# Doctoral theses at the medical faculty of Tunis from 2015 to 2017: Scientific publication rates and associated factors

## Thèses de doctorat à la faculté de médecine de Tunis de 2015 à 2017: Fréquence des publications scientifiques et facteurs associés

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**Abstract**

**Introduction**: Medical doctoral thesis publication is a way to ensure knowledge dissemination and to increase the scientific research visibility.
**Aim**: To determine thesis-related publication's rate at the Faculty of Medicine of Tunis (FMT), and identify associated factors.
**Methods**: Cross-sectional retrospective study including medical theses registered at the FMT over the study period (2015-2017). All publications related to the defended thesis were collated by scanning Scopus and Google scholar databases, up to April 2022. Binary logistic regression was performed to assess associated factors to publication. Adjusted Odds Ratios (AOR) were presented with 95% confidence interval.
**Results**: Out of 878 defended theses, 11.8% (n=104) were published. Out of 130 publications in total, 90 (69.2%) interested Scopus-indexed journals with a mean Scimago Journal Rank (SJR) of 0.70. The publication was in English in 73.1% of cases. The median time between the thesis defense and the first scientific publication was 15 months. In multivariable analysis, associated factors to "at least one thesis-related publication" were the resident status of the candidate (AOR=2.35 [1.2-4.7]) and the grade assistant professor of the thesis supervisor (AOR=2.48 [1.1-5.6]).
**Conclusion**: Compared to the number of defended theses, the thesis-related publication's rate at the FMT is relatively low. Thus, enhanced support for doctoral students to optimize their engagement in research and to consequently promote scientific publication is highly recommended.

**Key words**: Academic dissertation, abstract, publication, bibliometrics, medical faculty, Tunisia

**Résumé**

**Introduction**: La publication d'une thèse en médecine est un moyen pour augmenter la visibilité des travaux de recherche.
**Objectif**: Déterminer la fréquence de la publication des thèses à la Faculté de Médecine de Tunis (FMT), et identifier les facteurs qui lui sont associés.
**Méthodes**: Étude transversale rétrospective s'intéressant aux thèses inscrites de 2015 à 2017. Toutes les publications issues des thèses soutenues ont été recueillies en interrogeant les bases de données Scopus et Google scholar, jusqu'au mois d'avril 2022. Une régression logistique binaire a été réalisée pour déterminer les facteurs associés à la publication. Les Odds ratios ajustés (ORa) ont été présentés avec un intervalle de confiance à 95%.
**Résultats**: Sur 878 thèses soutenues, (11,8%; n=104) ont été publiées au moins une fois. Sur un total de 130 publications, 90 (69,2%) ont intéressé des revues indexées dans Scopus, avec un classement Sciamgo (SJR) moyen des revues scientifiques de 0.70. La langue de publications était l'anglais dans 73,1% des cas. Le délai médian entre la soutenance et la première publication était de 15 mois. En analyse multivariée, les facteurs associés à la publication étaient le statut résident du candidat (ORa=2,35 [1,2-4,7]) et le grade assistant de l'encadrant (ORa=2,48 [1,1-5,6]).
**Conclusion**: Comparativement au nombre de thèses soutenues, la fréquence des publications issues des thèses était relativement faible. Ceci nous incite à renforcer l'accompagnement des doctorants afin d'optimiser leur engagement dans la recherche et de promouvoir la publication scientifique à la FMT.

**Mots clés**: Thèse, résumé, publication, bibliométrie, faculté de médecine, Tunisie

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## Introduction

Initiated in response to a knowledge gap in a medical field, doctoral thesis elaboration represents an opportunity to acquire new skills in research methodology and to develop a critical mind in relation to other research activities [1]. Although requiring intense work, medical theses are generally read by few scientists, as often available in local university libraries but not in open access international databases [2]. The dissemination of thesis results to the scientific community is the cornerstone of medical progress. In fact, thesis publication is a valuable way to ensure knowledge dissemination to a broader audience, and to increase the research visibility and impact [3]. Besides, conducting research, writing, and publishing, are considered as the pathway to securing academic promotions, obtaining funding for research endeavors, and enhancing the overall rankings of institutions [4]. During the last years, the number of publications has increased exponentially, which is mostly explained by the scientific community growth, the increasing availability of research funding, technology advancement, the rise of digital publishing and open access journals [5]. Moreover, the top medical universities encourage their students to publish their medical theses as scientific papers and they provide guidance and resources to support them in this process, including workshops, writing centers, and access to research databases [6]. Unfortunately, publishing in developing countries faces several challenges such as requirement of a good to high level of proficiency in english language and important financial investment due to higher publication fees [7,8]. In Tunisia, Tunis El Manar University, of which the Faculty of Medicine of Tunis (FMT) is a part, contributes significantly to the university's overall scientific production. In this context, bibliometric studies are important in evaluating the research output of the faculty, assessing trends over years, and identifying areas for improvement. Through this study, we aimed at providing a focus on scientific publication at the FMT, by estimating the thesis-related publication rate, and identifying associated factors to publication.

## Methods

This was a retrospective, cross-sectional study, conducted at the FMT. We included medical doctoral thesis registered over two years (January 2015- January 2017), including all specialties (as listed in the Official Journal of the Tunisian Republic) [9]. We excluded theses that have been canceled after registration (n=69) and theses identified as duplicates (n=4) based on the registry of thesis department, using the candidate's name and thesis title.

All data related to the candidate's and supervisor's characteristics, presence or not of co-supervision, thesis content (including study design, number of cases and key words, thesis language, overall quality of abstracts), as well as main delays (thesis registration to thesis defense, thesis defense to thesis first publication), were collected. Abstracts of defended theses were retrieved from the FMT library's database. Based on predefined criteria elaborated by the thesis committee of the FMT, a 14-item scale allowing an objective evaluation of abstracts' quality was used (Table 1). An additive score was calculated by assigning one point for each of the 14 items, and a threshold value of 11 was considered to define a good quality abstract.

**Table 1.** Criteria for abstract quality assessment, thesis committee grid, Faculty of Medicine of Tunis, 2015-2017

| |
|---|
| Number of words in the title less than 15 |
| Non-informative words in the title |
| The title reflects the study content |
| The title covers the study content |
| The abstract follows the IMRaC[1] structure |
| No misuse of abbreviations in the abstract[2] |
| The knowledge gap is clearly mentioned in the introduction |
| The study main objective is clear |
| The study design is mentioned |
| The study population is well defined |
| The data collection source is defined |
| Quantitative variables are presented with adequate dispersion parameters |
| Percentages are presented with 95% confidence intervals |
| The conclusions were consistent with the study results |

1. IMRaC: Introduction, Methods, Results, and Conclusion

2. Approved if the term is mentioned at least 3 times in the abstract, and mentioned in full when it first appears in the dissertation.

Thesis-related publications were collated by scanning Google scholar and Scopus databases, up to April 2022. Were considered, all articles and conference papers written in french and/or english languages. The candidate and supervisor names were introduced (in its different phonetics), and only publications related to the main thesis topic were considered. Furthermore, we collected data related to the number of publication(s), the title of the scientific journal chosen for publication, the journal indexation or not in Scopus database, the 2018-Scopus Journal Ranking (SJR) calculated from citations over the preceding three years [10], and the journal category (generalist Vs specialized), defined as follow: "Generalist journals are those publishing articles from a wide range of scientific disciplines and covering diverse areas of research. Thus, highly regarded in the scientific community and having high impact factors. Specialist journals, are those focusing on a specific area of science, and publishing research articles related to that area. These journals have a more targeted readership and are often considered important in their specific field of research" [11].

For data analysis, simple frequencies and percentages were calculated for qualitative variables. For quantitative variables, we tested the distribution normality using the Shapiro-Wilk test. In univariate analysis, percentages comparison was done using Pearson's Chi 2($\chi$2) test or Fisher's exact test if validity conditions were not verified. The association between explanatory and dependent variable, was quantified with crude Odds Ratios (crude OR) presented with 95% confidence interval (95% CI). Then, explanatory variables with a significance level less than 20% in univariate analysis were introduced into the

final model of binary logistic regression (stepwise top-down Wald method) [12]. After adjusting for the potential confounding factors, the strength of association was quantified with Adjusted Odds Ratios (AOR) presented with 95% CI. All statistical analysis was performed with SPSS software ver. 23.0 (IBM. Chicago. IL. USA), and a p-value less than 5% was considered to conclude to test significance.

All data collection process was carried out after obtaining the FMT dean approval. Data analysis was processed anonymously and used only for research purposes.

# Results

## Study population characteristics

During the study period, 921 theses were registered, and out of these, 878 were successfully defended, representing a completion rate of 95.3%. Health Care Facilities (HCF) that produced the largest number of theses, were those with the largest hospital capacity, and involving most of the university teachers: Charles Nicolle hospital (n=133, 15.2%), La Rabta hospital (n=115, 13.1%), and the Principal Military Hospital of Tunis (n=98, 11.1%). The study population characteristics are depicted in Table 2.

**Table 2.** Study population characteristics, Faculty of Medicine of Tunis, 2015-2017

| Sample characteristics | n (%) |
|---|---|
| Candidate gender | |
| Female | 616 (70.2) |
| Candidate statut | |
| Intern doctor | 130 (14.8) |
| Resident doctor | 467 (53.2) |
| Intern doctor with a pending thesis | 265 (30.2) |
| Unspecified | 16 (1.8) |
| Supervisor grade | |
| Assistant professor | 612 (67.0) |
| Associate professor | 238 (26.1) |
| Professor | 63 (6.9) |
| Supervisor specialty | |
| Fundamental | 81 (9.1) |
| Surgical | 262 (29.7) |
| Medical | 535 (60.8) |
| Unspecified | 3 (0.4) |
| Co-supervision | |
| Yes | 120 (13.6) |
| Study designs | |
| Observational | 695 (86.9) |
| Interventional | 104 (13.1) |
| Cohort studies | 403 (51.9) |
| Cross sectional | 373 (48.1) |
| Prospective | 203 (25.6) |
| Retrospective | 589 (74.4) |
| Case reports | 92 (11.3) |
| Thesis language | |
| French | 871 (99.2) |
| Median number of keywords (IQR[1]) | 4 (4-5) |
| Median number of cases (IQR[1]) | 70 (41-142) |

1.Interquartile range

## Overview on abstracts quality

A total of 742 abstracts (available at the FMT library's database), were examined. All abstracts were written according to the IMRaC (Introduction, Methods, Results, and Conclusion) structure. Out of a total of 14 points, the mean overall score of abstracts was 10.8 ± 1.2. The abstracts quality was considered "good" for 64.9% of abstracts.

## Publication rates and patterns

Out of 878 defended theses, 11.8% (95% CI: 9.8-14.1) were published at least once (n=104); and the publication was in English in 73.1% of cases. The median time between the thesis defense and the first scientific publication was 15 months, Interquartile Range (IQR) (5-32). No significant difference in delays was found according to candidate status (p=0.8), supervisor grade (p=0.3) and specialty type (fundamental, medical, surgical) (p=0.6). Out of 130 publications in total, the candidate's name appeared in the authors list in 93.8% of publications (n=122), and was listed as first author in 76.9% of cases (n=100). The share of publications interesting Scopus-indexed journals was 69.2%; 95% CI (60.9-76.7), with a mean SJR equal to 0.70. "Tunisie Medicale" journal ranked first with 26 publications, (28%) followed by the Pan African Medical Journal (5.4%), Endocrine (4.4%), Revue Neurologique (2.3%), and Nephrology Dialysis Transplantation (2.3%). Moreover, the share of publications in specialist journals focusing on a specific area of science, was 54.6% (n=71). In 77.4% of cases, these publications appeared in Scopus-indexed journals. The Table 3 listed the specialist journals titles and depicted the number of publications in each journal.

## Associated factors to publication

In multivariable analysis, factors that were significantly associated to publication, were the resident status of the candidate AOR=2.1[1.1-4.1] and the assistant professor grade of the thesis supervisor (AOR=2.6 [1.2-5.8]), Table 4.

**Table 4.** Associated factors to thesis-related publication, multivariable analysis,Faculty of Medicine of Tunis, 2015-2017

| Inputs of the binary logistic regression model | Crude OR[1] | Adjusted OR[1] | 95% CI[2] | p-value |
|---|---|---|---|---|
| Candidate status | | | | |
| Resident | 1.7 | 2.1 | 1.1-4.1 | 0.03 |
| Current interns/ intern with pending thesis | 1 | _ | _ | _ |
| Supervisor status | | | | |
| Assistant professor | 1.4 | 2.6 | 1.2-5.8 | 0.02 |
| Associate professor / professor | 1 | - | - | - |
| Abstract's overall score | | | | |
| ≥ 11 points | 1.6 | 1.6 | 0.7-3.4 | 0.2 |
| Thesis overall score | | | | |
| ≥ 17 points (over 20) | 1.7 | 1.7 | 0.8-3.5 | 0.1 |

1. Odds ratio
2. Confidence interval

**Table 3.** List of specialist journals, Faculty of Medicine of Tunis, 2015-2017

| Journal Title | Number of Publication(s) | Scopus indexation | Language of publication |
|---|---|---|---|
| Endocrine | 4 | Yes | English |
| Revue Neurologique | 3 | Yes | French |
| Nephrology Dialysis Transplantation | 3 | Yes | English |
| Nephrologie et Therapeutique | 3 | Yes | French |
| Cardiologie Tunisienne | 3 | No | French |
| International Journal of Legal Medicine | 2 | Yes | English |
| European Respiratory Journal | 2 | Yes | English |
| EAS Journal of Orthopaedic and Physiotherapy | 2 | No | English |
| Bulletin du Cancer | 2 | Yes | French |
| Annales d'Endocrinologie | 2 | Yes | French |
| World Journal of Surgery | 1 | Yes | English |
| The Journal of Urology | 1 | No | English |
| Egyptian Rheumatologist | 1 | Yes | English |
| The American journal of tropical medecine and hygiene | 1 | No | English |
| Textbook of Pancreatic Cancer | 1 | No | English |
| Surgery Gastroenterology and Oncology | 1 | Yes | English |
| Saudi journal of kidney diseases and transplantation | 1 | Yes | English |
| Revue de Chirurgie Orthopédique et Traumatologique | 1 | Yes | French |
| Progres en Urologie | 1 | Yes | French |
| Primary Care Diabetes | 1 | Yes | English |
| Otolaryngology open journal | 1 | No | English |
| Nutrition | 1 | Yes | English |
| Neuropediatrics | 1 | Yes | English |
| Neurological Sciences volume | 1 | No | English |
| Mediterranean Journal of Emergency Medicine & Acute Care | 1 | No | English |
| Journal of burns and fire disasters | 1 | No | English |
| Journal of Substance Use | 1 | Yes | English |
| Journal of Pediatric Endocrinology and Metabolism | 1 | Yes | English |
| Journal of Loss and Trauma | 1 | Yes | English |
| Journal of Clinical Gastroenterology | 1 | Yes | English |
| International Journal of Law and Psychiatry | 1 | Yes | English |
| International Journal of Gastroenterology | 1 | No | English |
| Hand Surgery and Rehabilitation | 1 | Yes | English |
| Gastroenterology Research and Practice | 1 | Yes | English |
| Evolution Psychiatrique | 1 | Yes | French |
| European Radiology | 1 | Yes | English |
| European Journal of Ophthalmology | 1 | Yes | English |
| Drug Metabolism and Personalized Therapy | 1 | Yes | English |
| Current Respiratory Medicine Review | 1 | Yes | English |
| Colorectal Cancer | 1 | Yes | French |
| Clinical Rheumatology | 1 | Yes | English |
| Case Reports in Psychiatry | 1 | Yes | English |
| Atherosclerosis | 1 | Yes | English |
| Asian Pacific Journal of Cancer Prevention | 1 | Yes | English |
| Archives of Virology | 1 | Yes | English |
| Archives in Cancer Research | 1 | No | English |
| Annals of the Rheumatic Diseases | 1 | Yes | English |
| Annals of Physical and Rehabilitation Medicine | 1 | Yes | English |
| Annals of Hematology | 1 | Yes | English |
| Annales de Dermatologie et de Venereologie | 1 | Yes | French |
| Anesthesie et Reanimation | 1 | Yes | French |
| American Society of Clinical Oncology Educational Book | 1 | Yes | English |
| Academic Emergency Medecine | 1 | No | English |
| Total | 71 | - | - |

## Discussion

Including 878 defended theses, (11.8%) were published at least once, and out of 130 publications in total, 90 (69.2%) interested Scopus-indexed journals, with a mean SJR of 0.70. The median time between the thesis defense and the first scientific publication was 15 months. The publication was in English in 73.1% of cases. In multivariate analysis, factors that were significantly associated to publication were the "resident status" of the doctoral student (adjusted OR=2.3[1.1-4.7]) and the "assistant professor grade" of the thesis supervisor (adjusted OR=2.4 [1.1-5.6]). To our knowledge, this study is the first to identify associated factors to thesis-related publication at the FMT, considering all specialties combined and after adjustment on several confounding factors. To cover as many publications as possible, all thesis-related publications were collated by scanning Scopus and Google scholar databases. Google scholar includes online early articles, english and non-english publications in indexed and non-indexed journals; and is still considered as the most comprehensive source compared to Web of Science and Scopus [13]. In our study, limitations related to the lack of data collection regarding length of thesis and the availability of external funding for thesis project over the study period are important to mention. Regarding the language of dissertation and delays to first publication, our results were consistent with those reported in Morocco (Rabat University) showing that 99.1% of registered thesis between 2011 and 2021, were written in french. A difference regarding the publication language was however observed, as half of the papers (49.4%) were written in french (vs 26.9% in our study) [14]. Zemni et al, reported that the rate of english medical publications in Tunisia have known

a significant increase these last years, going from 30% (2004) to 54% (2009), then reaching 68% in 2014 [15].

Our study revealed a low rate of publication compared to the number of defended theses at the FMT. In fact, a certain stagnation over time is noted when compared to previous publication rates of 13.4% (2004-2005) and 17.3% (2008-2010) at the FMT [16-17]. In a previous study based on a thorough examination of scientific medical literature focused on the Greater Maghreb, authors reported also the gap between the number of theses and the number of publications; and confirmed the scarcity of medical scientific publications despite the global upward trend during the last decades [18]. Similarly, low publication rates have been reported in studies conducted in other developing countries, confirming the difficulty of bringing to publication a work that often constitutes the first contact with research for a medical student. In Peru, the publication rate in biomedical-indexed journals was (17.6%), and (5.8%) were published in PubMed-indexed journals [19]. Results from two medical universities in Croatia showed that the publication rates in Medline-indexed journals were 13% and 14% (Rijeka and Zagreb universities, respectively) [20]. The significant gap in the amount of scientific output in the medical field between developed and developing countries has been emphasized in literature. In New Zeeland, the publication rate of theses produced by medical students was 32.7% [21]. Besides, the analysis of the global profile of biomedical research productivity showed that in terms of continents, North America had the highest number of biomedical publications per million population per year (341.3); followed by Australia and Oceania (288.3), Europe (136.8), Asia (12.8), South America and Caribbean region (10.8), and Africa (3.5) [22]. This could be explained by the encouragement of research and scientific production in developed countries, the availability of funding resources to conduct the research and to cover article processing charges expenses, and the availability of collaborative research opportunities. In Australia for example, universities receive extra funding based on their academic publication rates and academic promotion is difficult without a good publication record [23].

Furthermore, poor publication rates in developing countries may be also explained by brain-drain to developed countries and their contribution in scientific production in these countries where enhanced support for scientific research is provided [24, 25].

Regarding the mean SJR when publication interested Scopus-indexed journals, similar estimates have been reported by Touissi et al in Morocco with a mean SJR of 0.69 [14]. A recent review of medical journals showed that in the 2017-Scopus list of medical journals, the mean SJR was 0.82. Therefore, our results are not far from international standards in medical field. However, this figure varies depending on the countries and across specialties [26-27].

For associated factors to publication, other researchers reported that the thesis author's status, the supervisor's grade, and the formulation of clear recommendations by the end of the thesis, were associated factors to the publication of preventive medicine theses at the FMT [28]. Others reported that a shorter thesis length, a more experienced thesis supervisor, the student's academic performance and the relevance of the research theme, were associated to thesis publication [29-31]. In conclusion, this study showed that at the FMT, factors that encourage publication are related to the significance of scientific publications in academic promotion. However, taking into consideration the importance for medical doctors to continuously stay updated on recent advancements in medicine and critically evaluate evidence for better implications in patients' management; clinical expertise is no longer enough and improved engagement in research and publication is highly recommended [32]. Hence, there is a need for an increased awareness among medical students regarding this matter, even if publication is related to only negative results [33-34]. Besides, implementation and/or continuous reinforcement of writing courses, writing support groups, active engagement in collaborative research endeavors, and regular participation in research funding application opportunities are of crucial importance for an effective contribution to scientific progress in the medical field [23, 35-36].

**Abbreviations list**
**AOR:** Adjusted Odds Ratio
**IMRaC:** Introduction, Methods, Results, and Conclusion
**IQR:** Interquartile Range
**CI:** Confidence Interval
**FMT:** Faculty of Medicine of Tunis
**OR:** Odds Ratio
**SJR:** Scimago Journal Rank

## References


1. Epstein N, Huber J, Gartmeier M, Berberat PO, Reimer M, Fischer MR. Investigation on the acquisition of scientific competences during medical studies and the medical doctoral thesis. GMS J Med Educ. 2018;35(2):1-19.
2. Sivakumaren KS, Swaminathan S. Availability of electronic theses and dissertations (ETDs) of State Universities of Tamil Nadu in INFLIBNET Shodhganga project: an analysis. Libr Philos Pract. 2020;4113:1-10.
3. Beck S, Mahdad M, Beukel K, Poetz M. The value of scientific knowledge dissemination for scientists—a value capture perspective. Publications. 2019;7(3):1-23.
4. Zafar A, Ehsan A. Writing far and beyond the thesis by the medical community. Pak J Med Sci. 2022;39(1):4.
5. Tran B, Vu G, Ha G, Vuong QH, Ho MT, Vuong TT, et al. Global evolution of research in artificial intelligence in health and medicine: a bibliometric study. J Clin Med. 2019;8(3):360.
6. Nundy S, Kakar A, Bhutta ZA. When should we start doing research and publishing papers? In: How to practice academic medicine and publish from developing countries? A practical guide. Springer: 2022. p 31-7. https://doi.org/10.1007/978-981-16-5248-6
7. Ramírez-Castañeda V. Disadvantages in preparing and publishing scientific papers caused by the dominance of the english language in science: The case of Colombian researchers in biological sciences. Manalo E, editor. Plos one. 2020;15(9):e0238372.
8. Salager-Meyer F. Scientific publishing in developing countries: Challenges for the future. J Engl Acad Purp. 2008;7(2):121–32.
9. République Tunisienne. Le décret 2019-341 du 10/04/2019 fixant le cadre général du régime des études et les conditions d'obtention des diplômes des études médicales. JORT du 12/04/2019.
10. Rodriguez R, Chan V, Wong AH, Montoy J. A review of journal impact metrics and characteristics to assist emergency medicine

investigators with manuscript submission decisions. West J Emerg Med. 2020;21(4):877-882.

11. Forsyth A. In defense of the generalist journal: speaking beyond silos. J Am Plann Assoc. 2020;86(2):139–41.
12. Bursac Z, Gauss CH, Williams DK, Hosmer DW. Purposeful selection of variables in logistic regression. Source Code Biol Med. 2008;3(1):17.
13. Martín-Martín A, Thelwall M, Orduna-Malea E, Delgado López-Cózar E. Google scholar, Microsoft academic, Scopus, Dimensions, Web of Science, and OpenCitations' COCI: a multidisciplinary comparison of coverage via citations. Scientometrics. 2021;126(1):871–906.
14. Touissi Y, Boulaich O, El Idrissi FE, Hjiej G, Stitou O, Belakbyer H, et al. Medical students' contribution to research; the scientific output of medical theses held in Moroccan medical schools during the last decade (2011-2021). Med Educ Online. 2023;28(1):e2218677.
15. Zemni I, Safer M, Horrigue I, Ben Abdelaziz A, Hammami S, Ben Abdelaziz A. Bibliometric profile of tunisian medical publications written in english and indexed in medline. Tunis Med. 2018;96(7):411-6.
16. Elloumi H, Bouarrouj R, Chadli A, Mrabet A, Dziri C, Borsali N. Thèses soutenues à la faculté de médecine de tunis de 2004 à 2005: devenir scientifique et facteurs prédictifs de publication. Tunis Med. 2017;95(4):236-41.
17. Chadli A, Abidi E, Falfoul-Borsali N, Mrabet A, Dziri C, Elloumi H. Publications des thèses de Doctorat dans des revues indexées: étude des thèses soutenues à la Faculté de médecine de Tunis de 2008 à 2010. Tunis Med. 2017; 95:847-52.
18. Ben Abdelaziz A, Melki S, Chebil D, Azzaza M, Quessar A, Bezzaoucha A, et al. Bilan de 25 ans de recherche médicale scientifique au Grand Maghreb. Analyse bibliométrique de la plateforme Scimago (1996-2020). Tunis Med. 2021;99(08-09):847-58.
19. Arriola-Quiroz I, Curioso WH, Cruz-Encarnacion M, Gayoso O. Characteristics and publication patterns of theses from a Peruvian medical school: Theses from a Peruvian Medical School. Health Inf Libr J. 2010;27(2):148-54.
20. Skender T. Publishing scientific papers based on master's and Ph.D. Theses from a small scientific community: case study of Croatian medical schools. Croat Med J. 2022; 44(1):107-11.
21. Al-Busaidi, Ibrahim Saleh, and Yassar Alamri. Publication rates and characteristics of undergraduate medical theses in New Zealand. NZ Med J. 2016;129(1442):46-51.
22. Rahman M, Fukui T. Biomedical publication-global profile and trend. Public Health. 2003;117(4):274–80.
23. McGrail M, Rickard CM, Jones R. Publish or perish: a systematic review of interventions to increase academic publication rates. High Educ Res Dev. 2006;25(1):19-35.
24. Offiong BE, Salibi G, Tzenios N. Medical brain drain scourge in africa: focusing on Nigeria. Sociology. 2023. p.1-10. Disponible en ligne à l'URL: http://doi:10.33774/coe-2023-vst08.
25. Paczesny S. Contributions of immigrants to biomedical research in the US: a personal reflection. J Clin Invest. 2021;131(9): e148994.
26. AlRyalat SA, Saleh M, Alaqraa M, Alfukaha A, Alkayed Y, Abaza M et al. The impact of the open-access status on journal indices: a review of medical journals. F1000Research. 2019;8:1-11.
27. Whitescarver TD, Anthony CL, Hoskin AK, Aden JK, Gardner SE, PD Gracia et al. A bibliometric analysis of ophthalmology, medicine, and surgery journals: comparing citation metrics and international collaboration. Open J Ophthalmol. 2023;17(1): e187421062302220.
28. Ben Salah M, Khoufi MT, Ben Mansour A, Mrabet A. Publication of preventive and community medicine theses: Faculty of medicine of Tunis from 2012 to 2017. Tunis Med. 2022;100(3):203–8.
29. Brunod I, Rességuier N, Fabre A. Medical thesis publication and academic productivity of pediatric residents at the Medical University of Marseille: Associated factors and evolution over 20 years. Arch Pediatr. 2020;27(8):408–15.
30. Hollmann M, Borrel C, Garin O, E Fernández, J Alonso. Factors influencing publication of scientific articles derived from masters' theses in public health. Int J Public Health. 2015;60:495-504.
31. Roudbari M, Fard ZM, Vazirinasab H, Sedghi S. Paper publication ratios by postgraduates based on theses and dissertations in Tehran University of Medical Sciences. Pak J Med Sci. 2012;28(5):830-4.
32. Duke NK, Cartwright KB. The science of reading progresses: communicating advances beyond the simple view of reading. Read Res Q. 2021;56(2):25-44.
33. Weintraub PG. The importance of publishing negative results. J Insect Sci. 2016;16(1):109.
34. Nair AS. Publication bias-Importance of studies with negative results! Indian J Anaesth. 2019;63(6):505.
35. S Bansal, S Mahendiratta, S Kumar, P Sarma, A Prakash, B Medhi. Collaborative research in modern era: Need and challenges. Indian J Pharmacol. 2019;51(3):137.
36. Torres AG. The importance of international collaborations to advance research endeavors. Plos Pathog. 2017;13(1):e1006047.