



## Public health and allied career choices for AYUSH graduates in India

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### ABSTRACT

**Introduction** Until the very recent time majority of AYUSH graduates were limited to their own field of study with few exceptions in to the field of public health and allied areas. The reasons could be lack of awareness, unavailability of suitable job opportunity or a sense of insecurity in a relatively new and offbeat domain of work. However more recently, there has been a paradigm shift; with increase in information access, awareness of job opportunities and a great degree of professional and personal satisfaction. This has led to a huge rush of these graduates in to the field of public health and allied areas.

**Objective** To explore public health and allied career choices for AYUSH graduates with special reference to the scopes and opportunities in each of these fields.

**Methodology** Review based study. Information was obtained by systematic search process using internet based Google, Google Scholar search engines.

**Discussion** The results obtained were pertinent to the domain of public health and allied careers including Public health and related areas such as; Health and Hospital Management, Health Policy, Health Economics, Health Care Financing, Epidemiology, Medical Sociology, Clinical Research, Pharmaceutical Management etc. it is observed that the placement and job opportunities are much more because of the rapid expansion of health care industry in India with endeavors from public and private stakeholders. There has been a multimillion dollars investment by various national and international donor agencies, pharmaceutical sector, central and state governments and the development partners.

**Conclusion** AYUSH graduates can definitely find this field interesting as well as challenging and job opportunities may not be a problem for the right one.

**Keywords:** AYUSH, Public Health, Career Choices.

### INTRODUCTION

AYUSH is an acronym for Ayurved, Yoga & Naturopathy, Unani, Sidha and Homeopathy and are the six Indian systems of medicine prevalent and practiced in India and some of the neighboring Asian countries with very few exceptions in some of the developed countries. In fact India is the only country to legalize six indigenous systems of medicine

parallel to modern/allopathic system of medicine. All these six systems of medicine have got a formal education system in their respective disciplines in various states across the nation. The institutions offer UG, PG and even PhD programmes in different disciplines across the pathies/systems. The undergraduate degrees imparted across different systems are of 5 and ½ years duration and the post

GJMEDPH 2013; Vol. 2, issue 4

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Conflict of Interest—none

Funding—none

graduations are of three years duration. The students in these courses are taught about the Non-clinical, Para-clinical and Clinical courses during their graduation like their Allopathic counterparts. The nomenclatures used for the UG courses are BAMS (Bachelor of Ayurvedic Medicine and Surgery), BNYS (Bachelor of Naturopathy and Yogic Science), BUMS (Bachelor of Unani Medicine and Surgery), BSMS (Bachelor of Siddha Medicine and Surgery), and BHMS (Bachelor of Homoeopathic Medicine and Surgery) for Ayurved, Yoga & Naturopathy, Unani, Siddha and Homoeopathy respectively. All these graduates get some sort of orientation at their UG level to the concepts of public health and allied areas. A special department called Department of Indian Systems of Medicine and Homoeopathy (ISM&H) was created in March, 1995 and re-named as Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) in November, 2003 with a view to provide focused attention to the development of education and research in Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy systems<sup>1</sup>. As on 1-1-2010 there were 785185 registered AYUSH doctors in India. During 1980-2010, an average annual growth rate of 2.5% was observed in number of AYUSH doctors with a maximum growth rate of 11.8% recorded in 2000<sup>2</sup>.

Until recently majority of AYUSH graduates were limited to their own field of study with few exceptions in to the field of public health and allied areas. The reason might be lack of awareness, unavailability of suitable job opportunity or a sense of insecurity in a relatively new and offbeat domain of work. But these days have witnessed a paradigm shift; with the increase in information access, awareness about job opportunities and a great degree professional and personal satisfaction led to a huge rush of these graduates in to the field of public health and allied areas. One step in this direction is the emergence of National Rural Health Mission in India which undoubtedly created lot of opportunities in this domain in terms of creating a cadre of health care management professionals at various levels such as block, district, state and central level. In a broader sense it created professionals almost in every domain of public health management such as programme manager, accounts manager, monitoring

and evaluation consultant, health economics and planning consultant, health human resource consultant, health informatics consultant, health education-media- social communication consultant, hospital manager and other positions such as Epidemiologist, Microbiologist, Entomologist, Counseling and social work consultants etc. Apart from these public sector openings, health care industry in India is booming by leaps and bound and requires a lot of professionals in this domain so also the bio-pharmaceutical and clinical research industry. It is needless to mention here that all these public and private sectors have laid emphasis on AYUSH graduates, identified their skills and importance in terms of their educational training, experience and exposure and are given preference in the recruitment process in comparison to general graduates. This is because of their better insight about health system, hospital and medical issues in India. So a detailed discussion in terms of educational opportunity, career opportunity and challenges in an Indian context will help us to have a better insight about it and may help otherwise to use these untapped workforces in public health and allied areas<sup>3</sup>.

#### OBJECTIVE

In Indian public health system the AYUSH workforce has been identified and is given special position in the delivery of health care. AYUSH graduates enjoy an upper hand in getting in to the field of public health as per their educational training, experience and exposure and in fact due to their better understanding about health, hospital and medical issues in an Indian context. So these graduates could be a potential workforce in public health and allied areas as per their interest and training. A review of this kind has an objective to explore various public health and allied career choices for AYUSH graduates with special reference to the scopes and opportunities in each of these fields. Though it has been evidenced by different sources that these graduates are moving abroad in search of career choices related to the above said fields but the present document will mainly focus the same in an Indian context.

#### METHODOLOGY



Information pertaining to existing long term and short term teaching and training programs in public health and allied areas such as Health & Hospital Management, Health Policy, Health Economics, Health Care Financing, Epidemiology, Medical Sociology, Clinical Research, Pharmaceutical Management in India were obtained by using systematic search strategies. Two internet based search engines were used for the purpose of study, internet-based Google search engine was used to obtain an exhaustive list of institutions offering courses in public health and allied fields and opportunities pertaining to the same where as Google Scholar was used to obtain various scholarly articles regarding career options and choices related to this field of study. A deliberate attempt was made to exclude the institutions running courses without statutory approval.

## DISCUSSION

Following sections discuss each of these public health and allied career choices in terms of education, job opportunities, scopes as well as challenges.

## PUBLIC HEALTH

C. E. A. Winslow in 1920 defined public health as "The science and art of preventing disease, prolonging life, and promoting health and efficiency through organized community efforts....."<sup>4</sup>. Above definition emphasizes that public health is a science as well as an art i.e., one of the most unique aspects of public health and one that continues to separate public health from many other social movements is its grounding in science,<sup>5</sup> on the other hand practice of public health is an art. The second part talks about the objectives of public health, i.e., prevention of disease, prolongation of life and promotion of health. The third part talks about the modus operandi or approaches to public health practice i.e., organized community efforts, which on the other hand come from public health leadership skills fortified with technical skills. Accordingly public health educational programmes try to embrace and incorporate all these concepts necessary to satisfy the above said definition of public health. Institutions in India commonly (not always, may be customized according to the need and specializations offered) have the following curriculum for a formal public health

course, such as- Introduction to Public Health Practice, Epidemiology, Biostatistics, Health Education and Promotion, Social and Behavioral Health, Demography, Public Health Nutrition, Environmental and Occupational Health, Infectious and Chronic Diseases, Health Policy, Health Economics and Financing, Public Health Informatics, Women's Health, Child Health and Family Welfare, Public Health Leadership, Research Methodology, Health system Planning and Management etc.

A student after finishing his/her formal education in public health is able to professionally manage a health and development system; able to use concepts and principles associated with health and development problems; able to understand epidemiological principles and statistical techniques; able to apply these methods in the measurement and assessment of health and development needs of the community; able to plan, implement and evaluate health and development programmes; able to understand the influences social, cultural, biochemical and socio psychological factors on health and diseases; able to apply the principles of health promotion in health and development strategies; able to conduct empirical studies, by formulation of a question of social relevance, collection of reliable and valid data, documentation of findings, preparing project proposals and its management.

Looking at the educational opportunities it can be seen that in the last few years there has been a conscious shift in public health education in India with few institutions initiating public health programs for both medical(Inclusion and/or exclusion of AYUSH graduates) and nonmedical graduates. Some of them offer core public health programs (General Masters in Public Health - MPH) and some of them offer specialized courses (MPH with tracks/specialization such as Epidemiology/Social Epidemiology; Biostatistics; Health System management; Health Policy, Economics and Financing; Health care IT/Informatics; Environmental and Occupational Health; Clinical Research; Maternal and Child Health, Public Health in Social Work, Programme Design etc.). Presently a total of 23 institutions offer MPH programs in India with annual intake capacity of 573 candidates<sup>6,7</sup>. Institutions in

India offering MPH programme consists of 2 academic years/four semesters with or without an internship in the 4<sup>th</sup> semester with few institutions offering 1 year programme (Institute of Health Management Research in collaboration with John Hopkins Bloomberg School Public Health, USA and International Institute of Population Sciences, Mumbai). Some institutions provide one year post graduate diploma programme either in public health (Asian Institute of Public Health, Bhubaneswar) or with some specialization (Public Health Foundation of India through its hub of four Indian Institute of Public Health at New Delhi, Hyderabad, Gandhinagar and Bhubaneswar offer PG Diploma in Public health Management; Biostatistics and Data Management; Clinical Research; Health economics, Health Policy and Financing, Epidemiology, Health Promotion-Tobacco Control, Public Health Nutrition and Public Health Research Methodology)<sup>8</sup>.

A detailed analysis regarding the educational opportunities, institutions, job opportunities with special references to AYUSH graduates in an Indian context is described below. (The list excludes institutions in India where AYUSH graduates are not eligible to enroll for a programme in public health in general or with any specialization)

- I. Public Health (General Stream)- List of institutions (not complete list) picking up AYUSH graduates for MPH(General) are Tata Institute of Social Sciences, Mumbai; Asian Institute of Public Health, Bhubaneswar; Mahatma Gandhi University, Kerala; SRM school of Public Health, Chennai; Padmashree School of Public Health, Bangalore (Rajiv Gandhi University of Health Sciences); Datta Meghe Institute Medical Sciences, Nagpur; Sam Higginbottom Institute Agriculture Technology and Sciences, Allahabad; Manipal Academy of Higher Education, Manipal; Indian Institute of Health Management Research, Jaipur; Maharashtra University of Health Sciences, Nashik; University of Lkhnow etc.
- II. Epidemiology and Biostatistics- SRM School of Public Health, Chennai; Christian Medical College, Vellore, International Institute of Population Sciences, Mumbai, Krishna Institute of Medical Sciences University, Karad; Indian Institute of

Public Health, Delhi, Hyderabad; Pravara Institute of Medical Sciences, Loni, Ahmednagar; Manipal Academy of Higher Education, Manipal; Tata Institute of Social Sciences, Mumbai etc.

- III. Health Policy, Economics and Financing- Tata Institute of Social Sciences, Mumbai; Indian Institute of Public Health, Delhi
- IV. Health System Management- SRM School of Public Health, Chennai; Institute of Public Health, Bangalore; Indian Institute of Health Management Research-Jaipur, Delhi, Bangalore; Indian Institute of Public Health-Delhi, Bhubaneswar, Gandhinagar, Symbiosis International University, Pune; Tata Institute of Social Sciences, Mumbai; Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad
- V. Public Health Nutrition- Maharashtra University of Health Sciences, Nashik; Indian Institute of Public Health, Delhi; Annamali University, TN.
- VI. Health care-IT/Health Informatics- SRM School of Public Health, Chennai; Indian Institute of Health Management Research, Delhi; C-DAC (Center for Development of Advanced Computing), Pune
- VII. Occupational Health- SRM School of Public Health, Chennai
- VIII. Clinical Research- SRM School of Public Health, Chennai; IIPH, Delhi
- IX. Maternal, Reproductive and Child Health- Sam Higginbottom Institute of Agriculture, Technology and Sciences, Allahabad; Manipal Academy of Higher Education, Manipal; Indian Institute of Public Health, Delhi; Karnataka University, Dharwad etc.
- X. Public Health in Social Work- Tata Institute of Social Sciences, Mumbai.
- XI. Medical Sociology- Dr MGR Medical University, Tamilnadu; Madras University, Chennai.

All the above said institutions either offer 2 years Master degree in public health or one year Diploma courses in Public health (General or with specializations). AYUSH graduates after completing their formal training in public health in general or with specialization can gain access to public sector organization, NGOs, bilateral or multilateral organizations, research firms both public and private, health care consultancies, IT, pharmaceuticals and clinical research industry as per their training and

exposure. There is a huge demand of these professionals in the near future. An example can be quoted here to understand this, the Ministry of Health and Family Welfare, Government of India, launched Integrated Disease Surveillance Project (IDSP) which required a trained epidemiologist to be recruited in each district thereby requiring 626 epidemiologists. But due to lack of trained professionals, these positions in many districts across various states are lying vacant. A career in the above said domain is always challenging and competitive and requires lot of technical, leadership, communication skills and good personality traits for a sustainable job.

### HEALTH AND HOSPITAL MANAGEMENT

Hospital and Health management often called as Health care management which applies the tools and techniques of management to the field of health care or individually to hospital or public health sector. In a broader sense hospital management prepares students for leadership roles in hospital sector through training in planning, operational and project management of hospitals including orientation in managerial aspects of clinical and support service departments. This also imparts training in managing financial, material and human resources as well as planning and managing information system in hospital settings. Similarly a health management programme prepares to take up managerial position with the Government health service system specifically in the national health programmes, the NGO sector and community based health programmes by building capacities in planning, implementing, monitoring and evaluating those programmes. It also orients the students to the macro issues relevant to health policy and programming in the country.

Now if we look at the institutions offering hospital and health management courses in India; a total of fifty-one institutions are identified which offer courses on hospital and health management and an approximately 2500 students would be produced every year based on the yearly intake of students in these institutions<sup>9</sup>.

Below is a list of few institutions offering courses on hospital and health management excluding some institutions taking only MBBS graduates for their programme.

- I. Hospital and Health management- Indian Institute of Health Management Research- Jaipur, Delhi and Kolkata; Tata Institute Social Sciences-Mumbai, Symbiosis International University, Pune; Goa Institute of Management, Goa, Devi Ahalya University, Indore; Jamia Hamdard University, New Delhi etc.
- II. Hospital Administration- Mahatma Gandhi University, Kerala; Datta Meghe Institute of Medical Sciences, Nagpur; Padmashree College of Hospital Administration, Bangalore; Institute of Business and Computer Studies, BBSR; Apollo Institute of Hospital administration, Hyderabad; Academic Staff College of India, Hyderabad etc.
- III. Health Management- Indian Institute of Public Health-Delhi, Gandhinagar, Bhubaneswar; Pravara Institute of Medical Sciences, Loni.

The placement and job opportunities are much more because of the rapid expansion of health care industry in India with endeavors from public and private stakeholders. There has been a multimillion dollar investment by various national and international donor agencies, pharmaceutical sector, central and state governments and the development partners. A 23% of annual growth is estimated according to Yes Bank and an industry body report published in November 2009<sup>9</sup>. Although approximately 2500 professionals are produced every year but the demand assessment has projected that 20,000 professionals would be required based upon the country's present need, that reflects the dearth of workforce capacity<sup>10</sup>.

### PHARMACEUTICALS AND CLINICAL RESEARCH:

As per the guidelines of Clinical practice (GCP) a clinical trial is any investigation in human subjects intended to discover or verify the clinical, pharmacological and/or the pharmacodynamic effects of an investigational product, and/or to identify any adverse reactions to an investigational product, and /or to study absorption, distribution, metabolism and excretion of an investigational

product with the object of ascertaining its safety and efficacy. The term clinical trial and clinical research is synonymous<sup>11</sup>. It has emerged as a popular career choice in India and abroad. Holding a strong growth potential, a clinical research profile has become a calling for many. India being a land known for Ayurveda, Unani, Siddha, and Homeopathy besides allopath is growing as the preferred destination for global clinical trials. India is increasingly being recognized as a hub for global clinical trials owing to the following prized attributes, such as large and diverse patients' pool for conducting clinical trial; availability of medical (including AYUSH), pharmacy and science graduates; excellent infrastructure facilities; comparative cost advantage and change in patent law. Again India is a home to one billion people, including 30 million with cardiovascular diseases, 25 million with type-2 DM, and 10 million with major psychiatric disorders. Large extended families still also live in proximity to one another making them attractive to genetic linkage studies<sup>22</sup>. According to McKinsey & Company report the Indian Pharmaceutical market will grow to USD 55 by 2020 driven by a steady increase affordability and step jump in market access<sup>23</sup>.

Following are some of the educational institutions and courses available in India for AYUSH graduate in pharmaceutical and clinical research area. These institutions offer either an MSc clinical research or a PG Diploma in clinical research, regulatory affairs, medical writing, data management, Pharmaceutical Management etc.

- I. Msc Clinical Research- Institute of Clinical Research India; SRM School of public health; Birla Institute of Technology and Sciences, Mesra; Maharashtra University of Health Sciences, Nashik (MSc

Pharmaceutical Medicine); Padmashree Institute of Clinical Research (Rajiv Gandhi University of Health Sciences), Sikkim Manipal University-Distance Education ( Distance learning) etc.

- II. PG Diploma- Institute Clinical Research India; Indian Institute of Public Health-Delhi etc.
- III. Pharmaceutical Management- Indian Institute of Health Management Research- Jaipur
- IV. Biostatistics and Data management- Indian Institute of Public Health, Hyderabad; SRM School of Public Health; International Institute of Population Sciences, Mumbai; Christian Medical College, Vellore etc.

Students after obtaining formal training in clinical research can work as Clinical Research Associate, Clinical Research Advisor, Project Manager, Group Project Manager, and Operation Director depending upon experience. The pharmaceutical management students can start a career either in the marketing and sales division or in the production division depending on educational background, training, and experience.

#### CONCLUSION AND RECOMENDATION

AYUSH graduates can definitely find this field both interesting as well as challenging. Apart from their own field of study if these graduates are involved in careers related to public health and allied areas probably opportunities won't be a problem for the right one. In one of the studies conducted in two Ayurveda colleges of Odisha it was found that 70% of AYUSH graduates are interested in pursuing a career in public health<sup>14</sup>. Nowadays with the emergence of NRHM (National Rural Health Mission) AYUSH doctors are also actively involved in public health practice<sup>3</sup>.

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