DOES THE QUANTITY OF SCIENTIFIC PUBLICATIONS REFLECT THE QUALITY? A RISING ISSUE FOR PROMOTION IN DEVELOPING COUNTRIES

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ABSTRACT

Objective: Turkey's international scientific ranking increased from 42nd in 1991 to 25th place in 1998. In this study, we intended to clarify Marmara University School of Medicine's scientific publication trend for the last four years between 1995-1998 in comparison with previous four-year period between 1991-1994, regarding quality.

Methods: We sorted out the total number of publications from all academic institutions in Turkey, Marmara University and Marmara University School of Medicine indexed in Science Citation Index between 1991 and 1998. We compared the total number of faculty members and "scientific publication per faculty member *(ppf)*" on a yearly basis in order to place their trend especially by comparing the time period of the first four years between 1991 and 1994 to the last four years.

Results: The total number of publications from the *school of medicine* increased from 15 in 1991 to 80 in 1998. The percentage of publications from the *school of medicine* out of all university publications was determined to be 63% in 1991, 77% in 1994 and 58% in 1998. *ppf* in *school of medicine* was 0.07 in 1991, 0.15 in 1994 and 0.22 in 1998. Although the number of *articles* increased from 11 in 1991 to 44 in 1998, its percentage within total publications decreased from 78% in 1991 to 55% in 1998.

Conclusion: Although the number of the publications from the school of medicine increased, its percentage among all publications in the university has decreased. In addition to this, most authors preferred to publish papers other than articles which in turn resulted a decline in quality of published material. Therefore, the total number of publications from the medical faculty does not reflect an accurate interpretation of its current scientific situation in Marmara University.

Key Words: Scientific rank, publication, science citation index, school of medicine, Marmara University

INTRODUCTION

Scientific publications are assumed to be objective criteria for evaluating an institution's or individual's academic exerience and scientific development. Medical faculties and other institutions achieve acknowledgement and increase their pressure on scientific societies and colleges parallel to their improved scientific publishing performance (1). Scientific publications are placed in different national and international journals where the scientists declare their experience to common view and communicate with their colleagues. They are further classified as *reviews, articles, letters, notes and meeting-abstracts* (2). To obtain a more objective conclusion about the value of a particular scientific publication, it is more accurate to take the ones which are published at peer reviewed international journals. Today, there are several scientific indexes in which the journals are classified and Science Citation Index (SCI) is believed to be the most prestigious (3).

In Turkey and many countries throughout the world, pressure is increasing on researchers to publish. This "publish or perish" policy has certain pitfalls, fraud being the most unethical. Although journals fight to prevent fraud and dual publication, complete eradication seems impossible. The number of authors per article seems to be increasing for the same reason

(Accepted 15 November, 1999)

and certain journals ask specifically the function of each author if the number appears excessive (4). Another pitfall is "salami publication" where the same results are published in small pieces by adding new and usually trivial data. The pressure to publish also forces researchers to lower the quality of scientific research to increase the number.

In a previous report (5), it was determined that there is a steady increase in the total number of publications from Marmara University School of Medicine (MUSM) parallel to the scientific progress seen in Marmara University and all other Turkish academic institutions. As a result of this progress in the total number of published studies, Turkey's scientific ranking is improving continuously (6). Medical schools in Turkey contribute about 50% of scientific publications (6).

In this study, we aimed to investigate the trend in the quality of publications from MUSM. It was hypothesised that increased pressure for publication will decrease the quality of publications. For this purpose, scientific publication from MUSM indexed in SCI in the last four years between 1995-1998 was compared with the previous four-year period between 1991-1994.

MATERIALS AND METHODS

All scientific publications from Marmara University School of Medicine indexed in SCI between 1991 and 1998 were investigated. Publications were classified as article, letter, review, and meeting-abstract as they appear in SCI. Total number of faculty members were determined and "scientific publication per faculty member *(ppf)*" was also calculated. In this study, all data has been gathered from internet sources via academic websites such as *The Turkish Council of Higher Education (7), Marmara University (8), The Scientific and Technical Research Council of Turkey (6)* and *State Institute of Statistics (9)*. Furthermore all departments were asked to bring their scientific publications which are indexed in SCI in case of our failure to collect them all from internet or official sources.

RESULTS

Turkey's international scientific ranking increased from 42nd in 1991 to 25th place among nations all over the world in 1998. In fact, this increase was more distinctive in the last four years. The total number of publications from Turkey increased by 91% in the time period 1991-1994 while the increase was 121% between 1995 and 1998. The total number of publications increased from 1206 in 1991 to 5109 in 1998 (5,6). Scientific publication per faculty member *(ppf)* was also found to have increased from 0.04 in 1991 to 0.09 in 1998 (Fig. 1).

The total number of publications from Marmara University has also increased from 32 in 1991 to 142 in 1998. The trend of increase is similar to Turkey's general scientific performance. Marmara University

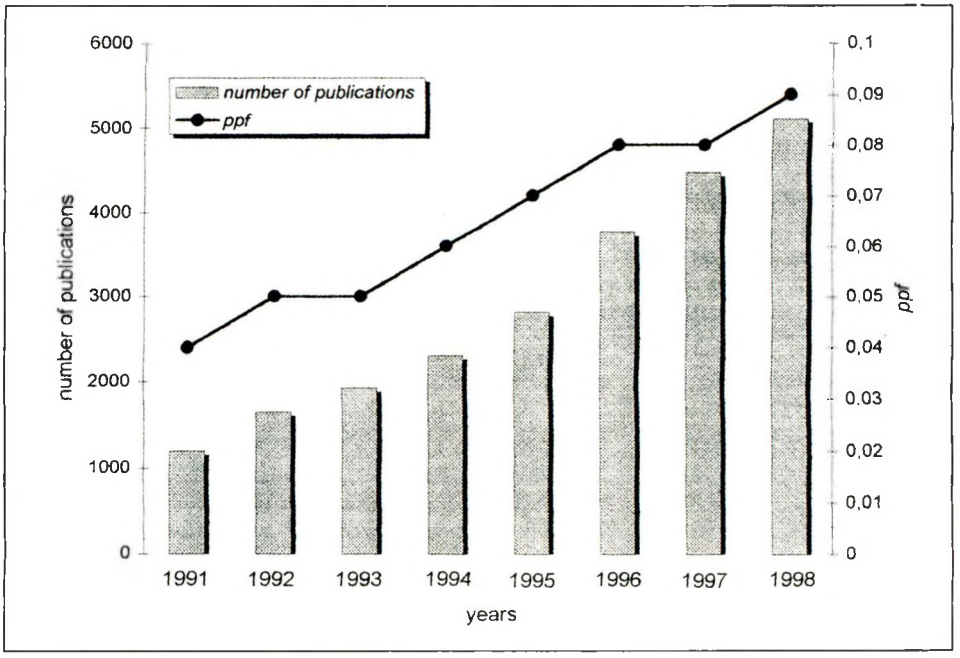

Fig. 1.:
As the total number of scientific publications are increasing in Turkey, there is a consistent rise in ppf on yearly basis.

contributed 2.7% of all international publications from Turkey in 1991 and this has not changed since then as this figure was 2.8% in 1998. ppf in Marmara University also increased from 0.017 in 1991 to 0.056 in 1998 (Fig. 2). The total number of publications from the *school of medicine* increased from 15 in 1991 to 80 in 1998. The percentage of publications from the *school of medicine* out of all university publications was determined to be 63% in 1991, 77% in 1994 and 58% in 1998. *ppf* in *school of medicine* was 0.07 in 1991, 0.15 in 1994 and 0.22 in 1998 (Table I). Although there was progress, the slope of the acceleration in increase of *ppf* was found to decrease between 1991-1994 and 1995-1998 (114%, 47%, respectively).

The characteristics of the publications from *school of medicine* according to their types is detailed in Table II. Although the number of *articles* increased from 11 in 1991 to 44 in 1998, its percentage within total publications decreased from 78% in 1991 to 55% in 1998. The number and percentage of *letters* and *meeting abstracts* were determined to be increased through out the investigated period. There were 18 (22%) *letters* in 1998 where the same figure was 2 (11%) in 1991. There were 19 (23%) *meeting-abstracts* in 1998 which is more then the amount we determined in 1991 (n=2; 11%). Overall, 86 articles, 18 letters and 8 meeting-abstracts were published for the period between 1991 and 1994, where for the last four years (1995-1998) the corresponding figures were found to be 167, 42 and 70, respectively.

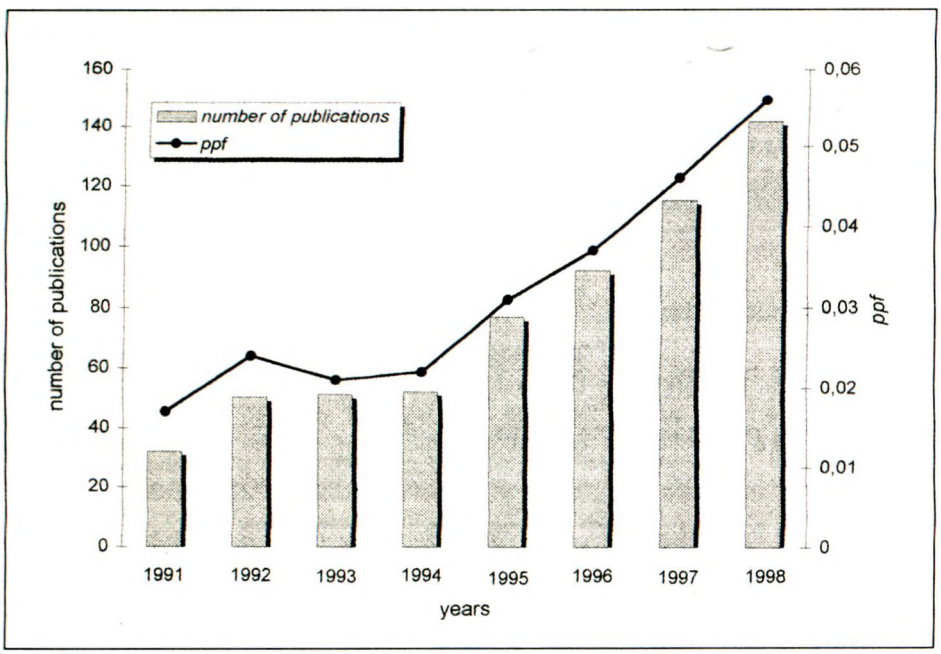

Fig.2.: Both the total number of publications and ppf are increasing in Marmara University.

Table I. Total number of publications and *ppf* in *Marmara University, School of Medicine* on yearly basis

Year	Number of Publications in MU	Number of Publications in MUSM (%)	Number of Faculty Members in MUSM	ppf in MUSM
1991	32	15 (47)	223	0.07
1992	50	24 (48)	238	0.1
1993	51	32 (63)	253	0.13
1994	52	40 (77)	266	0.15
1995	77	59 (77)	286	0.21
1996	92	66 (72)	316	0.21
1997	115	73 (63)	352	0.21
1998	142	80 (58)	357	0.22

MU : Marmara University
MUSM : Marmara University, School of Medicine
ppf : Publications per faculty member

Table II. Characteristics of publications from *Marmara University, School of Medicine* according to their types

Year	Article (%)	Letter (%)	Meeting-Abstract (%)	Review (%)	Total
1991	12 (80)	3 (20)	0	0	15
1992	20 (83)	3 (13)	1 (4)	0	24
1993	25 (78)	3 (9)	4 (13)	0	32
1994	27 (68)	9 (22)	3 (8)	1 (2)	40
1995	37 (63)	8 (13)	14 (24)	0	59
1996	44 (67)	4 (6)	18 (27)	0	66
1997	42 (58)	12 (16)	19 (26)	0	73
1998	44 (54)	18 (22)	19 (23)	1 (1)	80

DISCUSSION

The quality of publications from Marmara University School of Medicine is not improving. Although the number of published papers from the *school of medicine* is increasing progressively and the school is growing by means of working space and number of faculty members (8), the percentage of publications from the school of medicine out of all scientific papers from the university is determined to be decreasing slightly while the percentage of letters and abstracts increased.

One should not consider only the quantity but also the quality of the published materials and when we evaluate the quality of the papers, we need to look at the types of publishing. Assessment criteria are mainly based on indexation and independent peer-review within that system and original papers or articles are vauled higher than reviews, comments, letters or meeting-abstracts (1,10). Articles or original papers are types of publications which are peer-reviewed and submitted as a result of planned clinical or experimental study (1). Letters are generally written to the editors of the journals as a commentary. These usually are not reviewed by a referee (1). Meeting-abstracts are the summaries of a study published in a journal which is accepted to be presented in a congress or meeting (10). Furthermore, these studies are submitted to the journals to be published as an article or short note and sometimes to different scientific meetings so, in both cases, duplication of publishing occurs (11, 12). Since the letters and meeting-abstracts are also considered a publication, the number of these publications should not reflect an institution's scientific reputation in research. However, this is not the case and international ranking and other evaluations are done by looking at the total number of publications. Probably, the best way to test quality is the number of citations an article gets (13) but this is hard to evaluate.

In Turkey, publishing in international journals is promoted with small monetary rewards by The Scientific and Technical Research Council of Turkey and universities, but at the same time pressure to publish is steadily increasing. Academic appointments are mainly decided by the number and sometimes the quality of international publications. The degree of associate professorship is given after an exam done by The Turkish Council of Higher Education where the first step is the evaluation of publications and in this regard international publication is both mandatory and is the decisive component. In Turkey, total number of academic staff, academic institutions such as universities and higher technology institutes as well as national income are increasing (7, 9). The budget for scientific research is also increasing accordingly. In addition to these facts, we can claim that the availability of scientific resources has caused scientists concentrate on publishing, which is more pronouncable after internet has intervened in our daily life. These factors and awareness of the importance of international publication have proved to be effective in increasing the total number of publications in Marmara University and nationwide.

Marmara University achieved great success by increasing the total number of scientific publications and ppf for the last eight years parallel to Turkey's general performance in this era. This improvement cannot be explained by the increase in the total number of faculty members (7), since ppf has also increased. Turkey produced 0.19% of the international publications in 1991 which increased to 0.56% in 1998. However a recent search in SCI revealed no published prospective multicentre randomised studies from Turkey (14).

Most publications in Marmara University are still being made by the medical faculty members. Although the contribution of the school of medicine to the total number of publications in Marmara University showed

a steady progress, its impact in the university is decreasing. Moreover, the percentage of articles or original papers decreased while letters and meeting-abstracts increased among all publications. Therefore, the total number of publications from the medical faculty cannot be assumed to be an accurate interpretation of its current scientific situation in Marmara University.

The trend of the Marmara University School of Medicine's scientific performance is not satisfying. Authors should be discouraged from the attitude of increasing their number of publications with letters and meeting-abstracts. The Scientific and Technical Research Council of Turkey and Marmara University Research Fund have ceased to promote any publication other than an original paper to overcome this problem. At the same time, only papers indexed in SCI are promoted by the Marmara University Research Fund. The ranking of countries and institutions is done by looking at the total number of publications, which is misleading. Institutions should take precautions to increase both the number and quality of scientific publication.

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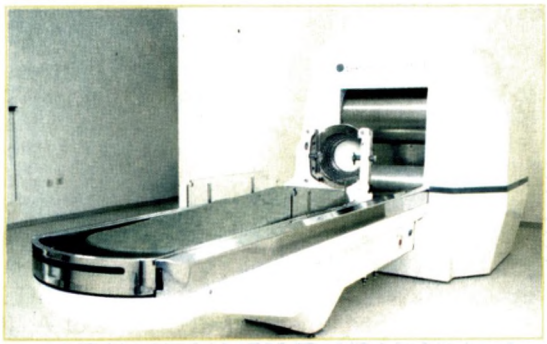


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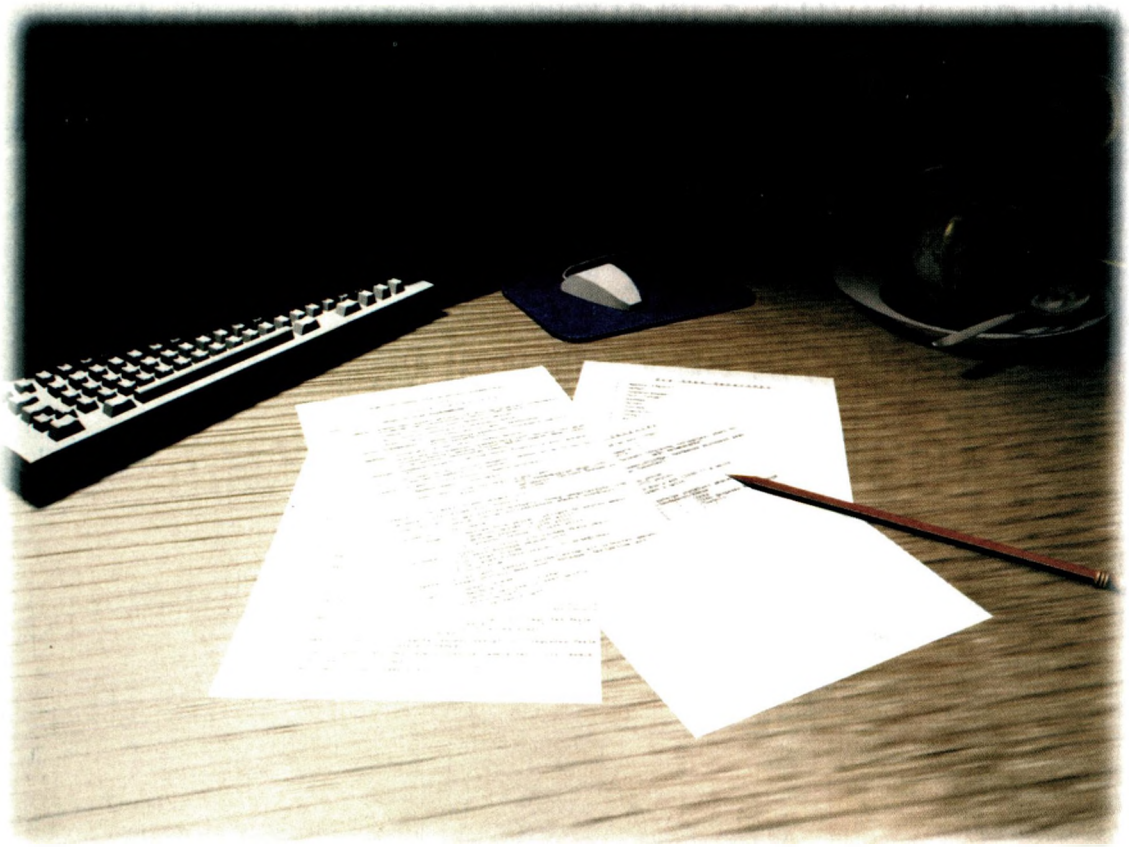

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