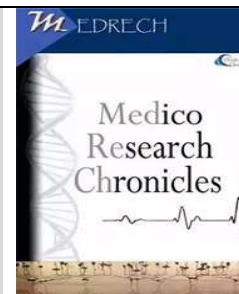




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A CORRECTED H-INDEX FOR ACADEMIC LEADERSHIP DETERMINATION: A BIBLIOGRAPHIC RESEARCH

Aamir Jalal Al-Mosawi

1-Advisor doctor and expert trainer, Baghdad Medical City and the National Center of Training and Development, Baghdad, Iraq

2-Head, Iraq Headquarter of Copernicus Scientists International Panel, Baghdad, Iraq

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ABSTRACT

Productivity and publication. A researcher's h-index is based on his/her most cited papers and the number of citations that they have received in other's publications. It is generally determined by knowing the number of articles written by the author indexed in citation databases. An H-index will be 10 if 10 articles have received at least 10 citations. Ignoring the order and authorship role of an individual researcher may lead to rather a misleading H-index that is totally not relevant to academic leadership determination. The publishing of research conducted by a large collaborative research group made many collaborators with minor role in research creation, development and leadership obtain a high misleading H-index and is not correlated with their academic and research prowess. The use of methods that increase the reliability of the H-index has been increasingly recommended. The aim of this paper is to describe the determination of a more accurate, non-misleading H-index that is more relevant to academic leadership determination.

Materials and methods: An author was found to have an extremely misleading H-index of 28 at Google Scholar citation that is not relevant to academic leadership deterioration. The papers' citations in his profile were assessed and a corrected rational non-misleading H-index was determined.

Results: The author name was not among the first five authors for the first 20 papers listed by Google Scholar Citation, and in most of these papers, his name was not present among the first ten authors. The author name appears among the first three authors in 9 papers (Number 27, 28, 29, 36, 41, 43, 45, 47, 50) as listed by Google Scholar Citation. These papers have 34, 30, 21, 10, 5, 5, 4, 4, 3 citations respectively. The author real H-index is 5; because he has at least 5 papers having five citations (Number 27, 28, 29, 36, 41, 43).

ORIGINAL RESEARCH ARTICLE

Corresponding author*
Dr. A. J. Al-Mosawi*

Conclusion: The corrected H-index should be calculated while considering the papers really authored by an individual author who should be among the first three authors. Many authors who join a large collaborative research group will generally have a minor contribution to research development and publication, but they may achieve a rather misleading high H-index. It is recommended that Google Scholar Citation adopt the corrected H-index to guarantee the reliability and usefulness of the H-index.

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INTRODUCTION

Possible and tangible improvement in medical practices and healthcare services through using evidence-based medicine has been increasingly attributed to the success of academic medical leadership and healthcare leadership within organizations and institutions. Therefore, interest has been rising for identifying the necessary practices of medical leadership and academic medical leadership, and also in identifying the qualities of genuine medical and academic medical leaders. Bibliometric indices have been increasingly used to quantitatively and qualitatively assess scientific/research productivity of medical leaders and academic medical leaders [1-12].

Academic medical leadership which is linked with academic productivity is correlated in many academic institutions throughout the world with academic promotion and the acquisition of academic leadership positions. The research publication is probably the most important measure of academic productivity, and thus of academic medical leadership. However, the mere number of published research has not been regarded as a satisfactory measure of academic medical leadership because this number does not give a clue to the strength and importance of the published research work.

Academic medical leaders emerge or selected from members of academic organizations and institutions, and therefore the emergence of genuine academic medical leaders necessitates the appropriate selection of

adequately qualified physicians for faculties' positions in academic medical organizations or institutions. Several studies showed that the Hirsch index (h-index) is a useful tool for the evaluation of academic productivity of physicians, and it is dependent on academic rank and increases progressively with academic rank, and thus can be used to determine academic leaders. However, the emphasis has been increasingly made that ignoring the order and authorship role of an individual researcher may lead to rather a misleading H-index that is not relevant to academic leadership determination. The publishing of research conducted by a large collaborative research group made many collaborators with a minor role in the research-creation, development and leadership obtain a high misleading H-index and is not correlated with their academic and research prowess [12,13,14,15,16,17].

The use of methods that increase the reliability of the H-index has been increasingly recommended [9]. This paper aims to describe the determination of more accurate, non-misleading H-index that is more useful for academic leadership identification.

MATERIALS AND METHODS

The author "Faris Al-Lami" was found to have an extremely misleading H-index of 28 at Google Scholar citation, and that was attributed to joining several collaborative research group as a minor author or as a mere collaborator without an identifiable authorship role. The papers' citations in his profile [18] were assessed and a corrected rational non-misleading H-index that is more relevant to

academic leadership determination was determined.

RESULTS

The author's name was not among the first five authors for the first 20 papers listed by Google Scholar Citation (Figures-1A and B), and in most of these papers, his name was not present among the first ten authors. The author's name appears among the first three authors in 3 papers (Number 27, 28, and 29) as listed by Google Scholar Citation (Figures-1C). These three papers have 34, 30, and 21 citations respectively. The author's name was present among the first three authors also in paper number 36 with 10 citations (Figure-D). Figure-1E shows the papers number 41 to 50 listed by Google Scholar Citation, and the author name appears among the first three authors in 5 papers (Number 41 has five citations, number 43 has five citations, number 45 has four citations, number 47 has four citations, number, and number 50 Number 3).

The corrected non-misleading H-index should be calculated considering the papers authored by an individual author who should be among the first three authors.

DISCUSSION

Academic leadership, a leadership that essentially involves creating vision and mission relying on scientific research bases for the organization, and introducing creative and innovative ideas. Therefore, academic medical leaders lead the establishment of vision and mission based on scientific evidence and research evidence for colleges of medicine, teaching and university hospitals' clinical

departments, specializations and sub-specialization boards, peer-reviewed medical journals, and training centers. Academic medical leadership also involves introducing creative and innovative ideas, and inspiring teamwork [1, 2, 3, 4, 12].

Hirsch suggested that the productivity of an author (The total number of published papers) does not account for the quality of scientific publications. On the other hand, the citation-based impact of an author (The total number of citations) can be excessively affected by authoring a highly influential paper(s) that generate a large number of citations. The citation-based impact of an author can also be generated by many publications with few citations. It has been thought that combining productivity and citation-based index into a single measurement reduces the artificial influence of one or two highly cited paper(s) on the citation count [19, 20]. Therefore, the H-index has become the most widely used quantitative measure of impact, and universities and academic institutions are increasingly being asked to show the quality and impact of their work [21, 22].

The h-index is based on the scientist's most cited papers and the number of citations that they have received in other publications. The H-index for an author can be determined by knowing the number of articles written by the author indexed in citation databases such as Scopus and web of science. An H-index will be 10 if 10 articles have received at least 10 citations [21, 22].

TITLE	CITED BY	YEAR
Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990 ... GBDRF Collaborators Lancet 388 (10010), 2287-323	2723 *	2015
Global, regional, and national age–sex specific all-cause and cause-specific mortality for 240 causes of death, 1990–2013: a systematic analysis for the Global Burden of ... The Lancet 385, 117-71	2403	2015
Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980–2015: a systematic analysis for the Global ... H Wang, M Naghavi, C Allen, RM Barber, ZA Bhutta, A Carter, DC Casey, ... The lancet 388 (10053), 1459-1544	1967	2016
Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: a systematic analysis for the ... T Vos, AA Abajobir, KH Abate, C Abbafati, KM Abbas, F Abd-Allah, ... The Lancet 390 (10100), 1211-1259	1359	2017
Global, regional, and national age–sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: a systematic analysis for the Global Burden of ... GA Roth, D Abate, KH Abate, SM Abay, C Abbafati, N Abbasi, ... The Lancet 392 (10159), 1736-1788	936	2018
Global, Regional, and National Cancer Incidence, Mortality, Years of Life Lost, Years Lived With Disability, and Disability-Adjusted Life-Years for 29 Cancer Groups, 1990 to ... MD Christina Fitzmaurice, PD Tomi F, Akinyemiju, ... JAMA Oncology	698 *	2018
Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic ... SL James, D Abate, KH Abate, SM Abay, C Abbafati, N Abbasi, ... The Lancet 392 (10159), 1789-1858	674	2018
Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016 MG Griswold, N Fullman, C Hawley, N Arian, SRM Zimsen, HD Tymeson, ... The Lancet 392 (10152), 1015-1035	639	2018
Global, regional, and national disability-adjusted life-years (DALYs) for 333 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990 ... SI Hay, AA Abajobir, KH Abate, C Abbafati, KM Abbas, F Abd-Allah, ... The Lancet 390 (10100), 1260-1344	635	2017
Estimates of global, regional, and national incidence, prevalence, and mortality of HIV, 1980–2015: the Global Burden of Disease Study 2015 H Wang, TM Wolock, A Carter, G Nguyen, HH Kyu, E Gakidou, SI Hay, ... The lancet HIV 3 (8), e361-e387	479	2016

Figures-1A: The author name was not among the first five authors for the first 40 papers listed by Google Scholar Citation

Global, regional, and national under-5 mortality, adult mortality, age-specific mortality, and life expectancy, 1970–2016: a systematic analysis for the Global Burden of ... H Wang, AA Abajobir, KH Abate, C Abbafati, KM Abbas, F Abd-Allah, ... The Lancet 390 (10100), 1084-1150	412	2017
Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990 ... GBD 2013 Risk Factors Collaborators Lancet (London, England) 386 (10010), 2287	412	2015
Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and ... JD Stanaway, A Afshin, E Gakidou, SS Lim, D Abate, KH Abate, ... The Lancet 392 (10159), 1923-1994	369	2018
Global, regional, and national disability-adjusted life-years (DALYs) for 359 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990 ... HH Kyu, D Abate, KH Abate, SM Abay, C Abbafati, N Abbasi, ... The Lancet 392 (10159), 1859-1922	328	2018
The state of health in the Arab world, 1990–2010: an analysis of the burden of diseases, injuries, and risk factors AH Mokdad, S Jaber, MIA Aziz, F AlBuhairan, A AlGhathithi, NM AlHamad, ... The Lancet 383 (9914), 309-320	290	2014
Global, regional, and national age-sex-specific mortality and life expectancy, 1950–2017: a systematic analysis for the Global Burden of Disease Study 2017 D Dicker, G Nguyen, D Abate, KH Abate, SM Abay, C Abbafati, N Abbasi, ... The lancet 392 (10159), 1684-1735	259	2018
Estimates of the global, regional, and national morbidity, mortality, and aetiologies of lower respiratory infections in 195 countries, 1990–2016: a systematic analysis for the ... C Troeger, B Blacker, IA Khalil, PC Rao, J Cao, SRM Zimsen, ... The Lancet infectious diseases 18 (11), 1191-1210	160	2018
GBD 2015 Mortality and Causes of Death Collaborators. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death ... H Wang, M Naghavi, C Allen, RM Barber, ZA Shutta, A Carter, DC Casey, ... Lancet 388 (10053), 1459-1544	134	2016
Health in times of uncertainty in the eastern Mediterranean region, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013 AH Mokdad, MH Forouzanfar, F Daoud, C El Beheraoui, M Moradi-Lakeh, ... The Lancet Global Health 4 (10), e704-e713	131	2016
Measuring performance on the Healthcare Access and Quality Index for 195 countries and territories and selected subnational locations: a systematic analysis from the Global ... N Fullman, J Yearwood, SM Abay, C Abbafati, F Abd-Allah, J Abdela, ... The Lancet 391 (10136), 2236-2271	130	2018

Articles 1–20 [SHOW MORE](#)

Figures-1B: The author name was not among the first five authors for the first 40 papers listed by Google Scholar Citation

Measuring progress from 1990 to 2017 and projecting attainment to 2030 of the health-related Sustainable Development Goals for 195 countries and territories: a systematic ... R Lozano, N Fullman, D Abate, SM Abay, C Abbafati, N Abbasi, ... The Lancet 392 (10159), 2091-2138	111	2018
Global, regional, and national burden of traumatic brain injury and spinal cord injury, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016 SL James, A Theadom, RG Ellenbogen, MS Bannick, W Montjoy-Venning, ... The Lancet Neurology 18 (1), 56-87	68	2019
Population and fertility by age and sex for 195 countries and territories, 1950–2017: a systematic analysis for the Global Burden of Disease Study 2017 CJL Murray, CSKH Callender, XR Kulkoff, V Srinivasan, D Abate, ... The Lancet 392 (10159), 1995-2051	59	2018
Global mortality from firearms, 1990–2016 M Naghavi, LB Marozak, M Kutz, KA Shackelford, M Arora, M Miller-Petrie, ... Jama 320 (8), 792-814	57	2018
Global, regional, and national burden of meningitis, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016 JR Zunt, NJ Kassebaum, N Blake, L Glennie, C Wright, E Nichols, ... The Lancet Neurology 17 (12), 1081-1082	47	2018
The burden of mental disorders in the Eastern Mediterranean region, 1990–2015: findings from the global burden of disease 2015 study GBDEMRRH Collaborators Int J Public Health. 63 (Suppl 1), 25-37	46*	2018
Prevalence of skin disorders among primary-school children in Baghdad governorate, Iraq KA Khalifa, TS Al-Hadithi, FH Al-Lami, JK Al-Diwan EMHJ 16 (2), 209-213	34	2010
Pattern of morbidity and mortality in Karbala hospitals during Ashura mass gathering at Karbala, Iraq, 2010 F Al-Lami, A Al-Fatlawi, P Bloland, A Nawwar, A Jetheer, H Hantoosh, ... East Mediterr Health J 19 (Suppl 2), S13-8	30	2013
Prevalence, incidence, trend, and complications of thalassemia in Iraq KA Kadhim, KH Baldawi, FH Lami Hemoglobin 41 (3), 164-168	21	2017
Global Burden of Disease Cancer Collaboration: Global, regional, and national cancer incidence, mortality, years of life lost, years lived with disability, and disability ... C Fitzmaurice, D Abate, N Abbasi JAMA ONCOLOGY 6 (3), 444-444	19	2020

Figures-1C: The author name appeared as the third author in the paper number 27 listed by Google Scholar Citation

The global, regional, and national burden of colorectal cancer and its attributable risk factors in 195 countries and territories, 1990–2017: a systematic analysis for the ... S Safiri, SG Sepanlou, KS Ikuta, C Bisignano, H Salimzadeh, A Delavari, ... The Lancet Gastroenterology & Hepatology 4 (12), 913-933	15	2019
Mapping 123 million neonatal, infant and child deaths between 2000 and 2017 R Burstein, NJ Henry, ML Collison, LB Marczak, A Sligar, S Watson, ... Nature 574 (7778), 353-358	15	2019
Cholera outbreak in Baghdad in 2007: an epidemiological study JM Khwaif, AH Hayyawi, TI Yousif EMHJ-Eastern Mediterranean Health Journal, 16 (6), 584-589, 2010	15	2010
The burden of mental disorders in the Eastern Mediterranean region, 1990–2015: findings from the global burden of disease 2015 study GBD 2015 Eastern Mediterranean Region Mental Health Collaborators International journal of public health 63 (1), 25-37	44 *	2018
Prevalence and Determinants of Microalbuminurea Among Type 2 Diabetes Mellitus Patients, Baghdad, Iraq, 2013 FHAL Ali Abdalkader Ali Saudi J Kidney Dis Transpl 27 (2), 348-355	11	2016
Prevalence and assessment of severity of depression among ischemic heart disease patients attending outpatient cardiology department Baghdad teaching Hospital, Baghdad SJ Al-Abbudi, FH Lami, ZA Wady Iraq. J Psychiatry 21 (10.4172), 2378-5756.1000438	10	2018
Maternal mortality and morbidity burden in the Eastern Mediterranean Region: findings from the Global Burden of Disease 2015 study Int J Public Health 63 ((Suppl 1)), S47–S61	9 *	2017
Self-rated health and medical conditions in refugees and immigrants from the same country of origin H Jamil, E Barkho, CL Broadbridge, M Ventimiglia, JE Arnetz, F Lami, ... Iraqi journal of medical sciences 13 (2), 108	9	2015
Mapping child growth failure across low-and middle-income countries Local Burden of Disease Child Growth Failure Collaborators Nature 577 (7789), 231	6	2020
Epidemiology of Colorectal Cancer in Iraq, 2002-2014. SAD AI, FHL AI The Gulf journal of oncology 1 (26), 23-26	6	2018

Figure-1D: The author name was present among the first three authors also in paper number 36 with 10 citations

Machine learning for potent dermatology research and practice A Al-Imam, F Al-Lami Journal of Dermatology and Dermatologic Surgery 24 (1), 1	5	2020
Erratum: Estimates of global, regional, and national incidence, prevalence, and mortality of HIV, 1980-2015: The Global Burden of Disease Study 2015 (The Lancet HIV (2016) 3 ... H Wang, TM Wolock, A Carter, G Nguyen, HH Kyu, E Gakidou, SI Hay, ... The Lancet HIV 3 (9), e408	5	2016
Prevalence of undetected, untreated, and uncontrolled hypertension among attendants of primary health care centers in nasiriya city, Iraq F Al-Lami, A Mousa Proceedings of the 61st Annual Epidemic Intelligence Service Conference (EIS ...	5	2012
Global and regional burden of cancer in 2016 arising from occupational exposure to selected carcinogens: a systematic analysis for the global burden of disease study 2016 GBD 2016 Occupational Carcinogens Collaborators Occupational and environmental medicine 77 (3), 151-159	4	2020
Mental disorders among elderly people in Baghdad, Iraq, 2017 AA Ibrahim, F Al-Lami, R Al-Rudainy, YS Khader INQUIRY: The Journal of Health Care Organization, Provision, and Financing ...	4	2019
Trends in HIV/AIDS morbidity and mortality in Eastern Mediterranean countries, 1990-2015: findings from the Global Burden of Disease 2015 study International journal of public health 63, 123-136	4	2018
Prevalence of asymptomatic visceral leishmaniasis among under 5 years contacts of confirmed cases in Thiqr Governorate, 2012 HA Hantosh, FH Al Lami Journal of Infectious Diseases and Therapy	4	2013
Global and regional burden of disease and injury in 2016 arising from occupational exposures: a systematic analysis for the global burden of disease study 2016 GBD 2016 Occupational Risk Factors Collaborators Occupational and environmental medicine 77 (3), 133-141	3	2020
Mapping disparities in education across low-and middle-income countries Local Burden of Disease Educational Attainment Collaborators Nature 577 (7789), 235	3	2020
Epidemiological characteristics of burn injuries in Iraq: a burn hospital-based study FH Lami, RK Al Naser Burns 45 (2), 479-483	3	2019

Figure-1E: The papers number 41 to 50 listed by Google Scholar Citation, and author name appears among the first three authors in 5 papers (Number 41 has five citations, number 43 has five citations, number 45 has four citations, number 47 has four citations, number, and number 50 Number 3)

CONCLUSION

The corrected H-index should be calculated while considering the papers authored by an individual author who should be among the first three authors. Many authors who join a large collaborative research group will generally have a minor contribution to research development and publication, but they may achieve a rather misleading high H-index. It is recommended that Google Scholar Citation, Scopus, and Semantic Scholar adopt

the corrected H-index to guarantee the reliability and usefulness of the H-index.

CONFLICT OF INTERESTS: None.

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