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SOUTH ASIAN CONTRIBUTIONS TO THE INTERNATIONAL REHABILITATION LITERATURE: AN ONLINE LITERATURE SURVEY OF 10 YEARS

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ABSTRACT

INTRODUCTION

Physical medicine and rehabilitation (PM & R) deals with management, rehabilitation and community reintegration persons with disabilities. It is an emerging medical specialty in the South-Asian region (Pakistan, India, Bangladesh, Nepal, Srilanka ,Afghanistan, Bhutan and Maldives,). The region comprises 24% of the world population with a huge burden of disability. The contributions of South Asian authors to the international rehabilitation medicine literature are unknown. The aim of this study was to document the contributions of south Asian authors in the international rehabilitation literature in the last decade.

METHODS

Five leading international journals of PM & R were selected for the survey including American Journal of PM&R, Archives of PM&R, PM&R and Journal of Rehabilitation Medicine, Journal of Neurorehabilitation and Neural Repair

The online archives of these journals (Jan 2005- Dec 2015) were reviewed. Total number of manuscripts published in a single issue was noted. Author's affiliations were checked and manuscripts with at least one south Asian author were recorded. The article type, number of authors and author's country were noted. Similar data was also obtained for Turkey and Iran.

RESULTS

The total number of manuscripts published in these five major PM&R journals in the last decade is 8341. South Asian authors published only 18 manuscripts. Thirteen were from India and five articles were from Pakistan.

There was no contribution from any other South Asian country. In case of Pakistan, the same person was the lead and corresponding authors in all manuscripts. Fifteen articles had all South Asian authors while three articles had a foreign co-author too. The manuscripts were mostly related to Neuro-rehabilitation, Spinal cord injury & Pediatric followed by musculoskeletal, orthopedic and disaster rehabilitation. Most of the manuscripts were original research articles.

CONCLUSIONS

The contribution of South Asian authors to the leading international rehabilitation journals in the last one decade is less than 1 % although the burden of disability in this area is huge. There is a need to conduct more research on different aspects of disability and PM&R interventions and collaborate with colleagues abroad to improve the publication rate from this region of the world.

Keywords

Rehabilitation medicine, South Asia, Research; Physiatry; Pakistan

INTRODUCTION

Physical medicine and rehabilitation (PM&R) also referred to as physiatry or rehabilitation medicine is a branch of medicine concerned with "evaluation and treatment of, and coordination of care for, persons with musculoskeletal injuries, pain syndromes, and/or other physical or cognitive impairments or disabilities".¹ The primary focus is on maximal restoration of physical and psychological function, and on alleviation of pain. The South-Asian region consists of Pakistan, India, Bangladesh, Nepal and Srilanka. This is one of the most densely populated areas of the world with an

estimated 1.709 billion people living here.² It comprises 24% of the world population. The disability burden in this region is huge due to the underdeveloped health care infrastructure, rapid urbanization, increase in number of traffic accidents and lack of public awareness. PM&R is an emerging field in India, Pakistan and Bangladesh, while it does not exist in Sri-lanka, Nepal, and Afghanistan.

The contributions of South Asian authors and physiatrists to the international rehabilitation medicine literature are unknown. The current study aimed to review and document the contributions by the South Asian authors in the leading international rehab literature in the last decade.

METHODS

This was an online literatures search. Leading five international journals in the field of PM&R were selected. They were selected based on their Impact factor, affiliation with a national or international PM&R society, scope and geographical location. Currently all leading journals in PM&R are published from the USA or Europe. Journals selected for the survey were American Journal of Physical medicine and Rehabilitation (AJPM&R)³, Archives of Physical medicine and Rehabilitation (APMR)⁴, European Journal of Physical Medicine and Rehabilitation (EJPMR)⁵, Journal of Neurorehabilitation and Neural Repair (JNNR)⁶ and Journal of Rehabilitation (JRM).⁷

Only one PM&R journal is published from this region; Indian Journal of Physical Medicine and Rehabilitation. We excluded the journal from the analysis as it is not currently indexed in Medline and does not have any impact factor.

The online archives of these journals of Jan 2005- Dec 2015, was accessed and reviewed from their official websites. The data extracted and documented included types of manuscripts (original research articles, reviews, special communication, brief reports, case reports, visual vignette and book review were included)...total number of manuscripts published in a single issue, manuscripts with at least one south Asian author, (whether first or co-author); author's affiliations and topic of the article. Editorials and erratum were excluded. Similar data for Turkey and Iran was also noted for comparison.

RESULTS

The total number of manuscripts published in these five leading PM&R journals from Jan 2005- Dec 2015 was

8341. Only 18 manuscripts (0.22%) were authored or co-authored by an author affiliated with an institute in South Asia. Thirteen were from India and five were contributed from Pakistan. (Table 1)

Table 1 Details of the contributions of South Asian authors to the International Rehabilitation literature

S/No	Title	Journal	Year of Publication	Type of manuscript	Category of Manuscript	Country of origin	Corresponding author or co-author
1.	Rapid opening and closing of the hand as a measure of early neurologic recovery in the upper extremity after surgery for cervical spondylitic myelopathy.	Archives of Physical Medicine and Rehabilitation	2005	Original research article	Neurorehabilitation	India	Corresponding author
2.	Compliance with Walking Aid Use in Children with Cerebral Palsy in India	American Journal of Physical Medicine & Rehabilitation	2006	Brief report	Pediatric Rehabilitation	India	Corresponding author
3.	Genu Recurvatum in Hemiploia: A Case Report	Archives of Physical Medicine and Rehabilitation	2007	Case report	Orthopedic Rehabilitation	Australia with an Indian Co-author	Co-author
4.	Spinal Cord Injury Management and Rehabilitation: Highlights and Shortcomings from the 2005 Earthquake in Pakistan	Archives of Physical Medicine and Rehabilitation	2008	Special communication	Spinal Cord Injury	Pakistan with foreign co-authors	Corresponding author
5.	Continental variations in preoperative and postoperative management of patients with anterior cruciate ligament repair	European Journal of Physical and Rehabilitation Medicine	2008	Original research article	Orthopedic Rehabilitation	Multiple countries with an Indian author	Co-author
6.	Pressure Ulcers in Spinal Cord Injury: An Unusual Site and Etiology	American Journal of Physical Medicine & Rehabilitation	2009	Case report	Spinal Cord Injury	Pakistan	Corresponding author
7.	Health-related problems and effect of specific interventions in spinal cord injury: An outcome study in Northern India	European Journal of Physical and Rehabilitation Medicine	2010	Original research article	Spinal Cord Injury	India	Corresponding author
8.	Community Reintegration in Rehabilitated South Indian Persons with Spinal Cord Injury	Archives of Physical Medicine and Rehabilitation	2010	Original research article	Spinal Cord Injury	India	Corresponding author
9.	Efficacy of Knee Braces and Foot Orthoses in Conservative Management of Knee Osteoarthritis: A Systematic Review	American Journal of Physical Medicine & Rehabilitation	2011	Review article	Musculoskeletal Medicine	India	Corresponding author
10.	A Report on Disability and Rehabilitation Medicine in Pakistan: Past, Present, and Future Directions	Archives of Physical Medicine and Rehabilitation	2011	Special communication	General Rehabilitation & Disability	Pakistan	Corresponding author
11.	Medical Rehabilitation after Natural Disasters: Why, When, and How?	Archives of Physical Medicine and Rehabilitation	2012	Special communication	Disaster Rehabilitation	Pakistan with foreign co-authors	Corresponding author
12.	Meeting the challenges of spinal cord injury cases following sudden onset disaster: lessons learned	Journal of Rehabilitation Medicine	2012	Special report	Spinal Cord Injury	Canada with a Pakistani co-author	Co-author
13.	Responsiveness of Edinburgh Visual Gait Score to Orthopedic Surgical Intervention of the Lower Limbs in Children with Cerebral Palsy	American Journal of Physical Medicine & Rehabilitation	2012	Original research article	Pediatric Rehabilitation	India	Corresponding author
14.	Effectiveness of Myofascial Release in the Management of Lateral Epicondylitis in Computer Professionals	Archives of Physical Medicine and Rehabilitation	2012	Original research article	Musculoskeletal Medicine	India & Malaysia	Corresponding author
15.	Survival in Persons with Traumatic Spinal Cord Injury Receiving Structured Follow-Up in South India	Archives of Physical Medicine and Rehabilitation	2014	Original research article	Spinal Cord Injury	India	Corresponding author
16.	Motor Therapy Enhances Motor Performance in the Paretic Upper Limb after Stroke: A Pilot Randomized Controlled Trial	Archives of Physical Medicine and Rehabilitation	2014	Original research article	Neurorehabilitation	India	Corresponding author
17.	A Rare Presentation of Subacute Progressive Ascending Myelopathy Secondary to Cement Leakage in Percutaneous Vertebroplasty	American Journal of Physical Medicine & Rehabilitation	2014	Case report	Neurorehabilitation	India	Corresponding author
18.	Medical Rehabilitation in Natural Disasters: A Review	Archives of Physical Medicine and Rehabilitation	2015	Review article	Disaster Rehabilitation	Australia with a Pakistani co-author	Co-author

There was no contribution from any other South Asian country. In case of Pakistan, the same physiatrist was the lead author/ corresponding author in all manuscripts. Fifteen articles had all South Asian authors while three articles had a foreign co-author. The manuscripts were mostly related to, spinal cord injury, neuro-rehabilitation and pediatric rehabilitation followed by musculoskeletal, orthopedic rehabilitation and disaster rehabilitation. Eight manuscripts were original research articles. Rest were a mix of review articles, special communications and case reports. (Table 2)

Table 2 Types and Categories of Manuscript

Type Of Manuscripts	Original Research Article	8
	Case Report	3
	Special Communication	3
	Review Article	2
	Special Report	1
	Brief Report	1
Category Of Manuscripts	Spinal Cord Injury	6
	Neurorehabilitation	3
	Pediatric Rehabilitation	2
	Musculoskeletal rehabilitation	2
	Orthopedic Rehabilitation	2
	Disaster rehabilitation	2
	General Rehabilitation & disability	1

During the same time, authors from Turkey and Iran published 242 and 21 manuscripts in these top five journals.

DISCUSSION

The research culture in South Asia is still evolving and has received low priority overall. The number of researchers as well as the research funding combined expenditure on research and development as a percent of gross domestic product (GDP) in the South Asian countries is low as compared to the developed countries.⁸ Majumder et al conducted a geographical analysis of biomedical publications from the South Asian countries over 25 years (1985-2009) using the PubMed database. They documented that only 1.1% of the articles indexed in PubMed in this period were published from South Asian countries.⁹

We have observed a similar pattern for publications from South Asian authors in the leading Rehabilitation medicine journals in a ten-year period (2005-2010). There can be many possible explanations for this low rate of publications. Rehabilitation medicine is advancing at a rapid pace in the High income countries while it is under developed in South Asian countries. These high-ranking Rehabilitation journals would prefer to publish new and interesting advances in PM&R instead of repetition of old, techniques and facts already known. There have been an increase in the number of randomized control trials being conducted and published in Rehabilitation Medicine in the last two decades. Unfortunately, high quality rigorously planned RCT in rehabilitation medicine are not being conducted in South Asian countries. Descriptive studies have a lower chance of acceptance as compared to a well-designed RCT. Another limiting factor could be the

open access fee structure of some leading PM&R journals. The publishing cost of 60-200 Euros/page¹⁰ is prohibitive for an author working in South Asia as most of them lack any institutional support to cover the cost of publications. Other factor could include the problems being faced by researchers based in low-income countries who do not have English as their first language.^{11,12} Additional factors are availability of a limited number of trained physiatrists in only three countries (Bangladesh, India and Pakistan) who can conduct research related to rehabilitation medicine and publish it in international PM&R journals.

Most of the manuscripts published from South Asia during this ten-year period were from India. This is consistent with similar findings, which report that India has the best research output from this region. There is a need for better cooperation and collaboration among researchers and physiatrists from different South Asian countries in order to increase the scientific output. This trend also reveals the high research output of Turkey and Iran in the field of PM&R which is substantially better than the combined output of South Asian countries.

There are some limitations of the study. We only selected top five PM&R journals. There is a possibility that South Asian authors have published manuscript in other international PM&R journals in the same period, which we could not document. We did not contact the corresponding authors of these manuscripts to get an insight regarding their motivation and struggle to publish in these high-ranking international PM&R journals. In addition, we could not conclusively decide only based on the authors information provided if the lead author was a physiatrist or not.

RECOMMENDATIONS

We recommend the following to improve the research output in PM&R and disability from South Asia.

- There is a need to establish PM&R research groups in different South Asian countries, which should collaborate and coordinate between the different countries. These groups, should conduct research on different PM&R topics by contributing data and promoting exchange visits.
- Registries on different disabilities like Stroke, spinal cord injuries, pediatric disabilities and rheumatologic should be established in the South Asian countries. It will facilitate estimating the actual burden of these disabilities and documenting data.
- South Asian physiatrists should coordinate and collaborate with the international PM&R societies

like International society of PM&R, European Society of PM&R, Asia-Oceanic society of PM&R in order to establish mentoring program between the physiatrists based in South Asia and abroad in order to improve the research output.

- A national body of physiatrists should be created, governed by leading local Physiatrists providing healthcare as well as collaborating with international physiatrists.
- Training courses should be offered to those willing to improve their research skills which will genuinely improve the output.

CONCLUSIONS

The contribution of South Asian authors and physiatrists in the international rehabilitation journals over a period of 10 years is less than 1 % although the burden of disability in this area is huge. There is a need to conduct more research on different aspects of disability and PM&R interventions and collaborate with colleagues abroad to improve the publication rate from this region of the world.

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Sermad Ahmad Mangat; Study concept and design, protocol writing, data collection, data analysis, manuscript writing, manuscript review

Farooq Azam Rathore; Study concept and design, data collection, data analysis, manuscript writing, manuscript review

Shahbaz Ali Nasir; Study concept and design, data collection, data analysis, manuscript writing, manuscript review

Mubasshar Shahid; Study concept and design, data collection, data analysis, manuscript writing, manuscript review

Hassan Altaf; Study concept and design, data collection, data analysis, manuscript writing, manuscript review