

Scientific profiles in the field of children obesity

Perfiles científicos en el campo de la obesidad infantil

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ABSTRACT

Childhood obesity is a serious health issue that has both immediate and long-term effects on health and well-being. Although obesity affects both children and adults, but childhood obesity is more serious than obesity in adults. The objective of current study was to depict the trend of publication entitled pediatric obesity indexed in the database of Scopus during years 2001-2015. A bibliometrics study was conducted to plot the development of scientific activities in the field of Pediatric obesity. Database of Scopus which covers 100 % of MEDLINE was used to extract all papers entitled pediatric obesity for a period of 15 years. Extraction of papers was restricted into papers entitled "pediatric obesity" from the Search Builder pull-down menu in the advanced search screen, this causes to obtain the articles that their major topics are in the desired subject area. Analysis of data showed that a total number of 663 papers entitled pediatric obesity indexed in scopus during the period of study. The results of study specified the investigation of pediatric obesity in 18 subject areas; the subject area of psychology seems to be in the inferior concern of scientists. Regarding the important influence of socio-psycho-genetic aspects on the pediatric obesity, these issues of study should be taken under consideration by policy-makers and nutritional scientists.

Key words: Pediatric, Obesity, children obesity, bibliometrics.

RESUMEN

La obesidad en la infancia constituye un serio problema de salud, que tiene efectos tanto inmediatos como a largo plazo sobre la salud y el bienestar. A pesar de que la obesidad afecta tanto a niños como a adultos, en la niñez es más seria que en los adultos. El objetivo de este estudio fue conocer la tendencia de las publicaciones tituladas obesidad pediátrica indexadas en la base de datos de Scopus durante los años 2001-2015. Se realizó un estudio bibliométrico para conocer el desarrollo de las actividades científicas en el campo de la obesidad pediátrica. La base de datos de Scopus, la cual cubre el 100 % en MEDLINE, fue utilizada para extraer todos los trabajos titulados obesidad pediátrica en un período de 15 años. La búsqueda estuvo restringida a los trabajos titulados "obesidad pediátrica", en la pantalla de búsqueda avanzada, para obtener los artículos cuyos temas se encontraban en el área deseada. El análisis de los datos mostró que un total de 663 trabajos titulados obesidad pediátrica fueron indexados en Scopus durante el período de estudio. Los resultados de la investigación sobre este tema se obtuvieron en 18 áreas, en las que la Psicología mostró una preocupación inferior entre los científicos. Con respecto a la importante influencia de los aspectos socio-psico-genéticos relacionados con la obesidad pediátrica, estos deben ser tomados en consideración por los responsables de la política y por los científicos especializados en nutrición.

Palabras clave: Pediatría, obesidad, obesidad en niños, bibliometría.

INTRODUCTION

Obesity is a global public health problem, associated with a number of chronic disease including cardiovascular disease, metabolic syndrome, type 2 diabetes mellitus and several form of cancers.^{1,2} The prevalence of obesity is increasing worldwide in both developed and developing countries.³ Childhood obesity is another serious health issue that has both immediate and long-term effects on health and well-being; although obesity affects both children and adults,⁴ but *childhood obesity is more serious than* obesity in adults. Obesity in childhood is of particular concern due to its associated health consequences and its influence on young psychosocial development.^{5,6} Overweight children are more likely to develop obesity in adulthood and approximately 50 % of overweight adolescents and over one-third of overweight children remain obese in later ages.^{6,7} Currently it was estimated that the prevalence of childhood overweight and obesity range from 12 % to over 30 % in developed countries and from 2 % to 12 % in developing countries.⁸ There are no evidences to reveal the attitude of scientists towards dealing with pediatric obesity.

A most reliable and trustworthy way to track science and technology activities is the study of scientific literature.⁹ Many bibliometrics analysis has been done to illustrate the quantity and quality of scientific activities of different fields in various databases.¹⁰⁻¹² Since the number of published papers in each subject area can reveal the attitudes and attempts of individuals and/or organization towards the same field,^{13,14} hence in this study we aim to extract and analyse all papers entitled "pediatric obesity" which published in the journals and indexed in the database of Scopus during years 2011-2015. The results of current study clearly show the attitudes and approaches of institutions and countries for scientific activities in the field of children obesity.

METHODS

All papers indexed as a title of "paediatric obesity" in the bibliographic database of Scopus during years 2001-2015 was extracted and went under analysis. We planed the search strategy as: [("Pediatic obesity") OR ("children obesity") OR ("child obesity")]. We restricted our search into "article title" from the menu of "fields type", and the years of under study was limited into 2001-2015. Scopus is a bibliographic database which covers 100 % of MEDLINE database. MEDLINE is a part of National Library of Medicine (NLM) journal citation database.

Restriction of papers into desired title, facilities the way to obtain the articles in the most related subject area.¹⁵ The origin country of papers identified from the field of addresses (AD) in each records, after that the articles were geographically classified. All obtained papers went under content analysis by a specialist to determine the sub-categories of papers in the field. We are aware that these databases (Scopus and MEDLINE) lack the affiliation and the country information of some co-authors, for this reason only the origin country of authors that appeared in the fields of address were taken under consideration as the origin country of papers.

RESULTS

The extraction of papers entitled "pediatric obesity" during years 2001-2015 in Scopus led to 663 papers. Although the number of publication in the field of pediatric obesity (663 papers) for 15 years seems to be small, but considering the number of publication for the last 15 years, we will find out that the number of publication in the field has increased linear. It reached from 10 papers in 2001 into 68 papers in 2015 (Fig. 1).

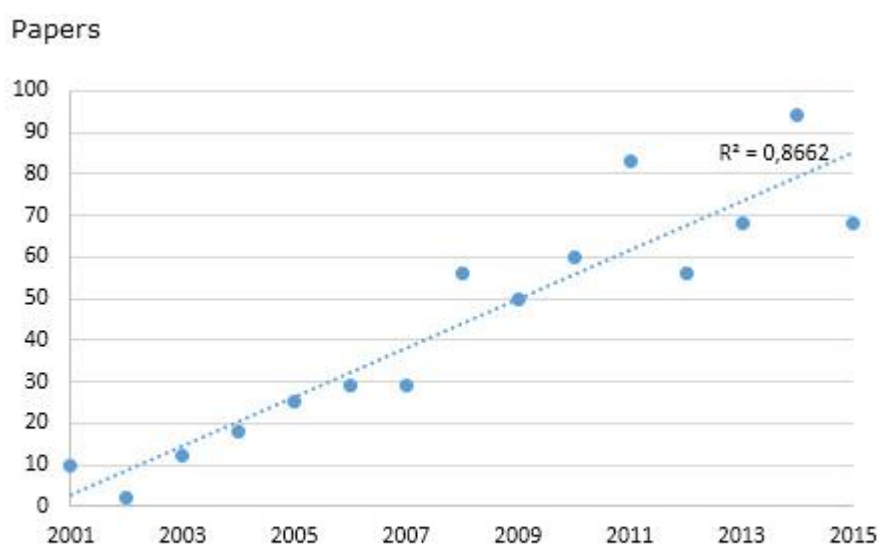


Fig. 1. Publication entitled "pediatric obesity" in Scopus during the last 15 years.

The extraction of data led to 663 papers in the form of Journal Article (376 papers), Review (143 papers), Note (28 papers), Editorial (27 papers), Conference Paper (26), Book Chapter (21), Letter (12), Short Survey (12), Article in Press (11 papers), Erratum (6), and Book (1). The majority of papers (89,6 %) was in English language. Only 10.4 % of papers were in other languages such as: French (22 papers), Spanish (18 papers), Czech (5 papers), Chinese (4 papers), German (4 papers), Korean (3 papers), Portuguese (3 papers), Italian (2 papers), Japanese (2 papers), Slovak (2 papers), Croatian (1 paper), Persian (1 paper), Russian (1 paper), and Swedish one paper (Fig. 2).

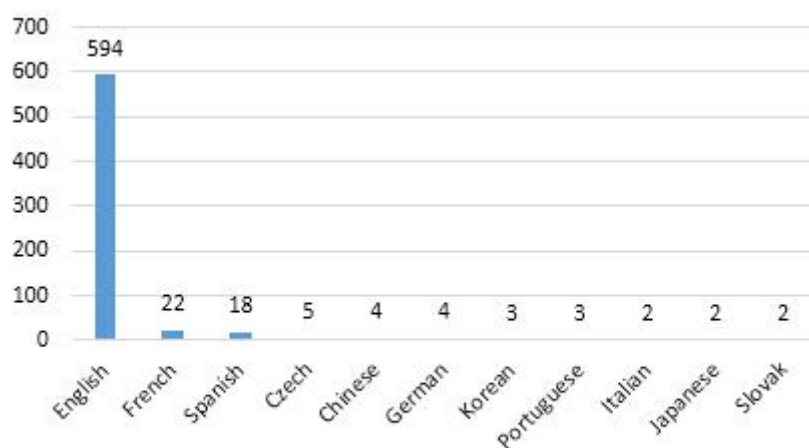


Fig. 2. Language of papers entitled pediatric obesity in Scopus 2001-2015.

As shows the [table 1](#), from a total number of 160 journals contributing papers entitled pediatric obesity, indexed in Scopus, the Journal of Obesity sharing 3.3 % (22 papers) of the global publication entitled "pediatric obesity" was the most productive journal, followed by the international Journal of pediatric obesity (17 papers), Journal of Clinical Pediatrics (14 papers), and Journal of Pediatrics (14 papers). Table 1 is restricted to the 20 top productive journals, those published papers entitled pediatric obesity during years 2011-2015.

Authors from 39 countries shared their papers entitled pediatric obesity in Scopus during years 2011-2015. The American authors were the most productive authors, sharing 52.9 % of global publication entitled "pediatric obesity", followed by authors from Australia sharing 34 papers, United Kingdom sharing 34 papers, Canada sharing 32 papers, and France sharing 22 papers in the field in the database of Scopus during the period of study. Regarding to the origin regions of published papers, they mostly came from North America and Western Europe. [Table 2](#) shows the origin country of authors, who shared their works in Scopus.

A total number of 1 112 authors, who shared their works in the field, among them *Joseph Arnold Skelton*, from the Brenner Children's Hospital, *Winston Salem*, United States publishing 11 papers entitled pediatric obesity during years 2001-2015 was the most productive author. The following authors were *Ric G. Steele*, from University of Kansas Lawrence, Clinical Child Psychology Program, Lawrence, United States sharing 9 papers, *Geoff Dc C. Ball*, from Stollery Children's Hospital, Pediatric Centre for Weight and Health, Edmonton, Canada sharing 8 papers. *David M. Janicke*, from University of Florida, Department of Clinical and Health Psychology, Gainesville, United States sharing 8 papers, and *Elissa Jelalian*, from Weight Control and Diabetes Research Center, Providence, United States, sharing 8 papers entitled pediatric obesity ([table 2](#)).

Table 1. Top Journals distributing articles entitled "pediatric obesity" in Scopus. Años 2001-2015

Rank	Journal Name	Paper	Percent (%)
1	Obesity	22	3,3
2	International Journal of Pediatric Obesity	17	2,6
3	Clinical Pediatrics	14	2,1
4	Pediatrics	12	1,8
5	Pediatric Clinics Of North America	12	1,8
6	Childhood Obesity	11	1,7
7	International Journal of Obesity	11	1,7
8	Journal of Pediatric Psychology	11	1,7
9	Journal of Pediatrics	11	1,7
10	Journal of Developmental And Behavioral Pediatrics	9	1,4
11	Acta Paediátrica International Journal of Paediatrics	8	1,2
12	Global Perspectives on Childhood Obesity	8	1,2
13	Pediatric Obesity	8	1,2
14	Children's Health Care	7	1,1
15	Infant Child and Adolescent Nutrition	7	1,1
16	Social Science and Medicine	7	1,1
17	Cesko Slovenska Pediatrie	6	0,9
18	Journal of Clinical Endocrinology And Metabolism	6	0,9
19	Obesity Reviews	6	0,9
20	Reviews in Endocrine And Metabolic Disorders	6	0,9

The content analysis of extracted papers entitled "pediatric obesity" indexed in Scopus during years 2001-2015 indicated that the scientist's approaches were in 18 major categories. Researches in Medicine aspects was the most frequented subject area, 56.5 % of total researches were in this area. 15.8 % of researches was in Nursing, 6.8 % of papers was in the subject area of (Biochemistry, Genetics and Molecular Biology), and 6.2 % was in the subject area of psychology ([table 3](#)).

Table 2. Origin country of authors contributing papers entitled "pediatric obesity". Años 2001-2015

Rank	Country	Paper	Percent (%)
1	United States	351	52,9
2	Australia	34	5,1
3	United Kingdom	34	5,1
4	Canada	32	4,8
5	France	22	3,3
6	Italy	20	3,0
7	Spain	15	2,3
8	Germany	14	2,1
9	South Korea	7	1,1
10	Czech Republic	6	0,9
11	Israel	6	0,9
12	Sweden	6	0,9
13	Mexico	5	0,8
14	Denmark	4	0,6
15	Japan	4	0,6
16	Netherlands	4	0,6
17	New Zealand	4	0,6
18	Turkey	4	0,6

Table 3. Different kinds of subject areas in the major topic of pediatric obesity

Rank	Subject Area	Paper	Percent (%)
1	Medicine	577	56,5
2	Nursing	161	15,8
3	Biochemistry, Genetics and Molecular Biology	69	6,8
4	Psychology	63	6,2
5	Agricultural and Biological Sciences	38	3,7
6	Social Sciences	36	3,5
7	Health Professions	28	2,7
8	Arts and Humanities	13	1,3
9	Economics, Econometrics and Finance	7	0,7
10	Neuroscience	7	0,7
11	Pharmacology, Toxicology and Pharmaceutics	6	0,6

Tabla 3. Continuación

Rank	Subject Area	Paper	Percent (%)
12	Environmental Science	5	0,5
13	Engineering	3	0,3
14	Mathematics	3	0,3
15	Business, Management and Accounting	2	0,2
16	Dentistry	2	0,2
17	Computer Science	1	0,1
18	Immunology and Microbiology	1	0,1
-	Total	1 022	100,0

DISCUSSION AND CONCLUSION

According to the results of previous studies, the childhood obesity has doubled more than two times in children and quadrupled in adolescents during the last 30 years. It is estimated that the percentage of obese children aged 6–11 years in United States has increased from 7 % in 1980 to nearly 18 % in 2012.^{16,17} Although the pediatric obesity was an important issue since long ago, but it was introduced as an autonomous category in medical subject heading (MeSH) first in 2014. Pediatric obesity is a multi-factorial issues, and it is associated with many factors such as family factors, diet, lack of exercise, psychological factors and socioeconomic factors.

The evidences have shown that childhood obesity is epidemic in many regions and countries; therefore it is urgency to prevent further increases of this health problem.¹⁸ Studies suggested the importance of public health impact of intervening on risk factors in early developmental periods, these studies propose that maternal smoking during pregnancy, gestational weight gain, and gestational diabetes are essential prenatally, and fast weight gaining, infant feeding, sleep duration quantity and quality, and television viewing are major factors during infancy.¹⁹ maintaining the knowledge of changes in researchs of pediatric obesity is vital, so it is essential to present the scientific attitude towards pediatric obesity. Bibliometrics analysis is an appropriate tool for depiction the trend of research centers' approaches towards health problems in the societies; hence the result of current study can help the research centers administers to lead the researches in the necessary and needed fields. Analysis of data of current study indicated that, the number of publication in the field of pediatric obesity is still lower than the required level to guarantee the reliable attention of related institutions for solving the obesity problems among children. The United States was the most productive country performing researches and publishing papers in pediatric obesity followed by west Europe. One may interpret this occurrence in such a way that developed countries have more facilities for doing research in different areas e.g. in the field of obesity. We should bear in mind that the obesity has a strong relationship with the income level of countries. Based on the recent report of WHO, the prevalence of overweight in high income and upper middle income countries was more than double that of low and lower middle income countries.²⁰ The majority of publications was in English language. This pheromone should not come as a

surprise, the American databases have concerned indexing of papers in English language since many years ago.¹⁰

The content analysis of obtained papers identified that the scientists' methodologies towards pediatric obesity were in eighteen different subject areas. The subject area of medicine was the most frequented of them followed by nursing subject area, the subject area of "Immunology and Microbiology" was the least one. Regarding the important influence of socio-psycho-genetic aspects on the pediatric obesity, these issues are crucial issues related to the obesity; hence it is strongly recommended the nutritional scientists and policy makers in research centres to take under consideration these issues of study.

CONFLICT OF INTERESTS

The authors don't declare conflict of interests.

BIBLIOGRAFIC REFERENCES

1. Caterson ID, Gill TP. Obesity: epidemiology and possible prevention. *Best Pract Res Clin Endocrinol Metab.* 2002;16(4):595-610. PubMed PMID: 12468409. Epub 2002/12/07. eng.
2. Schwarzenberg SJ, Sinaiko AR. Obesity and inflammation in children. *Paediatr Respir Rev.* 2006;7(4):239-46. PubMed PMID: 17098638. Epub 2006/11/14. eng.
3. Flynn MA, McNeil DA, Maloff B, Mutasingwa D, Wu M, Ford C, et al. Reducing obesity and related chronic disease risk in children and youth: a synthesis of evidence with "best practice" recommendations. *Obes Rev.* 2006;7(Suppl 1):7-66. PubMed PMID: 16371076. Epub 2005/12/24. eng.
4. Dietz WH. Critical periods in childhood for the development of obesity. *Am J Clin Nutr.* 1994;59:955-9.
5. Must A, Strauss RS. Risks and consequences of childhood and adolescent obesity. *Int J Obes Relat Metab Disord.* 1999;23(Suppl 2):S2-11. PubMed PMID: 10340798. Epub 1999/05/26. eng.
6. Power C, Lake JK, Cole TJ. Measurement and long-term health risks of child and adolescent fatness. *Int J Obes Relat Metab Disord.* 1997;21(7):507-26. PubMed PMID: 9226480. Epub 1997/07/01. eng.
7. Serdula MK, Ivery D, Coates RJ, Freedman DS, Williamson DF, Byers T. Do obese children become obese adults? A review of the literature. *Prev Med.* 1993;22(2):167-77. PubMed PMID: 8483856. Epub 1993/03/01. eng.
8. Lobstein T, Baur L, Uauy R. Obesity in children and young people: a crisis in public health. *Obes Rev.* 2004;5(Suppl 1):4-104. PubMed PMID: 15096099. Epub 2004/04/21. eng.
9. Biglu MH. Patent literature trends in Medline throughout 1965-2005. *Acimed.* 2009 [cited 2016 Oct 01];20(2). Available at: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1024-94352009000800006&lng=es

10. Biglu MH. The editorial policy of languages is being changed in Medline. 2007 [cited 2016 Oct 01]. Available at: http://www.bvs.sld.cu/revistas/aci/vol16_3_07/aci06907.html
11. Biglu M, Askari O. A bibliometric study of scientific output in Tabriz University of Medical Sciences. Proceedings of 10th International Conference of the International Society for Scientometrics and Informetrics (ISSI 2005). Stockholm: ISSI; 2005.
12. Biglu MH, Riazi S. Network of nanomedicine researches: impact of Iranian scientists. BioImpacts: BI. 2015;5(4):199.
13. Biglu MH, Ghavami M, Biglu S. Authorship, institutional and citation metrics for publications on postmenopausal osteoporosis. Osteoporosis International. 2014;1;25(4):1337-43.
14. National Library of Medicine. EE. UU.: Base de datos NLM; 2014 [cited 2016 Oct 01]. Available at: <http://www.nlm.nih.gov/>
15. Biglu MH. Scientometric study of patent literature in MEDLINE & SCI (Doctoral dissertation, Humboldt-Universität zu Berlin, Philosophische Fakultät I); 2008.
16. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. Jama. 2014;311(8):806-14.
17. Hyattsville M. Health, United States 2011 with special feature on socioeconomic status and health. National Center for Health Statistics; 2012. p. 310.
18. Christoffel KK, Wang X, Binns HJ. Early origins of child obesity: bridging disciplines and phases of development, september 30-October 1, 2010. Internat J Environm Res Public Health. 2012;9(4):1227-62.
19. Gillman MW, Rifas-Shiman SL, Kleinman K, Oken E, Rich-Edwards JW, Taveras EM. Developmental origins of childhood overweight: potential public health impact. Obesity. 2008;16(7):1651-6.
20. WHO. Obesity: Situation and trends 2014 [cited 2016 Oct 01]. Available from: http://www.who.int/gho/ncd/risk_factors/obesity_text/en/

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