

## Paper publication ratios by postgraduates based on theses and dissertations in Tehran University of Medical Sciences

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### ABSTRACT

**Objective:** The overview of postgraduate Theses and PhD Dissertations and the factors associated with their publishing is a subject, which has not been studied in recent years, especially in the field of medical sciences. The objective of this study was to find out the publishing trend by postgraduates based on their Theses or Dissertations.

**Methodology:** In this cross-sectional study all Theses and doctorate Dissertations by postgraduates of Tehran University of Medical Sciences between 2001 and 2009 were taken to account. We collected the data using the computer files or directly from mentors, students and different databases such as Pub Med.

**Results:** Findings showed that manuscripts from thirty per cent of the Master Theses, 76% of the PhD Dissertations were published. There was a relationship between the publishing of the Theses or Dissertations and the students' subject of study, department, Theses or Dissertations grade, the first supervisors' title, the second advisor's title, and the number of supervisors and advisors.

**Conclusion:** Since the factors associated with the publishing of papers based on Theses or Dissertations are specified, it is necessary to consider them by introducing more experienced supervisors or advisors to the students. In addition, preference to Theses/Dissertations with excellent grade and publications in indexed journals should be encouraged while interviewing PhD candidates.

**KEY WORDS:** Scientific output, Postgraduate students, Publication rate analysis.

Pak J Med Sci October - December 2012 Vol. 28 No. 5 830-834

### How to cite this article:

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):830-834

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- \* Received for Publication: July 10, 2012
- \* Corrected and Rewritten by Reviewer: August 13, 2012
- \* Revision Accepted: August 23, 2012

### INTRODUCTION

Scientific publications are a key indicator of development in any country and most of these products are produced in universities by postgraduates. The number of Theses for Master (MA) and PhD research projects are increasing since the number of postgraduate and PhD students has increased. The quantity and quality of these projects are considered in the local and global ranking of Universities.<sup>1</sup>

Although all postgraduate students are required to submit a research report and present their project at the end of their study, the impact and importance of research projects including postgraduate projects depends on the number of publications and the

citations received.<sup>2</sup> A study by Aghili shows that only 5 per cent of the postgraduates research published in scientific journals between 1997 and 2000 received at least one citation(s).<sup>3</sup>

The quality of these Theses and Dissertations was out of the scope of this study; however the suitable supervision of students can lead to significant results for the country.<sup>4,5</sup> Additionally, the evaluation of Theses and Dissertations and planning for their improvement is linked to research development in the country. One of the good criteria for Theses and Dissertations evaluation is publishing their results in approved journals. According to a past study, only 17% of Dissertations in France Universities during 1993 to 1998 were published in indexed journals.<sup>6</sup> Results of another research in Spain indicated that most of Theses were not published in approved journals.<sup>7</sup>

A study by Aminipour and Ghasemi<sup>8</sup> in Iran showed 28% of papers from research Theses or Dissertations were published in local journals and only 0.4% of them were published in non-Iranian (mostly written in English and in journals indexed in ISI, PubMed, Scopus etc.) journals. Unfortunately, there is no plan for the application of research findings in countries such as Iran and in many cases, authors conduct their research projects according to their interests rather than conducting problem based researches.<sup>9</sup>

To the best of our knowledge, there is no study on the publication ratios of postgraduate projects of Tehran University of Medical Sciences (TUMS); therefore, the current study was one of the first studies aiming to show the paper publication ratios and trends in postgraduate project in School of Health Management and Information Sciences, at TUMS, though this was a small scale study on postgraduate students' publications and factors affecting their research output. We hope the findings of this study would help the university managers to obtain a better understanding of problems of postgraduate students when publishing their works and would be useful to find a mechanism to encourage the researchers with more published papers to improve the ranking of TUMS.

## METHODOLOGY

This cross-sectional study was performed between 2010 and 2011 in the School of Health Management and Medical Information Sciences at TUMS. This was a small research project and the population of the studies included all of the 363 postgraduate Theses and doctorate Dissertations

submitted between 2001 and 2009. We obtained a computer file containing the name of students and supervisors, the title of the project, sought degree, subject of study, projects submission date etc.

The data was collected using Google Scholar, Google Web search engine, SID and IranMedex websites. In addition, we contacted supervisors and advisors to obtain further information regarding the publications. There was a few Theses or Dissertations with two publications. The Grading Scale for postgraduate projects in Iran includes four categories as excellent (Grad A) from 19 to 20 out of 20, very good (Grad B) from 18 to 18.99, Good (Grad C) from 16.5 to 17.99 and satisfactory (Grad D) from 15 to 16.49.

All of the collected data were kept confidential and we used codes to anonymise the data. The data was analyzed using descriptive statistics (frequencies etc.), Chi-square test for categorical data analysis and t-tests to compare two means in two independent samples using SPSS.

## RESULTS

As stated earlier, we studied 363 postgraduate students' projects (313 Master and 50 PhD projects). Of 313 master projects, 96 students published papers from their research, whereas; this ratio was 38 out of 50 for PhD projects. Five papers from master projects and 12 papers from PhD Theses were published in non-Iranian Journals. Five projects (one master and 4 PhD projects) were supervised by just one supervisor whereas 14 projects had one supervisor and one advisor and 264 projects had three supervisors and advisor. Thirty-four papers published in Iranian peer-reviewed journals were from student projects of health management department, and twenty papers were from the students of librarianship department (Table-I).

The mean scores of master and PhD projects were 18.96 out of 20 (SD=0.77) and 18.82 (SD=0.78) respectively. One hundred and twenty Theses and Dissertations had paper in local journals and 16 Theses or Dissertations in non-Iranian journals and the total publication rate was 37 per cent.

The majority of projects (300) had known grades and the two-third (213) were graded as excellent. The number of publications in Theses or Dissertations with the grade of excellent, very good, good and satisfactory was 81, 9, 2 and nil respectively. In PhD projects, only 16 had known grades (ten projects were graded excellent and three with very good grades) as shown in Table-II.

The first authors of 34 papers were students, and first authors of 10 papers were external supervisors. We noticed that 81.3 per cent of papers written by PhD students were published in Iranian journals two years after graduation. Similarly, 91.6% of papers written by Master students were published in Iranian journals in the same period.

The ratio of publications varied in PhD and Master degree and there was a significant relationship between publications and the degree sought ( $p=0.000$ ). Additionally there was a relationship between publication and academic department ( $p=0.001$ ). For instance, students of health information management had the highest and the librarianship students had the lowest publication ratio. There was no significant difference between grade and corresponding degrees ( $p=0.49$ ). Furthermore, 38 per cent of the publications were from projects with "excellent" grade and 17 per cent of published papers were from projects graded "very good". Other findings show that there was a relationship between publication and the grades ( $p=0.000$ ).

Findings of this study proved a significant relationship between the publication of papers and the academic title of first supervisors ( $p=0.021$ ). The ratio of publication for projects supervised by full professor, associate professor, assistant professor and instructor were 70%, 37.5%, 44.7% and 26.1% respectively. Forty-six percent of the papers are written by female students, though; there was no relationship between publication of paper and gender ( $p=0.85$ ).

The mean number of supervisors and advisors was 2.35 persons per project in published postgraduate researches. However, in unpublished postgraduate projects it was 2.2 persons per project. This indicates a significant difference ( $p=0.015$ ). We found that the chance of publication rose when the number of supervisors or advisor increased. Using logistic

Table-I: The distribution of Theses and Dissertations publications in School of Health Management and Information Sciences from 2001 to 2009 according to departments, degree, gender, academic title of first supervisor, and the number of supervisors or advisors.

Frequencies Department	No. of Theses or Dissertations	%	No. of publications	%	% of publications to number of Theses or Dissertations
Health management	114	31.4	43	32.1	38
Librarianship	85	23.4	20	14.9	23
Medical Record	77	21.2	36	26.9	48
Health Economics	62	17.1	15	11.2	24
Information management	20	5.5	18	13.4	90
Medical Education	5	1.4	2	1.5	40
Total	363	100	134	100	37
Degree					
Master	313	86.2	96	71.6	31
PhD	50	13.8	38	28.4	76
Total	363	100	134	100	37
Gender					
Male	194	46.6	73	54.5	37.6
Female	169	53.4	61	45.5	36.1
Total	363	100	134	100	37
Academic title of first supervisor					
Full Professor	10	2.8	7	5.2	70.0
Associate professor	64	17.6	24	17.9	37.5
Assistant Professor	170	46.8	75	56.0	44.7
Instructor	69	19.0	18	13.4	26.1
Missing	50	13.8	10	7.5	20
Total	363	100	134	100	37.0
The number of supervisors and advisors					
Less than 3	19	5.2	2	1.5	10.5
3	264	72.7	87	64.9	32.6
4	46	12.7	11	8.2	23.9
More than 4	34	9.4	34	25.4	100
Total	363	100	134	100	37.5

regression with the response variable of publications and the independent variables of project degree, subject of study, supervisors' title, advisors' title and the number of supervisors and advisors; only the number of supervisors and advisors were entered

Table-II: The distribution of theses or dissertations publication in School of Health Management and Information Sciences from 2001 to 2009 according to degree and grade.

Grade Degree	Evaluation* Papers** (%)	Excellent (%)	Very good (%)	Good (%)	Satisfactory (%)	Total
Master	Theses	213(71)	54 (18)	32 (10.7)	1 (0.3)	300 (100)
	Publications	81 (88)	9 (9.8)	2 (2.2)	0 (0.0)	92 (100)
	%	38	17	6	0	32.6
PhD	Dissertations	10 (62.6)	3 (18.7)	3 (18.7)	0 (0.0)	16 (100)
	Publications	13 (68.4)	3 (15.8)	3 (15.8)	0 (0.0)	19 (100)
	%	130	100	100	0	118.7
Total	Theses or Dissertations	223 (70.5)	57 (18)	35 (11.1)	1 (0.4)	316 (100)
	Publications	94 (84.7)	12 (10.8)	5 (4.5)	0 (0.0)	111 (100)
	%	42.1	21	14.3	0	35.1

\* The Theses or Dissertations with known score were analyzed for evaluation.

\*\*The Theses or Dissertations with one Iranian and one non-Iranian publications considered with two papers.

to the model and other variable were not significant. The estimation of model coefficient was 0.35 (with standard error=0.078, Odd Ratio=OR=1.42,  $p=0.000$ ).

## DISCUSSIONS

The number of postgraduate students in Iranian medical universities is increasing in recent years. The majority of current postgraduate students receive financial support from the Iranian government; therefore, their research activities and academic progress is very important for the Iranian government.

The value of OR shows that if we add the value of one to the predict variable (the number of supervisor and advisor) then the chance of paper publication from Theses or Dissertation increased by 42 per cent.<sup>10</sup> This shows that the number of supervisor and advisors is a key variable in estimating the chance of publication.

This study shows a rapid increase in publications in Iranian and non-Iranian journal. Thirty-seven percent of postgraduate projects were published in either Iranian or non-Iranian peer reviewed journals. This is higher than the publications ratio reported in earlier studies.<sup>8,11,12</sup> The frequency of the first author in most publications was from health management department and the least one from librarianship department. Additionally, there were 10 papers with the first author being external supervisors, and 34 with the students as the first author.

Ninety-one local papers from Theses and 24 from Dissertations had known date of completing the project. Findings indicate that 80.3% Persian paper from Theses and 91.6% of Persian papers from Dissertations were published during two years after completion of the study. This was due to recent regulations urging postgraduate students to publish their works in peer reviewed journals prior to oral examination. Otherwise, they should not expect to receive the highest score for their works.

Other results showed a relationship between the subject of study and publications. The significant relationship between publications and degree showed that there were more publications from PhD Dissertations. The students' obligation for publication of at least one paper in local journals for Theses and at least one paper in ISI ranked journals from their Dissertations had a great influence in this result.

In addition, there was no relationship between the mean score of Theses and Dissertations and this can be due to the same referees for Theses and

Dissertations of every subject of the study, although it seems the score is not a suitable criterion for evaluation of Theses or Dissertations.

About 70% of Theses or Dissertations with the first supervisors being full professor had publications and this ratio in other supervisors with lower titles are less and significant, similarly 75% of Theses and Dissertations with the first advisor with the title of full professor had publications and this ratio in other was lower but not significant. It seems the supervisors and advisors with higher title prefer to publish their work more than the others. It was shown in a recent study that the Theses or Dissertation with at least one advisor have better quality than the others.<sup>13</sup>

The other results of the study showed that the more supervisors and advisors in Theses or Dissertations, more are the chances of the publications. The result of logistic regression analysis showed that the number of supervisors and advisors is the only variable, which enters to the model of publications. This result also shows that increasing number of supervisors and advisor increase the chance of publications, although in some cases, the number of supervisors and advisor was much more than enough and there should be restriction on the number of supervisors and advisors for postgraduate project.

## CONCLUSION

The number of publications from Theses and Dissertations is rising. Increasing the number of supervisors and advisor, and using higher title faculty members can increase the publication ratio further. The majority of papers were published in local journals and a small proportion of papers were published in journals indexed in Medline or ISI. The majority of papers were published within two years after completion of the study. Persuading and giving preference to Theses with excellent grade or publications in indexed journals, especially while interviewing PhD candidates, may increase the publication ratio. In addition, a new study on the barriers on publication of papers based on postgraduate projects could help the decision makers to facilitate the publication process in postgraduate research.

## ACKNOWLEDGEMENT

This study was funded and supported by Tehran University of Medical Sciences (TUMS); Grant No. 991.

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## Authors Contribution

MR conceived, designed and did statistical analysis & editing of manuscript  
 ZM & HV did data collection and paper works for the project  
 SS did review and final approval of manuscript.