Volume 1 issue 1 January- March 2012 (1-60)

National Journal of Research in Community Medicine

Official Publication of the Community Medicine Faculties Association

ISSN: 2277-1522 (Print) ISSN:2277-3517 (Online)

www.commedjournal.in

National Journal of Research in Community Medicine (NJRCM)

Vol. 1. Issue 1. Jan-Mar 2012 (001-060)

Community Medicine Faculties Association
Chennai
India

National Journal of Research in Community Medicine
ISSN - Print: 2277 – 1522, Online: 2277 – 3517

Web Site: www.commedjournal.in
Association Site: https://sites.google.com/site/comfaoffice/who-we-are
E-Mail: dopnjrcm@gmail.com

Address:
Community Medicine Faculties Association
(Registered Under The Tamil Nadu Societies Registration Act, 1975)
No: 29/2 (New no.60) Rettaikuzhi Street, Tondiarpet, Chennai – 600 081.

Manuscript Submission:
http://www.commedjournal.in/man.html

National Journal of Research in Community Medicine. Vol. 1. Issue 1. Jan-Mar 2012 (001-060)

Table of Contents

Review Article

Undergraduate Medical Research - The Essential Domain

Sudha Ramalingam

ABSTRACT

Research is an essential component of any branch of Science and particularly in the field of medicine. While in the West, research has become an essential component of medical curriculum, India still faces the dearth of physician scientists which poses a challenge to secure its place in the global arena of research. Early research exposure is an easy solution to overcome this problem. The history of medicine has witnessed path breaking discoveries in the past by medical students. Indian funding bodies are opening up new funding schemes .However; the role of each medical college in improving the research potential t undergraduate level is unquestionable. Many novel initiatives can be begun at the Institutional level to promote undergraduate research and translate it to productive patient care.

Keywords: Kishore Vaigyanik Protsahan Yojana, ICMR, IJMR

Introduction:

Research is an essential component of any branch of Science and particularly in the field of medicine. While in the West, research has become an essential component of medical curriculum, India still faces the dearth of physician scientists which poses a challenge to secure its place in the global arena of research. Early research exposure is an easy solution to overcome this problem. The history of medicine has witnessed path breaking discoveries in the past by medical students. Indian funding bodies are opening up new funding schemes.

However, the role of each medical college in improving the research potential in undergraduate level is unquestionable. Many novel initiatives can be begun at the Institutional level to promote undergraduate research and translate it to productive patient care.

Why is Research Important?

Efficient and informed health care delivery requires knowledge and skills of research in addition to technical expertise in the chosen field of specialization. Therefore research is and should be an essential component of medical education. Also, the ability to carry out research

[1]*Department of Community Medicine and PSG Centre for Molecular Medicine and Therapeutics, PSG IMSR, Peelamedu, Coimbatore, 641004. Email id: drsudhapsg@gmail.com*

is an important skill for the academic advancement of an individual. Individuals who effectively acquire this skill are in a position to make an impact on the body of knowledge through exploration and scientific communication. It is for this reason that research is now a required competency for any well trained health professional. The survival and recognition of any health training institution depends on how effectively it promotes research. Unfortunately, health research has a low priority in the developing world. A recent UNESCO report says in all disciplines of Science and Technology, India has about 137 researchers per million citizens as compared to 4,526 researchers per million in the United States[1]. One long-term strategy for promoting health research is to target medical students early in their careers. Student research has also shown to increase the publication output of the Institution. Even if the experience of doing research as a student does not lead to a later career in academic medicine, research experience can help improve students' skills in searching and critically appraising the medical literature, independent learning, and writing research papers[2].In one Indian study, 91% of interns reported no research experience in medical school[3]. Thus, students in India rarely get exposed to research at this crucial stage in their academic development when such exposure could encourage further research after qualification. The apex accrediting and regulatory agency of medical education in India, namely the Medical Council of India, lays down research aptitude as an Institutional goal for an undergraduate student. In addition, MCI recommends completion of a research project as one of the criteria for award of internal assessment marks[4]. The global minimum requirements for medical education include research as one of the essential requirements for medical students to promote critical thinking and problem solving, thereby improving patient care[5].

Famous Discoveries by Medical Students[5]

In medical history, research has always been part of medical education. The discovery of heparin, a natural anticoagulant, revolutionized the management of thromboembolic disorders and cardiac surgery after its introduction into clinical practice in the 1940s. Jay Mclean (1890–1957) in 1916, as a second-year medical student at Johns Hopkins University in Baltimore began his work with William Henry Howell. Along with another medical student discovered Heparin (Greek: Hepar means liver)

Dr Thomas J Fogarty is best known for his invention of the balloon embolectomy catheter. During his teenage years he was working as a surgical scrub technician when he witnessed long and difficult operations undertaken to remove blood clots from arteries. This inspired him to think of a new approach that he perfected as a medical student at the University of Cincinnati. He took a latex glove, cut off the fingertip and attached it to a plastic catheter, using fly-tying techniques he learned as a fisherman. However, his discovery was considered too complicated and

dangerous and was widely criticized by the surgical community. The balloon catheter was finally patented in 1963, the same year that he published an account of its use in nine patients. Subsequently the findings were published by Fogarty and his colleagues their experience of its use in treating 50 patients with femoral or aortoiliac emboli; 80% of the patients survived and only two required an amputation. Today, more than half a million Fogarty catheters are sold annually (Edwards Life sciences CA, USA, pers. comm., 2008)

Another path breaking discovery in Medicine was done by a medical student Auguste-Maurice Raynaud (1834–1881) when he reported 25 women with episodic vasoconstriction of the digits causing classical color changes associated with pain and loss of sensation. This was his doctoral work. He also observed that this occurs due to exposure to cold. Today Reynaud's phenomenon is a widely diagnosed condition associated with many diseases.

Paul Langerhans (1847–1888) was a son of a physician. He made two significant discoveries as a medical student. One was the dendritic cells of the skin (Langerhans cells) and the second was the pancreatic islets. Though the pancreas has been widely studied from the 16th century, it was initially classified as a type of salivary gland. In 1868, Langerhans reported the presence of clusters of small 'irregularly polygonal' cells with clear cytoplasm diffusely scattered throughout the gland, each measuring 0.1–0.24 mm in diameter. The functional roles of these cells were unraveled 25 years later.

Insulin was discovered by Charles Herbert Best (1899–1978) and Frederick Grant Banting (1891–1941) in Toronto. Banting and Best first tested their pancreatic extract in a diabetic dog in July 1921.Within months they had confirmed its efficacy in treating diabetes.

Martin William Flack (1882–1931) a medical student at the London hospital excitedly showed his teacher Dr Arthur keith the 'wonderful structure he had discovered in the right auricle of the mole'. Keith had persuaded Flack to spend the summer holidays studying the hearts of trapped moles, mice and frogs. Keith quickly recognized that Flack's findings closely resembled the atrioventricular node. This was the sinoatrial node which was subsequently characterized to be the origin of the heart rhythm.

Augusta Klumpke (1859–1927) is best known for her description of inferior brachial plexus injuries as a medical student in 1885.

As a 23-year-old, fourth-year medical student at the University of Perugia, Ruggero Oddi (1864–1913) studied the actions of the sphincter at the distal end of the common bile duct. He concluded that the sphincter controlled the intermittent flow of bile from the liver to the duodenum. He also suggested that dysfunction of the sphincter might cause biliary tract disease.

Spermatozoa were first discovered in 1677 by Johan Ham (1651–1723), a medical student from Leiden.

All these discoveries only reiterate the fact that medical students, if actively pursue research and ignite their critical thinking could

contribute significantly to the history of medicine

Current Scenario

While research has grown exponentially in the West while India is still struggling to find its place in the global arena. With newer technologies in the field of molecular medicine to newer drugs and therapeutic modalities for various diseases being discovered, there is immense potential for the medical undergraduates to explore the world of research. The global minimum standards for medical education puts forward the essential components of medical education. (Fig 1) which lists critical thinking and research as an important component.[6]

It defines critical thinking and research as[6]

"The ability to critically evaluate existing knowledge, technology and information is necessary for solving problems, since physicians must continually acquire new scientific information and new skills if they are to remain competent. Good medical practice requires the ability to think scientifically and use scientific methods. The medical graduate should therefore be able to formulate hypotheses, collect and critically evaluate data, for the solution of problems."

Thanks to the medical council of India which has brought out the recent "Vision 2015" document which is envisioning a "Competency" based curriculum for the undergraduate medical students .In this document it has included research as an elective component.(MCI VISION 2015)[7]

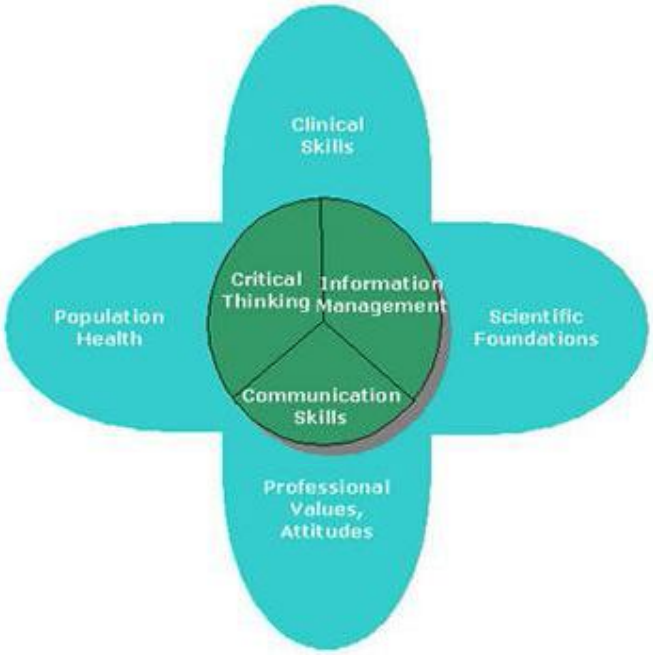


Fig 1: Domains of essential requirement in Medical Education adapted from http://www.iime.org[6]

Few medical colleges have realized the potential of research and have introduced the "problem Solving for Better Health" funded by the Dreyfus foundation (http://www.dreyfus.org) which involves the students gaining exposure in carrying out community based research projects. Many colleges began this initiative as early as the early 1990's. [8]

The funding for undergraduate research by the Indian Council of Medical Research (ICMR-STS) is another successful and novel initiative. Many students gain a fruitful research experience when they are granted these projects. (***icmr**.nic.in/shortr.htm)*[9]

Another novel step towards research by the Department of Science and Technology is the Kishore Vaigyanik Protsahan Yojana *(*KVPY*)*. This novel initiative is to encourage students from basic sciences, engineering and Medicine to take up research as their career. On a competitive basis scholarships are provided up to the PhD level for those who are selected.[10]

Future Directions

The day is not far off when India will excel in the research arena too. Early exposure of the medical students to research would open up new potentials for novel discoveries. In addition to these funding bodies, each medical college should take their own Institution based steps to promote research [10] .Forming of Research groups, introduction of research grants and awards are some of the steps. In addition, translating the research work to a publication would motivate more students to come forward to do research. A number of premier journals like BMJ, IJMR have dedicated sections for publishing student research. A list of journals which encourage exclusively the undergraduate student research are given in Box 1.

Addition of Research methodology into the curriculum, identifying the core research competencies for undergraduate research and more funding bodies to fund undergraduate research are the directions which we need to work together. Once this dream turns to a reality, the field of medicine is poised to become a very different ballgame altogether. The current paradigms of understanding the disease will undergo a thorough revision, with newer technologies for delivering innovative and path-breaking preventative and curative medicine to humans

Box 1: Student Research Journals

Student BMJ (*student.bmj.com)*

Student IJMR (*www.ijmr.org.in/)*

The Lancet Student (*www.thelancetstudent.com)*

International Journal of Students Research *(http://www.ijsronline.com)*

Asian Students Research Journal (*www.asmj.info)*

Journal of Young Investigators *(www.jyi.org)*

International medical Journal of Students Research *(http://www.imjsr.com)*

References

1.http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx?ReportId=1790: accessed on Dec 15th,2009

2.Fawad Aslam, Murtaza Shakir, Muhammad Ahad Qayyum: Why Medical Students Are Crucial to the Future of Research in South Asia: PLoS Medicine: November 2005 : Volume 2 : Issue 11 :p 1110-1111

3.Chaturvedi S, Aggarwal OP (2001) Training interns in population-based research: Learners' feedback from 13 consecutive batches from a medical school in India. Med Educ 35: 585–589

4.MCI.http://mciindia.org/know/rules/rules_mbbs.htm, accessed on Dec 16th 2009

5. Stringer MD, Ahmadi O Famous discoveries by medical students. ANZ J Surg. 2009 Dec;79(12):901-8.

6..Global minimum requirements of Medical Education.http://www.iime.org/documents/gmer.htm; Accessed on 26th December 2009

*6.Vision2015 www.**mci**india.org/tools/announcement/**MCI**_booklet.pdf [accessed on Dec 19th 2011]*

7. http://www.dreyfus.org [accessed on Dec20th 2011]

*8. ICMR Short term Research Studentships **icmr**.nic.in/shortr.htm [accessed on Dec 20th 2011]*

9. Mallikarjuna VV, Ramalingam S. Promoting undergraduate research-role of student research forums in medical colleges. Int J Stud Res 2011;1(4):143-4.doi: http://dx.doi.org/10.5549/IJSR.1.4.143-144

Conflict of Interest: Nil

Sources of Support: Nil

Original Research Articles

A Study On The Treatment Out-Comes In Patients On DOTS Under RNTCP In Nellore District, A.P.

Jyothi Conjeevaram[1], Susmitha Kuntumalla[2], Prabakaran Jayaraman[3]

ABSTRACT

Objectives: To find out the various outcomes of disease treatment using DOTS strategy and to compare the performance of RNTCP in Nellore district with that of RNTCP program indicators. **Methods:** A longitudinal observational study was conducted in three randomly selected Tuberculosis Units. Two microscopy centers were selected in each Tuberculosis Unit randomly for the enrollment of the study subjects.30% of patients under each TU (total 165) were enrolled as study subjects. **Results and Conclusions:** The cure rate in the present study was 92%, The overall treatment completion rates of about 88.5%, overall defaulter rate of 3.03%, Death rate among New Smear Positive cases in the present study was 2.56% but the death rate among the total smear positive patients was 5.35% as against the expected norm of not more than 4% under RNTCP. There is need for supervised treatment for ill patients even in the continuation phase and also a good and prompt defaulter retrieval action so that they take the medicine regularly minimizing the deaths.

Key Words: Treatment out-comes, DOTS, RNTCP

Introduction:

Tuberculosis is a chronic specific infectious disease caused by Mycobacterium Tuberculosis. Approximately 1.9 billion people amounting to one third of the world population are estimated to be infected with Tuberculosis bacilli. The estimated global average risk is 1% which is equivalent to 38 million new infections per year among the previously uninfected population.[1] Developing countries account for 95% of global Tuberculosis cases and 98% deaths due to Tuberculosis. India accounts for one fifth of the global incidence of Tuberculosis cases. Each year over 2.2 million people develop Tuberculosis in India. It is estimated that annually over 0.5 million die due to Tuberculosis (17% of global deaths). The total population suffering from active disease in India is 14 million of which 3 to 3.5 million are sputum positive (25%) with a prevalence rate of 4.84/1000 [2]. Thus the problem of Tuberculosis is enormous and makes it a major public health

[1,2]Department of Community Medicine, Narayana Medical College, Nellore [3]Department of Community Medicine, Tagore Medical College, Chennai.

Corresponding author: Dr. Jyothi Conjeevaram, M.D. Assistant Professor, Department of Community Medicine, Narayana Medical College, Nellore 524003, A.P. e- mail: jyothi.conjeevaram@gmail.com

problem in India.

In April 1993, the World Health Organization declared Tuberculosis as a global emergency because of the high mortality rates among adults, its association with HIV infection and the emergence of Multi Drug Resistance Tuberculosis (MDR-TB) [3].

Even after three decades of implementation the NTP could not achieve the desired epidemiological impact since its performance in terms of case-finding and treatment success were below expectation [4]. The NTP could take care of only about 30% of patients of which only 30% could complete treatment. Overall <50% of infectious cases were being cured whereas 29% of them died [5].

Hence the Government of India decided to adopt the WHO revised strategy for Tuberculosis control and the Revised National Tuberculosis Control Programme (RNTCP) came into existence from 2nd October 1993 [6]. Operational feasibility of DOTS in the Indian context has been demonstrated with 8 out of 10 patients being cured under DOTS [7] while compared to 3 out of 10 patients from the earlier programme.

RNTCP, in Nellore district is being implemented since January 2003 [8]. From the available literature, to the best of our knowledge external evaluation of this programme in the district has not been performed. Hence this study was taken up, to assess the performance of DOTS strategy in Nellore district with the objective of analyzing the treatment outcomes of Tuberculosis patients treated with DOTS regimen under RNTCP and to compare them with RNTCP indicators.

MATERIAL AND METHODS

Under the RNTCP, Nellore district is divided into six Tuberculosis units (TU) for its implementation. Three Tuberculosis Units were chosen randomly for the study purpose. Each Tuberculosis Unit further has 5-6 Designated Microscopic Centers (DMCs). Two microscopy centers under each of the three Tuberculosis Units were chosen randomly for the enrollment of the study subjects.

Patients were registered in each TU throughout the year. From the patients registered during the first quarter of 2007, 30% under each TU (total 165) were enrolled as the study subjects. The patients under each DMC area were listed and every third patient was selected. These patients were followed up till the completion of their treatment.

Study Period: 1st January 2007 to 31st December 2007.

Study design: Longitudinal observational study.

Data Collection: Each Tuberculosis Unit (2 Designated Microscopy Centers) was visited once in 3 weeks. During these visits the following tasks were performed.

I. Every patient newly enrolled into the study was interviewed with respect to socio-demographic profile, presenting complaints,

past history & family history using a pre-designed and pre-tested questionnaire. Diagnostic tests for tuberculosis were also recorded.

II. Treatment cards of enrolled patients were checked to assess the appropriateness of treatment regimen prescribed and to record treatment outcomes.

Data was analyzed by calculating proportions for different study variables, Chi-square test with Yates correction was used for analysis of categorical variables using SPSS 12.0 VERSION software.

RESULTS

In the present study 80% of the patients were in the age group of 15-54yrs. The age group of less than 14yrs contributed only about 2.42% and those above 54 years constituted 17.6%. The ratio of males to females was 2.8:1.

Table1 shows distribution of patients according to classification of disease, with 95% of subjects with pulmonary tuberculosis and about 66% in category I.

Table 2 shows treatment out comes with 92.3% (72 of 78) of total New Smear Positives and 67.65% (23 of 34) of sputum positive re-treatment cases were cured, while in the smear negative category 45 (91.8%) of 49 smear negative cases completed treatment. We focused on cure in sputum positive patients and treatment completion in smear negative cases. Successful treatment outcome [8], which constitutes cured and treatment completed among all the subjects was 88.48%. The overall defaulter rate in the present study was 3%. It was observed that mortality among new smear positive tuberculosis patients was 2.56% (2 of 78).

Table1: Distribution of different categories of patients according to Disease classification (N=165)

Disease classification	Cat I	Cat II	Cat III	Total (%)
Pulmonary	106	39	12	157 (95.16)
Extra-pulmonary	3	0	5	8 (4.84)
Total (%)	109 (66.06)	39 (23.64)	17 (10.30)	165 (100)

(Figures in parenthesis indicate percentages)

RNTCP Performance indicators related to treatment and treatment outcomes are depicted in table 3a and 3b.The proportion of re-treatment cases compared to New Smear Positive cases and the Proportion of smear negative patients put on category I was unsatisfactory when compared to program indicators.

Table 2: **Treatment out comes of Tuberculosis patient in the study**

			Cured	Treatment completed	Defaulter	Died	Failure	Total
CAT I	Sputum Positive	M	53	1	1	1	2	58
		F	19	0	0	1	0	20
	Sputum Negative	M	-	20	0	2	0	22
		F	-	7	0	0	0	7
CAT II	Sputum Positive	M	19	2	2	4	1	28
		F	4	0	2	0	0	6
	Sputum Negative	M	-	4	0	1	0	5
		F	-	0	0	0	0	-
CAT III	Sputum Negative	M	-	7	0	1	0	8
		F	-	7	0	0	0	7
TOTAL(%)			95(57.6)	51*(30.9)	5 (3.03)	11*(6.6)	3(1.8)	165*

**sputum examination not done in 4 patients – 3 completed treatment, 1 died.*

(Figures in parenthesis indicate percentages)

Table3 a):RNTCP Program Performance indicators for Nellore District Indicators related to treatment

Indicator	Observed	Expected	Performance
1.Ratio of smear positive to smear negative cases	1.7:1	1: 1. 2	S
2. Proportion of re-treatment cases compared to new smear positive	43.5%	50%	US
3. Proportion of smear negative patients put on category I	26. 6%	< 20%	US
4.Defaulter rate during intensive	0. 60%	< 5%	S
5. Defaulter rate in new smear positive patients	1. 29%	< 5%	S
6.Sputum smear conversion rate	98. 7%	> 85%	S

S-Satisfactory, US-Un Satisfactory

Table 3b): Indicators related to treatment outcomes

Indicator	Observed	Expected	Performance
1.Cure rate among new smear positive patients	92%	> 85%	S
2.Proportion of new smear positive patients given the outcome treatment	1.28%	3%	S
3.Proportion of new smear positive patients who died during treatment	2. 5%	< 4%	S
4. Treatment defaulter rate	3%	< 5%	S

S-Satisfactory, US-Un Satisfactory

DISCUSSION

Treatment Outcomes with DOTS Regimens: While the RNTCP keeps the target for the cure rates among New Smear Positives to be more than 85%, in the present study cure rates among New Smear Positives was 92.3%. Among the re-treatment cases it was 67.65%, in Smear Negatives 91.8% and 100% among the Extra-pulmonary cases. A study by Kaur

G et al in Chandigarh [9] showed a cure rate of 97.9% among new smear positives, 63.5% in re-treatment cases with an overall treatment completion of 92% in smear negative cases, similar to that of the present study. Review of RNTCP evaluation in India shows a cure rate of 79.4% among New Smear Positives, 63.65% among Re-treatment cases and 83.42% among Smear Negative and Extra pulmonary cases [7].

RNTCP guidelines indicate an overall defaulter rate not more than 5% and action is warranted if it is more than 10% among new smear positive cases. The present study showed an overall treatment defaulter rate of 3.03%. Among New Smear Positive cases it was 1.29% and 10.25% in Re-treatment cases. RNTCP Implementation review across India[7] reported an overall treatment defaulter rate of 12.08% (8.7% in New Smear Positives, 15% in Re-treatment cases). The overall treatment defaulter rate of 3.03% observed during the present study is lower than that suggested by RNTCP. It is observed from the present study that the defaulter rate among the Retreatment cases was high when compared to those from New Smear Positives. A prospective study of new smear positive patients by Sophia V et al in Kolar district of Karnataka found that cure rates with the short course chemotherapy (SCC) regimen was 47.3% before the implementation of the RNTCP [10]. These low cure rates were mainly due to large proportion of lost cases (31.4%) and dead (13%) patients. With the current programme, better supervision and strict follow-up the cure rates have improved.

Under RNTCP the mortality rate should not be more than 4% of all smear positive patients with the use of DOTS. It is observed in the present study that mortality rate in New Smear Positive cases was 2.56% and 5.35% among all smear positive patients. The overall mortality among all cases was 6.66%. Thus in the present study while the mortality among New Smear positive patients was low, the overall mortality in smear positives was higher (5.34%) than 4% suggested by the RNTCP guidelines. The death rate of 12.8% among re-treatment cases in the present study was unacceptably high as per the guidelines. However; higher death rate among Re-treatment cases has been reported earlier by other studies as well (Moharana PR, et al showed a death rate of 18.8% in re-treatment cases and with an overall mortality of 6.8% [11]). These high rates must be minimized, by better supervision of the category II patients, since chemotherapeutic agents used in DOTS regimen are of proven efficacy.

Indicators related to diagnosis and treatment of patients: In the present study the following indicators performed **satisfactorily** compared to the program indicators.

1. **The Ratio of smear positive to smear negative patients was 1.7:1:** The expected ratio was 1:1.2 as per the programme guidelines and review of RNTCP across different project sites in

India reported a ratio of 1:1. Hence, the ratio observed in present study was better than both the national average and the programme norm indicating good quality sputum smear microscopy in the present study.

2. **Defaulter rate during intensive phase was 0.6%:** As per the RNTCP norm no more than 5% patients should interrupt the treatment during intensive phase. Thus case holding during early part of treatment was satisfactory in the present study.

3. **Defaulter rate in New Smear Positive patients was 1.29%** as against the RNTCP norms of not more than 5%.

4. **New Smear Positive Sputum conversion at the end of intensive phase was 97.8%.** The proportion of smear positive patients expected to convert under RNTCP is more than 85%. Thus in the present study the target was achieved successfully.

The following were the indicators achieved **unsatisfactorily** in relation to the RNTCP indicators.

1. **Proportion of retreatment cases compared to New Smear Positive patients was 43.65%.** In the initial years of RNTCP implementation, about 50% of the smear positive patients were expected to be re-treatment cases. At other RNTCP sites in India proportion of re-treatment cases compared to New Smear Positive patients was 47.8%. A lower proportion of re-treatment cases indicate that past history and treatment history was not properly elicited while diagnosing tuberculosis patients. Therefore medical officers need to be periodically informed about importance of asking past history and treatment history in overall management of tuberculosis.

2. **Proportion of smear negative patients put on category -I was 26.6%** in the present study where as under the norms suggested by RNTCP guidelines it should not be more than 20%.

Therefore in the present study, 2 of the 10 **indicators** the performance was unsatisfactory. Identification of re-treatment cases and the proportion of smear negative cases put on category I were sub optimal. It is therefore very essential to stress on the need to take the past history and treatment history carefully.

Acknowledgements

We thank Dr. G. Suresh Babu D.T.O., Nellore and other staff of the Tuberculosis Units for their support throughout the study. We are also thankful to all the TB patients for giving consent and taking part in the study.

REFERENCES:

1. *Tuberculosis Hand Book, Global Tuberculosis Program, WHO, Geneva 2000. p11*
2. *Lalit Kant, On estimation of burden of Tuberculosis in India, Editorial Indian Journal of Tuberculosis, 2007 No 1. 47, No: 3.*
3. *Gopi. P.G., Subramani. R, Chandrasekharan. V, Santha .T and Narayanan P.R, Impact of TB in a rural community based on active surveillance, Ind. J. Tub.2008; 55: 22-27.*
4. *Leena. S, Sharada. MA, performance of RNTCP in Tamil Nadu, NTI Bulletion 2006, 42/1&2, 25-30.*
5. *Directorate General of Health services, ministry of health & family welfare, Government of India. Web Page: http://www.mohfw.in (Accessed on14-4-2008)*
6. *Prahlad Kumar, Journey of Tuberculosis Control movement in India: National Tuberculosis Programme to Revised National Tuberculosis Programme, Guest Lecture, Indian Journal of Tuberculosis 2005, 52: 60-71.*
7. *Khatri. GR, The Revised National Control Program: A status report on first 1,00,000 patients, Leading Article, Ind.J.Tub.; 1999, 46, 157.*
8. *RNTCP, Andhra Pradesh, Annual Status Report – 2006.*
9. *Kaur G, Goel N.K, Dinesh Kaur , Jenmeja AK,Swami HM and Meenu Kaliya , Treatment Outcomes of patients placed on treatment under Directly Observed Therapy Short Course (DOTS), Lung India 2008,Apr- June ; 25(2): 75-77*
10. *Sophia V, Balasangameshwara, V.H., Sri Kantaramu N, Treatment Dynamics in a profile of tuberculosis patients under the district tuberculosis programme. A prospective Cohort Study; Ind J Tub; 1999, 46, 239*
11. *Moharana PR, Satapathy DM, Sahani NC, Behera TR, Jena D, Tripathy RM, An Analysis of Treatment Outcome Among TB Patients put under DOTS at a Tertiary level Health facility at Orissa, Journal of Community Medicine , July –Dem, vol .5 (2).*

Conflict of interest: None

Source of support: Nil.

Morbidity Pattern among the Elderly People Living in a Southern Rural India - A Cross Sectional Study

Ashok kumar T[1], Sowmiya KR,[2] Radhika G[3].

ABSTRACT

Introduction: It is essential to plan for care services for the elderly people in the era of population ageing. Morbidity assessment is plays a major role planning of care services. **Objectives:** To assess the morbidity pattern among the elderly people and to identify factors influencing morbidity among them. **Materials and Methods:** 305 elderly people aged 60 years and above were selected from seven villages around proposed PSG Geriatric Day Care Centre by using the sampling method "Probability Proportional to Size". **Results:** The most common morbidity identified among them were Eye problems (62.6%) Hypertension (44.3%) Respiratory diseases (34.1%), Psychological distress and symptoms (29.2%) and musculoskeletal disorders (23.6%). **Conclusion:** Since there is high morbidity load among the rural elderly, hence it is recommended that we need to provide them with elderly-friendly primary geriatric care services. Greater, targeted efforts are needed to identify at-risk elderly people living in the community and to provide services (e.g. home care, community based rehabilitation services) that may reduce the burden of unmet need.

Key Words: Morbidity, Elderly, Rural India, Care Services

Introduction:

All over the world the life expectation of people is increasing. Population ageing is the result of demographic transition with reduction in fertility leading to decline in the proportion of young in the population and at the same time there is increasing longevity. Unfortunately, the rapidity of population ageing is expected to continue to outpace social and economical development in developing countries particularly in countries like India. Today, worldwide there are 600 million persons aged 60 and over; this total will double by 2025 and will reach virtually two billion by 2050 when there will be more people aged 60 and over than children under the age of 15.[1]. Most of them will be living in developing countries which are often least prepared to meet the challenges of rapidly ageing societies. In other words WHO says "*Developing countries will become old before they become rich while industrialized countries became rich while they were growing old.*"

[1, 2] Department of Community Medicine, Tagore Medical College, Chennai, [3] Chief Clinical and Research Nutritionist, GUIRES Healthcare Private Ltd.

Address for Correspondence: Dr. T.Ashok kumar, *Department of Community Medicine, Tagore Medical College, Chennai-600048. India.* E-mail: jamlash@gmail.com.

The UN defines a country as 'ageing' where the proportion of people over 60 reaches 7 per cent. In India, currently 7.8% of the population are elderly and it is expected that this will reach 12.6% in 2025.[2] There are limited social security systems only available to elderly and most of these Social Security Systems are for the Organized Sectors especially living in rural areas, **Help age India**[3] says 90% of older persons are from the unorganized sector, with no social security at the age of 60. The assessment of morbidity pattern and its determinants will help the in the application of intervention, both medical and social, to improve the health status and thus quality of life of elderly people.[4]

Objectives

1. To assess the morbidity load and morbidity pattern among the elderly people living aged 60 years and above and
2. To identify factors influencing the morbidity pattern among them

Materials and Method

This study analysis done from the study conducted to assess the needs of the elderly[5], which is a cross sectional study and the study was conducted for a period of one year from July, 2005 to June, 2006. **Study area:** Seven villages coming under the field practice area of PSG Rural Health centre, Vedapatti served as the study area. These villages are planned to be covered by **"PSG Geriatric Day Care Centre**".

Subjects were clinically evaluated based on the steps given by the "***Handbook on Health Care of the Elderly: A Manual for Physician in Primary and Secondary Health Care Facilities"***[6] i.e. by their reported illness (Existing diagnosis), medication held by the subjects, history and clinical examination. The physical equipments used were Stethoscopes, B.P. Apparatus and Snellen's Chart (for illiterate, Snellen's E Chart) has been used to assess the morbidity status of the elderly. Blood pressure was measured in lying down position using mercury type sphygmomanometer twice in each individual at an interval of 30 minutes. Elderly with systolic blood pressure of 140 mmHg or more and / or diastolic blood pressure of 90 mmHg or more were considered as hypertensive. Snellen's Chart (E Chart) was used to assess the visual acuity. Those who were unable to read were further examined for cataract and corneal opacity.

Results

In the present study, out of 305 elderly, Females were more in number 162(53.1%) than male (143(46.9%))**.** 160(52.5%) elderly people were currently married. Remaining 134 (44.6%) were widowed, 7(2.3%) were separated and divorced and 2(0.7%) were never married. This study revealed that 204 (66.9%) elderly people were illiterate, while 40 (13.1%) were literate without formal schooling and 46(15.1%) of the elderly had gone through primary school education. Only 15 (4.9%) had under gone high school and above.

Table 1: Morbidity Pattern

S. No	Physical Health Condition	Male (n=143) No. (%)	Female (n=162) No. (%)	Total (n=305) No. (%)
1	Eye Problems*	88 (61.5)	103 (63.6)	**191 (62.6)**
2	Hypertension	72 (50.3)	63 (38.9)	**135 (44.3)**
3	Respiratory diseases**	48 (33.6)	56(34.6)	**104 (34.1)**
4	Psychological distress and symptoms	38 (26.6)	51(31.5)	89 (29.2)
5	Musculoskeletal disorders***	24 (16.8)	48 (29.6)	72 (23.6)
6	Cognitive Impairment	35 (24.5)	31 (19.1)	66 (21.6)
7	Diabetes mellitus	22 (15.4)	19 (11.7)	41 (13.4)
8	Acid peptic disease	25 (17.5)	14(8.6)	39(12.8)
9	Anemia	15 (10.5)	18 (11.1)	33 (10.8)
10	Genitourinary diseases	6 (4.1)	12 (7.4)	18 (5.9)
11	Deafness	7(4.9)	9(5.6)	16(5.2)
12	Oral lesions (Dental caries and oral carcinoma)	5(3.5)	7(4.3)	12(3.9)
13	Stroke	2(1.4)	1(0.62)	3(0.99)

** Eye problems include cataract, corneal opacity*

*** Respiratory diseases include Chronic Obstructive Airway Diseases (COAD) and Pulmonary Tuberculosis*

**** Musculoskeletal disorders include Osteoarthritis, Rheumatoid arthritis, Kyphosis and Spondylitis*

The above shows the most common morbidity identified among them were eye problems (62.6%), hypertension (44.3%), respiratory diseases (34.1%), psychological distress and symptoms (29.2%) and musculoskeletal disorders (23.6%).

Table 2: Morbidity load

Number of morbidity per elderly	Male (n=143) No. (%)	Female (n=162) No. (%)	Total (n=305) No. (%)
0	10(7)	8(4.9)	18(5.9)
1-3	84(58.7)	70(43.2)	154(50.4)
4-6	37(25.9)	69(42.6)	106(34.8)
>6	12(8.4)	15(9.3)	27(8.9)

About half of the subjects (50.4%) were diagnosed as having 1-3 morbidities and 34.8% of elderly having 4-6 morbidities. There are few (8.9%) elderly people having more than 6 morbidities. A small number (5.9%) of elderly is free from disease.

Discussion:

It was found that 63% of elderly were suffering from one or more eye problems, which is slightly lower than Prakash R et al.[7] They found 70% of their sample had one or more eye problems. The lower prevalence in the present study can be due the different to inclusion criteria used for eye problems. The present study included only cataract, corneal opacity and refractive errors. Most of the morbidities are common among elderly people aged more than 75 years, female gender, respondent who lived alone. Hypertension is one of the major chronic conditions[8] affecting elderly people. It can occur at any age, but the risk increases with age. This study found that 44% of the elderly were suffered from hypertension. This is consistent with the findings in other studies.[4, 7,9]

Musculoskeletal disorders including arthritis, one of the commonest disorders affecting elderly and the causative factors leading to them are poorly understood. The current study found nearly one fourth (23.6%) of the elderly are affected by these disorders and osteoarthritis ranked first among these disorders. These findings are slightly higher than the study done by Prakash R et al[7], but this prevalence is lower than the study done by Kamalesh Joshi et al[4] and K.R. Rani et al[9]. Similar to other studies, [4, 10, 13] the present study has also identified women are more prone to this disorder. Greater, targeted efforts are needed to identify at-risk elderly people living in the community and to provide services (e.g. home care, community based rehabilitation services) that may reduce the burden of unmet need.

Conclusion and Recommendation:

Since there is high morbidity load among the rural elderly, hence it is recommended that we need to provide them with elderly-friendly primary geriatric care services. There were large number of undiagnosed diseases (Hypertension, Cataract etc..) and so there is a need for starting simple screening programs among the elderly like blood pressure measurement, eye camp for cataract screening, simple blood investigations to detect diabetes and anemia and oral cavity examination-for detection of pre-cancerous lesion in mouth, taking pap smear -a simple procedure of detecting early cancer cervix.

Limitation of this study:

In the present study the morbidity status of the elderly was assessed based on self reported illness, history and clinical examination of them. No screening test using the laboratory investigation was done. Therefore some of the morbidities which could be identified by screening tests might be missed.

References:

1. World Health Organization. Active ageing: Towards age-friendly primary health care. Geneva WHO Publications 2004; 3 - 4.

2. Dr. Indira Jai Prakash. Ageing in India. Geneva: World Health Organization; 1999.

3.http://www.helpageindia.org/ageingScenario.php, Accessed on 25.08.04

4. Kamalesh Joshi, Rajesh Kumar, Ajit Avasthi. Morbidity profile and its relationship with disability and psychological distress among elderly people in northern India. International Journal of Epidemiology *2003; 32:978-987.*

5. Ashokkumar T, Thomas V Chacko, Suresh Munuswamy. Health Care and Social Needs of the elderly- Assessed by the tool Camberwell Assessment of Need for the Elderly (CANE). International Journal of Tropical Medicine, 2011; 6 (5), 97 - 99.

6. A.B Dey. Handbook on Health Care of the Elderly: A Manual for Physician in Primary and Secondary Health Care Facilities. New Delhi, National Institute of Health & Family Welfare (NIHFW); 2000.

7. Rahul Prakash, Choudhary S.K, Uday Shankar Singh. A Study of morbidity pattern among the geriatric population in an urban area of Rajasthan.

Indian Journal of Community Medicine 2004; 29(1): 35 -39.

8. World Health Organization. Active ageing: A policy framework. Geneva WHO Publications 2004; 12 - 17.

9. Rani. K.R Unreported needs of elderly at home. Kerala Institute for Environment and Development, Thiruvananthapuram. September 2004. Available from: URL: http://www.kied.org/Pub/Un-Reported%20Needs.pdf.

Conflict of interest: None

Source of support: Tamil Nadu State Council for Science and Technology (TNSCST) Programme "Student Project Scheme – 2005-2006.

Obesity-An Emerging Health Problem; A Community Based Study in Urban Nellore. A.P. India.

Prabakaran J[1], Vijayalakshmi N[2], Jyothi C[3], Susmitha KM[4] ,Vinoth Kumar[5]

ABSTRACT

Objective: To determine the prevalence of generalized and abdominal obesity in urban area of Nellore. **Study Period**: June 2008 – May 2009; Type of Study: Cross sectional community based study. **Study setting:** Field practice area of Urban Health Centre, Narayana Medical College, Nellore. **Participants:** 933 Persons in the age group of 25-64 years. **Sampling method:** Simple random sampling. **Sampling frame:** One eligible person studied from randomly selected houses; **Variables studied:** Age, Gender, Height, Weight, Body Mass Index (BMI) and Waist Circumference. Standard statistical packages were used to analyze**. Results:** Mean BMI was 25.19 kg/m2 and mean Waist Circumference was 25.19 cm. The prevalence of obesity by BMI- was 48.12 % (Male: 44.3% < Female: 51.9%) and abdominal obesity by Waist Circumference was 46.62 % (M: 33.9% < F: 59.1%). The prevalence of Isolated abdominal obesity was 3% (M 0.5% < F:2.5%) , Isolated generalized obesity 23.2% (M:15.3% > F:7.8%) and Combined obesity 43.3% (M:16% < F27.3%). **Conclusion:** The prevalence of combined obesity, generalized and abdominal obesity were high in both sexes. Isolated generalized obesity was more common in males, whereas isolated abdominal obesity more common in females.

Keywords: Obesity, Prevalence, Body Mass Index, Waist circumference.

Introduction:

The obesity can be defined as an abnormal growth of the adipose tissue due to enlargement of fat cell size (hypertrophic obesity) or an increase in fat cell number (hyper plastic obesity) or a combination of both. However, because it is difficult to measure body fat directly, measures of relative weight for height, such as the Body Mass Index (BMI), are commonly used to indicate obesity in adults[1]. Waist Circumference (WC) is another approximate indicator of intra-abdominal fat mass and total body fat[2]. Epidemiological surveys use BMI as an indicator of 'generalized' obesity and WC or Waist-to-Hip Ratio (WHR) as measure of 'central' or 'abdominal' obesity.

Obesity is considered to be the link between insulin resistance and metabolic abnormalities

[1]Department of Community Medicine, Tagore Medical College, Chennai, [2]PHC Medical Officer, Kadambur, [3,4]Narayana Medical College, Nellore ,[5] Pyramid Social welfare Trust, Bommidi, India.

Address for Correspondence: Dr. J. Prabakaran, *Department of Community Medicine, Tagore Medical College, Chennai-600048. India.* E-mail: drjprabaharan@yahoo.co.in

inclusive of diabetes, hypertension and dyslipidaemia, all of which are risk factors for coronary artery disease. The population of many countries in the South East Asia Region is approaching or has already crossed the public health action point of mean BMI of 23kg/m^2 (about 1/3rd of the population). Overweight and obesity rates in adults are generally higher among females and comparatively lower in rural areas[3]. The percentage of overweight or obesity is somewhat lower for men aged 15-49 years (9%) than that for women (13 %)[4]. WHO states that in 1990, the prevalence of overweight was 20%-40% in urban areas and is projected to increase further in years to come[5]. At least 2.6 million people die each year as a result of being overweight or obese[6].

Knowledge on prevalence of obesity helps the public health professionals and the clinicians to take appropriate interventions at individual and in the community at large scale. This study reports on the prevalence of generalized and abdominal obesity among population aged 25 to 64 years in urban area.

Material and Methods

It was a cross sectional community based study conducted from June 2008 to May 2009 in the field practice area of Urban Health Centre, Saraswathi Nagar, Nellore, Andhra Pradesh. The Nellore District is the southernmost coastal district of Andhra Pradesh with 4.75% of the total area of the state. This Urban Health Centre serves a population of approximately 25,127 with 12588 males; 12539 females and 5902 households. This centre maintains a well established medical record system, having health data of all families as individual family folders.

Sample size was estimated using the prevalence rate of obesity as 16% with 15% acceptable (allowable) error at 95% confidence level. It was proposed to study 933 subjects aged 25-64 years in urban area. Ethical clearance for this study was accorded by Institutional Ethical Committee, Narayana Medical College, Nellore. This study included population aged 25-64 years who are permanent residents of the area (lived for more than 6 months) and consented to participate. Pregnant women and people who did not consent were excluded from the study.

Sampling method: A list of 5902 houses in the locality was listed and numbered. A simple random sampling method was used with household as sampling unit. The list of 933 houses was selected randomly by creating random numbers with the help of World Wide Web (www.random.org). If the selected house was closed during the visit, the next house in the list was selected. In houses with one eligible person, he or she was included in the study and in houses which had more than one eligible person, one was selected randomly. Data collection was done after obtaining informed consent. **Survey Instruments:** A modified WHO STEPS questionnaire was used to collect the data. It had two parts. In the first part the socio demographic data of the

family and in the second part the data on variables related to individual were collected.

Methods of anthropometric examination: Wherever feasible, all physical measurements were measured and recorded in privacy. Height was measured with stadiometer using a standard procedure and measurements were recorded to nearest cm. Weight was measured with calibrated

weighing machine (bathroom type) to the nearest 0.5 kg. Waist Circumference was measured using a non-stretchable fiber measuring tape to the nearest cm. The subjects were asked to stand erect in a relaxed position with both feet together on a flat surface; one layer of clothing was accepted. Waist was defined as the midpoint between the lowest margin of the rib and the upper border of the iliac crest in the mid axillary plane[7]. The BMI was calculated using the formula weight (kg)/height (m^2).

Generalized obesity was defined as BMI of $\geq$ 25 kg/m^2 and overweight as $\geq$ 23 to < 24.9 kg/m^2 and abdominal obesity as waist circumference of $\geq$ 90 cm for males and $\geq$ 80 cm for females *(WHO Asia Pacific guidelines)*[8]. Statistical analyses were performed using standard statistical packages.

Results

Of 5902 households, 933 were randomly selected and one eligible person was included from each household as explained earlier. Out of 933 study subjects, 463(49.6%) were males and 470 (50.4%) were females. 564 (59.37%) belonged to the age group of 25 – 44 years with mean age of 41.48 years. Most of the study subjects had studied up to high school (Table 1). Most of the study subjects belonged to the lower middle (34.63%) and poor (34.51%) socioeconomic status according to modified BG Prasad classification.

Table 1: General characteristics of the study population

Characteristic	Males (n=463)	Females(n=470)
1. Mean Age (years)	41.79	41.16
2. Education		
Illiterate	28 (3%)	58 (6.22%)
≤ high school	81 (8.68%)	139 (14.89%)
> high school	354 (37.94%)	273 (29.27%)

(The numbers in the parentheses represent the percentage of 933)

Anthropometric measurement results: The mean weight of the study subjects was 62.92 kg (male 65.43 > female 60.46) and mean height was 158.17 cm (male 163.17 > female 153.26). The mean BMI of the study subjects 25.19 kg/m^2 .This was higher in females. The mean waist circumference of study subjects was 82.29 cm. It was higher in males (Table 2).

Table 2: Gender wise distribution of anthropometric measurements

Variable	Male	Female
1. Mean height	158.17 cm	153.26 cm
2. Mean weight	65.43 kg	60.46 kg
3. Body Mass Index	24.56 kg/m^2 (95% CI: 24.14-24.98)	25.81kg/m^2 (95% CI: 25.34-26.27)
4. Waist Circumference	83.67 cm (95% CI: 82.58-84.75)	80.92 cm (95% CI: 79.88-81.96)

Obesity prevalence results: The prevalence of generalized obesity in the study population was 48.12% as per BMI scale. It was higher in females (male 44.3% < females 51.9%). The prevalence of overweight was more in males (9.33%). The prevalence of abdominal obesity was 46.62%. This was also more in females (33.9% among males < 59.1% among females).

Prevalence of isolated abdominal, isolated generalized obesity and combined obesity: The isolated abdominal obesity defined as increased WC and BMI< 23 were present in 3% of study subjects. The isolated generalized obesity defined as normal WC and BMI ≥ 23 was seen in 23.2% of study subjects. The combined obesity defined as presence of both generalized and abdominal obesity in an individual was seen in 43.3% of study subjects.

Table 3: Gender wise distribution of various types of obesity (n = 933)

Categories	Male	Female	Total
	No (%)	**No (%)**	**No (%)**
Normal	166 (17.8 %)	119 (12.8%)	285 (30.6%)
Isolated Abdominal Obesity	5 (0.5%)	23 (2.5%)	28 (3 %)
Isolated Generalized Obesity	143 (15.3%)	73 (7.8%)	216 (23.1%)
Combined Obesity	149 (16%)	255 (27.3%)	404 (43.3%)

(The numbers in the parentheses represent the percentage of 933)

The isolated abdominal obesity and combined were more among females whereas the isolated generalized obesity was higher among males (Table 3).

Discussion

In Chennai study, the prevalence of generalized obesity and abdominal obesity among general population was 28.5% and 26.1% respectively[9]. But in our study the prevalence was more in both categories. The increased prevalence of obesity in this study may be due to high dietary intake of rice and oily foods more frequently and less physical activity among the Nellore population than Population in Chennai.

In another study conducted in Chennai, the isolated generalized obesity was more common in males and isolated abdominal obesity more common among females[10] which are similar to findings in our study; however the cutoff point were taken as BMI $\geq$ 23kg/m^2.

A study conducted in urban slum area of Faridabad in Haryana shows the prevalence of obesity (BMI $\geq$ 25 kg/m^2) of 16% in males and 21.9% in females which was lower than our study. The mean waist circumference was also lower in this study (Males 79cm, Females 72.6 cm)[11] as compared to our study. This may be explained by the fact that the under nutrition levels in the urban slum population will be more when compared to non-slum population in any urban area.

Results of National Non-Communicable Disease Risk Factor Surveillance Project conducted in Nellore as one of the pilot site[12], and National Family Health Survey were comparable with present study. Our Study results were higher than the above studies.

Waist to hip ratio, which is another useful measure of abdominal obesity, was not used in this study as we adapted the basic STEPS approach of WHO. Further studies can be conducted to find out the factors responsible for the increased prevalence of obesity in this study area. Programmes and interventions targeting this population with obesity can be implemented so that this emerging problem is controlled and its consequences reduced.

Acknowledgements

We thank Pyramid Social Welfare Trust for their co-operation in conducting this study. We also thank study subjects and their families for taking part in the study and all persons who helped us directly and indirectly during the planning and implementation.

References:

1.World Health Organization. Obesity in the Pacific too big to ignore, WHO Regional Office for the Western Pacific, Manila, Philippines; 2002.

2.World Health Organization .Diet, nutrition and the prevention of chronic diseases. Report of a joint WHO/FAO expert consultation. Geneva; 2003.

3.World Health Organization. Regional committee document, scaling up prevention and control of chronic non-communicable diseases in the SEA Region: Risk factors for non-communicable diseases: Results in the South-East Asia Region (Results from surveys using the WHO- STEPS approach), SEARO; July 2007.

4.Mari Bhat N, Fred Arnold, Kamla N Gupta, Sunita Kishor, Sulabha Parasuraman, Arokiasamy P et al. National Family Health Survey (NFHS-3), 2005–06.Volume I, September 2007, International Institute for Population Sciences:1-54.

5. World Health Organization, Non-communicable Diseases in South-East Asia Region-A profile, WHO, Regional Office South East Asia Region, New Delhi; 2002.

6. World Health Organization .Preventing Chronic Diseases, a vital investment. Geneva; 2005.

7. World Health Organization, WHO STEPS Surveillance Manual (STEPS wise approach to surveillance); Manual available from:

http://www.who.int/chp/steps/manual/en/index4.html (cited 15th May 2007)

8. World Health Organization, Western Pacific Region. The Asia Pacific perspective. redefining obesity and its treatment. World Health Organization, International Association for the Study of Obesity and International Obesity Task Force. Melbourne; 2000.

9. V. Mohan, M. Deepa, S. Faooq, M Datta, R Deeba. Prevalence, awareness and control of hypertension in Chennai- The Chennai urban rural epidemiology study (CURES-52);JAPI 2007;55:326-332.

10. M Deepa, S Farooq, R Deepa, D Manjula, V Mohan. Prevalence and significance of generalized and central body obesity in an urban Asian Indian population in Chennai, India (CURES: 47); European Journal of Clinical Nutrition 2007:1–9.

11.Anand K, Bela Shah, Kapil Yadav, Ritesh Singh, Prasanth Mathur, Eldho Paul et al. A survey on risk factors for non communicable diseases in urban slums Faridabad; The National Medical Journal of India 2007; 20(3): 115-120.

12.Govt.Of India,Planning commission,Report of the working group on disease burden of 12th Five Year Plan,WG3(2):Non Communicable Diseases .New Delhi;May 2011.(Report available from http://planningcommission.nic.in/aboutus/committee/wrkgrp12/health/WG_3_2non_communicable.pdf ; cited on 18th Dec 2011)

Conflict of interest: None

Source of support: Nil.

Assessing Computer Skills among Graduate Medical Students in South India

Seetharaman N [1]

Abstract

Purpose: The internet has profoundly changed the way medical knowledge is shared and accessed. To be a computer-literate physician in the 21st century, the necessary skill-sets need to be learnt sometime during graduate medical training. The current study aims to assess the Information and Communications Technologies (ICT) skills and training needs among undergraduate medical students in South India.

Methods: A Cross-sectional, questionnaire based survey was administered among undergraduate medical students (n=734) of SRM Medical College Hospital, Chennai, south India. Variables studied include ownership, access to and ease of use of computers and a self-reported assessment of competence to perform specific ICT tasks.

Results: 46.2% of the medical graduates were using a computer 'almost every day' and the mean age of first contact with computers was 12.2 $\pm$3.8 years. Male students spend more time online than female students ($p<0.001$). Beyond sending emails and making PowerPoint presentations, majority were not confident in key ICT skills such as online literature search (74.3%) and statistical analysis (79.2%). Less than half of the students had had training in computers previously and more than two-thirds want to take part in computer training programs.

Conclusions: Although a fair degree of self-learning is evident among the medical graduates, key ICT skills such as accessing online health resources need to be imparted systemically. Formal computer usage training programs - based on needs as measured in the current study - need to be incorporated in to the medical curriculum to equip the physicians of tomorrow with the skill of life-long self learning.

Key words: Computer Literacy, Medical graduates, Medical education, Medical Informatics, Internet, Information and Communications Technologies (ICT)

1. Introduction

Computer aided / assisted learning (CAL) has become an integral part of Medical Education in the 21st century and today's medical graduates need to be computer literate. Many medical schools in the developed countries now require students to purchase computers. (1, 2) One estimate suggests that by 2010 more than 30% of a physician's time will be spent using information technology tools. (3) Rapid advancements in the fields of health and information technology require that medical practitioners develop computer skills to enhance the quality of patient care, medical education and for ongoing research.

The internet is now one of the most important sources of medical and health related knowledge. Using computerized medical records, retrieving computer based knowledge resources, and understanding the basics of the Internet have all become crucial for today's physicians (4, 5) Hence computer related skills need to be imparted to medical graduates some time during their undergraduate training program.

[1] – *Department of Community Medicine, SRM Medical College & Research Centre, Chennai*

Address for correspondence: Dr.N.Seetharaman, Associate Professor, Department of Community Medicine, SRM Medical College & Research Centre, Chennai-603203, India. Email: seethahere@gmail.com

In 1984, the Association of American Medical Colleges (AAMC) recommended that "to practice medicine in the twenty first century, medical students ... must be given a strong grounding in the use of computer technology to manage information, support patient care decisions, select treatments, and develop their abilities as lifelong learners". (6) Realizing the potential of Information and Communications Technology (ICT) as Teaching-Learning tools in Medical Education, efforts are being made towards integrating the basic concepts of Medical Informatics in to the medical curriculum. (7, 8, 9, 10, 11, 12, 13] Now, more than twenty-five years later, the medical community in India is awakening to the need for *computer literacy* among medical students as well as medical practitioners.

Despite many advantages, CAL has certain limitations. For instance, the sheer volume of information available on the Internet can overwhelm the learner who lacks the skills for verifying the quality of information available online. (14) Insufficient time and limited computer access are often stated as common hurdles by many medical practitioners. (15, 16) Further, the need to learn new skill-sets may discourage many physicians from becoming computer literate. (17, 18, 19)

Strategies to integrate medical informatics in to the medical education system must take into account the pre-existing ICT skill levels of incoming medical students and their specific needs for training in ICT skills. (20, 21) While several studies have assessed ICT skills among medical graduates worldwide (22 - 29), very few in-depth reports in this area are currently available in India. The current study aims to explore the ICT skills and training needs among medical graduates in a private medical college hospital in south India. This would help in designing better teaching modules based on the learners' needs, fully utilizing the advantages of Information and Communications Technology.

2. Objectives

1. To assess the level of use of computers and the internet among undergraduate medical students

2. To document the need for formal training in specific computer related skills

3. Methods

Study design*:* A cross-sectional questionnaire based descriptive study.

Study setting: The current study was conducted at the SRM Medical College Hospital & Research Centre (SRM MCH&RC), a private teaching hospital in the suburbs of Chennai, south India from February 2011 to May 2011.

Study participants: Four batches of students and one batch of interns of the undergraduate medical program (MBBS) participated in the study. Overall 734 graduates (144, 138, 154, 148 and 150 from the batches admitted from 2006 to 2010) participated in the study.

Study tool: The questionnaire has been adapted, as per local needs, from instruments originally

developed by the University of North Carolina School of Medicine and Informatics in Medical Education and Development (IMED). It was pre-tested among 40 students (not part of the actual study) and necessary modifications were made. This structured, anonymous questionnaire was administered to all the medical graduates in a class-room setting. Data was collected from the interns during their clinical postings. Written informed consent was obtained from all participants. No specific sampling method was adopted since the entire population of medical graduates in the institute participated in the study. Students who were not available on the days of data collection were approached over the next 3-4 days.

Statistical analysis: Data was analyzed using SPSS v14 statistical package. Student's t test and Chi-square test were used to assess the statistical significance of the differences noticed.

4. Results

Out of the total population of 748 medical graduates, the response rate was 98.1% (sample size = 734). 56% (411) of graduates were females and 51% (375) were residing in-campus hostels. 144 of the graduates were undergoing their internship during the period of study. *Table 1* depicts the distribution of the study population.

Table I: Distribution of the study population (n=734)

Batch	Mean age (yrs)	Hosteller	Day scholar	Male	Female	Total
2006 (interns)	22.3	74	70	73	71	144
2007	21.3	67	71	67	71	138
2008	20.2	73	81	69	85	154
2009	19.1	77	71	58	90	148
2010	18.3	84	66	77	73	150
TOTAL	19.6	375	359	344	390	734

95.6% of the students interviewed reported that they were familiar with day-today usage of computers. *Table 2* details the pattern of computer usage among the medical graduates. 46.2% reported using a computer 'almost every day' and another 37.2% accessed it 'once or twice a week'. Male students were found to be more frequently using a computer than female students ($p<0.001$). This gender difference was noticed among interns as well as students, but there was no significant inter-batch difference. On average, the medical undergraduates spend 3.6 hours a day using computers. Male students (4.3 hrs per day) spent significantly more time than female students (3 hrs per day) ($p<0.05$). First exposure to computers was at a mean age of 12.2 ($\pm$3.8) years and the gender difference noticed was not statistically significant.

Table II: Computer usage patterns (n=734)

		Overall (%)	By Gender (%)		p value
			Male	Female	
Frequency	Daily	339 (46.2)	188 (54.7)	151 (38.7)	< 0.001
	Weekly	273 (37.2)	91 (26.5)	182 (46.7)	< 0.001
	Monthly or less often	98 (13.4)	32 (9.9)	66 (16.1)	< 0.01
	Never	24 (3.3)	12 (3.7)	12 (2.9)	NS
Usage per day	Less than half-an-hour	30 (4.1)	6 (2.9)	24 (6.1)	< 0.01
	About an hour	144 (19.6)	38 (11.1)	106 (27.2)	< 0.001
	Couple of hours	227 (30.9)	109 (31.7)	118 (30.3)	NS
	More than three hours	333 (45.4)	191 (55.5)	142 (36.4)	< 0.001
Average *hours* spent per day using computers		3.6	4.3	3.0	< 0.05

With regard to ownership of computers, 46.5% owned a desktop and 53.3% owned a laptop as shown in *Table 3*. There were no gender differences in terms of ownership of computers, the ability to use them, or the ease of access to computers. Similarly, the interns were also found

not to be significantly different from the rest of the students in the above said aspects.

Table III: Ownership of computers (n=734)

Ownership	Frequency (%) Overall	By Gender Male	By Gender Female	p value
Desktop	341 (46.5)	160 (46.5)	181 (46.4)	NS
Laptop	391 (53.3)	181 (52.6)	210 (53.9)	NS
Palmtop/PDA	42 (5.7)	29 (8.4)	13 (3.4)	< 0.001
None	109 (14.9)	49 (14.2)	60 (15.4)	NS

Overall, Textbooks (77.3%) were still the primary learning resource as shown in *Table 4*. More male students, than female students, reported using the internet ($p<0.05$) as a learning resource whereas more female students reported using lecture notes ($p<0.001$) as a learning resource.

Table IV: Resources used for study and reference (n=734)

Resource	Usage (%) Overall	By Gender Male	By Gender Female	p value
Text books	548 (74.7)	226 (65.7)	322 (82.6)	< 0.01
Internet	419 (57.1)	201 (58.4)	218 (55.9)	< 0.05
Lecture notes	280 (38.1)	95 (27.6)	185 (47.4)	< 0.001
CD-ROMs	158 (21.5)	84 (24.4)	74 (19.0)	< 0.01
Journals	100 (13.6)	41 (11.9)	59 (15.1)	NS
Others*	35 (4.8)	16 (4.6)	19 (4.9)	NS

* - others include PowerPoint presentations of lectures, peers/seniors' help and question banks

92.7% of the students had internet access and 83.7% had an active email account. Most common places of internet access were homes, hostels, the college library, internet cafes and friends' houses. Internet services commonly used by the students are shown in *Table 5.* Accessing email and searching for information were among the most common online activities. Among internet search engines, Google (48.9%) and Yahoo (26.0%) were favourites.

Table V: Common online activities (n=734)

Activity	Usage (%) Overall	By Gender Male	By Gender Female	p value
Search for information	462 (62.9)	210 (61.1)	252 (64.6)	NS
Email	457 (62.3)	201 (58.4)	256 (65.6)	< 0.05
General browsing	319 (43.5)	160 (46.5)	159 (40.8)	NS
Games	281 (38.3)	144 (41.9)	137 (35.1)	NS
Movies & Music	257 (35.0)	108 (31.4)	149 (38.2)	NS
Others*	270 (36.8)	129 (37.5)	141 (36.1)	NS

* - others include social networking, chatting and online transactions

Table 6 lists the self-reported expertise of the medical graduates in specific ICT skills and Table 7 details their *perceived* confidence levels in performing these tasks, on a 3-point scale. 43.2% of medical graduates reported that they had undergone some form of formal training in computer usage previously. Most students had worked with Word documents (77.3%) and PowerPoint presentations (75.5%). Only 25.8% of the students had ever done an online literature search and only 19.6% had ever used software to analyse statistical data. A significantly higher proportion of Interns ($p<0.001$) reported performing online literature searches.

When rated on a 3-point scale, only a minority felt 'very confident' in using a word processor (27.2%) or a spreadsheet (23.3%), performing an online literature search (12.1%) or analysing statistical data (6.6%).

Table VI: Self-reported expertise in ICT tasks (n=734)

Task	Affirmative response (%)						
	Overall	By year			By Gender		
		Intern	Student	p value	Male	Female	p value
Use a word processor	567 (77.3)	79.2	77.0	NS	77.9	76.7	NS
Create a PowerPoint presentation	554 (75.5)	76.4	75.2	NS	79.4	72.1	< 0.05
Use a spread sheet program	382 (52.0)	52.8	41.6	< 0.05	52.3	51.8	NS
Work with statistical data	144 (19.6)	21.5	19.2	NS	25.3	14.6	< 0.001
Perform an online literature search	189 (25.8)	40.3	22.2	< 0.001	35.2	17.4	< 0.001
Owned a web page / blog	186 (25.3)	26.4	24.8	NS	32.9	18.7	< 0.001
Written a computer program	148 (20.2)	21.5	19.8	NS	27.0	14.1	< 0.001
Had computer training earlier	317 (43.2)	50.0	58.5	NS	43.9	42.6	NS

Lack of training in computer usage could be the reason behind the reported lack of confidence in key ICT skills. 63.8% of the interviewed students were interested in taking part in some form of computer usage training program in the college. Peer-mentored training programs were more welcome than formal instructor-based methods.

Table VII: Perceived Confidence levels in performing specific ICT tasks (n=734)

Task	Perceived confidence levels (%)		
	Very confident	Somewhat confident	Not confident
Create a report / CV with a word processor	200 (27.2)	173 (23.6)	361 (49.2)
Create a PowerPoint presentation	244 (33.2)	251 (34.1)	239 (32.6)
Use a spread sheet program (e.g. excel)	171 (23.3)	215 (29.3)	348 (47.4)
Perform an online literature search	88 (12.1)	100 (13.6)	546 (74.3)
Analyse data with a statistical package	49 (6.6)	104 (14.2)	581 (79.2)
Access information on CD-ROM	171 (23.3)	392 (53.5)	171 (23.3)
Send a file as e-mail attachment	239 (32.6)	335 (45.6)	160 (21.8)
Download health info from the internet	222 (30.2)	144 (19.6)	368 (50.2)

5. Discussion

The results show that ownership of computers and access to the internet are no longer major issues among graduate medical students in India. 95.6% of the medical graduates studied had access to and use computers fairly regularly, while 46.2% actually used them every day. Recent studies from India and abroad report comparable rates – 93.3% in Ludhiana (30), 94% in Austria (28), and 95% in Saudi Arabia (26) & Finland (27). Male students using the computer more frequently than female students have also been reported earlier from India (31) and abroad (24). The fact that an average medical graduate spends more than three hours a

day using computers is an eye-opener. This is higher than many other earlier studies. (25, 26, 27) Further studies need to be done in other government and private medical colleges in the country before such a high quantum of computer usage can be generalised.

Less than half of the medical graduates had received any kind of formal training in the use of computers. A fair degree of self-learning is evident with regard to many basic ICT skills such as creating PowerPoint presentations and sending emails. This pattern is similar to many earlier studies. (25, 26, 27) Still, the lack of formal training in computer usage is reflected in the fact that a sizable proportion of the students were not confident in key ICT skills such as performing an online literature search (74.3%) or perform statistical analysis. Similar results have been reported from India (30, 31, 32) and abroad [26, 28]

Today, in the age of Evidence based Medicine, medical graduates and practitioners need to constantly update their knowledge to keep up with the evolving trends in medicine and healthcare. Increasingly, the internet is becoming the major channel through which advances in current medical knowledge is shared and accessed. In such a backdrop of electronic information sharing, the lack of skills to access and to verify the quality of health information available online would be a major handicap for physicians and physicians-to-be.

For the physician of today, ICT skills have become as crucial as other professional skills such as communication skills or diagnostic skills. The need to learn new skill-sets has been reported to discourage many senior physicians from becoming computer literate. (18, 19) Hence, learning of such key ICT skills must be integrated *early* in to the graduate medical program. Such training has been shown to be a felt-need among medical graduates, with nearly two-thirds studied (63.8%) interested to take part in some form of in-college computer usage training program.

These findings are bound to be unique to the current generation of medical graduates. Such evidence need to be embraced by curriculum planners & medical educators, leading to the formulation of appropriate medical curricula to prepare tomorrow's physicians

Conclusion:

Rapid changes in the fields of Medicine and Information Technology have necessitated physicians to acquire newer, appropriate ICT skills to keep up with the times. For today's medical students, the computer as an instrument is as indispensable as the microscope was for their counterparts a decade ago. How well students learn to use this instrument will profoundly influence their effectiveness as tomorrow's practitioners. Educational content and goals need to be realigned with the evolving societal needs, practice patterns, and scientific developments. Key ICT skills need to be incorporated in to the undergraduate medical training program. By knowing the level and depth of ICT skills today's medical graduates possess, we can devise the most appropriate strategies, methods, and resources to help students meet these goals.

Acknowledgments:

The author would like to thank Mr.Vijayakumar and Ms.Padmavathy for their help in data collection and data entry.

Conflict of Interest: None
Source of funding: None

Reference:

1. Elam CL, Rubeck RF, Blue AV, Bonaminio G, Nora LM. Computer requirements for medical school students—implications for admissions. J Ky Med Assoc 1997 Oct;95(10):429–31.

2. Mcauley RJ. Requiring students to have computers: questions for consideration. Acad Med 1998 Jun;73(6):669–73.

3. Skinner H, Biscope S, Poland B: Quality of internet access: barrier behind internet use statistics. Soc Sci Med 2003, 57:875-80.

4. Fain JA. Technological innovation: retooling for the future. Diabetes Educ 1997 Mar–Apr;23(2):109.

5. Schneider EC, Eisenberg JM. Strategies and methods for aligning current and best medical practices: the role of information technologies. West J Med 1998 May;168(5):311–8.

6. Association of American Medical Colleges. Advisory Panel on Assessing Change in Medical Education – The Road to Implementation. ACME – TRI Report: Educating Medical Students. Assessing Change in Medicine Education. The Road to Implementation. 1992: Washington, DC: Association of American Medical Colleges.

7. Kaufman DM and Jennett PA. Preparing our future physicians: integrating medical informatics into the undergraduate medical education curriculum. Studies Health Tech & Info 1997: 39: 543-6.

8. Moehr JR. Where to in the next ten years of health informatics education? Methods Inf Med 2006: 45(3): 283-7.

9. Sarbadhikari SN. Basic medical science education must include medical informatics. Indian J Physiol Pharmacol 2004: 48(4): 395-408.

10. Hasman A and Haux R. Curricula in medical informatics. Stud Health Technol Inform 2004: 109:63-74.

11.Haux R. Health information systems- past. Present future. Int J Med Info. 2006: 75(3-4):268 - 81.

12. Seago BL, Schlesinger JB, Hampton CL: Using a decade of data on medical student computer literacy for strategic planning. J Med Libr Assoc 2002, 90:2202-209

13. Hollander S: Assessing and enhancing medical students' computer skills: a two-year experience. Bull Med Libr Assoc 1999, 87:167-73

14. Rzymski P, Wilczak M. Ocena. Evaluation of professional Internet resources' use by gynaecologists and obstetricians. Ginekologia polska, 2001, 72:750–4.

15. Amin Z. Theory and practice in continuing medical education. Annals of the Academy of Medicine, Singapore, 2000, 29:498–502.

16. Carney PA et al. Computer use among community-based primary care physician preceptors. Academic medicine, 2004, 79:580–90.

17. Clayton PD, Pulver GE, Hill LL. Physician use of computers: is age or value the predominant factor? Proceedings of the Annual Symposium on Computer Application in Medical Care, 1993, 4:301–5.

18. Cullen K. In search of evidence: family practitioners' use of the Internet for clinical information. Journal of the Medical Library Association, 2002, 90:370–9.

19. Florance V, Braude RM, Frisse ME, Fuller S. Educating physicians to use the digital library. Acad Med 1995;70:597–602.

20. Faughnan JG, Elson R. Information technology and the clinical curriculum: some predictions and their implications for the class of 2003. Acad Med 1998 Jul;73(7):766–9.

21. Gibson KE, Silverberg M. A two-year experience teaching computer literacy to first-year medical students using skill-based cohorts. Bull Med Libr Assoc 2000 Apr;88(2):157–64

22. Samuel M et al. Assessing computer skills in Tanzanian medical students: an elective experience. BMC public health, 2004, 4:37–45.

23. Ajuwon GA: Computer and internet use by first year clinical and nursing students in a Nigerian teaching hospital. BMC Med Inform Decis Mak 2003, 3:10.

24. Odusanya OO, Bamgbala O: Computing and information technology skills of final year medical and dental students at the College of Medicine, University of Lagos, Nigeria. Niger Post grad Med J 2002, 9(4):189-193

25. Nurjahan MI, Lim TA, Yeong SW, Foong AL, Ware J: Utilization of information technology in medical education: a questionnaire survey of students in a Malaysian institution. Med J Malaysia 2002, 57(suppl E): 58-66.

26. Mansor I: Computer skills among medical students: a survey at the King Abdul Aziz University, Jeddah. J Ayub Med Coll 2002, 14(3):13-15.

27. Virtanen JI, Nieminen P: Information and communication technology among undergraduate dental students in Finland. Eur J Dent Edu 2002, 6(1): 147-152.

28. Michael T, Marz R: Computer literacy and attitudes towards e-learning among first year medical students BMC Med Edu 2006, 6:34

29. Dørup J: Experience and attitudes towards information technology among first-year medical students in Denmark: longitudinal questionnaire survey. J Med Internet Res 2004, 6(1e10

30. Arora R. Computer and information technology skills of first year medical and dental students at CMC Ludhiana. Health Adm 2005 Jul;17(1):54-58

31. Kumar S, Balasubramanyam G, Duraiswamy P. Information Technology Practices Amongst Dental Undergraduate Students at a Private Dental Institution in India. J Dent Teh Univ Iran 2009 6(3):130-138

32. Inamdar SC, Rotti SB: Computer use among medical students in an institution in southern India. Natl Med J India 2004, 17:8-10.

Morbidity pattern among the adolescent girls: A study in the social welfare hostels for scheduled castes, Nellore city, A.P., India.

KM Susmitha[1] , Jyothi C[2] Prabakaran J[3]

ABSTRACT

Objective: To study the Morbidity pattern among the adolescent girls in the social welfare hostels for scheduled castes. **Study Period**: June 2008 – May 2009; Type of Study: Descriptive Cross sectional study. **Study setting:** Social welfare hostels for scheduled caste girls in Nellore city. **Participants:** 542 adolescent girls **Sampling frame:** Adolescent girls residing in six social welfare hostels for scheduled caste students in Nellore **Variables studied:** socio demographic profile, morbidity pattern. Appropriate statistical packages were used to analyze**. Results:** Majority of the girls were from rural background (83.58%). 35.79% were in middle school, 86% of girls stayed less than five years in the hostel. The major prevalent morbid conditions among girls were Pediculosis 83.21%, Dysmenorrhea 43.6% Dental caries 28.04%, Skin disorders 26.4% **Conclusion:** Pediculosis, poor personal hygiene and dysmenorrhea were found to have significance across the age groups. High morbidity was found in 11-13 year age group.

Keywords: Adolescent girls, morbidity pattern, social welfare hostels

Introduction:

WHO defines Adolescence as the segment of life between the ages of 10-19 years. Adolescence is a transition phase through which a child becomes an adult. It is characterized by rapid growth and development; physiologically, psychologically and socially.[1] 85% of them live in developing countries.[2] About one-fifth of India's population is in the adolescent age group of 10–19 years. Adolescents constitute a sizeable proportion of the Indian mothers. In Andhra Pradesh, this segment constitutes approximately 5.03% of the population. The importance of this target group lies in the fact that they are going to be the mothers of tomorrow – whose well being is critically important for improving the nutritional, health and educational status of women in the State. Various base line surveys also revealed that the health, nutritional and educational status of adolescent girls are at sub-optimal level.[33]The scheduled castes and scheduled tribes have been identified as two most

[1]Department of Community Medicine, Narayana Medical College, Nellore, [2]Department of Community Medicine Narayana Medical College, Nellore, [3]Department of Community Medicine, Tagore Medical College, Chennai, India.

Address for Correspondence: *Dr.K.MuniSusmitha, Department of Community Medicine, Narayana Medical College, Nellore-524003.A.P., India.E-mail: susmithamuni@yahoo.in*

disadvantaged groups of Indian society needing special attention.[4] The data regarding the morbidity status in social welfare hostels for the scheduled castes are sparse, despite the usefulness of such information in the management of hostels and upliftment of these groups.[5] In this context, the present study was taken up among adolescent girls residing in the social welfare hostels for scheduled castes in Nellore city. This study focuses on health and morbidity status of adolescent girls in the hostels.

Material and Methods

It was a cross sectional study conducted from June 2008 to May 2009 among adolescent girls residing in six social welfare hostels for scheduled caste students in Nellore. Among these six hostels, four are for school children, one is Anandanilayam (orphanage) and one for college girls. Written permission was obtained from the Deputy Director of social welfare hostels of Nellore district. The study was conducted with the co-operation of the hostel welfare officers.

Sample size: 562 adolescent girls were registered at the time of study in social welfare hostels out of which 542 were studied as the remaining were absent. **Inclusion criteria:** 1.All adolescent girls aged 11-19 years. 2. A minimum of not less than one year stay in the hostel. **Exclusion criteria:** 1. Absenteeism of the subjects from the hostel during the period of survey.2. Girls aged 10 years were excluded from the study as they were unable to comply with the study questionnaire owing to inability in understanding questions and recall of past illnesses as noticed in pilot study.

Study instruments: Pre-designed, pre-tested, semi-structured questionnaire, stethoscope, sphygmomanometer, Snellen chart etc. Data regarding morbidity status was collected using a proforma. Every girl was examined physically from head to toe and any signs and symptoms of illness were recorded. Enquiry was made about the duration of stay in the hostel, practices regarding personal hygiene and occurrence of any ailment during previous two weeks. Data collected was entered in Microsoft Office Excel and analysed by using SPSS Version 12.0. Proportions were calculated for different study variables.Chi-square test was used for analysis of categorical variables.

Results

Majority of the girls were from rural background (83.58%). The present study revealed that irrespective of the area majority belonged to nuclear families (78.97%). 35% of study subjects were in middle school,56% in high school and 8.1% in college education. There is no significant difference between urban and rural areas for the above Socio-demographic factors. The study shows that 86% of girls stayed less than five years in the hostel.

MORBIDITY PATTERN

Table 1: Current morbidity profile of study subjects (n = 542)

	Morbidity	No.	Percentage
1	Pediculosis	451	83.21
2	Dysmenorrhea (n=273)	119	43.6
3	Pallor	223	41.14
4	Dental caries	152	28.04
5	Skin disorders	143	26.4
6	Vitamin deficiency	117	21.57
7	Passing worms in the stools	72	13.28
8	Defective vision	67	12.36
9	ENT disorders	38	7.01
10	Inflamed Gums	25	4.61
11	Respiratory infections	26	4.85
12	Diarrhoea	14	2.58
13	Cardiovascular disorders	6	1.11
14	Musculoskeletal disorders	5	0.9
15	Lymphadenopathy	4	0.73
16	Having one or more morbid conditions	482	88.93

Table 2: Morbidity pattern of study subjects across age groups (n=542)

Morbidity	Age group in years			P value
	11-13 n=319	14-15 n=163	16-19 n=60	
	Number(%)	Number(%)	Number(%)	
Pediculosis	281 (88.1)	132 (81)	38 (63.3)	<0.001(HS)
Poor personal hygiene	159 (49.8)	69 (42.3)	19 (31.7)	<0.05 (S)
Pallor	141 (44.2)	56 (34.3)	26 (43.3)	>0.05 (NS)
Skin disorders	97 (30.4)	36 (22.1)	10 (16.7)	>0.05 (NS)
Vitamindeficiency	73 (22.8)	27 (16.5)	15 (25)	>0.05 (NS)
Defective vision	30 (9.4)	31 (19)	8 (13.3)	>0.05 (NS)
ENT disorders	19 (5.9)	15 (9.2)	4 (15)	<0.05 (S)
Respiratory disorders	16(5)	8(5)	2(3.33)	>0.05(NS)
Dysmenorrhea	27 (35.5) (n=76)	52 (37.96) (n=137)	40 (66.7) (n=60)	<0.001(HS)

S-significant; NS-not significant; HS-highly significant.

Pediculosis, poor personal hygiene and dysmenorrhea were found to have significance

across the age groups. High morbidity was found in 11-13 year age group.

Table 3: Illness of study subjects in past two weeks (n = 542)

Illness in last 2 weeks	Number	Percentage
Pyrexia	229	42.25
Scabies	91	16.79
Diarrohea	60	11.07
Acute respiratory infections	36	6.64
Exanthematous fever	21	3.87
Dysmenorrhea	18	3.32
Having one or more illness	446	82.3

In 542 subjects, 17.7% did not report any illness in the past two weeks.

Discussion

In the present study, the leading causes of morbidity were pediculosis (83.2%), pallor (41%), dysmenorrhoea (43.6%), dental caries (28%), skin diseases (26.4%), vitamin deficiency (21.5%), and passing worms in stools (13.2%) and defective vision (12%).

In a study conducted by Srinivasan[5] (2000), in Tirupati in 598 children aged 6-17 years, the common morbid conditions found were skin disorders 25.7%, dental caries 21.5%, history of passing worms in stool 21.6%, vitamin B deficiency 3.2%, ARI 1.7% and diarrohea 1.2%.The morbidity conditions are of similar pattern but the study included boys also.

In a study conducted in urban slums of Lucknow by Singh et al.[6](2006) on 400 adolescent girls aged 10–19 years, the various morbid conditions found were inadequate oral hygiene (55.4%), pediculosis (39.2%), cold & cough (25.8%) , lymphadenopathy (22.2%) , scabies (16.2%) , inflamed tonsils (7.8%) and ear discharge (7%) of girls.

A study conducted by Satapathy et al.[7](2008) in tribal children of Orissa of age up to 15 years, the different types of morbidities were fever 24.4%, acute respiratory infections 35.4%, goiter 14.4%, diarrhea 5%, 44.1% splenomegaly. As it is a tribal area, 14.4% suffered from malaria.

Similar study conducted by Geetha et al.[8](1997) in Kaniyambadi Block of North Arcot district of Tamil Nadu, the leading general complaints were general fatigue, palpitations, backache and abdominal pain. The study was conducted in rural community; girls were not educated and are more involved in household chores leading to more musculoskeletal disorders.

In a study conducted by Agarwal et al.[9](1999) in Mumbai among 1,144 girls of 5–15 years age group common health problems were hygiene related (62.2%). Dental caries and helminthiasis were common in younger girls;

pediculosis was most frequently seen in older girls, 6.6% asthma, 0.5% cardiac diseases.

In the present study, the morbidity due to skin diseases is 24.4%. In the study by Srinivasan[5], scabies accounted for 29.9%. In a study by Singh et al.[6] and Satapathy[7] scabies accounted for 16.2%and 15%respectively. The high prevalence of pediculosis and scabies in present study can be attributed to the overcrowding, poor personal hygiene.

In the present study, the prevalence of dental caries is found to be 28.04% similar to study by Srinivasan. 13.33% of dental caries was seen in the study conducted by Choudhary et al.[10] in adolescent girls of rural area of Varanasi. The high prevalence of dental caries in the present study may be due to poor oral hygiene.

In the present study, the history of passing worms in stool is 13%. In the study by Srinivasan[5] and Kalamka[11] (2001) in Nagpur the percentage of history of passing worms was reported to be 21% and 19.4% respectively. The prevalence of vitamin A deficiency was 22.2% in a Lucknow [6] study. The vitamin deficiencies found in the present study were low as they are in social welfare hostels and are provided balanced diet when compared to Orissa and Lucknow studies which were done in general community. In the present study defective vision was 12.36%, whereas in other studies [5,6] the prevalence of defective vision was 4.7% and 4.5% respectively. This difference may be due to inadequate indoor lighting.

Further research can be encouraged to improve the health status of the inmates of the social welfare hostels.

Acknowledgements

We thank Hostel welfare officers of Social Welfare hostels for their co-operation in conducting this study. We also thank study subjects for taking part in the study and colleagues who helped for this study.

References:

1. WHO. Adolescent Nutrition: A Review of the Situation in Selected South-East Asian Countries, 2006.

2. WHO. The reproductive health of adolescents: A strategy for action, A joint WHO/ UNFPA/ UNICEF statement, 1989.

3.Department of women development and child welfare. Declaring the year 2003 as the year of the adolescent girl. Government of Andhra Pradesh; 2003.

4.Introduction of scheduled caste education; file://H:/introduction of sc educ.htm (Accessed on 21-10-08).

5.Srinivasan K, Prabhu GR. A study of the morbidity status of the children in social welfare hostels in Tirupati town, Indian Journal of Community Medicine, 2006; 31(3):25-30.

6. Singh J, SinghV, Srivastava AK, Suryakant. Health status of adolescent girls in slums of Lucknow. Indian Journal of Community Medicine.2006, 31(2):11-15.

7.Behera TR, Satapathy DM, Sahani NC, Sahu T. Nutritional deficiency status among tribal children

in a hard to reach area of Malkangiri Dist in Orissa, Ind.J.Nutr.Dietet., 2009:46:106-111.

8.Geetha A, Sara Bhattarcharji, Abraham Joseph, Rao PSS. General and Reproductive Health of Adolescent Girls in Rural South India. Indian Pediatrics. 1997, March, 34; 242-245.

9.Agrawal M, Ghildyal R, Khopkar S. Health Status of School Girls from Affluent Population of Mumbai. Indian Pediatrics. 1999, 36: 75-78

10.Choudhary S, Mishra CP, Shukla KP. Nutritional status of adolescent girls in rural area of Varanasi. Indian J. Prev. Soc. Med. 2003:34 (1): 54-61.

11.Kalamka HS. Study of health problems of adolescent in urban field practice area. A thesis submitted for the Degree of Doctor of Medicine (M.D), Nagpur University, Nagpur, 2001.

Conflict of interest: None

Source of support: Nil.

A Qualitative Study of Community Participation in Conducting a Cataract Camp in Koppa Panchayat of Tumkur District in Rural Karnataka

Shashikumar M[1]

ABSTRACT

Objective: To study community participation in conducting a cataract screening camp and follow up of post operative cases. **Study Period**: March 2010 – July 2010; **Type of Study:** Descriptive study. **Study setting:** Villages of Koppa Panchayat of Kadaba Hobli of Gubbi Taluk, **Participants:** Field officer, village facilitators, volunteers form the villages, members of SHGs, Panchayat President and members of Koppa Panchayat and members of School Developmnent and Management Committee (SDMC) of Government primary school, Koppa village. **Variables studied:** Qualitatively the community participation in the pre camp, camp and post camp situations was documented. Profile of patients attending the camp and yield of the camp was studied. **Results: Pre Camp situation:** Stakeholder meeting was held and decisions on various responsibilities by different groups were taken. For publicity the village youth innovated and had a bike rally in all the villages to promote the cataract eye screening camp. **Camp situation:** SHGs took responsibility to set up Camp site, volunteering at various activities and also accompanied patients as caretakers in hospital. **Post Camp situation:** Patients were followed up by the members of SHG and ensured 100% adherence to medications and post operative instructions **Conclusion:** Community Participation may improve the quality of care during the camp and post operative follow up.

Keywords: Community Participation, Cataract Camp, rural area.

Introduction:

Cataract has been the most important and leading cause for preventable bilateral blindness (62.6%) in India where vision in the better eye on presentation is <6/60 is defined as blindness.(1) In a study done in rural India age related cataract among subjects aged 40-49 yrs, 50 -59 yrs, 60-69yrs and >/=70 yrs were 55.7%, 81.3%, 79.4% and 47.5% respectively.(2) In collaboration with District Blindness Control Society many tertiary care hospitals are conducting cataract screening camps to identify people with cataract , transport them to base hospital, perform surgery and do post operative follow up subsequently. Even though most of the camps are specific for cataract screening, they also address many non eye health problems like psychosomatic disorders, Dermatological conditions, Diabetes, Fever and other cases, thus reducing yield and effectiveness of the camp. By specifically educating the local Community Based Organization (CBO) and NGOs and involving community the yield and effectiveness of the eye services can be increased.

Public Health Consultant, Vattikuti Medical and Educational Foundation; Initiatives for Development Foundation- Kunigal,

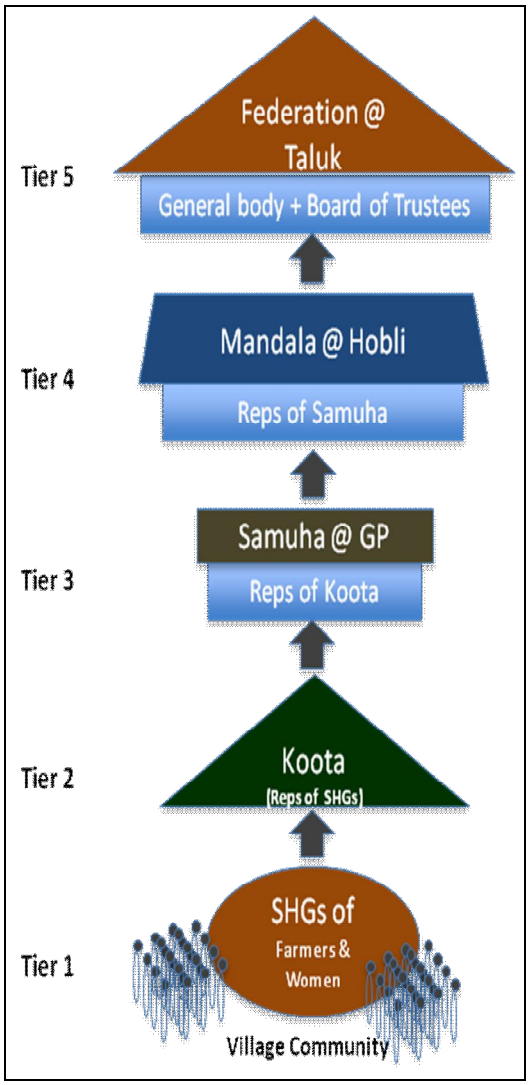
Address for Correspondence: Dr. Shashi kumar M, No. 620, Raghava Nilaya, 6th Cross, Bhuvaneshwarinagara, T. Dasarahalli, Bangalore – 560057 E-mail: drshashi1982@gmail.com

"Community participation" is an educational and empowering process in which the people, in partnership with those who are able to assist them, identify the problems and needs and increasingly assume responsibilities to plan, manage, control and assess the collective actions that are proved necessary. Community may be involved in many ways namely, participation in planning, managing and utilizing of the services, organizing the services at the community level with wide and easy access of the people to the services provided, mobilizing locally available resources and others. This study reports on the utilization of agricultural based workforce of an rural developmental Non Governmental Organization and community participation through CBO structure in conducting a cataract screening camp and studying the outcome of the camp.

Material and Methods

It was a community based descriptive study conducted from March 2011 to May 2011 in Koppa Panchayat area, Gubbi Taluk, Tumkur District, Karnataka. This area is one of field practice areas of Initiatives for Development Foundation (IDF), an Non Government Organization and a social enterprise registered as trust and works at grass root level for empowerment of the under privileged sector and promote sustainable agriculture and natural resource management as means of livelihood improvement among rural poor. The organization structure is shown in the figure 1.

Figure1: Organization structure of Initiatives for Development Foundation (I.D.F.) and CBO (Community Based Organization) in Kunigal Taluk.



Reps- Representatives; SHGs- Self Help Groups,; GP- Gram Panchayat

Pre camp situation: An orientation workshop was done for IDF field staff (Project coordinator, 1 field officer and 5 village facilitators of Koppa panchayat) on cataract screening in the community and about community participation in organizing a screening camp. Emphasis was given on their role in all the three situations (pre camp, Camp and Post camp Follow up). A field visit was done to train them in identifying cataract cases where lens characteristics of person with cataract cases were compared with non cataract persons in the community. Community consent was obtained from the Panchayat and CBO for conducting the camp.

A separate training was given to the field officers and volunteers from the CBO regarding camp site selection and setting up 7 sections needed to conduct the camp namely registration counter, general examination room to screen out non ophthalmic cases, a room for the refraction testing for the optometrist with adequate lighting and adequate testing space, room for ophthalmologist for examination of patients with good lighting and ventilation and medicine dispensing room. As it was remote village, they were also asked to mobilize furniture form the villages for each of these areas. In the second session they were also told about their responsibilities during the follow up and danger signs of post operative cataract cases and need for immediate referral. A non participatory observation was made by researcher regarding participation of the community and the various roles, responsibilities and innovations of the community in all the three situations and documented them. The outcome of the camp was also studied.

Results

The observations are divided in to three situations: pre camp situation, Camp day and post camp follow up.

Observations in the Pre camp situation:

A meeting was organized with Gram Panchayat members, representatives of SDMC, representatives for SHGs members and staff of IDF. They were oriented regarding the resources needed for conducting the camp and were constantly encouraged to own the responsibility in all the three situations. They were also trained on identifying the cataract cases and other common eye problems and importance of avoiding other non specific cases from participating expect in case of emergency. During the meeting, decisions on various responsibilities by different groups were taken (table 1).

Publicity: For publicity the village youth innovated and had a bike rally in all the villages to promote the cataract eye screening camp and surgery. The village facilitator and the village volunteers announced about the camp during the weekly Self Help Group meeting and

assigned them to mobilize the patients from their villages. Even though the date of the camp was fixed by the community, they failed to take into consideration the marriage of the village youth on the camp day.

Observations on the Camp day:

Camp site was cleaned and furniture was setup according to the need of various stations and Basic amenities provided. The Volunteers organized local vehicle (auto rickshaw) for transportation of the patients from various villages. 4 Volunteers from local SHGs recorded the patient's details at the registration counter and 2 of them recorded the patients selected for surgery. Members from another SHG had taken responsibility to facilitate each of the elderly patients across various stations and managing the crowd. A bus form Karnataka State Road Transportation Corporation was organized to transport the patients to the base hospitals and 3 volunteers accompanied the patients to the base hospital. 2 of them, 1 male and 1 female stayed back as care takers for the patients in the hospital.

Out come of the camp:

Details of patients attending the camp: A total of 134 members had attended the camp. Out of 134 people registered for the camp, 22 were healthy people who volunteered in organizing the camp and had their eyes checked. Out of 112 patients, only 15 of them had symptoms other than eye and 97 of them had eye problems. Among them 55 cases of cataract of various stages were identified. Out of

Table 1: Details of decisions on various roles and responsibilities at the pre camp stake holders meeting

Decision	People responsible
Fixing the camp date	All the participants (a prior list of available days was obtained from the hospital)
Over all coordination of the camp	Field officer of Koppa Panchayat (I.D.F)
Publicity about camp and information dissemination on preparation of participants before the camp (ex. head bath, shaving)	Panchayat announcement about the camp using Public address system and Village volunteers distributed Pamphlets
Camp site cleaning and set up. (since toilets was available a school was selected as camp site)	School Development and Monitoring Committee (SDMC) and Local women SHG for furniture and IDF.
Hospitality, food for health team and patients selected for surgery	A sponsor from the village (lecturer in a near by college)
Transportation and Medicines at Camp site	I.D.F and Vattikuti Medical and Education Foundation
Cost of entire care at the base hospital	Tertiary care medical teaching hospital from Bangalore
Follow up of the cases after the surgery in the community other than follow up by the ophthalmologist at one week and at 6 weeks	Volunteers from community, IDF field staff and women SHGs to visit patient atleast once a day. A house visit was made by the researcher to assess the patient's eye and adherence to instruction and medicines.

which, 43 were eligible for the surgery. Out of the 12 not eligible 5 had high blood pressure and 2 had high blood sugars and 2 had symptoms of acute exaggeration of Bronchial asthma and COPD. Out of 43 selected for surgery only 29 were taken for the Base hospital for surgery. Out of 14 who were not taken for surgery, 5 had their spouses selected for the surgery in the same camp and wanted to post pone the date of surgery. Others postponed due to various commitments they had in nest few days.

Table 2: Outcome of the camp:

Characteristic	N0
Patients attended the camp	112
Number of patients with symptoms of eye problem	97
No. of cataract cases identified	55
No. of cataract cases taken for surgery	28
No. of cases operated at the base hospital	27

Table 3: Village wise distribution of patients attended the camp and patients with cataract

Name of the Villages	Total population	No of patients attended	No. of patients with cataract
Koppa	867	26	12 (46.15%)
Koppa colony	63	15	10 (18.2%)
Konnakere	955	14	9 (64.3%)
Konamadanahalli	796	10	6 (60%)
Hallenahalli	414	9	5 (55.6%)
Yadavanahaii	888	16	5 (31.3%)
Gulenahalli	215	10	4 (40%)
Honnashettihalli	711	8	4 (0%)
Eengaladakaval	64	4	0 (0%)
Byramadenahalli	262	0	0 (0%)
Total	5235	112	55 (49.1%)

(The numbers in the parentheses represent the percentage of cataract cases among the patients attended from each village)

Table 4: Age and gender distribution of patients attending the camp

Age in years	Gender		Total
	Female No. (%)	Male No. (%)	
50-59	2 (66.7%)	1 (33.3%)	3 (11.1%)
60-69	5 (0%)	6 (0%)	11(40.7%)
70-79	6 (60%)	4 (40%)	10(37.1%)
=/>80	1 (33.3%)	2 (66.7%)	3 (11.1%)
Total	**14(51.9%)**	**13 (48.1%)**	**27(100%)**

(The numbers in the parentheses represent the percentage of row total except in the last column it is percentage of column)

Observations after surgery and within 6 weeks after surgery:

Transportation of patients to their houses:

A local KSRTC bus was arranged from the base hospital to the campsite. The Field officer and 2 village volunteers accompanied the patients. The transit time extended from 2 hrs to 4 ½ hours due to traffic and unexpected heavy rains during the transit. A decision was made by the village volunteers and field officer to commute the patients to their respective villages in the same bus to make sure the patients are not drenched with rain. They also assisted the patients in administering the eye drops during the transit and reinforced the care takers of the patients in their homes regarding the post operative instructions given at them at the base hospital. The SHGs of respective villages took responsibility to follow them up in their homes regularly at least once a day in the first week. The follow up of the patients included enquiring the patients about the application of eye drops regularly and ensuring adherence to post operative

instructions by the patients. The Field officers decided to do follow up every day for first one week and once in three days in the second week, and once a week in the next 6 weeks. ***Medications:*** The neighbors assisted some of the patients (who lived alone and without care taker) in preparation of food and administration of medications.. The field officer visited the patient's home every day and was reporting on the status of the patients to the doctor in the first week. ***Danger signs:*** In few instances the field officer had observed redness in one of the patients' eye, he took a photo and mail the doctor and clarified. The patient also had telephonic conversation with the doctor and got clarified. Follow up of patients at the base hospital after 1 week and 6 weeks: the community took responsibility of transportation for the follow up. The patients were prescribed refractive glasses.

Discussion

Challenges and lessons learnt:

Training the staff: The major challenge felt initially for the researcher was training of the I.D.F. staff – Field Officer and Village facilitators who had very minimal experience in conducting health activities. However they had very good rapport with the community and were well experienced in motivating and mobilizing community as they were working closely with them for financial inclusion (helping them for micro-loan) and weekly agricultural inputs for the farmers and women groups. ***Quality of care:*** With the involvement of the community the care of the patients from the time of identification of cases to 6 weeks follow up was good at all the areas namely camp site, hospital, transportation and at their homes. Community participation ensured most of the patient adherent to post operative instructions and medications. They made sure almost 85% of people had followed up after 6 weeks and procured spectacles for those it was prescribed and start utilizing it. ***Cost of the camp:*** The cost of the camp has reduced as the resources were locally mobilized in the form of kind.

A Study by Gupta and Murthy revealed that distance of eye care services, monetary constraints, a lack of professional trust, escorts, and the perception about the seriousness of ocular condition were the main reasons that patients were not motivated to use eye service facilities [3], but most of the factors were bridged through community participation in Koppa eye camp. Financial barriers continue to be a major reason not to take up offered cataract surgery services [4-6]. However the patients in the Koppa Camp spent only on the follow up medicines and spectacles after 6 weeks if prescribed. Many documents support that promoting eye health and prevention of blindness can only be met through a change of emphasis towards active involvement of communities [7-8].

Acknowledgements

We thank the members of SHGs, SDMC members, President and members of Koppa Panchayat for cooperation. We also thank the administrative staff, field officers, Village facilitators, volunteers, all the patients, their families and Community for their participation during the planning and implementation of the study. We thank Head of the Department, Department of Community Health, Faculty, Post Graduates of Department of Community Health, St. John's Medical College and Hospital. We also sincerely thank Dr. Dominic Misquith project head of Dristi Project (Community Ophthalmology Project) and his team for their invaluable support in conducting the camp, cataract surgeries and follow up of post operative cases.

References:

1. Jose R, Rathore AS, Sachdeva S. Community ophthalmology: Revisited. Indian J Community Med [serial online] 2010 [cited 2012 Jan 10];35:356-8. Availablefrom: http://www.ijcm.org.in/text.asp?2010/35/2/356/66893cited on 27th Dec 2011

2.Nirmalan PK, Krishnadas R, Ramakrishnan R, Thulasiraj RD, Katz J, Tielsch JM et al. Lens opacities in a rural population of southern India: the Aravind comprehensive eye study: Invest. Ophthalmol 2003;44:4639-43 Availablefrom: http://www.iovs.org/content/44/11/4639.full cited on 28th Dec 2011

3. Gupta SK, Murthy GV. Where do persons with blindness caused by cataracts in rural areas of India seek treatment and why? Arch Ophthalmol. 1995 Oct;113(10):1337-40.

4. Malhotra R, Uppal Y, Mishra D, Taneja K, Gupta VK, Ingle GK. Increasing access to cataract surgery in a rural area – a support strategy: IJPH 2005;44:63-67 Availablefrom:http://www.ijph.in/temp/IndianJPublicHealth49263-1006697_024746.pdf

5. Finger RP. Cataracts in India: Current situation, access and barriers to services over time. Ophthalmic Epidemiol 2007; May-Jun;14(3):112-8.

6. Brilliant GE, Lepkowski JM, Zurita B, Thulasiraj RD. Social determinants of cataract surgery utilization in south India. The Operations Research Group.Arch Ophthalmol. 1991 Apr;109(4):584-9.

7. Hubley J. 'Community Participation putting the community into community eye health'. Community Eye Health. 1999; 12(31): 33–34 Availablefrom: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1706021/cited on 28th Dec 2011

8. Aravind Eye Hospitals and Post graduate Institute of Ophthalmology. Lions Aravind Institute of Community Ophthalmology and Seva Foundation. Community outreach initiatives for high quality, large volume, sustainable cataract surgery programmes Availablefrom: http://laico.org/v2020resource/files/Communioutreachmodule.pdf cited on 15th Dec 2011

Conflict of interest: None

Source of support: Nil.

Nutritional Status of Adolescent Girls in Rural Tamilnadu

Ashok Kumar T[1]

ABSTRACT

Introduction: There are about 1.2 billion adolescents, a fifth of the world's population, and their numbers are increasing. Hence, it is essential to assess their nutritional status. **Objectives:** 1. To assess the nutritional status of adolescent girls and 2. To identify the correlations between socio-demographic characters and nutritional status among them. **Materials and Methods:** 245 adolescent girls aged between 10 and 19 years were selected from the rural areas of Kancheepuram district. Pretested questionnaire applied and clinical examination done. **Variable Studied:** Age Group, Type of Family, Religion, Monthly Family Income, Literacy and Family Size. Height, Weight and Body Mass Index Were measured. **Results:** The study found that prevalence of stunting is 47 (19.2%) and wasting is 69 (28.2%).Prevalence of undernutrition were common among the girls in the late adolescent group, Hindus, those who lived joint family, low monthly income and with the family size more than 7. **Conclusion:** It is essential to implement adolescent friendly health services as recommended by the World Health Organization (WHO) to improve the nutritional status.

Keywords: Nutritional Status, Adolescent Girls, Stunting, Wasting

Introduction:

Adolescence is a journey from the world of the child to the world of the adult. It is a time of physical and emotional change as the body matures and the mind becomes more questioning and independent. The World Health Organization (WHO)[1] defines adolescents as young people aged 10-19 years. There are about 1.2 billion adolescents, a fifth of the world's population, and their numbers are increasing. Four out of five live in developing countries. Many boys and girls in developing countries enter adolescence undernourished, making them more vulnerable to disease and early death. Conversely, overweight and obesity - another form of malnutrition with serious health consequences - is increasing among other young people in both low and high income countries. Adequate nutrition and healthy eating and physical exercise habits at this age are foundations for good health in adulthood[2].

The World Health Organization (WHO) pointed out the following 1.When there is a shortage of food, most families know that they must make special efforts to ensure that babies are well nourished. 2. It is less well understood that adolescent girls and boys have a need for extra nutrition as they grow rapidly and develop and that an inadequate diet can delay or impair

[1]*Department of Community Medicine, Tagore Medical College and Hospital,*

Address for Correspondence: Dr. T.Ashok kumar, *Department of Community Medicine, Tagore Medical College, Chennai-600048. India.* E-mail: jamlash@gmail.com.

healthy development. 3. Stunting can occur in childhood or during adolescence. The WHO also mentioned that, in some cultures girls are fed last and fed least. In girls, poor nutrition can delay puberty and lead to the development of a small pelvis. Malnourished adolescent girls who have babies at a young age are more likely to experience, and will be less able to withstand, complications because the body has not yet reached maturity. Maternal mortality is higher in anemic women. Even when they survive, poorly nourished adolescent mothers are more likely to give birth to low birth-weight babies, perpetuating a cycle of health problems which pass from one generation to the next. Hence it is essential to assess the nutritional status of adolescence girls, especially in rural India.

Objectives:

1. To assess the nutritional status of adolescent girls and
2. To identify the correlations between socio-demographic characters and nutritional status among them

Materials and Methods:

Study method: A cross -sectional study. Sampling size and method: Systematic sampling of 245 adolescent girls aged between 10 and 19 years were selected from the rural areas of Kancheepuram district. The data was collected during the period between October and December 2009. Tools used: Interview was conducted by using pretested questionnaire and the selected adolescent girls were examined clinically for their nutritional status (like height, weight, Body Mass Index). Height (to the nearest 0.1 cm) and weight (to the nearest 0.5 kg) were measured. Body Mass Index (BMI) were calculated by dividing the weight in kilograms by the square of height in metres (kg/m2). Mean weight, height and BMI were calculated for different age categories. The anthropometric nutritional status was assessed by 'BMI for age' and 'height for age' as per NCHS/WHO standards. Statistical analysis: The results were expressed in number and percentage.

Results:

This table shows the socio demographic background of the studied sample size

Table1: Socio - demographic details (n = 245)

Variable	Description	No (%)
Age group		
10 – 13 years	Early adolescent	69(28.2)
14 – 15 years	Mid adolescent	73(29.8)
16 – 19 years	Late adolescent	102(42)
Religion		
	Hindu	217(88.6)
	Christian	16(6.6)
	Muslim	12(4.6)
Type of Family	Nuclear	105(42.8)
	Joint	63(25.7)
	Other	77(31.4)
Monthly Family Income		
	High	77(31.4)
	Low	168(68.6)
Literacy		
	Illiterate	12(4.9)
	Non -Formal	19(7.8)
	Upto primary	75(30.6)
	High school and above	139(56.7)
Family Size	1 - 3	45(18.4)
	4 - 7	110(44.9)
	>7	90(36.7)

Out of the total 245 selected adolescent girls, 69 (28.2%) were in early adolescent (10 - 13 years), 73(29.8%) were in mid-adolescent (14 - 15 years) and 103 (42%) were in late adolescent (16 - 19 years) and the mean age of the sample population is 15.2.

Table 2 Prevalence of undernutrition

Variable	Stunting (n=47) N (%)	Wasting (n=69) N (%)
Age group		
Early adolescent	9 (13)	17 (24)
Mid adolescent	14 (19.2)	19 (26.2)
Late adolescent	24 (23.5)	33 (32.4)
Religion		
Hindu	43 (19.8)	63(29.03)
Christian	2(12.5)	3(18.8)
Muslim	2(16.7)	3(25)
Type of Family		
Nuclear	10(9.5)	19(18.1)
Joint	20(31.7)	30(47.6)
Other	17(22.1)	20(25.9)
Monthly Family Income	10(12.9)	15(19.5)
High	37(22))	54(32.1)
Low		
Literacy		
Illiterate	5(41.7)	7(58.3)
Non -Formal	8(42)	10(52.6)
Upto primary	12(16)	23(30.7)
High school and Above	22(15.8)	29(20.9)
Family Size	4(8.9)	6(13.3)
1 - 3	20(18.2)	30(27.3)
4 - 7	23(25.6)	33(36.7)
>7		

The above table shows the prevalence of undernutrition (stunting and wasting) among the each group of the study population. The study found that prevalence of stunting is 47 (19.2%) and wasting is 69 (28.2%).

Correlation and factors influencing undernutrition:

Prevalence of undernutrition were common among the girls in the late adolescent group, Hindus, those who lived joint family, low monthly income and with the family size more than 7.

Discussion:

Adolescents (aged 10 to 19 years) have specific health and development needs, and many face challenges that hinder their well being. This study findings are kind of similar to some of the previous studies[3, 4, 5, 6]. In their study, the found that there are significant proportions of the adolescent girls are undernourished. Few studies[7, 8, 9] have done further depth data collection to identify the nutritional status. The correlation between nutritional status and socio demographic characters are similar to study done by Chouudry et al[10].

Conclusion

This study found that majority of the adolescent girls are undernourished. It is essential to implement adolescent friendly health services as recommended by the World Health Organization (WHO) to improve the nutritional status. Implementing this will decrease the poorly nourished adolescent mothers, who are more likely to give birth to low birth-weight babies, perpetuating a cycle of health problems which pass from one generation to the next.

References

1. World Health Organization. Adolescent Friendly Health Services – An agenda for change, Geneva, WHO Publications, 2002; 5 – 9.

2.http://www.who.int/features/factfiles/adolescent_health/en/ Accessed on 10.08.2011

3. Yogesh Saxena, Vartika Saxena: Nutritional Status in Rural Adolescent Girls Residing at Hills of Garhwal in India. Internet Journal of Medical Update 2011 July;6(2):3-8.

4.Patil S N, Wasnik V, Wadke R. Health Problems Amongst Adolescent Girls in Rural areas of Ratnagiri District of Maharashtra, India.. Journal of Clinical and Diagnostic Research [serial online] 2009 October [cited: 2011, Feb 9]; 3:1784-1790. http://www.jcdr.net/back_issues.asp?issn=0973709x&year=2009&month=October&volume=3&issue=5&page=1784-1790&id=572

5.H.R. Shivaramakrishna, A.V. Deepa , M. Sarithareddy Al Ameen Journal of Medical Sciences i (2 011)4 (3) :2 4 3 -2 4 6

6.Anita Malhotra, Santosh Jain Passi Diet quality and nutritional status of rural adolescent girl beneficiaries of ICDS in north India Asia Pacific Journal of Clinical Nutrition 2007;16 (Suppl 1):8-16

7.K Venkaiah, K Damayanti, M U Nayak and K Vijayaraghavan: Diet and nutritional status of rural adolescents in India. European Journal of Clinical Nutrition November 2002, Volume 56, Number 11, Pages 1119-1125

8.Seema Choudhary, C.P. Mishra, K.P. Shukla Nutritional Status of adolescent Girls in Rural Area of Varanasi. Indian Journal of Preventive and Social Medicine, Volume 34, 1 & 2, 53 -61

9.Das DK, Biswas R: Nutritional status of adolescent girls in a rural area of North 24 Parganas district, West Bengal. Indian Journal of Public Health 2005 Jan-Mar;49(1):18-21.

10. S. Choudhary, C. Mishra & K. Shukla: Correlates Of Nutritional Status Of Adolescent Girls In The Rural Area Of Varanasi. The Internet Journal of Nutrition and Wellness. 2009 Volume 7 Number 2

Conflict of interest: None

Source of support: Nil.

Public Health Day Focus

World TB Day- March 24th

[1]Dr.T.Bhuvaneswaran

World TB Day, falling on March 24th each year, is designed to build public awareness that tuberculosis today remains an epidemic in much of the world, causing the deaths of several million people each year, mostly in developing countries. It commemorates the day in 1882 when Dr Robert Koch astounded the scientific community by announcing that he had discovered the cause of tuberculosis, the TB bacillus. At the time of Koch's announcement in Berlin, TB was raging through Europe and the Americas, causing the death of one out of every seven people. Koch's discovery opened the way towards diagnosing and curing TB. The Stop TB Partnership, a network of organizations and countries fighting TB, organizes the Day to highlight the scope of the disease and how to prevent and cure it[1].

This is the sixteenth global report on tuberculosis (TB) published by WHO in a series that started in 1997. It provides a comprehensive and up-to-date assessment of the TB epidemic and progress in implementing and financing TB prevention, care and control at global, regional and country levels using data reported by 198 countries that account for over 99% of the world's TB cases[2].

In 2010, there were 8.8 million (range, 8.5–9.2 million) incident cases of TB, 1.1 million (range, 0.9–1.2 million) deaths from TB among HIV-negative people and an additional 0.35 million (range, 0.32–0.39 million) deaths from HIV-associated TB.The burden of Tuberculosis is given in Fig-1.

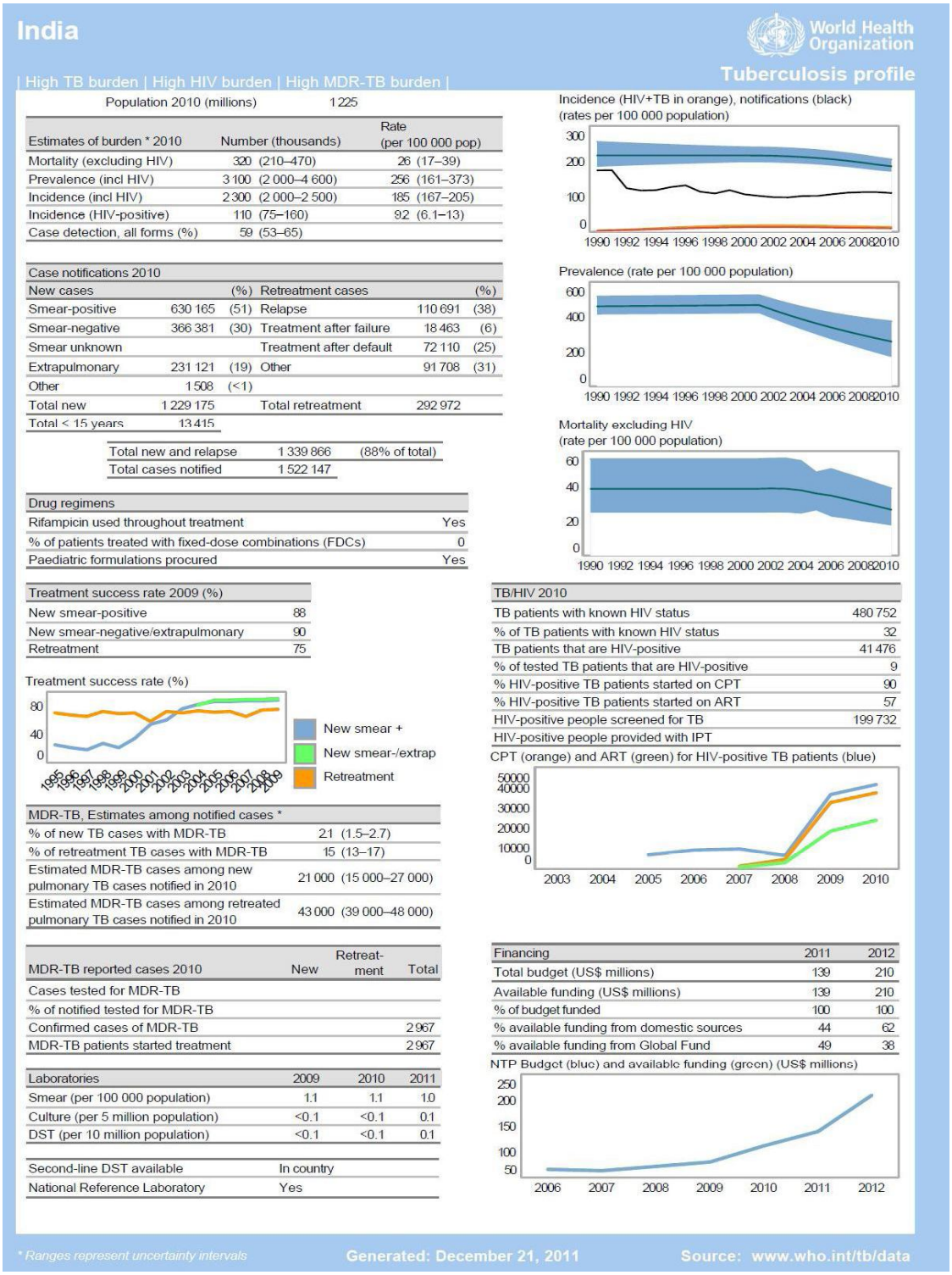
References:

1. WHO; Accessed from http://www.who.int/mediacentre/events/annual/world_tb_day/en/index.html *on 10.12.2011*

2. WHO; Report on Global Tuberculosis Control 2011

[1]*PHC Medical officer, Kunnagampoondi. E-mail: bhualltimedoctor@yahoo.com*

Fig-1:



India

World Health Organization

Tuberculosis profile

| High TB burden | High HIV burden | High MDR-TB burden |

Population 2010 (millions) 1 225

Estimates of burden * 2010	Number (thousands)	Rate (per 100 000 pop)
Mortality (excluding HIV)	320 (210–470)	26 (17–39)
Prevalence (incl HIV)	3 100 (2 000–4 600)	256 (161–373)
Incidence (incl HIV)	2 300 (2 000–2 500)	185 (167–205)
Incidence (HIV-positive)	110 (75–160)	9.2 (6.1–13)
Case detection, all forms (%)	59 (53–65)	

Case notifications 2010					
New cases		(%)	Retreatment cases		(%)
Smear-positive	630 165	(51)	Relapse	110 691	(38)
Smear-negative	366 381	(30)	Treatment after failure	18 463	(6)
Smear unknown			Treatment after default	72 110	(25)
Extrapulmonary	231 121	(19)	Other	91 708	(31)
Other	1 508	(<1)			
Total new	1 229 175		Total retreatment	292 972	
Total < 15 years	13 415				

Total new and relapse	1 339 866	(88% of total)
Total cases notified	1 522 147	

Drug regimens	
Rifampicin used throughout treatment	Yes
% of patients treated with fixed-dose combinations (FDCs)	0
Paediatric formulations procured	Yes

Treatment success rate 2009 (%)	
New smear-positive	88
New smear-negative/extrapulmonary	90
Retreatment	75

Treatment success rate (%)

MDR-TB, Estimates among notified cases *	
% of new TB cases with MDR-TB	2.1 (1.5–2.7)
% of retreatment TB cases with MDR-TB	15 (13–17)
Estimated MDR-TB cases among new pulmonary TB cases notified in 2010	21 000 (15 000–27 000)
Estimated MDR-TB cases among retreated pulmonary TB cases notified in 2010	43 000 (39 000–48 000)

MDR-TB reported cases 2010	New	Retreatment	Total
Cases tested for MDR-TB			
% of notified tested for MDR-TB			
Confirmed cases of MDR-TB			2 967
MDR-TB patients started treatment			2 967

Laboratories	2009	2010	2011
Smear (per 100 000 population)	1.1	1.1	1.0
Culture (per 5 million population)	<0.1	<0.1	0.1
DST (per 10 million population)	<0.1	<0.1	0.1

Second-line DST available	In country
National Reference Laboratory	Yes

Incidence (HIV+TB in orange), notifications (black)
(rates per 100 000 population)

Prevalence (rate per 100 000 population)

Mortality excluding HIV
(rate per 100 000 population)

TB/HIV 2010	
TB patients with known HIV status	480 752
% of TB patients with known HIV status	32
TB patients that are HIV-positive	41 476
% of tested TB patients that are HIV-positive	9
% HIV-positive TB patients started on CPT	90
% HIV-positive TB patients started on ART	57
HIV-positive people screened for TB	199 732
HIV-positive people provided with IPT	

CPT (orange) and ART (green) for HIV-positive TB patients (blue)

Financing	2011	2012
Total budget (US$ millions)	139	210
Available funding (US$ millions)	139	210
% of budget funded	100	100
% available funding from domestic sources	44	62
% available funding from Global Fund	49	38

NTP Budget (blue) and available funding (green) (US$ millions)

* Ranges represent uncertainty intervals

Generated: December 21, 2011

Source: www.who.int/tb/data

World Cancer Day- 4 February 2012

[1]K.BalaKumar, L.V.Vigneshwaran[2]

Cancer is a leading cause of death worldwide and accounted for 7.6 million deaths (around 13% of all deaths) in 2008[1]. Cancer is a leading cause of death worldwide and accounted for 7.6 million deaths (around 13% of all deaths) in 2008. The main types of cancer are:

- lung (1.4 million deaths)
- stomach (740 000 deaths)
- liver (700 000 deaths)
- colorectal (610 000 deaths)
- breast (460 000 deaths).

About 70% of all cancer deaths occurred in low- and middle-income countries. Deaths from cancer worldwide are projected to continue to rise to over 11 million in 2030.

The GLOBOCAN project to provide contemporary estimates of the incidence of, mortality and prevalence from major type of cancers, at national level, for 184 countries of the world[2].As per this report, 633455 deaths due to cancer in both sexes and 948858 new cancers were registered in 2008. Cancer arises from one single cell. The transformation from a normal cell into a tumour cell is a multistage process, typically a progression from a pre-cancerous lesion to malignant tumours. These changes are the result of the interaction between a person's genetic factors and three categories of external agents, including:

- physical carcinogens, such as ultraviolet and ionizing radiation;
- chemical carcinogens, such as asbestos, components of tobacco smoke, aflatoxin (a food contaminant) and arsenic (a drinking water contaminant); and
- biological carcinogens, such as infections from certain viruses, bacteria or parasites.

Cancer mortality can be reduced if cases are detected and treated early. There are two components of early detection efforts:1.Early Diagnosis; 2.Screening.

Treatment is the series of interventions, including psychosocial support, surgery, radiotherapy, chemotherapy that is aimed at curing the disease or considerably prolonging life while improving the patient's quality of life.

Each year on 4 February, WHO supports International Union Against Cancer to promote ways to ease the global burden of cancer. Preventing cancer and raising quality of life for cancer patients are recurring themes.

---

[1]Post Graduate in Medicine, AVMC, Pondicherry,[2]Deputy Director,TANSACS. ***E-Mail****: vigneshwaran85@gmail.com*

Table-1.Estimated incidence, mortality and 5-year prevalence: both sexes in India

Cancer	Incidence			Mortality			5-year prevalence	
	Number	(%)	ASR(W)	Number	(%)	ASR (W)	Number	(%)
Lip, oral cavity	69820	7.4	7.5	47653	7.5	5.2	107690	6.3
Nasopharynx	3333	0.4	0.3	2412	0.4	0.2	8410	0.5
Other pharynx	45271	4.8	5	39346	6.2	4.3	66391	3.9
Oesophagus	48099	5.1	5.3	43351	6.8	4.8	25610	1.5
Stomach	35059	3.7	3.8	33564	5.3	3.6	25257	1.5
Colorectum	36476	3.8	3.9	25690	4.1	2.8	49122	2.9
Liver	20144	2.1	2.2	18043	2.8	2	9639	0.6
Gallbladder	17262	1.8	1.9	10279	1.6	1.1	21038	1.2
Pancreas	8960	0.9	1	7766	1.2	0.9	5052	0.3
Larynx	23058	2.4	2.5	14794	2.3	1.7	45753	2.7
Lung	58567	6.2	6.6	52269	8.3	5.9	26994	1.6
Melanoma of skin	945	0.1	0.1	483	0.1	0.1	2394	0.1
Breast	115251	12	22.9	53592	8.5	11.1	315679	18.5
Cervix uteri	134420	14	27	72825	11.5	15.2	338010	19.8
Corpus uteri	8772	0.9	1.9	4851	0.8	1.1	32013	1.9
Ovary	28080	3	5.7	19558	3.1	4.1	57796	3.4
Prostate	14630	1.5	3.7	10422	1.6	2.5	48892	2.9
Testis	3864	0.4	0.6	1665	0.3	0.3	12980	0.8
Kidney	8900	0.9	0.9	5733	0.9	0.6	18356	1.1
Bladder	14812	1.6	1.7	8203	1.3	1	33590	2
Brain, nervous system	21835	2.3	2.1	17941	2.8	1.8	31781	1.9
Thyroid	12899	1.4	1.2	3029	0.5	0.3	51521	3
Hodgkin lymphoma	7371	0.8	0.7	3587	0.6	0.4	11899	0.7
Non-Hodgkin lymphoma	23718	2.5	2.4	16243	2.6	1.7	27031	1.6
Multiple myeloma	6789	0.7	0.8	5941	0.9	0.7	11602	0.7
Leukaemia	33307	3.5	3	26282	4.1	2.5	24658	1.4
All cancers excl. non-melanoma skin cancer	948858	100	98.5	633455	100	68	1705085	100

Incidence and mortality data for all ages. 5-year prevalence for adult population only.Age-standardised rate (W) per 100,000.

References

1.WHO.(Accessed from http://www.who.int/mediacentre/factsheets/fs297/en/index.html on 12.12.2011)

2.IARC-GLOBOCAN-2008(Accessed from http://globocan.iarc.fr/factsheet.asp on 12.12.2011)

Serial Publication:

Millennium Development Goals (MDGs) WATCH-Countdown to 2015

Measuring progress towards the MDGs

Dr.J.Prabakaran[1], Dr.T.Ashokkumar[2]

The Millennium Declaration, adopted by all 189 United Nations Member States in 2000, promised a better world with less poverty, hunger and disease; a world in which mothers and children have a greater chance of surviving and of receiving an education, and where women and girls have the same opportunities as men and boys. It promised a healthier environment and greater cooperation—a world in which developed and developing countries work in partnership for the betterment of all. The declaration established eight Millennium Development Goals (MDGs) and time-bound targets by which progress can be measured.

Progress towards the eight Millennium Development Goals is measured through 21 targets and 60 official indicators[1].

Most of the MDG targets have a deadline of 2015, using 1990 as the baseline against which progress is gauged. Country data are aggregated at the sub-regional and regional levels to show overall advances over time. Although the aggregate figures are a convenient way to track progress, the situation of individual countries within a given region may vary significantly from regional averages. Data for individual countries, along with the composition of all regions and sub-regions, are available at http://mdgs.un.org.

Official list of MDG indicators is follows[2].

Millennium Development Goals (MDGs)	
Goals and Targets (from the Millennium Declaration)	**Indicators for monitoring progress**
Goal 1: Eradicate extreme poverty and hunger	
Target 1.A: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1.1 Proportion of population below $1 (PPP) per day[1] 1.2 Poverty gap ratio 1.3 Share of poorest quintile in national consumption
Target 1.B: Achieve full and productive employment and decent work for all, including women and young people	1.4 Growth rate of GDP per person employed 1.5 Employment-to-population ratio 1.6 Proportion of employed people living below $1 (PPP) per day 1.7 Proportion of own-account and contributing family workers in total employment
Target 1.C: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1.8 Prevalence of underweight children under-five years of age 1.9 Proportion of population below minimum level of dietary energy consumption
Goal 2: Achieve universal primary education	
Target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	2.1 Net enrolment ratio in primary education 2.2 Proportion of pupils starting grade 1 who reach last grade of primary 2.3 Literacy rate of 15-24 year-olds, women and men

Goal 3: Promote gender equality and empower women	
Target 3.A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	3.1 Ratios of girls to boys in primary, secondary and tertiary education 3.2 Share of women in wage employment in the non-agricultural sector 3.3 Proportion of seats held by women in national parliament
Goal 4: Reduce child mortality	
Target 4.A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	4.1 Under-five mortality rate 4.2 Infant mortality rate 4.3 Proportion of 1 year-old children immunised against measles
Goal 5: Improve maternal health	
Target 5.A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio	5.1 Maternal mortality ratio 5.2 Proportion of births attended by skilled health personnel
Target 5.B: Achieve, by 2015, universal access to reproductive health	5.3 Contraceptive prevalence rate 5.4 Adolescent birth rate 5.5 Antenatal care coverage (at least one visit and at least four visits) 5.6 Unmet need for family planning
Goal 6: Combat HIV/AIDS, malaria and other diseases	
Target 6.A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS	6.1 HIV prevalence among population aged 15-24 years 6.2 Condom use at last high-risk sex 6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS 6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years
Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it Target 6.C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	6.5 Proportion of population with advanced HIV infection with access to antiretroviral drugs 6.6 Incidence and death rates associated with malaria 6.7 Proportion of children under 5 sleeping under insecticide-treated bednets 6.8 Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs 6.9 Incidence, prevalence and death rates associated with tuberculosis 6.10 Proportion of tuberculosis cases detected and cured under directly observed treatment short course
Goal 7: Ensure environmental sustainability	
Target 7.A: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources Target 7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss	7.1 Proportion of land area covered by forest 7.2 CO2 emissions, total, per capita and per $1 GDP (PPP) 7.3 Consumption of ozone-depleting substances 7.4 Proportion of fish stocks within safe biological limits 7.5 Proportion of total water resources used 7.6 Proportion of terrestrial and marine areas protected 7.7 Proportion of species threatened with extinction
Target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	7.8 Proportion of population using an improved drinking water source 7.9 Proportion of population using an improved sanitation facility
Target 7.D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	7.10 Proportion of urban population living in slums[ii]
Goal 8: Develop a global partnership for development	
Target 8.A: Develop further an open, rule-based, predictable, non-discriminatory trading and financial	*Some of the indicators listed below are monitored separately for the least developed countries (LDCs),*

system Includes a commitment to good governance, development and poverty reduction – both nationally and internationally Target 8.B: Address the special needs of the least developed countries Includes: tariff and quota free access for the least developed countries' exports; enhanced programme of debt relief for heavily indebted poor countries (HIPC) and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction Target 8.C: Address the special needs of landlocked developing countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly) Target 8.D: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term	*Africa, landlocked developing countries and small island developing States.* <u>Official development assistance (ODA)</u> 8.1 Net ODA, total and to the least developed countries, as percentage of OECD/DAC donors' gross national income 8.2 Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water and sanitation) 8.3 Proportion of bilateral official development assistance of OECD/DAC donors that is untied 8.4 ODA received in landlocked developing countries as a proportion of their gross national incomes 8.5 ODA received in small island developing States as a proportion of their gross national incomes <u>Market access</u> 8.6 Proportion of total developed country imports (by value and excluding arms) from developing countries and least developed countries, admitted free of duty 8.7 Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries 8.8 Agricultural support estimate for OECD countries as a percentage of their gross domestic product 8.9 Proportion of ODA provided to help build trade capacity <u>Debt sustainability</u> 8.10 Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points (cumulative) 8.11 Debt relief committed under HIPC and MDRI Initiatives 8.12 Debt service as a percentage of exports of goods and services
Target 8.E: In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries	8.13 Proportion of population with access to affordable essential drugs on a sustainable basis
Target 8.F: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications	8.14 Telephone lines per 100 population 8.15 Cellular subscribers per 100 population 8.16 Internet users per 100 population

All indicators should be disaggregated by sex and urban/rural as far as possible

[1] For monitoring country poverty trends, indicators based on national poverty lines should be used, where available.

References:

[1] *United Nations, The Millennium Development Goals Report 2011; New York, 2011*

[2] *http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Indicators/OfficialList.htm*

[1, 2] *Department of Community Medicine, Tagore Medical College, Chennai,*

Event watch

Important DAYS

World Cancer Day : 4 February
World Water Day : 22 March 2012
World TB Day : 24 March 2012

******

Conferences and workshops

January:

3-5: Orientation in Medical Research Methodology, ICPO (ICMR), Noida5-7: 30th Annual National Conference of Indian Society of Professional Social Work, NIMHANS, Bangalore.
3-7: TCI workshop on "Managing my life and work with TCI."TISS, Mumbai.

4-6: International Conference in Counseling, Psychotherapy and Wellness -Bangalore
5-7: Winter Symposium 2012, CMC, Vellore
9-13: Training Course On Public Health Nutrition. NIHFW, New Delhi.
9-13:Workshop on Using Systematic Reviews in Evidence-Informed Healthcare and Health Policy ,CMC, Vellore
20-22: International Science Symposium on HIV & Infectious Diseases -YRG care, Chennai
21-Professional Development Course In Management, Public Health And Health Sector Reforms For District Medical Officers, NIHFW-New Delhi
Jan 30-Feb3: Vaccine Management Course In Routine Immunization Funded By GOI/UNICEF, NIHFW, New Delhi
Jan 30-Feb 11; Sixth International Short Course in Clinical Tropical Medicine, CMC, Vellore

February:

1-4: 62nd Annual National Conference of Indian Association of Occupational Health, New Delhi

3-5: National Conference in Medical Informatics, New Delhi
3-5: International Congress on 'Optimizing ART outcome through individualized protocols'-Bangalore
6-10: Training-Cum-Workshop On Counselling Skills For Health Professionals, NIHFW, New Delhi.
9-11: National Conference on Corporate Social Responsibility, Bhubaneswar
10-12: 56th All India Annual Conference of Indian Public Health Association, 2012, Cochin
10-12:19th International Conference of Indian Association Of Palliative Care: IAPCCON 2012, Kolkata
18-19: CME cum Workshop on "Evidence Based Management of Common Respiratory Disorders in Children", PGI, Chandigarh
19-21:"International Conference on Reproductive Health with Emphasis on Strategies for Family Planning"-New Delhi.
27-29-39th Annual National Conference of Indian Association of Preventive and Social Medicine-Tanda, Himachal Pradesh

March:

12-16: Vaccine World Summit, Hyderabad.

18-21: International Conference on Millennium Development Goals Related to Reproductive Health, Mumbai

19-21: "Prevention and Control of non-communicable diseases", MDRF, Chennai.

20: Professional Development Course In Management, Public Health And Health Sector Reforms For District Medical Officers, NIHFW, New Delhi

20-24: Orientation Course On Administrative And Financial Skills For Faculty Of Medical Colleges And Other Health Institutions, NIHFW, New Delhi

26-30: Training Course On Public Health Nutrition, NIHFW, New Delhi

30-From Idea (I) to Manuscript for Publication (I2M) - ICMR, Mumbai


National Journal of Research in Community Medicine