conference proceedings, supposedly organised in 2021. The total number of authors affiliated with institutions in the Republic of Moldova is 413, almost 45% of them are research degree holders (Table 1).

The authors from the Republic of Moldova are affiliated with 37 institutions, 4 of these institutions are represented by more than 10 authors, with a record 238 authors from the State University of Medicine and Pharmacy.

The majority of authors represent universities (22 out of 37 institutions), followed by 9 research organisations and other institutions (schools, clinics, etc.) Over 90% of the total number of authors from the Republic of Moldova who published in "InterConf" in 2021 are affiliated to universities. The lion's share of authors have published just 1 article (Table 2).

Moldovan authors published 363 articles in "InterConf" in 2021. The topics of published articles cover 23 scientific disciplines (out of the 38 disciplines covered by the conference). In five of these disciplines were published 10 or more articles each, the dominant fields being Medicine and pharmacy, Law and international law, Pedagogy and education.

The articles by Moldovan authors were published in the proceedings of "InterConf" conferences held in 12 cities worldwide, mostly in Europe and America (as stated by the organizers). However, almost 43% of these articles are published in Romanian and Russian.

5.2 Discussions

The number of authors from the Republic of Moldova (413) who have published in "InterConf" and the number of articles (363) published in these editions is significant compared to the size of the local scientific community. According to the official data of the National Bureau of Statistics, there were 2,900 researchers in the country in 2020 [23]. During the same year, the authors from the Republic of Moldova published 626 papers, indexed in Scopus [28] and 643 papers, indexed in Web of Science [29]. The authors from the Republic of Moldova published in a single fake, predatory outlet more than half of the number of papers indexed by two of the most important international databases each, during the same period.

The popularity of "InterConf" is hugely due to a very simple publishing procedure: the author sends any text, formatted according to the rules indicated on the conference website; the answer is received in 2-8 hours; the author pays the publication fee (10 or 20 Euro); the certificate of participation is received in 2-12 hours (even though the event is supposed to take place in a few days); the proceedings of the conference are published on the website of the predatory outlet just before the conference is held [30]. The complete list of features of this conference, which are indicative of its predatory character, was published in "InterConf" proceedings themselves (!), issue nr. 69 of January 2022. The article entitled "Aspects of virtual scientific authorship in conditions of moral and legal nihilism" was written by an invented author [30]. After having published this paper, another fraudulent practice of the conference was revealed: aggressive marketing and promotional campaign, with abusive spamming of authors inviting manuscripts. The drivers influencing

Table 1: Distribution of authors from the Republic of Moldova based on degrees and titles

Nr.	Research degree/ Academic title/ Position	Nr of authors
1	Doctor habilitate*	43
2	Doctor	142
3	PhD student	79
4	No degree	149
5	University professor	38
6	Associate professor	99
7	Doctoral supervisor	57

*There are two levels of research degrees in the Republic of Moldova: doctor and doctor habilitate. The latter is superior and can only be granted if the person holds a doctoral degree.

Table 2: Distribution of authors from the Republic of Moldova based on the number of published papers

Nr.	Number of published papers	Number of authors
1	6-8 papers	14
2	4-5 papers	25
3	3 papers	30
4	2 papers	72
5	1 paper	272

Table 3: Drivers influencing Moldova's researchers to publish in predatory journals

Institutional / R&D system drivers	Individual/ personal drivers
Focus on quantitative evaluation of R&D sector (e.g. number of international publications)	Reporting procedures focused on quantitative evaluation
National regulations encouraging to publish in Open Access	Lack of important research results worthy of publishing abroad
Lack of funding to cover APC charges in international OA journals	Lack of awareness and skills related to the predatory publishing both for early-career and experienced researchers
Pseudo-scientific outlets tolerated/ unknowingly accepted by national R&D authorities	Simple and rapid publishing procedure

national researchers' publishing behavior are summarized in Table 3.

Mainly due to the ease of publishing in "InterConf" proceedings, researchers also choose to publish here for different reasons, as mentioned by other papers: being time-pressured and hoping they will not be identified, fearing they will not be accepted by scientific publications from abroad, also due to the lack of significant research results, lack of funding to publish in OA scientific journals [31–33]. In addition to the general factors that contributed to the growth of predatory publications, such as the development of digital technologies and the shift of many editions to the digital format, the growing popularity (as a result of promoted policies) of open access [34, 35], Covid-19 pandemics, the scale of the phenomenon in the Republic of Moldova seems to be determined by several local factors.

One of the factors is the focus on quantitative indicators, relevant for the evaluation of the R&D sector, both at individual and organisation levels. Lately, especially starting with 2018, a legal framework was approved at the national level, setting requirements for a minimum number of scientific publications, including those published abroad. One of the 4 relevant regulations, the methodology for awarding and confirming research degrees approved by the Government in 2019 [36], establishes the minimum required number of publications for the doctoral degree (5 scientific publications in various outlets, both national and international) and for the doctor habilitate degree (20 scientific papers, 1 monograph, 5 international articles, etc). The regulation for evaluation of doctoral theses approved by the Ministry of Education, Culture and Research in 2017 [37] sets out the requirements in terms of publications, varying in rigour from a journal article published in a country ranked higher than Moldova in the Scimago ranking to papers indexed in the WoS or Scopus databases. The methodology for approving doctoral supervisors adopted by the Government in 2019 [38], Scientific performance indicators for granting doctoral supervisor rights adopted in 2019 [39], as well as the regulation related to the award of academic titles in higher education, approved in 2019 [40], all stipulate certain number of papers in national or international outlets. All of the above-mentioned regulations perpetuate the "publish or perish" pressure and link academic promotion to publication history.

Quantitative requirements regarding the number of publications, specific for the "publish or perish" approach, are also applicable to other activities in the national R&D sector, such as reporting about scientific projects or awarding scholarships of excellence for doctoral students. The Republic of Moldova has gradually made the shift from peer review, which is extremely subjective in a small scientific community, to evaluation that is based almost entirely on quantitative indicators. As a result, national experts often consider that quantitative requirements are met, e.g. for the award of research degrees or doctoral supervisor rights, but the lack of qualitative evaluation of publications or research results is the wrong approach, detrimental to science. The rush to increase publication count seems to be caused by the requirements for a minimal number of publications, accompanied by the extensive use of quantitative metrics, favored over qualitative evaluation, against the recommendations set out in the Leiden Manifesto for Research Metrics [41] or DORA [42].

The uptake of publishing in predatory editions is also determined by the fact that these publications are tolerated or unknowingly accepted by people who should be "watchmen" of research ethics and quality. Sometimes these people even contribute to the spread of predatory publishing, e.g. the head of the national research funding authority (responsible for distributing competition-based funding from public sources, which based on national legislation represents 60% of all public R&D funding) published 6 papers in the "InterConf" proceedings in 2021 (!). This example hints that scientific publications included in the periodic and final reports of R&D projects submitted to this authority are probably not evaluated as being predatory, if at all. Among the authors from the Republic of Moldova who published in "InterConf" proceedings in 2021 are other prominent representatives of the academia, who can influence the behavior of researchers: 3 members of the Academy of Sciences of Moldova (out of the 39 existing), 2 university rectors, 3 deans, 10 heads of departments or laboratories, 1 director of a doctoral school, etc. Although this list is far from complete (being based on the information stated by the authors at the time of publication), we can still assume that their example has influenced others, mainly early career researchers, to publish at this pseudo-scientific conference. It, therefore, raises the risk of institutionalizing pseudo-scientific practices and "integrating publication in predatory journals and conferences into research culture" in the Republic of Moldova [3].

Our analysis also denotes significant differences between the higher education sector and the public research sector. The authors who were published in "InterConf" proceedings represent almost all national universities (22 of 24 existing institutions) and only a quarter of public research organisations (9 of the 36). The number of authors affiliated with universities is over 16 times higher than those affiliated with research organisations. This trend can be explained by objective factors, on the one hand, determined by the fact that early career researchers (including doctoral students) are prevalent in universities and on the other hand by how research activity is organized and managed in these two sectors. Research organisations have a long-standing tradition of conducting scientific research, with many institutions having established acknowledged scientific schools. On the other hand, "the staff of universities is overwhelmed with the teaching load and only a few individuals manage to conduct substantial research activities" [43], and scientific research, in general, is not sufficiently incentivized.

The results of the case study confirm that early-career researchers are more susceptible to predatory publishing. The 20% share of doctoral students as authors in predatory publications can be explained by sheer ignorance, low awareness and insufficient training on the topic. The more pressing issue is the authorship of doctoral supervisors in this predatory publication, which is difficult to justify, given that supervisors have to guide and mentor others on the path of scientific research. Many students, including PhD students, co-author publications with their research supervisors or department/laboratory heads, which denotes, on the one hand, deficiencies in training of research supervisors and poor students' guidance, and on the other hand, issues related to research ethics.

Another issue coming to light is the fact that national or regional scholarly journals have to make consistent efforts to implement transparent and ethical editorial practices, avoid conflicts of interests, plagiarism, and other forms of scientific misconduct, as well as struggle to improve their international visibility and become indexed in recognized bibliographic databases. All of these apply to the scientific journals in the Republic of Moldova, which are often faced with insufficient resources allocated for improving editing and publishing practices. The shift to some fraudulent practices of "fake science" has been inadvertently stimulated by legal provisions related to national scientific journals. The Regulation on the evaluation, classification and monitoring of scientific journals, approved by the National Agency for Quality Assurance in Education and Research in 2018 [44], encourages inter alia, the indexing of journals in international databases and increasing international visibility, in general. Based on this regulation, the national research journals are recognized as such and are also ranked (A+, A, B+, B or C category), meaning the higher the category, the more international visibility requirements must be met. As such, B+ category journals must be indexed in 3 international databases, registered in DOAJ (Directory of Open Access Journals) or another authoritative OA journals database, the editor-in-chief and at least two members of the editorial board must have publications in WoS and/or Scopus etc.

To satisfy some of the evaluation criteria, journals resort to registration in dubious databases or services that offer an "impact factor" (e.g. Scientific Journal Impact Factor (SJIF), Global Impact Factor (GIF), Journal Impact Factor (JIF)), usually upon the payment of some fees. It should be mentioned that out of 46 nationally recognised, accredited scientific journals, 38 are registered in DOAJ, 10 – in Scopus and 4 in WoS, as recorded in IBN (National Bibliometric Instrument) – national bibliographic database, with access to almost 149.000 OA publications [45]. As a whole, the Regulation on scientific journals has increased the uptake of ethical and transparent editorial practices, which led to more journals being indexed in DOAJ, Scopus and WoS and ranking higher within the national academia. Still, due to the small size of the research community, there are plenty of fraudulent practices employed by national journals, such as inappropriate authorship, plagiarism and deficient peer review. In another science-activism experiment, one of the authors submitted a previously published article to 22 national journals in the popular field of law (they accounted for 29% of all national

scientific articles published in 2016) and 12 journals published the paper [46]. These journals have clearly demonstrated predatory markers, low quality, and lack or simulation of peer-review, among other compromised editorial practices. A lot of Moldovan scientific journals should improve the transparency of their editorial procedures, including relevant information on authoring, reviewing, and publishing activities, such as recommended by the Principles of Transparency and Best Practice in Scholarly Publishing [47], developed by COPE, DOAJ, OASPA and WAME.

Some institutions in the Republic of Moldova are slowly becoming aware of the gravity of the phenomenon. The university with the highest number of articles published in "InterConf" proceedings organized information sessions on predatory publishing in the fall of 2021, which lead to a significant decrease in the number of authors who submitted articles to this conference. In March 2022, ANACEC approved the Regulation on scientific, scientific-methodological, didactic publications and other works accepted for evaluation of the research and innovation sector. Authorities plan to set up an authoritative "blacklist" of predatory publications, where researchers from the Republic of Moldova have published their papers, which will be progressively updated, once new predatory outlets are identified, based on the evaluation of applications submitted to ANACEC.

5.3 Potential solutions

Aiming to combat and diminish the extent of fake science and predatory publishing in the Republic of Moldova, we believe that systemic actions are necessary, including:

- ensuring qualitative evaluation of research, also including foreign experts, both at the level of organisations evaluation or individual assessment;
- regulatory or funding bodies must ensure that no credit is given for publishing in predatory journals or conferences;
- stimulating publication in recognized scientific editions, in particular those included in the most important international databases, which guarantee high-quality research;
- raising awareness about the phenomena and educating researchers, librarians, funding bodies and other relevant parties;
- developing necessary skills to identify and avoid predatory publishing, especially during the PhD stage training.

The most important recommendation is for researchers to practice due diligence to minimize the risk of using predatory outlets: know the traits of predatory journals, check for yourself if the journal is indexed in reputable databases or DOAJ, seek advice from supervisors and ignore spam emails [3].

6 CONCLUSIONS

The case study revealed that elements of fake science have deeply penetrated the scientific community in the Republic of Moldova. In addition to PhD students and other early-career researchers who have published in predatory editions, many university professors, PhD supervisors and other academics who shape the behavior of researchers in the early stages of their scientific careers, have also engaged in this process. This is a worrisome phenomenon for the development of national science.

The recently approved regulations, mainly based on quantitative indicators for the award of certain degrees or titles, are often implemented mechanically, without a proper qualitative assessment. In the context of our study results, the reform of the R&D sector carried out in 2017-2018, which has significantly benefitted the higher education sector, is questioned in terms of providing the necessary resources and skills for responsible research and innovation. Publishing in predatory outlets doesn't only lead to the loss of valuable research, but also to the loss of the researcher's reputation, which is usually built with effort over time.

REFERENCES

[1] Anup Kumar Das. 2015. Research evaluation metrics. ISBN 978-92-3-100082-9. UNESCO.

[2] Armen Yuri Gasparyan, Bekaidar Nurmashev, Alexander A. Voronov, Alexey N. Gerasimov, Anna M. Koroleva, and George D. Kitas. 2016. The urge to publish more and its consequences. J Korean Med Sci, 31(12), 1874-1878. https://doi.org/10.3346/jkms.2016.31.12.1874

[3] Combatting Predatory Academic Journals and Conferences. 2022. IAP. https://www.interacademies.org/publication/predatory-practices-report-English

[4] Agnes Grudniewicz *et al.* 2019. Predatory journals: No definition, no defense. Nature, 576(7786), 210–212. https://doi.org/10.1038/d41586-019-03759-y

[5] Stefan Eriksson and Gert Helgesson. 2018. Time to stop talking about 'predatory journals'. Learned Publishing, 31(2), 181–183. https://doi.org/10.1002/leap.1135

[6] Jeffrey Beall. 2012. Predatory publishers are corrupting open access. Nature, 489(7415), 179. https://doi.org/10.1038/489179a

[7] Faizul Nisha, Anup Das, and Manorama Tripathi. 2020. Stemming the rising tide of predatory journals and conferences: A selective review of literature. Annals of Library and Information Studies. 67.

[8] Kyle Siler. 2020. There is no black and white definition of predatory publishing. LSE Blog. Retrieved March 17, 2022 from https://blogs.lse.ac.uk/impactofsocialsciences/2020/05/13/there-is-no-black-and-white-definition-of-predatory-publishing

[9] Kelly D. Cobey, Manoj M. Lalu, Becky Skidmore, Nadera Ahmadzai, Agnes Grudniewicz, and David Moher.2018. What is a predatory journal? A scoping review [version 2; peer review: 3 approved]. F1000Research, 7:1001, https://doi.org/10.12688/f1000research.15256.2

[10] Mulubrhan Balehegn. 2017. Increased Publication in Predatory Journals by Developing Countries' Institutions: What It Entails? And What Can Be Done? International Information & Library Review, 49, 2, 97-100. https://doi.org/10.1080/10572317.2016.1278188

[11] Beall, J. 2013. The open-access movement is not really about open access. Triple C: Communication, Capitalism & Critique, 11, 589– 597.

[12] Williams Nwagwu. 2016. Open access in the developing regions: Situating the altercations about predatory publishing. Canadian Journal of Information and Library Science, 40, 58– 80.

[13] Armen Y. Gasparyan, Bekaidar Nurmashev, Elena E. Udovik, Anna M. Koroleva, and George D. Kitas. 2017. Predatory Publishing Is a Threat to Non-Mainstream Science. J Korean Med Sci, 32(5), 713-717. https://doi.org/10.3346/jkms.2017.32.5.713

[14] Aamir Memon and Muhammad Azim. 2018. Predatory conferences: Addressing researchers from developing countries. J Pak Med Assoc., 8(11):1691-1695. PMID: 30410151.

[15] Fiala, Clare, Lim, Bryant and Diamandis, Eleftherios P. 2020. The growing problem of predatory publishing: a case report. Clinical Chemistry and Laboratory Medicine (CCLM), vol. 58, no. 2, e51-e53. https://doi.org/10.1515/cclm-2019-0798

[16] Martin Grančay, Jolita Vveinhardt, and Erika Sumilo. 2017. Publish or perish: how Central and Eastern European economists have dealt with the ever-increasing academic publishing requirements 2000–2015. Scientometrics 111, 1813–1837. https://doi.org/10.1007/s11192-017-2332-z

[17] W. Strielkowski and I.Gryshova. 2018. Academic Publishing and "Predatory" Journals. Science and innovation.14, 1. 5-12. Retrieved March 17, 2022 from http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?I21DBN=LINK&P21DBN=UJRN&Z21ID=&S21REF=

[18] Dragan Djuric. 2015. Penetrating the Omerta of Predatory Publishing: The Romanian Connection. Sci Eng Ethics 21, 183–202. https://doi.org/10.1007/s11948-014-9521-4

[19] Jadranka Stojanovski and Ana Marušić. 2017. Does small equal predatory? Analysis of publication charges and transparency of editorial policies in Croatian open access journals. Biochemia Medica, 27 (2), 292-299. https://doi.org/10.11613/BM.2017.032

[20] Izet Mašić *et al.* 2016. Sarajevo Declaration on Integrity and Visibility of Scholarly Publications. Croat Med J , 57(6), 527-529. https://dx.doi.org/10.3325%2Fcmj.2016.57.527

[21] Statistical Databank. ©National Bureau of Statistics of the Republic of Moldova. Retrieved March 17, 2022 from https://statbank.statistica.md/

[22] GDP per capita (current US$)–Moldova. ©2022 The World Bank Group. Retrieved March 17, 2022 from https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?locations=MD
[23] Research and development activity in 2020. ©National Bureau of Statistics of the Republic of Moldova. Retrieved March 17, 2022 from https://statistica.md/newsview.php?l=ro&idc=168&id=6967
[24] Raport asupra stării științei din Republica Moldova în anul 2020 ©Academy of Sciences of Moldova. Retrieved March 17, 2022 from https://asm.md/sites/default/files/2021-05/ASM_raport%20starea%20stiintei_2020_14%20mai%202021_site%20%281%29.pdf
[25] Beall, Jeffrey. 2015. Criteria for Determining Predatory Open-Access Publishers. 3rd edition, January 1, 2015. Retrieved March 17, 2022 from https://beallslist.net/wp-content/uploads/2019/12/criteria-2015.pdf
[26] Think.Check.Submit: Choose the right journal or publisher for your research. ©2022 Think. Check. Submit. https://thinkchecksubmit.org/
[27] Think.Check.Attend. ©2022 Think. Check. Attend. https://thinkcheckattend.org/
[28] Scimago Journal and Country Rank. Retrieved March 17, 2022 from https://www.scimagojr.com/countryrank.php?region=Eastern%20Europe&year=2020
[29] Web of Science Core Collection. ©2022 Clarivate. https://clarivate.com/webofsciencegroup/solutions/web-of-science-core-collection/
[30] Vladimir Mocan. Aspecte ale autoratului științific virtual în conditii de nihilism moral și juridic. In: Scientific Collection „InterConf" #96, January 2022. Proceedings of the 6th International and Practical Scientific Conference „Scientific Community: Interdisciplinary Research", Hamburg, Germany, 26-28 January 2022, p. 543-553 - https://interconf.top/documents/2022.01.26-28.pdf
[31] Xia J. *et al.* 2015. Who Publishes in "Predatory" Journals? J Assoc Inf Sci Technol, 66. https://doi.org/10.1002/asi.23265
[32] Serhat Kurt. 2018. Why do authors publish in predatory journals? Learn Publ., 31:141-7. https://doi.org/10.1002/leap.1150
[33] Selcuk Demir. 2018. Predatory journals: Who publishes in them and why? J Informetr., 12:1296-311. https://doi.org/10.1016/j.joi.2018.10.008
[34] Kyle Siler. 2020. Demarcating spectrums of Predatory Publishing: Economic and institutional sources of academic legitimacy. Journal of the Association for Information Science and Technology, 71(11), 1386–1401. https://doi.org/10.1002/asi.24339
[35] Robert Bartholomew. 2014. Science for sale: The rise of predatory journals. J R Soc Med., 107:384–5. https://dx.doi.org/10.1177%2F0141076814548526
[36] HG nr. 497 din 23-10-2019 cu privire la aprobarea Metodologiei de conferire și confirmare a titlurilor științifice. ©Ministry of Justice. Retrieved March 17, 2022 from https://www.legis.md/cautare/getResults?doc_id=118490&lang=ro
[37] Ordin MECC nr 514 din 5.12.2017 Cu privire la aprobarea Regulamentului de atribuire a calificativelor tezelor de doctorat. Retrieved March 17, 2022 from https://www.anacec.md/files/Ordin-mecc_regulament_calificative.pdf
[38] HG Nr. 326 din 18-07-2019 cu privire la aprobarea Metodologiei aprobării conducătorilor de doctorat. ©Ministry of Justice. Retrieved March 17, 2022 from https://www.legis.md/search/getResults?doc_id=115592&lang=en
[39] Ordin MECC 1144 din 16.09.2019 Cu privire la aprobarea indicatorilor de performanta stiintifica pentru dobandirea calitatii de conducator de doctorat in Republica Moldova. Retrieved March 17, 2022 from https://www.anacec.md/files/Indicatori-performanta-abilitare.pdf
[40] HG Nr. 325 din 18-07-2019 cu privire la aprobarea Regulamentului de conferire a titlurilor stiintifico-didactice în învățământul superior. ©Ministry of Justice. Retrieved March 17, 2022 from https://www.legis.md/cautare/getResults?doc_id=115415&lang=ro
[41] Leiden Manifesto for Research Metrics. http://www.leidenmanifesto.org/
[42] Declaration on Research Assessment. https://sfdora.org/
[43] European Commission, Directorate-General for Research and Innovation, Heijs, F., Gulda, K., Funeriu, D., *et al.*, 2018. Peer review of the Moldovan research and innovation system : Horizon 2020 policy support facility, Publications Office. https://data.europa.eu/doi/10.2777/967415
[44] Regulamentul cu privire la evaluarea, clasificarea și monitorizarea revistelor științifice, aprobat de CC ANACEC 22.12.2021. Retrieved March 17, 2022 from https://www.anacec.md/files/Regulament-evaluare-reviste-22.12.2021.pdf
[45] IBN – National Bibliometric Instrument. ©2012 - 2022 Instrument Bibliometric National. Retrieved March 17, 2022 from https://ibn.idsi.md/ro/despre-IBN
[46] Bianca Moldoveanu and Gheorghe Cuciureanu. 2020. Publishing as an Indicator of Scientific Research Quality and Ethics: The Case of Law Journals from Moldova. Sci Eng Ethics 26, 1039–1052. https://doi.org/10.1007/s11948-020-00189-2
[47] Principles of Transparency and Best Practice in Scholarly Publishing. 2018. ©Committee on Publication Ethics. https://doi.org/10.24318/cope.2019.1.12