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Information Needs of the Allopathic Medical Practitioners in Tamilnadu, India: An Analysis

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ABSTRACT

Purpose: *The paper finds out the information needs of the allopathic medical practitioners in Tamilnadu and analyse the influencing factors.*

Methodology: *Survey is conducted among the allopathic medical practitioners working in five districts of Tamilnadu. Five point Likert-type structured questionnaire as a tool is used for collection of primary data. Average weighted scores, students-t-test, one way ANOVA and post-hoc tests statistical tools are used for data analysis.*

Limitation: *Only allopathic medical practitioners are used. Other systems of medicine practitioners are not included.*

Findings: *Allopathic medical practitioners top priority information needs are treatment-drug- therapy, differential-diagnosis, disease-complications, diagnostic-procedures, drugs-adverse-effects. Workplace and Educational qualification are the most influencing factor of the medical practitioners information needs than the gender and workplace.*

Keywords: *Medical practitioners, Information needs, Information Seeking Behaviour, Clinical Information needs, Influencing factors.*

Paper Type: *Research Article*

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Introduction

In recent decades, scientific knowledge has changed dramatically, once-settled scientific principles have been replaced by more sophisticated concepts, entirely new disciplines and also parallel changes have occurred in medical education, practice and health care delivery system (**Jules, 2008**). By the nature medical professionals render their services to the suffering humanity. They serve the society reasonably well that the profession is rightly called ‘Noble Profession’. They are motivated by humanitarian consideration with a strong desire to help others and relieve their suffering (**Fimate, 2008**)

The medical practitioners cannot practice with only high quality of medical education in medical colleges and without constantly updating their clinical skills. They encounter more than 500 clinical topics every year, so the information need is much broader than that of other specialities, which may in turn lead to specific problems for which these clinicians are searching many resources for answers (**Gonzalez et al, 2007**). Critical skill for physicians is the timely access to that wide variety of clinical information sources that contribute to the decisions in patient care. Specific questions about patient management arise in daily practice with drug prescribing-questions, being the most common type of questions (**Ely et al, 1999**).

Practicing physicians seek the information for the following reasons

- ❖ to study the clinical care of individuals;
- ❖ to obtain answers for patient-specific questions ;
- ❖ to acquire pharmacological information;
- ❖ to study the newer developments in clinical medicine;
- ❖ to fill specific gaps in knowledge on “new” diagnostics and therapies; and
- ❖ to satisfy curiosity, personal interest and inclination.

The exponential growth of medical literature, volume of unpursued clinical questions and increasing time constraints faced by the clinicians provide a disconcerting picture of knowledge-related issues in the current clinical practice (**Rebella, 2001**).

Review of Literature

Information needs depending upon the nature of information and types of users. Users characteristics are based on necessity, educational qualification, relevancy, gender, experience

etc. The following reviews are focusing the medical practitioners/ medical scientists information needs

Premssmit, (1990) carried out a study on the developing country academic medical scientist information needs. The results indicated that the scientists have three types of Information needs: identifying up-to-date information, obtaining relevant studies and data, and developing research in medical and allied health topics. **Cheng and Lam (1996)** conducted a study on the Hong Kong teaching hospital medical practitioners' information seeking behaviour. Teaching hospital practitioners' information needs are keeping oneself up-to-date, writing papers, preparing for course works, lectures, talks, undertaking researches and solving the clinical problems are the main reasons for seeking information.

Jerome et al, (2001) has reported the information needs of the teams of the medical practitioners in the university medical centre. Information Consultant Service (CIS) librarians received many clinical questions from various units of the Eskind Biomedical Library at Vanderbilt University medical center. Among the unique queries, the top two categories accounted for 67% of treatment and 31% of disease description. The result revealed that the practicing physician needs the following types of medical information: diagnosis/etiology, diagnostic procedures, disease complications, disease prognosis, patient information / education, treatment, drugs adverse effect, and treatment efficacy for their evidence purpose.

Nigerian metropolis doctors' information needs are specific and enhance their clinical knowledge on a day-to-day basis (**Ocheibi, and Babu, 2003**). Iranian University of medical sciences specialists, residents and interns' information needs and seeking behaviour vary significantly based on their educational qualification (**Bigdeli, 2004**). Hawaii medical practitioners Information needs, use and Information access problems are influenced with the practitioners' location (**Lundeen, Tenopir, and Wemager 1994**)).

Publications in the clinical and biomedical sciences have proliferated at a rate that makes it almost impossible to clinicians to keep up-to-date the developments in specific fields, and conflicting published results on diagnostic and therapeutic procedures that may introduce doubts in the decision making for patient care. Physicians and other health researchers alike have had to adopt new seeking activities and develop new skills in interpreting and evaluating the published

data available from research and in applying it today for decision-making. (**Tsafri and Grinbreg 1998**). **Gonzalez et al, (2007)** made an attempt to study on the Spanish primary care physicians' information needs and seeking behaviour. Physicians received most frequent questions from the patients that related to diagnosis (53%) and treatment (26%).

Rural and non-rural primary care clinicians' information needs, seeking behaviour, use of resources, and effectiveness in finding the clinical answers to the patient's clinical questions are no statistically significant (**Gorman, Yao, and Seshadri, 2004**). Family physicians seek the answers for patient-oriented clinical questions and drug prescribing questions. Urban physicians sought answers to more questions than rural physicians (**Ely, Burch and Vinson, 1992**).

Gruppen (1990) showed a picture of physicians seeking advice and additional information in the context of solving day-to-day problems by accessing a variety of sources. Physicians are not uniform in their needs or strategies and preferences for seeking information. Solving the patient care was the most common reason, which included general care about disease-progress, diagnosis, treatment, patient-education, curiosity, and research purpose ⁽¹⁶⁾.

Significance of the study

In developing countries like India, information needs and seeking behaviour studies among the teaching faculties, students, research scholars, engineering faculties, agricultural scientists, and sericulture scientists in colleges, universities, and research centers are more than the medical practitioners.

Objectives

This study is mainly focusing the following objectives.

1. To find out the medical practitioners information needs
2. To find out the influencing factors for medical practitioners information needs.

Study Region, Sample Selection procedure and Sample Details

Study region is Salem, Erode, Trippur, Coimbatore and the Nilgris districts, in Tamilnadu, India. There are five thousand two hundred and ninety allopathic medical practitioners in the study universe. Considering that, the universe is not homogeneous with regard to the characteristics under this study. Populations are stratified into homogeneous segments or strata. Strata are formed based on the practitioners' gender, educational qualification and workplace in each district. First the population is divided into mutually exclusive categories whose sampling units are heterogeneous between the categories but homogeneous within each category. These categories are called as strata. Stratified Proportionate Random Sampling (SPRS) method is applied. From each stratum, 10% of the sample is selected proportionately. Out of the total respondents (529), 111(20.983%) are UG (MBBS), 165(31.191%) of the practitioners have PGD (MBBS with Diploma) and 253(47.826%) are PG medical practitioners (MBBS with MD/MS/DNB). Among the total practitioners, 321(60.681%) are males and 208(39.319%) are females. Out of 529 practitioners, 162(30.624%) are rural practitioners, 190(35.917%) are suburban practitioners and 177(33.459%) are urban practitioners.

Methodology

Survey method is applied for this study. Open-ended Likert-type (five point scale) questionnaire is the primary data collection tool. It is well structured, preplanned, easily understandable, mostly close ended, logically sequenced and in simple English. Questionnaire Part - I consists of demographical details of the medical practitioners including gender, educational qualification and workplace, and Part-II is mending for the list of information needs. The collected data was entered into SPSS version 11. The statistical tools namely average weighted mean, student -t- test, one-way ANOVA, and post-hoc test are used to analyse the data. Study independent variables are gender, educational qualification, work place and dependent variable is information needs.

Limitation

Medical Council of India recognised Allopathic Medical Practitioners are selected in this study. The other medical systems such as Siddha Unani, Ayurveda, Homeopathy, Naturopathy, Dental, Speech therapy, Electrotherapy,. Rehabilitation therapy, Magneto therapy,

Physiotherapy, and other health science specialists and medical college teaching faculty members are excluded from this study.

Findings and Discussion

Table 1 Medical Practitioners' average weighted index of the Information Needs and rank

S. No.	Information Needs	Always	Sometimes	Occasionally	Rarely	Never	Average Weighted Index	Rank
1	Treatment Drug Therapy	381	117	19	3	9	4.622	1
2	Differential Diagnosis	338	145	29	1	16	4.490	2
3	Disease Complications	331	139	34	3	22	4.425	3
4	Diagnostic Procedures	317	158	32	2	20	4.418	4
5	Drugs Adverse Effects	320	143	45	2	19	4.405	5
6	Disease Prognosis	319	142	45	3	20	4.393	6
7	Disease Description	310	156	35	2	26	4.365	7
8	Diagnosis / Etiology	269	180	49	7	24	4.253	8
9	Treatment Efficacy	277	143	62	19	28	4.174	9
10	Emergency Protocol	189	130	147	46	17	3.809	10
11	Follow-Up	228	133	117	35	16	3.739	11
12	Patient Education	98	74	191	110	56	3.091	12
13	Clinical Epidemiology	64	120	151	115	79	2.953	13
14	Preparation of Guest Lecture / CME	100	102	85	152	90	2.943	14
15	Higher Education	145	41	37	122	184	2.699	15
16	Research and Publication	53	57	82	149	188	2.316	16

Note: Number of respondents is 529; weighted index is calculated on 5-point scale with weight assigned as follows. Always =5; sometimes = 4; occasionally = 3; rarely =2; never =1.

Table 1 depicts the practitioners' clinical information needs based on their choice and rank is given. Among the listed information needs, average weighted index value 3 and more is as follows, treatment drug therapy (4.622), differential-diagnosis (4.490), disease-complication (4.425), diagnostic-procedure (4.418), drug adverse effect (4.405) disease-prognosis (4.393), disease-description (4.365), diagnosis/etiology (4.253), treatment-efficacy (4.174), emergency protocol (3.809), follow-up (3.739), and patient-education (3.091). However, clinical research and publication information need average weighted index value is 2.316. It shows that most of the medical practitioners are not come forward to take-up clinical research and publish their findings in journals.

Table 2 Analysis of Information Needs: Gender, Education Qualification and Workplace

S.No.	Clinical Information Needs	Gender (-t- test)	Educational Qualification (One-way Anova)	Workplace (One-way Anova)
1	Clinical Epidemiology	0.074 ^{NS}	0.014*	0.025*
2	Diagnosis / Etiology	0.460 ^{NS}	0.043*	0.000**
3	Diagnostic Procedures	0.002**	0.584 ^{NS}	0.000**
4	Differential Diagnosis	0.047*	0.081 ^{NS}	0.000**
5	Disease Complications	0.055 ^{NS}	0.263 ^{NS}	0.000**
6	Disease description	0.000**	0.010*	0.000**
7	Disease Prognosis	0.008**	0.148 ^{NS}	0.003**
8	Drug Adverse Effects	0.036*	0.186 ^{NS}	0.004**
9	Emergency protocol	0.062 ^{NS}	0.002**	0.000**
10	Follow up	0.981 ^{NS}	0.825 ^{NS}	0.096 ^{NS}
11	Higher Education	0.344 ^{NS}	0.002**	0.001**
12	Patient Education	0.083 ^{NS}	0.056 ^{NS}	0.000**
13	Preparation of Guest Lecture/CME	0.028*	0.010*	0.000**
14	Research and publication	0.358 ^{NS}	0.216 ^{NS}	0.000**
15	Treatment Drug therapy	0.161 ^{NS}	0.800 ^{NS}	0.014*
16	Treatment efficacy	0.001**	0.015*	0.021*

** 1% level of significance; * 5% level of significance: ^{NS} = Not significant

Table 2 shows the statistically analysed results of the medical practitioners information needs with gender, educational qualification and workplace. Gender of the respondents information needs is analysed with student -t- test and educational qualification & workplaces are analysed with one-way ANOVA test.

Gender and Clinical Information need

Gender and the medical practitioners' clinical information need is analysed with student -t- test. Null hypothesis (H_0) is there is no significant difference between the gender of the medical practitioners and their clinical information needs.

Null hypothesis is accepted for the following clinical information needs such as, clinical epidemiology, diagnosis/etiology, disease-complications, emergency-protocol, follow-up, higher-education, patient education, research & publication and treatment-drug-therapy. Therefore, null hypothesis is accepted. However, null hypothesis is rejected the following clinical information needs and the significant levels are 1% and 5% are, diagnostic-procedures, disease-description, disease-prognosis, treatment-efficacy, differential-diagnosis, drug-adverse effects and preparation of guest lecture / CME.

Educational Qualification and Clinical Information need

Educational qualification and the medical practitioners' clinical information need is analysed with One-way ANOVA test. Null hypothesis (H_0) is there is no significant difference between the medical practitioners' educational qualification and their clinical information needs.

There is no significant difference between the educational qualification of medical practitioners and the following information needs such as, diagnostic-procedures, differential-diagnosis, disease-complications, disease-prognosis, drug-adverse effect, follow-up, patient education, research and publication and treatment efficacy. Null hypothesis is accepted. However, null hypothesis is rejected the following clinical information needs and the significant levels are 1% and 5% are, clinical-epidemiology, diagnosis/etiology, disease-description, emergency-protocol, higher-education, preparation of guest lecture / CME and treatment efficacy.

Workplace and Clinical Information need

Workplace and the medical practitioners' clinical information need is analysed with One-way ANOVA test. Null hypothesis (H_0) is there is no significant difference between the medical practitioners' workplace and their clinical information needs.

There is no significant difference between the workplace of the medical practitioners and follow-up information. Null hypothesis is accepted. However, the remaining information needs have significant difference either @1% or @5% level.

Identification of Significant Groups based on Educational Qualification: Post-Hoc test results

Table 3 Post-hoc test: Educational Qualification and significant Information Needs.

Diagnosis / Etiology			
ed.qu	N	Subset for alpha = .05	
		1	2
UG	111	3.94	
PGD	165		4.25
PG	253		4.40
Sig.		1.000	.187

Means for groups in homogeneous subsets are displayed.
 a Uses Harmonic Mean Sample Size = 157.711.
 b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed

Treatment efficacy			
ed.qu	N	Subset for alpha = .05	
		1	2
UG	111	3.93	
PG	253		4.21
PGD	165		4.30
Sig.		1.000	.462

Means for groups in homogeneous subsets are displayed.
 a Uses Harmonic Mean Sample Size = 157.711.
 b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed

Disease Descriptions			
ed.qu	N	Subset for alpha = .05	
		1	2
UG	111	4.02	
PG	253		4.44
PGD	165		4.48
Sig.		1.000	.674

Means for groups in homogeneous subsets are displayed.
 a Uses Harmonic Mean Sample Size = 157.711.
 b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Emergency protocol			
ed.qu	N	Subset for alpha = .05	
		1	2
UG	111	2.08	
PG	253		3.12
PGD	165		3.56
Sig.		1.000	.615

Means for groups in homogeneous subsets are displayed.
 a Uses Harmonic Mean Sample Size = 157.711.
 b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

The means of diagnosis / etiology, treatment efficacy, disease description, and emergency protocol and treatment efficacy information needs UG practitioners is form a subset-1. Similarly, the means of diagnosis / etiology, treatment efficacy, disease description, and emergency protocol and treatment efficacy information needs information needs of PGD and PG practitioners are form a subset-2. It is a homogeneous subset-2. There is no significant difference between PGD and PG practitioners and their diagnosis / etiology, treatment efficacy, disease description, and emergency protocol and treatment efficacy information needs. However, there is significant difference in the means of subset-1 and subset-2.

Preparation of guest Lecture / CME			
ed.qu	N	Subset for alpha = .05	
		1	2
UG	111	2.23	
PGD	165	2.44	
PG	253		3.58
Sig.		.137	1.000

Means for groups in homogeneous subsets are displayed.
a Uses Harmonic Mean Sample Size = 157.711.

Clinical Epidemiology			
ed.qu	N	Subset for alpha = .05	
		1	2
PGD	165	2.76	
UG	111	2.91	
PG	253		3.09
Sig.		.291	.182

Means for groups in homogeneous subsets are displayed.
a Uses Harmonic Mean Sample Size = 157.711.
b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Preparation of guest lecture / CME and Clinical Epidemiology information need have significant difference with educational qualification. The means of UG and PGD qualified medical practitioners' form a subset-1. It is a homogeneous subset. There is no significant difference between the UG and PGD practitioners' and preparation of guest lecture / CME and clinical epidemiology information need. These two information need means of PG practitioners' is form a subset-2. However, there is significant difference in the means of subset-1 and subset-2.

Higher Education

Educational Qualifications	N	Subset for alpha = .05	
		1	2
PG	253	2.41	
PGD	165		2.95
UG	111		2.99
Sig.		1.000	.804

PG practitioners' higher education information need mean is from a subset-1. Similarly, PGD and UG practitioners' means form a subset-2. It is a homogeneous subset. There is no significant difference between the PGD and UG practitioner's higher education information need. However the significant difference is between these two subsets.

Table 4 Information Needs Comparison: Gender, Educational qualification and Workplace.

S.No.	Clinical Information Needs	Gender	Educational qualification	Workplace
1	Disease description	Significant	Significant	Significant
2	Preparation of Guest Lecture/CME	Significant	Significant	Significant
3	Treatment efficacy	Significant	Significant	Significant
4	Follow up	Not Significant	Not Significant	Not Significant
5	Clinical Epidemiology	Not Significant	Significant	Significant
6	Diagnosis / Etiology	Not Significant	Significant	Significant
7	Disease Complications	Not Significant	Significant	Not Significant
8	Treatment Drug therapy	Not Significant	Significant	Not Significant
9	Emergency protocol	Not Significant	Significant	Significant
10	Higher Education	Not Significant	Significant	Significant
11	Research and publication	Not Significant	Significant	Not Significant
12	Patient Education	Not Significant	Significant	Not Significant
13	Diagnostic Procedures	Significant	Significant	Not Significant
14	Differential Diagnosis	Significant	Significant	Not Significant
15	Disease Prognosis	Significant	Significant	Not Significant

16	Treatment Adverse Effects	Significant	Significant	Not Significant
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Table 4 shows that the statistical difference comparison of the medical practitioners information needs based on gender, educational qualification and workplace. Disease-description, treatment-efficacy and preparation of guest lecture/CME information needs are commonly statistical significant difference with gender, educational qualification and workplace. It is reversed for follow-up. However, some of the needs have significant difference and some or not significant difference based on the independent variables.

Findings and conclusion

Medical practitioners information needs are clinical (disease, treatment, patient care) oriented (average weighted index 3 and more). It is the same as to the **Jerome et al, (2001), Ocheibi and Babu (2003), Gonzalez et al, (2007), Gruppen (1990)**. Research and publication information need average weighted index is less than 3. It is reversed for the medical teaching hospital practitioners **Cheng and Lam (1996)**.

Gender of the medical practitioners and differential diagnosis, drug adverse effects and preparation of guest lecture/CME information needs have 5% level of statistical significant difference and diagnostic-procedures, disease-description, disease-prognosis, and treatment-efficacy have 1% level of significant difference.

There is a significant difference between the educational qualification of the practitioners and the following information needs, clinical-epidemiology, diagnosis / etiology, disease-description, emergency-protocol, higher-education, preparation of gust lecture / CME and treatment efficacy **Bigdeli, (2004)** also reflected the same.

The following information needs, clinical-epidemiology, differential-diagnosis /etiology, diagnostic-procedures, differential-diagnosis, disease-complications, disease-descriptions, disease-prognosis, drugs adverse effects, Emergency-protocol, higher -education, patient-education, preparation of gust lecture/CME, research and publication, treatment including drug-therapy, treatment-efficacy have significant difference (either @ 1% or @ 5% level) between the

workplace. **Lundeen, Tenopir, Wemager (1994) and Fly (1992)** study results also reflected here. At the same time it reversed the **Gorman, Yao, and Seshadri (2004)** finding.

Medical practitioners' must come forward to take-up clinical research studies in their regular practice and publish in the association newsletters, information bulletins, journals etc.,. They will discuss their clinical skills, diagnostic procedures, treatment procedures in conference, workshops and CMEs. That may be more useful for medical community for better treatment

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