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Most Cited Medical Papers: A Tangential View

Sachi Sri Kantha

ABSTRACT

Objective: Among the 58 million items collected in the Thomson Reuter's Web of Science database, 100 of the most cited papers up to Oct 7, 2014 was presented in Nature journal last year. I offer a tangential view of the most cited papers of medical relevance placed within this top 100.

Methods: By scanning the database of 'The Top 100 Papers' presented by van Noorden *et al.* (*Nature*, 2014; 514: 550-553), I identified 13 papers which had received highest number of citations in all medical disciplines.

Results: The highest ranked (rank 17) among these 13 papers, was by Folstein *et al.* (1975) offering a practical method for grading the cognitive state of patients. It had received 34,532 citations as of October 7, 2014. The lowest ranked (rank 98), authored by Matthews *et al.* (1985) on insulin resistance and beta cell function. It had received 12,257 citations.

Conclusion: The primary reason why these 13 papers had gained the status of most cited medical papers is simple. They had described either a diagnosis/clinical evaluation of diseased states such as Alzheimer's disease, depression, diabetes, cognitive defect or a simplified methodology for measuring a clinically relevant body constituent such as plasma cholesterol.

KEY WORDS

Alzheimer's disease, citations, cognitive defect, depression, diabetes, *Lancet*

INTRODUCTION

Last year, a feature article by van Noorden *et al.*¹⁾ in *Nature* journal presented a simplistic analysis of the top 100 research papers among all academic disciplines, which had accumulated highest number of citations. This was based among the 58 million items collected in Thomson Reuter's Web of Science database (<http://apps.webofknowledge.com/>). As this four page analysis had overlooked the papers relevant to medical disciplines, I present a tangential view of the most cited medical papers here.

METHOD

By studying the database of 'The Top 100 Papers' presented by van Noorden *et al.*¹⁾, I identified 13 papers which had received highest number of citations in all medical disciplines.

RESULTS

Table 1 provides a list of 13 most cited medical papers, which had received citation ranking between 17 and 98. The highest ranked (rank 17) among these 13 papers, was authored by Folstein *et al.*²⁾. Published in 1975, it had received 34,532 citations as of October 7, 2014. The lowest ranked (rank 98), was authored by Matthews *et al.*³⁾. Published in 1985, it had received 12,257 citations. Table 2 provides a decade-wise distribution of these 13 most cited medical papers. The oldest paper

among the 13, was that of Hamilton⁴⁾, which appeared in 1960. It had accumulated 16,734 citations. The decades 1971-80 and 1980-90 have 4 papers each among the 13 most cited medical papers.

DISCUSSION

What is interesting to note among the 13 most cited medical papers is that, only one paper (that of Bland and Altman⁵⁾) appeared in one of the leading medical journals, *Lancet* (Table 1). Other three leading medical journals such as *New England Journal of Medicine* (NEJM), *Journal of American Medical Association* (JAMA) and *British Medical Journal* (BMJ) do not feature among the top 13 medical papers to receive highest number of citations. Remaining 12 papers were published in specialty medical journals with limited circulation and readership.

Four among the 13 most cited medical papers had sole authorship, namely Radloff⁶⁾, Hamilton⁴⁾, Oldfield⁷⁾ and Boyum⁸⁾. Among the remaining 9 multi-authored papers, 2 (McKhann *et al.*⁹⁾ and Matthews *et al.*³⁾) published in the 1981-90 decade had the maximum number of 6 authors.

The reason why these 13 papers had gained the status of most cited medical papers is simple. They had described either a diagnosis/clinical evaluation of diseased states such as Alzheimer's disease⁹⁾, depression^{4,6,10)}, diabetes³⁾, cognitive defect²⁾ or a simplified methodology for measuring a clinically relevant body constituent such as plasma cholesterol¹¹⁾.

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Table 1. Most Cited Medical Papers among top 100 Most Cited Papers in All Disciplines

Citation Rank among 100	1* author/*sole author	Journal	Citations Received up to 2014 October 7
17	Folstein MF	<i>J Psychiatr.Res</i> 1975; 12:189-198	34,532
29	Bland JM	<i>Lancet</i> 1986; 327:307-310	23,826
33	Baron RM	<i>J.Pers.Soc.Psychol</i> 1986; 51:1173-1182	23,356
48	McKhann G	<i>Neurology</i> 1984; 34:939-944	17,220
51	*Radloff LS	<i>Appl Psychol Measurement</i> 1977; 1:385-401	17,055
53	*Hamilton M	<i>J Neurol Neurosurg Psychiatry</i> 1960; 23:56-62	16,734
54	Beck AT	<i>Arch Gen Psychiatry</i> 1961; 4:561-571	16,264
61	*Oldfield RC	<i>Neuropsychologia</i> 1971; 9:97-113	15,517
62	Friedewald WT	<i>Clin.Chem</i> 1972; 18:499-502	15,469
67	*Boyum A	<i>Scand J Clin Lab Invest</i> 1968; 21:S77-S89	14,934
72	Ware JE	<i>Med Care</i> 1992; 30:473-483	14,332
87	Moncada S	<i>Pharmacol Rev</i> 1991; 43:109-142	13,267
98	Matthews DR	<i>Diabetologia</i> 1985; 28:412-419	12,257

Table 2. Decade-wise Distribution of 13 Most Cited Medical Papers

Decade	No. of Papers	Distribution according to the citation rank number of Web of Science database
1951-60	1	53
1961-70	2	54, 67
1971-80	4	17, 51, 61, 62
1981-90	4	29, 33, 48, 98
1991-2000	2	72, 87

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