

# Research Publications in Medical Journals (1992-2013) by Family Medicine Authors - Suez Canal University-Egypt

**Abdulmajeed A. Abdulmajeed, Mosleh A. Ismail, Hebatallah Nour-Eldein**

*Department of Family Medicine, Faculty of Medicine, Suez Canal University, Ismailia, Egypt*

## ABSTRACT

**Background:** Research in family medicine (FM) provides an important contribution to its discipline. Family medicine research can contribute to many areas of primary care, ranging from the early diagnosis to equitable health care. Publication productivity is important in academic settings as a marker for career advancement. **Objective:** To describe the publications by family medicine researcher authors between 1992 and 2013. **Materials and Methods:** All full text, original articles published by family medicine researcher; author with affiliation to the Suez Canal University were collected using the internet and hand search. The journals that published for family medicine researcher authors were identified. Author characteristics were described. The trend of publications was described. All articles were analyzed for their characteristics, including the themes and study designs according to predefined criteria. **Results:** Along 22 years, 149 research articles were published by 48 family medicine authors in 39 medical journals. The largest category in publications was related to Family physician/Health service (FP-HS,  $n = 52$  articles), followed by 'Patient' category ( $n = 42$ ). All the studies were quantitative; the largest group was represented by cross-sectional studies (76.5%). **Conclusions:** The publication productivity by family medicine researchers are going to be increased. FP-HS and patient topics were mostly addressed in publications. Cross-sectional studies exceeded any other designs. There is need to put more emphasis on intervention studies. Continuous assessment and improvement of FM research production and publication is recommended.

**Keywords:** Author, articles, family medicine, journal, publication, research

## Introduction

Research in family medicine (FM) provides an important contribution to its discipline. In many ways, research is the root of family medicine. Research informs the process of education for both family doctors and their patients.<sup>[1]</sup> Research is a critical component to the continued growth and development of the quality of primary care.<sup>[2]</sup> FM research can contribute to many areas of primary care, ranging from the early diagnosis to equitable health care.<sup>[3]</sup>

Publication productivity is important in academic settings as a marker for career advancement.<sup>[4]</sup> Academic primary care/family physicians (FP), may have unique expectations for general medical journals for their publications because of their diverse roles in clinical, teaching, and research activities.<sup>[5]</sup> On the other

hand, research contribution with other specialties may lead to publication in other field-specific journals.<sup>[6]</sup>

For a long time most of the developing world relied on research findings, interpretation and application from the western world. This did not always provide the solution to the problems of developing countries. Slow advances however, have been made in medical research in developing countries.<sup>[7]</sup> Recent initiatives within an Australia public health care service have seen a focus on increasing the research capacity, encouraging clinicians to be research generators rather than solely research consumers.<sup>[8]</sup>

The quantity and quality of biomedical publications are of concern in some Arab countries.<sup>[9]</sup> Several attempts have been made to document scientific research productivity in the field of general practice and family medicine.<sup>[10]</sup> Many commentators have written about the lack of research productivity in the discipline of family medicine.<sup>[11]</sup> Increasing the amount and quality of family medicine research has long been a goal of the specialty.<sup>[12]</sup>

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**Address for correspondence:** Dr. Hebatallah Nour-Eldein,  
Assistant Professor, Family Medicine, Suez Canal University,  
Ismailia city, Egypt.  
E-mail: hebanour20@hotmail.com

## Aim

To describe the production of research publications by family medicine authors of Suez Canal University between 1992 and 2013.

## Methods

This is descriptive cross-sectional study and the required data were collected between January and March 2014.

## Publication selection

Original research articles in medical journals were included; one or more family medicine authors with their affiliation to family medicine department and Suez Canal University. Full texts of articles were included in either soft or hard copies, as not all medical journals archive all their issues in soft copies. Commentaries, letters to the editor, publication in conferences and themes that were not related to the scope of family medicine were excluded.

## Publication search

Publications were identified by (1) Google and Medline search. Some of the publications of certain journals were archived and hence the archives of these journals were searched for the specific article. (2) Both manual and internet search in University Journal libraries and websites for either soft or hard copies (The Egyptian journal of Community Medicine, The Medical Journal of Cairo University, Suez Canal University Medical Journal and Zagazig Medical journal), their selection was based on the publication list of authors. (3) Publication lists of assistant professors and professors of family medicine were screened for additional potentially relevant articles.

## Data analysis

The data were extracted from the eligible articles then entered and analyzed using a Statistical Package for Social Sciences program (SPSS, version 20). Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and means for quantitative variables.

- The journals that published original research articles for family medicine authors were analyzed as in similar studies<sup>[13,14]</sup> including the journal name; frequency of publications of family medicine research articles within medical journals; and frequency of publications within family medicine journals
- The authors were analyzed as in another study<sup>[13]</sup> for total number of family medicine researcher authors in Suez Canal University; the mean of publications per author; whether the family medicine author published one or more than one article; whether the family medicine-researcher was lead or single author. The medical degrees of the authors were registered as Bachelor of medicine (M.B.B.Ch.), master's degree (M.Sc.) or doctorate degree (MD)
- The number of published articles per year was registered. The publications were classified as print or online, according

to their availability in hard copy in the libraries or in soft copy on the internet; PubMed or not; national or regional/international; whether the study was carried out in Egypt or in another country. Also, whether the research was published from supervision of research work or not (any article with one of authors with Bachelor of medicine or master's degree was considered as an article from supervision)

- The themes and study designs of articles were analyzed as in a previous study.<sup>[14]</sup> The categories of the content by Kruschinski *et al.*<sup>[14]</sup> previously divided the researches into seven categories, but in the current study only four main categories were suitable for the studied researches.

## Clinical

Disease-related researches with four subcategories included the symptoms or other clinical presentations of diseases (Disease prevention in general and clinical aspects of prevention in specific diseases such as cardiovascular disease (Prevention), risk factors as a key point or starting point for intervention (Risk factors) and the treatment of diseases (Therapy).

## Epidemiology

Researches reporting the incidence or prevalence of diseases or symptoms were assigned to this category.

## Family physician/Health service (FP-HS)

Researches about health care professionals and health care with seven subcategories including consultation style of FP (Consultation), FP's knowledge, attitude or behavior related to health problems, their prescribing patterns (Prescribing), training for FPs/health team (Training), quality of care in the provision of health service, including audit, quality improvement and referral system (Quality of care), involvement in undergraduate education assessment (Undergraduate) and the consumption of health care (Utilization).

## Patient

This category comprised 6 subcategories about the characteristics or perspectives of patients. Main categories included assessment of patients' compliance (Compliance), the role and influence of the FP/primary care physician (Education), role of family and family function in certain illnesses (Family), patients' knowledge, attitudes or behavior regarding illness/diseases and patients' satisfaction (KAB), how consultations are influenced by the intra-individual background (Socio-demographic characteristics), and age or disease related quality of life (Quality of life).

## Results

### Medical journals

Research articles by family medicine authors were published in 39 medical journals. Five journals published eight or more articles while 18 journals published only one article [Table 1]. Four Family medicine journals only published 18 articles which constituted only (12.1%) of all published research articles (Middle East

**Table 1: Journals that published research articles for family medicine authors of Suez Canal University**

Journal	Article (n=149)	%
The Medical Journal of Cairo University	37	24.8
Suez Canal University Medical Journal	23	15.4
Eastern Mediterranean Health Journal	12	8.1
Middle East Journal of Family Medicine	12	8.1
The Egyptian Journal of Community Medicine	8	5.4
Zagazig University Medical Journal	4	2.7
Saudi Medical Journal	4	2.7
Annual Saudi Medical Journal	3	2
Journal of Family and Community Medicine	3	2
Journal of the Bahrain Medical Society	3	2
Pan African Medical Journal	3	2
The Egyptian Journal of Neurology, Psychiatry and Neurosurgery	3	2
Diabetes research	2	1.3
Egyptian Pediatric Association Gazette	2	1.3
Journal of current Psychiatry Ain Shams	2	1.3
Journal of Family Medicine and Primary Care	2	1.3
Journal of Tibah University Medical Sciences	2	1.3
Journal of Primary Care Psychiatry	2	1.3
Peer Journal	2	1.3
Qatar Medical Journal	2	1.3
18 other journals	18	12

Journal of Family Medicine, Journal of Family and Community Medicine, Journal of Family Medicine and Primary Care, Family Medicine and Medical Science Research).

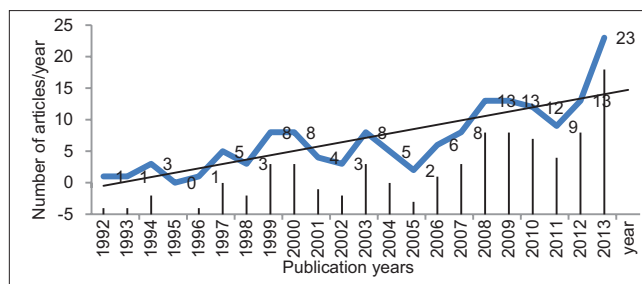
Figure 1 shows the annual distribution of publications. There was variation in the frequency of publication within the first two decades and a peak in 2013. Results also showed that 79 (53%) researches were published in the second decade (2002–2011) which represented more than two times increase in number of publications 34 (22.8%) within the first decade (1992–2001), while 36 (24.2%) publications in the first 2 years of the third decade.

### Author characteristics

Forty eight FPs were considered authors of 149 publications in the field of FM. FM-lead authors were found on 96 articles (64.4%) and coauthors on 53 articles (35.6%). Thirty two (66.7%) of the 48 researchers lead one or more articles. The mean of publications by FM authors were 3.1 research articles. Single author was found on 15 articles (10%). Near two third of family medicine authors were listed in one article (62.5%) while near one third (31.2%) of the authors published eight or more articles. All researches were authored by FP with medical doctorate. Thirty-two articles were conducted by FP with M.B.B.Ch. and only four articles by FP with M.Sc. in FM [Table 2].

### Publication characteristics

Table 3 shows the characteristics of published articles. Ninety articles (60.4%) were found in full PDF while print or abstracts



**Figure 1: The annual distribution of published articles**

that calls for searching in hard copies represented (39.6%). Thirty two articles (21.5%) were published in 10 PubMed indexed journals. Forty nine (32.9%) of the researches were carried out in Arab countries other than Egypt. Regional or international publications represented (41.1%). Publications from supervision of research works represented (26.2%).

The results of the classification of themes by main categories are shown in Table 3. The largest group was FP-HS ( $n = 52$  articles), followed by 'Patient' category ( $n = 42$ ) for each of these two largest categories.

All the studies were quantitative; the largest group was represented by cross-sectional studies (76.5%). Case-control studies (8.7%) were even less common. Intervention studies were identified in 15% of the quantitative studies half of them having been randomized [Table 3].

Figure 2 shows the sub-categorization of themes of the published articles, within the major categories; Quality of care themes exceeded the other aspects within FP-HS 19/52 (36.5%). One third of patients' researches were about the patients' knowledge, attitude and practice 14/42 (33.3%) and the patient quality of life researches 13/42 (31%). Half of the clinical category were about the pattern of disease 14/28 (50%) followed by clinical therapy 8/28 (28.6%).

## Discussion

This is the first research that describes the publications by FM authors in Egypt. Although the FM department was first established in 1978 with name of General Practice and it started the master's degree program in 1980,<sup>[15]</sup> the first publication of original articles in medical journal was started in 1992. Along 22 years of publications in FM, 48 authors published 149 articles across 39 medical journals. Five journals published 8 or more articles while 18 journals published only one article. The present study showed far less publications in comparison to another study<sup>[16]</sup> in which the publication of family practice candidates during one year period (1988-1989) were 274 articles in 77 journals by 36 authors. Also; the U.S study by Pathman *et al.*<sup>[13]</sup> which described the publications in only one year in 2003 found 790 articles dispersed across 285 journals from 801 FM researcher-authors.

The difference in the publication output could be related to the difference in the systems. Suez Canal University has an academic

**Table 2: Number and characteristics of family medicine authors**

Total family medicine researcher authors	48 (100%)
Articles/total researcher authors	149/48 (3.1)
Total FM Lead authors of one or more articles	32
Articles with FM lead authors/total FM lead authors	96/32 (3)
Single FM author/total research article	15/149 (10%)
Total family medicine researcher authors	n=48 %
Family medicine author who authored	
1 article	30 62.5
2 articles	2 4.2
3 articles	1 2.1
≥ 8 articles	15 31.2
Author grades on published articles	n=149 %
Articles by FM author with medical degree and medical doctorate	32 21.5
Articles FM author with master degree and medical doctorate	4 2.7
Articles by FM author with only medical doctorate	113 75.8

FM: Family medicine

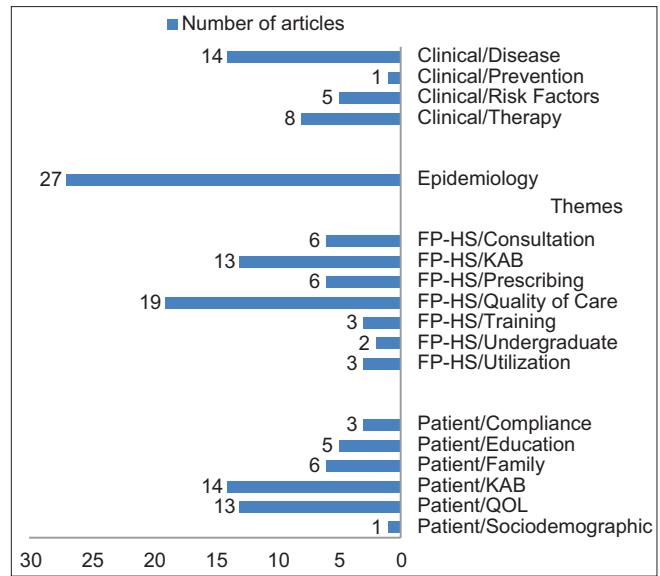
**Table 3: Characteristics of the published research articles**

	N=149	%
Available articles		
PDF	90	60.4
Print only	59	39.6
PubMed published articles		
PubMed	32	21.5
Not PubMed	117	78.5
Site of publication		
National	88	58.9
Regional/international	61	41.1
The served country		
Egypt	100	67.1
Other Arab countries	49	32.9
Supervised work		
Supervision	39	26.2
Non-supervision	110	73.8
Theme category		
Clinical	28	18.8
Epidemiological	27	18.1
Family physician-health Service	52	34.9
Patient	42	28.2
Methodology		
Observational studies		
Cross-sectional	114	76.5
Case-control	13	8.7
Intervention (experimental)		
Intervention without randomization	11	7.4
Intervention with randomization	11	7.4

PDF: Portable document format

discipline in which the research is community oriented but is not applied widely across many organizations as in United States.

In the present study, four FM Journals only published 18 articles which constituted only 12.1% of all published research articles (Middle East Journal of FM, Journal of Family and Community Medicine, Journal of Family Medicine and Primary



**Figure 2: Themes of the published research articles**

Care, Family Medicine and Medical Science Research). While in the U.S study FM journals published 18% of the discipline’s research articles in one year; publication of family practice from faculty members during the 1988-89 showed that 46% of the articles were published in the five major family practice journals.<sup>[16]</sup> The less publication in FM journals sometimes is expected as the FM is inter-disciplinary with other medicine branches that in many times allow for publications in non-specialty journals. On the other hand, within the promotion committee, some non-FM journals have better scores than FM journals.

There was variation in the frequency of publications in the first two decades and a peak in 2013. Results also showed that (53%) of researches were published in the second decade (2002–2011) which represented more than 2 times increase in publications (22.8%) in the first decade (1992–2001), while (23.3%) of publications in the first 2 years of the third decade, which exceeded the whole publications in the first decade. These results could be explained by the increasing number of FM members within the academic department with their corresponding graduation.

The number of authors in 22 years of publication were 149 which away from the U.S study in 2003;<sup>[12]</sup> 801 U.S FPs and others working in FM organizations, authored 790 research articles in 285 journals. Although FM authors in Suez Canal University appeared to be small in number, the former professors were leaders of FM in Egypt and shared in researches in other Arab countries.

The mean of publications by authors were 3.1 research articles. Such mean of publication was nearly similar to that of the Egyptian study about Egyptian biomedical publications in PubMed, 1996–2005.<sup>[17]</sup> This was larger than in other study.<sup>[14]</sup> Thirty-two (66.6%) of the 48 researchers lead one or more articles. While in the U.S study,<sup>[13]</sup> (43%) of the 801 authors were lead authors on at least one research article. This means

that the role of FPs were apparent in the studied articles within the current study.

More than half of authors were listed in one article (61.7%) while near one third of them (31.2%) published eight or more articles. All researches were authored by authors with Medical doctorate. Thirty-two articles were carried out by authors with M.B.B.Ch. and only four articles by authors with master's degree in FM. The inverse in graduation of authors were found in the American study as FM authors had medical degrees (56%); of these, one-third also had master's or doctorate degrees.<sup>[13]</sup> These results could be explained in the light of before medical doctorate, any member within FM department is responsible for conduction of two community oriented researches without the necessity of their publications, but any of the supervisors of these works can proceed in publication from such researches or he can conduct or contribute in other researches. Publication of researches in FM is mandatory after medical doctorate for next promotions with an average of 16 mandatory publications which explain for the eight or more publication for the authors.

Single FM author was found on (10%) of the published researches. Sometimes the single publication is a way to express the physician's ability to present his/her skills in publishing his research.

The characteristics of the published articles showed that near two third (60.4%) of published articles were found in full PDF while print or abstracts that calls for searching in hard copies represented (39.6%). These findings were favorable. Through electronic publications, researchers can obtain information, providing wider and easier access.<sup>[18]</sup>

In the current study, 32 articles (21.5%) were published in 10 PubMed indexed journals. These results were similar to the Syrian study, which reported 86.8% of studies originating from Syria between (1980–2011) were not indexed in PubMed, the main free search engine for medical literature. Also the Syrian study claimed the journals with subscription and limited access to data that could be used in developing clinical decisions.<sup>[19]</sup> Regional or international publications represented (41.1%). This was on one hand related to the (32.9%) of researches that were carried out in other Arab countries and on the other hand; it was one of the requirements in the regulation of FP's promotion in Egypt. Previously, Benamer and Bakoush reported that the Kingdom of Saudi Arabia and Egypt produce almost 60% of the research generated by the Arab world.<sup>[20]</sup> Forty-nine (32.9%) of the researches were carried out in Arab countries other than Egypt and this could reflect the sharing in research development in other Arab countries.

Thirty-nine articles (26.2%) were derived from supervision of research. This means that most of the researches were carried out independent of supervised work either in coordination with other FPs or with other specialists from other disciplines.

The major themes of published articles revealed that FP-HS ( $n = 52$  articles) (34.8%), and 'Patient' researches ( $n = 42$ ) (28.2%) represented the largest groups. Although Kruschinski *et al.*,<sup>[14]</sup> used seven categories in their research themes analysis the largest group of research was 'General practitioner/Health Service (GP/HS) (37.8%), followed by the categories 'Clinical' (24%) and 'Patient' (19%). These results were also to some extent similar to that by Robinson and Gould<sup>[21]</sup> in which chronic illness, primary care organization, and patient behavior were of particular interest to general practitioners.

Within the major categories, the FP-HS/Quality of care themes exceeded the other aspects which included (25%) quality of certain care researches, (5.8%) researches related to quality improvement and another (5.8%) were about referral system. Researches that explored the patient's knowledge, attitude and practice represented (33.3%) and patient quality of life researches (31%). Pattern of disease was the frequent studied within the clinical category including (50%) researches followed by clinical therapy (28.6%). While in the study by Kruschinski *et al.*<sup>[14]</sup> Clinical therapy (47.2%), GP/HS organization (18.5%) and patient attitude (48.3%) were the most studied subcategories. The difference between the current and the comparable study could be related to many factors as the community needs, researcher preferences, availability of research fund or even the scope of the publishing journals.

In the present study, all the studies were quantitative; the largest group was represented by cross-sectional studies (76.5%). Case-control studies (8.7%) were less common. Intervention studies were found in 15% of the quantitative studies, half of them having been randomized. In a German study,<sup>[22]</sup> the most frequent type of studies were cross-sectional studies (49.0%), cohort studies (11.3%), qualitative studies (9.8%) and randomized controlled trials (7.6%). Cross-sectional studies have most often been used in research on medical education (81.1%) and for exploring patients' views (71.2%). Even the study by Aljoudi<sup>[23]</sup> about study designs and statistical methods in the Journal of Family and Community Medicine, the official peer reviewed scientific publication of the Saudi Society of Family and Community Medicine, showed that after analysis of 229 articles that were published between 1994–2010, the cross-sectional design was used in (76.4%) of all analyzed articles. This could be explained that cross-sectional studies needs less time, effort and fund than any other study designs.

### Limitations of the study

The published articles by FM researcher authors are not totally representative to the research work of the FM Department-Suez Canal University. Unfortunately, there were also other unpublished researches. Not all the published researches were easily accessed by free engine of electronic researches. Some of the journals didn't archive all its articles in electronic copy that could facilitate their accessibility.

### Conclusion and Recommendations

The publication productivity by FM researchers are going to be increased. Family physician-health service and patient were

addressed in publications more than clinical and epidemiology themes. There is need to put more emphasis on conduction and publication of intervention studies. Continuous assessment and improvement in FM researches and their publications is recommended.

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