

Endocrine research in Bangladesh: Evolution and current trend

A. B. M. Kamrul-Hasan, Shahjada Selim¹

Department of Endocrinology, Mymensingh Medical College, Mymensingh, ¹Department of Endocrinology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

Abstract

Background: The contribution of Bangladesh to global endocrine research is not quantified. We intend to summarize the progress Bangladesh has made in endocrine research. **Methods:** Global and country-specific data up to December 2021 from the PubMed database were retrieved using the keywords ‘diabetes mellitus’, ‘obesity’, ‘thyroid’, ‘adrenal’ and ‘pituitary’; the keywords ‘gonad’ OR ‘hypogonadism’ OR ‘PCOS’ OR ‘sexual dysfunction’ were used for retrieving data of reproductive endocrinology research; and ‘bone metabolism’ OR ‘osteoporosis’ OR ‘vitamin D’ were used for bone metabolism research. Bangladeshi contributions to endocrine research were compared to global and country-specific data during the periods ‘1972–2021’ and ‘2012–2021’. **Results:** Bangladesh has 2,467 articles in the PubMed database in different fields of endocrinology during the period 1972–2021, which is 0.132% of the total global endocrine publications published in this timeframe. We observed a gradual increment in the number of Bangladeshi publications over the last five decades in all fields of endocrinology. Over the last 10 years, the contribution has risen to 0.226% with 2003 publications. **Conclusions:** Currently, Bangladesh contributes very little to global endocrine research. An urgent call to amplify research works by Bangladeshi endocrinologists is of utmost importance to catch up with the global publications in endocrinology.

Keywords: Bangladesh, diabetes, endocrinology, medical research, thyroid

INTRODUCTION

Endocrinology is a highly specialized branch of internal medicine and is intimately related to other internal medicine specialties.^[1] Endocrinology is a discipline of the twentieth century and is one of the most rapidly evolving specialties of medicine.^[2] Basic and clinical researches in endocrinology are also expanding from the very beginning of the sub-specialty, and the endocrine research articles represent a countable part in the medical journals.^[3] Unfortunately, most endocrinology articles are published by authors from high-income countries, with few from low-income countries.^[4]

Bangladesh has earned independence in 1971 and has observed its 50th birthday in 2021.^[5] Since liberation, Bangladesh has achieved remarkable development in almost all sectors, including health.^[6] Health research is the key to success in the health sector. Unfortunately, clinical health research in Bangladesh is not well-structured and often a neglected act.^[7] Furthermore, such research activities are limited to a few organizations in the capital city only.^[8] The Bangladeshi endocrinology community has been snowballing in recent years. Bangladeshi endocrinologists are contributing to

endocrine research at national and international levels. However, data to measure the number of their research works are lacking. This article intends to summarize Bangladesh’s progress in endocrine research since her birth.

History of endocrinology in Bangladesh

As a specific entity, endocrinology started its journey in Bangladesh in 1987 with the commencement of the Diploma in Endocrinology and Metabolism (DEM) course at the Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) under the University of Dhaka. Later, the institute introduced a Doctor of Medicine (MD) course in endocrinology and metabolism in 1988. In 2006, MD course in the subject was also launched at Bangabandhu Sheikh Mujib Medical

Address for correspondence: Dr. A. B. M. Kamrul-Hasan, Assistant Professor, Department of Endocrinology, Mymensingh Medical College, Mymensingh - 2200, Bangladesh. E-mail: rangassmc@gmail.com

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University (BSMMU). MD residency courses are currently running in BSMMU, BIRDEM and Dhaka Medical College under BSMMU. Besides, the DEM course is also running in BIRDEM and Mymensingh Medical College under the same university. There are limited seats in these postgraduate courses, a total of 16 seats in the MD residency course and 10 seats in the DEM course in the country. Besides, the Bangladesh College of Physicians and Surgeons (BCPS) offers a fellowship programme for endocrinology and metabolism, which is also recognized as a postgraduate degree by Bangladesh Medical and Dental Council (BMDC). Currently, approximately 270 endocrinologists are working in the public and private sectors throughout the country. Bangladesh Endocrine Society (BES) was established 20 years back in 2003 to facilitate endocrine research and practice in the country.

METHODS

We retrieved data for the current study up to December 2021 from the PubMed database (<https://pubmed.ncbi.nlm.nih.gov>). The following search queries were developed using Boolean operators 'AND' and 'OR'. The global data for publications in various main fields of endocrinology were searched using the keywords 'diabetes mellitus', 'obesity', 'thyroid', 'adrenal' and 'pituitary'; the keywords 'gonad' OR 'hypogonadism' OR 'PCOS' OR 'sexual dysfunction' were used for retrieving data of reproductive endocrinology research; and 'bone metabolism' OR 'osteoporosis' OR 'vitamin D' were used for bone metabolism research. The country-specific data were

retrieved by searching the keywords using the relevant field of endocrinology and the concerned country, for example, 'diabetes' AND 'Bangladesh'. The search output was refined by '1972–2021' and '2012–2021'. Using this method, we retrieved global data and country-specific data for Bangladesh, India, Pakistan, Sri Lanka, Nepal, the UK (United Kingdom) and the USA (United States of America). In addition, we retrieved decade-wise data for the globe and Bangladesh from 1972 to 2019. The analysis focussed on the quantitative output of Bangladeshi authors and organizations and their collaborative interlinkages. Bangladeshi contributions to endocrine research were compared to global and country-specific data during the periods '1972–2021' and '2012–2021'.

RESULTS

Diabetes research

A PubMed search using the keywords 'diabetes' AND 'Bangladesh' from 01 January 1972 to 31 December 2021 revealed 1,487 articles [Table 1]; 1,217 articles (81.84%) were published in the last 10 years (January 2012 onwards) [Table 2]. The decadal cumulative publications of 1972–1979, 1980–1989, 1990–1999, 2000–2009 and 2010–2019 were 2, 9, 49, 153 and 817, respectively [Table 3].

Obesity research

A PubMed search using the keywords 'obesity' and 'Bangladesh' from 01 January 1972 to 31 December 2021 revealed 505 articles [Table 1]; 442 articles (87.52%)

Table 1: Cumulative publications in different sub-specialties in endocrinology from different countries in the last 50 years (January 1972–December 2021)

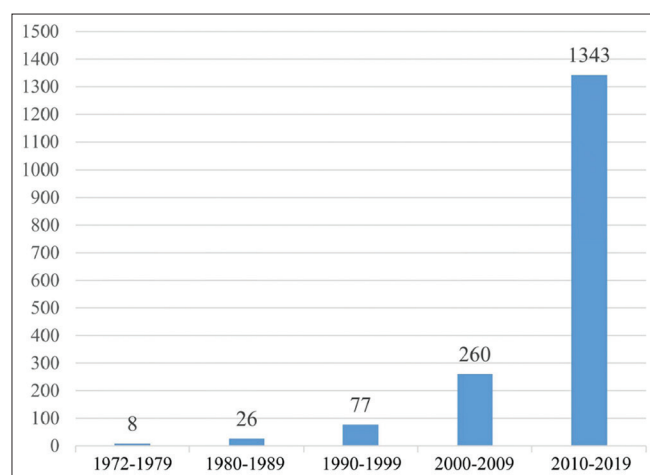
Endocrine sub-specialty	Bangladesh	India	Pakistan	Sri Lanka	Nepal	UK	USA	Global
Diabetes	1,487	23,446	3,154	807	666	46,534	143,735	740,388
Obesity	505	6,840	1,025	286	238	22,016	88,051	368,646
Thyroid	154	4,594	418	106	176	6,043	25,608	202,109
Adrenal	68	2,953	174	58	48	7,567	24,892	178,192
Pituitary	33	2,217	154	41	23	6,229	20,746	153,781
Reproductive	51	1,353	150	40	18	2,810	9,050	53,754
Bone metabolism	169	3,816	465	92	81	9,210	30,304	169,226
Total	2,467 (0.132%)	44,767 (2.399%)	5,540 (0.297%)	1,430 (0.077%)	1,250 (0.067%)	100,409 (5.381%)	342,223 (18.339%)	1866,096

Table 2: Cumulative publications in different sub-specialties in endocrinology from different countries in the last 10 years (January 2012–December 2021)

Endocrine sub-specialty	Bangladesh	India	Pakistan	Sri Lanka	Nepal	UK	USA	Global
Diabetes	1,217	17,232	2,573	641	557	29,746	71,717	394,154
Obesity	442	5,291	840	241	206	15,334	48,814	221,953
Thyroid	105	2,925	324	64	135	2,773	9,974	75,688
Adrenal	41	1,922	136	41	39	3,638	8,575	48,436
Pituitary	24	1,265	113	27	20	2,138	6,514	36,464
Reproductive	39	1,054	123	27	16	1,399	3,839	25,796
Bone metabolism	135	2,660	375	73	70	5,265	13,051	83,958
Total	2,003 (0.226%)	32,349 (3.649%)	4,484 (0.506%)	1,114 (0.126%)	1043 (0.118%)	60,293 (6.802%)	162,484 (18.329%)	886,449

Table 3: The decadal cumulative publications of 1972-1979, 1980-1989, 1990-1999, 2000-2009 and 2010-2019

Area of endocrinology	Region	Decades				
		1972-1979	1980-1989	1990-1999	2000-2009	2010-2019
Diabetes	Bangladesh	2	9	49	153	817
	Global	19,843	43,342	75,193	163,191	339,496
Obesity	Bangladesh	0	1	5	43	280
	Global	8,587	13,391	22,833	77,193	194,712
Thyroid	Bangladesh	0	2	10	26	84
	Global	17,121	26,449	32,475	40,901	66,459
Adrenal	Bangladesh	3	9	6	8	32
	Global	22,143	30,020	32,330	37,740	46,535
Pituitary	Bangladesh	2	3	1	2	16
	Global	18,604	30,915	31,665	30,549	34,653
Reproductive	Bangladesh	0	0	3	6	28
	Global	2,443	3,684	5,058	13,378	23,489
Bone metabolism	Bangladesh	1	2	3	22	86
	Global	5,320	9,591	18,690	40,697	76,042
Total	Bangladesh	8	26	77	260	1,343
	Global	94,061	157,392	218,244	403,649	781,386

**Figure 1: The decade-wise publications of Bangladesh**

were published in the last 10 years [Table 2]. The decadal cumulative publications of 1972–1979, 1980–1989, 1990–1999, 2000–2009 and 2010–2019 were 0, 1, 5, 43 and 280, respectively [Table 3].

Thyroid research

A PubMed search using the keywords ‘thyroid’ and ‘Bangladesh’ from 01 January 1972 to 31 December 2021 revealed 154 articles [Table 1]; 105 articles (68.18%) were published in the last 10 years [Table 2]. The decadal cumulative publications of 1972–1979, 1980–1989, 1990–1999, 2000–2009 and 2010–2019 were 0, 2, 10, 26 and 84, respectively [Table 3].

Adrenal research

A PubMed search using the keywords ‘adrenal’ and ‘Bangladesh’ from 01 January 1972 to 31 December 2021 revealed 68 articles [Table 1]; 41 articles (60.29%)

were published in the last 10 years [Table 2]. The decadal cumulative publications of 1972–1979, 1980–1989, 1990–1999, 2000–2009 and 2010–2019 were 3, 9, 6, 8 and 32, respectively [Table 3].

Pituitary research

A PubMed search using the keywords ‘pituitary’ and ‘Bangladesh’ from 01 January 1972 to 31 December 2021 revealed 33 articles [Table 1]; 24 articles (72.73%) were published in the last 10 years [Table 2]. The decadal cumulative publications of 1972–1979, 1980–1989, 1990–1999, 2000–2009 and 2010–2019 were 2, 3, 1, 2 and 16, respectively [Table 3].

Reproductive endocrinology research

A PubMed search using the keywords ‘gonad’ or ‘hypogonadism’ or ‘PCOS’ or ‘sexual dysfunction’ and ‘Bangladesh’ from 01 January 1972 to 31 December 2021 revealed 51 articles [Table 1]; 39 articles (76.47%) were published in the last 10 years [Table 2]. The decadal cumulative publications of 1972–1979, 1980–1989, 1990–1999, 2000–2009 and 2010–2019 were 0, 0, 3, 6 and 28, respectively [Table 3].

Bone metabolism research

A PubMed search using the keywords ‘bone metabolism’ or ‘osteoporosis’ or ‘vitamin D’ and ‘Bangladesh’ from 01 January 1972 to 31 December 2021 revealed 169 articles [Table 1]; 135 articles (79.88%) were published in the last 10 years [Table 2]. The decadal cumulative publications of 1972–1979, 1980–1989, 1990–1999, 2000–2009 and 2010–2019 were 1, 2, 3, 22 and 86, respectively [Table 3].

Comparison with other countries

In the last 50 years after her liberation (from 01 January 1972 to 31 December 2021), Bangladesh has 2,467 articles in different fields of endocrinology, which is 0.132% of the total global

endocrine publications. Meantime, the contributions of India, Pakistan, Sri Lanka and Nepal, the other countries of South Asia, are 2.399%, 0.297%, 0.077% and 0.067%, respectively. India has the highest contribution to global endocrine research in South Asia. It is reassuring and encouraging that all these South Asian countries have made relatively higher contributions to global endocrine research in the last 10 years (4.624% of global endocrine research) compared to the last 50 years (2.972% of global endocrine research). The contributions of Bangladesh, India, Pakistan, Sri Lanka and Nepal are 0.226%, 3.649%, 0.506%, 0.126% and 0.118%, respectively, in the last 10 years. The decade-wise endocrine publications of Bangladesh is given in Figure 1.

Limitations

The publications not listed in PubMed have not been considered in our analysis. Some publications might have multi-country authors or origins, leading to overlapping in the data. The searches do not imply that all these publications are from Bangladesh but imply a Bangladeshi link to all the included publications; either the publications were from Bangladesh, or one or more authors were from the country.

Future directions and way forward

As a sub-specialty of medicine, endocrinology is still very young in Bangladesh. Furthermore, we lack a national institute of endocrinology, which might lead our endocrinologists in academics and research. Government must realize the importance of the clinical endocrine service and research and the way forward to establish at least one national endocrine institute. Decentralization of endocrinology is also of utmost importance as the endocrinology-related service is limited to the capital city and hardly the divisional cities. Young endocrinologists should be facilitated in research activities. Collaboration with regional and international endocrine societies is also vital to flourish the subject in the country. As a member, the BES works very closely with the South Asian Federation of Endocrine Societies (SAFES) and the

International Society of Endocrinology (ISE). The exchange of knowledge, views, experiences and collaborative research should be enhanced.

CONCLUSIONS

The contribution of Bangladesh to the global endocrine research pool is minimal, and we lag far behind many other countries of the world, including most of our neighbours. Though it is reassuring that Bangladesh had a noticeable recent increment in publication, an urgent call to amplify research works by Bangladeshi endocrinologists is of utmost importance to catch up with the global publications in endocrinology.

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Conflicts of interest

There are no conflicts of interest.

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