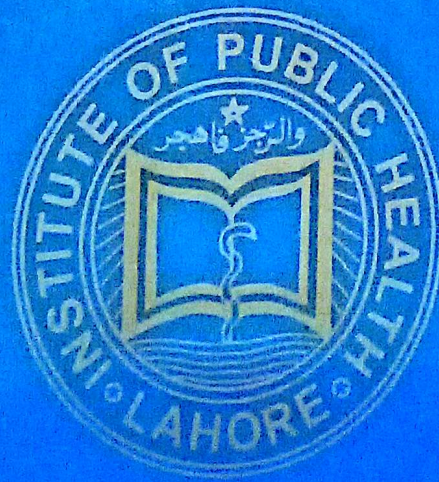


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EDITORIAL

ing are the days of 21st Century and planning we are to achieve the Health for all by the year 2000. Trying we are to exterminate the miseries from the lives of poor and unhealthy people of Pakistan. Striving we are to improve the infant mortality rate. Fighting we are to decrease the maternity deaths. Doing we are with all of our sincerity but finding we are it quite infructuous like a Buffalo soldier living in America and fighting for survival. Are we seriously, willingly and devotedly ready to think that why all of our very sincere efforts are not coming fructuous? Is it probably due to the reason that we are not actually emphasizing on the basic and ultimate unit of our society? Have we identified the most important unit of our society? Probably the mother is the initial most unit of our society and unless we try to improve the mental status of our mothers by improving their educational status, it is not possible to increase the physical, mental, ethical, educational, social, economical, political and health status of our nation.

Let us produce better mothers so that they produce better nation.

FARIDI

REPRODUCTIVE HEALTH RESEARCH IN THE EASTERN MEDITERRANEAN REGION

EZZELDIN OSMAN HASSAN

The World Health Organization defines reproductive health as the condition in which reproduction is accomplished in a state of complete physical, mental and social well being and not merely the absence of disease or disorders of the reproductive process. To achieve these standards, countries of the Eastern Mediterranean Region should be able to solve their own health problems.

Research is of value only if it is utilized to upgrade the effectiveness of health programs. Hence, it should provide answers to questions posed by policy and decision makers, service providers, as well as consumers of health services. The quality of research is thus a product of well designed and well targeted studies that fill specific information gaps, and which is carried out, administered and co-ordinated by well trained personnel.

In order to conduct high quality research, the following mechanisms need to be developed:

1. Review of the available information and the body of knowledge about reproductive health in each country
2. Identification of the knowledge gaps, further research needs and areas of priority:
3. Coordination of research activities:
4. Establishing inter disciplinary collaboration in the research process:
5. Review of the ethical aspects of researches involving human subjects to ensure their protection:
6. Training of researchers in the different research methodologies, data collection, processing and analysis, research management and report writing:
7. Dissemination of research findings:

1. Identification of Research needs and priorities:

There is a general consensus that there is a gap in the communication between

researchers and potential users of research findings. Policy and decision makers, service providers and other consumers of these findings (men, women or consumers of a given service) usually complain that scientists conduct research that is not relevant to their needs. For that reason, all these groups should be involved in the process of identifying the knowledge gaps after review of the existing body of knowledge in each research area. With the limited resources available for research, establishing priorities is highly needed in the development of a National plan of research that would later serve as a guideline for both researchers and funding agencies.

2. Interdisciplinary Collaboration:

Health and safety of human reproduction is multifaceted in nature and requires a multidisciplinary approach to understand and promote it from all dimensions. Clinicians (Obstetricians / gynecologists, andrologists and pediatricians) are key persons in conducting clinical trials and other types of biomedical research in reproductive health. However, specialist from other disciplines such as Public Health and Community Medicine, Epidemiologists, and social scientists are instrumental in conducting community based surveys, acceptability studies and sociomedical research. Indeed, in all research addressing human reproduction, one discipline may not replace the other.

3. Coordination of Research Efforts:

Such multidisciplinary collaboration may be difficult to attain to within the boundaries of individual departments. An independent coordinating research body could be more successful in organizing such a highly needed action. Coordination is needed at two levels: at the National level, so as to direct research

to fill the different knowledge gaps, and at the administrative level, for the coordination of activities between the different research institutions, particularly when conducting multicentric research utilizing the same research protocols.

4. Research Methodologies Data Processing, Analysis and Report Writing

To produce high quality research, researchers should be adequately trained in research design and methodologies (sampling, development of data collection instruments and analysis of data), as well as reporting of results. They should have access to the necessary equipment, particularly computers (hardware and software packages). Handling large data sets on the other hand needs special skills, expertise and advanced equipment, and for the sake of cost effectiveness, this function can be handled by the central coordinating institution.

5. Dissemination of Research Findings

Special mechanisms should be developed to disseminate the results of research not only to other researchers, but also to policy makers, service providers and other interested groups in the country, and in the Eastern Mediterranean Region. It is important to develop a 'regional' management information system for research in human reproduction. The system needs to take the form of a computerized annotated bibliography that is periodically updated and made accessible to research institutions in the region. Improvement and sustainability of periodical publications is also an important mechanism for informations dissemination. local scientific journals need more support for regular publication and wider distribution. Lastly, dissemination through both specialized and multidisciplinary regional seminars, workshops and conferences is greatly needed.

6. Ethical Aspects and Protection of Human subjects

Protection of human subjects participating in research is a basic human right. Informed consent should, therefore, be obtained from each participant prior to enrollment in

research. There is a pressing need to establish formal committees that have the proper constitution for review of research protocols for the purpose of protection of human subjects involved in research studies. Ethical issues involved in human reproduction research should never be left to the discretion of individual researchers or institutions who may in - their zeal for scientific knowledge - overlook certain safety issues and compromise the right of research volunteers.

COMMON PROBLEM AREAS IN REPRODUCTIVE HEALTH

Generally speaking, Eastern Mediterranean countries are similar in many of the characteristics that affect the reproductive health of their populations. Common problem areas in these countries are:

1. Mother and Child health

In many countries of the region, maternal mortality is still unacceptably high mostly because of prevailing reproductive patterns (Pregnancies occurring too early, too late in life; too close or too many). In addition, the prevalence of morbid conditions resulting from pregnancy and child birth is quite high, affecting the health status of women. The contribution of safe abortion procedures and practices to maternal mortality and morbidity is thought to be high in many countries in our region. However, very little information is available on these subjects.

Variation still exists between recorded and adjusted rates of Infant and perinatal mortality. As well, there is lack of knowledge on the effect of changing patterns in breast feeding on the health status of Infants.

Factors underlying maintenance of poor health indicators are complex and variable. Improvement of health care services will not achieve its desired outcome without effecting real social change, primarily raising women's educational and economic status.

2. Fertility Regulation

Contraceptive prevalence in the Eastern Mediterranean Region is still low, resulting in sustained high fertility levels and in many of the pregnancies being unplanned or

unwanted. Raising Contraceptive prevalence is a challenge, since contraceptive adoption and continued use are both affected by the efficacy, safety and acceptability of available methods. Broadening Contraceptive choices for couples is another important factor, as well as improving the attitudes and practices of both providers and users of contraceptive services.

3. Sexually Transmitted Diseases

The sexual behavior of adolescent populations is changing in a number of countries in our region. While traditions and social constraints still exist, their influence over Youth is becoming less effective at a time when sex education and sexually transmitted diseases are considered a taboo subjects. It is believed that both first generation STDs (gonorrhea and syphilis) and second generation STDs (chlamydia, human herpes virus, human papilloma virus and human immunodeficiency virus) - which are more difficult to identify, treat and control may be increasing. This may be due to a number of socio economic factors such as urbanization and unemployment, as well as cultural factors such as relaxation of traditional and social constraints.

4. Infertility

Studies of infertility are mainly hospital-based. A few community based survey were recently done to evaluate the prevalence and etiological factors contributing to this problem. These studies had the objective of identifying the preventable causes, particularly those due to acquired conditions such as pelvic inflammatory disease resulting from STDs, unsafe abortion and puerperal infections. A recent WHO report estimated that tubal factors contribute to 42% of cases

of infertility in the Eastern Mediterranean countries compared to 36% of the cases in developed countries, 39% in Asia, 44% in Latin America and 85% in Africa.

There is a need to study the existing protocols for management of infertile couples in different region to determine the iatrogenic effect of mismanagement on the fertility status of couples. As well, there may be a need to evaluate the efficacy and applicability of the use of algorithmic approach developed by the WHO in the management of infertile couples.

Conclusion

The potential is great for carrying out good quality research in human reproduction in the Mediterranean Region, provided the aforementioned prerequisites are met. Sharing of research experiences would be of great value as most of the Near East countries have similar socio economic backgrounds and cultural values. Many countries in this region have the scientific and technical capabilities and skills necessary for research. This workshop may be the first step towards upgrading research in human reproduction in our Region, with many other important activities to follow.

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MALARIA IN CHILDREN HOW MUCH OF CHLOROQUINE RESISTANCE IS THERE IN DISTRICT OF MIRPURKHAS?

DARYA KHAN KHASKHALI, NEELKANTH, IQBAL AHMED MEMON

Summary

Malaria is endemic in Pakistan and reports about chloroquine-resistance are caused for alarm. After study in Nawabshah District, we conducted this study with the objective to observe the frequency of malaria amongst patient population of District Hospital Mirpurkhas; to document the prevalence of different types of parasites and to establish the extent of chloroquine - resistance in our patient population. From all the paediatric patients attending Out - patient and In patient at District Hospital Mirpurkhas Malarial Parasite (M.P.). Slide documentation was achieved in 430 patients out of total of 16010 patients seen from September 1991 to December 1992 (16 months period). Twenty four of the these M/P positive patients presented with cerebral malaria and hence were excluded from this study. The remaining 406 patients were treated with standard chloroquine regime (25mg / kg / total dose) with 78 (19%) failing to respond i.e. No clinical response and persistence of parasitemia. Halofantrine & Sulphadoxine Pyrimethamine were used alternatively in non - responders with 8 patients failing to respond to second drug as well (MDR - 2%). It is concluded that malaria remains a major problem and that chloroquine resistance remains a consideration specially when malaria presents with life threatening complication.

Introduction

In the past many years various methods for controlling and eliminating malaria have been applied without any success. This problem still remains significant health hazards causing considerable morbidity and mortality especially in children.

Malaria in children does not mostly follow the "clinical" pattern hence sensitizations about the extent of the problems in paediatric population, the type of parasite with resistance pattern needs to be established so that appropriate recommendation for management can be made.

Our efforts have been aimed at ascertaining the prevalence of malaria in paediatric age population attending out patient department for any febrile illness and to further document resistance to Chloroquine and prevalence of various type of malarial parasites.

Material and Method

This study was conducted prospectively in District hospital Mirpurkhas in department of paediatrics from Sep: 1991 to Dec: 1992.

All paediatric age group patients presenting with fever and suspected / probable clinical diagnosis of malaria were included in the study with exceptions of where the cause of fever was clinically evident due to any specific diagnosis other than malaria. Patients with Cerebral malaria were treated with 1 / V quinine per standard recommendation and were excluded from the study³. After initial interview physical examination, patient of suspected malaria had thick and thin blood smear prepared and stained by formally trained malaria technician. Thick film made of three drops of blood (more reliable in detecting parasite)¹. Thin film is more valuable for recognizing the species of parasite which

are clearly visible alongwith details of characteristics¹.

Giemsa staining method was used as under:

- (i) The thick and thin film of blood obtained by finger stick and allowed to air dry.
- (ii) Fix the film with methyl, Alcohol and place in a staining trough.
- (iii) Immerse the slide in the staining of giemsa solutions for 30 minutes.
- (iv) Pour fresh water into the trough until it over flows.
- (v) Rinse the slides thoroughly in water.
- (vi) Drain dry and examine under microscope¹.

Patients with positive peripheral smear (MP +ve) were treated with standard chroquine regime orally (25 mg / kg total dose) divided as 10 mg / kg 1st dose followed by 5 mg / kg after 6 hours than rest of the two dosed of 5 mg / kg each at 12 hourly interval (ref: 5). The compliance of drug was monitored closely by one of the investigator at subsequent visits. The patients were followed as out patient and or in - patient by the same investigator, daily with special reference to fever, spleenomegaly, anaemia, drug complication and for any other complications or signs of improvement.

Clinical improvement viz a viz: difference with or without splenic regression were labeled as successfully treated where as patient with persistence of fever beyond 48 hours had a repeated MP done and found positive were categorized as chloroquine resistant (R - III WHO).

Patients with chloroquine resistance were then treated with one of the alternative drugs like Halfantrine (8mg / kg / dose) 6 hourly three doses or sulfadoxin. pyrimethamine combination (25mg / kg / dose, sulfa)⁴, where any of these patients did not respond i.e. (persistence of fever and positive MP) to either these second line drugs (MDR) were treated with (Mefloquine + sulfa pyrimethamine combination)⁴.

Results

During study period of 16 months (Sep: 1991 to Dec 1992) a total of 1760 patients (11%) were "clinically" suspected as "Malaria" out of total attendance of 16010 during the same period in paediatric out patient and / or in patient department at District Hospital Mirpurkhas.

A total of 430 patients fulfilled the criteria of diagnosis of malaria. Twenty four had to be excluded because of complications of malaria (Cerebral malaria). 406 were treated with oral chloroquine as per prescribed regime.

The species break down of these cases is as under:

Plasmodium falciparum {N - 284 - (66%)} was the most common species amongst diagnosed malaria patients followed by vivax {N - 139 (32)} and "both" in {N - 7(2%)}.

Eighty one percent (N - 328) responded clinically to chlorquine therapy resulting in resistance {R - III (WHO)}¹, rate of 19% (N - 79). There were nine (N - 9) patients with vivax amongst Non - responders, and two cases had mixed infection.

Halofantrine failed to yield clinical responses in 02 cases out of 47 Patients similarly combination of sulphadoxin + pyrimethamine was unsuccessfully in 06 out of 31 patients.

Eight cases with MDR were further treated with Mefloquine - sulfadoxine - pyrimethamine combination with good response in six only. The remaining two had to be shifted to referral unit at Hyderabad.

Age break down shows that majority of cases occurred amongst age of 1 to 5 years (45%) and 5 to 15 years (27%).

Discussion & Conclusions

As anticipated malaria still contributes to significant amount of morbidity and reason for seeking medical help.

This hospital study can not reflect true prevalence in the community as diagnosis is based on single smear alone which even in good hands, may fail to document some of the cases of malaria, but our study certainly gives the impression that Malaria remains a considerable health hazard.

It is the falciparum and not vivax which dominantly afflicts our population. This reflect a change from the past.

This data as well as data from Nawabshah, and Karachi (unpublished data) once again have documented falciparum as the dominant species amongst malaria population. Awareness of this change in species pattern is an important fact for all the clinicians for their management strategies

regarding treatment state by and complication associated with falciparum species.

Once again it is important from epidemiological point of view that chloroquine which has been a drug of choice for treatment of malaria for many years, still remain the drug of choice as validate by current data. Emergence of resistance to the tune of 20% to 30% is sufficient enough to warrant that life threatening and serious situation should be treated with Quinine parentally rather than chlorquine, providing benefit of doubt to the patient as recommended by WHO advisory for areas where Choloroquine resistant is documented.

Use of other drugs as first line drugs will increase resistance further and thus should be reserved for MP +ve non responders. Malarial parasite continues to play the "dodging" game with all and any drug therefore rational use of drugs becomes absolutely necessary or else more and more difficult situations with drug failures / complication and death will be at our hands till other effective measures of prevention and treatment become available.

It is acknowledged that local studies can not make the bases for national recommendations hence broad based (multicentre) epidemiological studies are necessary.

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DETECTION OF HBsAg IN CARRIERS AND BLOOD DONORS -- COMPARISON OF TWO ELISA KITS AND OTHER AGGLUTINATION METHODS

ABDUL HAKEEM, AMTUL HAFIZ

Summary

Two ELISA Kits and two agglutination methods were evaluated for the detection of Hepatitis B surface antigen (HBsAg) in carriers and blood donors, regarding their sensitivity, specificity, practicability and cost effectiveness. These were (AUSZYME Monoclonal Kit (Abbott), USA and EIA Kit (Karpas) UK, for ELISA, Quick test Kit (HUMAN), Germany for Latex agglutination method (LA) and SERODIA (FUJIREBIO-INC), Japan for Reversed Passive Haemagglutination method (RPHA). Serum sample were taken from HBsAg positive cases. These samples were tested at different dilutions by all the four methods and kits. All the four kits detected HBsAg in 100% of cases upto a dilution of 1:40. Upon further dilution ELISA (Abbott) kit detected HBsAg in maximum number of cases (218), followed by ELISA (Karpas) (209), RPHA (168) and LA (124). As compared to ELISA (Abbott), ELISA (Karpas) kit was (95.87%), RPHA (77.06%) and LA (56.88%) sensitive. As for as specificity is concerned, ELISA (Karpas) and LA were 100% specific while RPHA was 95% as compared to ELISA (Abbott). As regards their cost effectiveness, practicability and rapidity of the test performance, ELISA kits were much expensive, method was very technical and time consuming (2-6 hours), while LA method appeared to be very simple, cheap and rapid to perform (5-10 minutes). Reversed passive haemagglutination method is also more technical, more time consuming and less specific due to which chances of false positive results are more.

As carriers are known to have sufficient quantities of HBsAg in their blood which was detected even upto a dilution of 1:40 in all the cases in this study, it is recommended that LA method may be used for screening the carriers and blood donors for HBsAg. In addition to its 100% sensitivity and specificity upto a dilution of 1:40, LA method is simple to perform, easy to interpret and relative cheap to afford.

KEY WORDS : Hepatitis B surface antigen (HBsAg), Latex agglutination, ELISA, Enzyme Immunoassay, (EIA) Reversed passive haemagglutination (RPHA) Evaluation of methods.

Introduction

Hepatitis B virus (HBV) infection with its large number of chronic carriers is a major health problem of worldwide concern. Patients with severe chronic active hepatitis and persistent HBV replication are at very high risk of rapid progression to cirrhosis¹. Acute infection may also, on occasions leads to fulminant liver failure, with a case fatality rate of 80%². About 5-10% of patients with HBV infection become chronic carriers which can be identified by persistent titre of HBsAg in their blood³. Its long lasting persistent plays a major role in the development of liver cirrhosis and hepatocellular carcinoma HCC⁴. These HBsAg carriers are also the potential source for viral spread. It is highly prevalent in Pakistan and its incidence is increasing with time⁵. Parenteral

and perinatal are the most common modes of its spread⁶. Its transmission can be controlled by screening chronic HBV carriers and all blood donors for HBsAg. In pregnant ladies this screening programme is even more important because they are liable to transmit this virus in multiple ways⁷.

There are a number of methods and kits commercially available for this screening purpose. It is only feasible to extend this programme to a mass level and remote areas if we adopt a simple, rapid, reliable and economical method for this purpose. This study was panned with the need to highlight such procedures and kits, suitable for the detection of HBsAg in blood donors.

Two different ELISA kits namely Auszyme Monoclonal kit (Abbott) USA and Enzyme Immuno Asseny kit (Karpas), UK, were tested. In

addition, two kits, one for latex agglutination method (LA), Quick test kit, (HUMAN), Germany and other for Reversed passive hemagglutination method (FUJIREBIO-INC), Japan were also evaluated regarding their sensitivity, specificity, practicability and cost effectiveness.

Materials and Methods

This study was conducted in the Department of Microbiology, Basic Medical Sciences Institute, JPMC, Karachi during 15th February, 1995 and 30th April, 1995.

Twenty two blood donors, positive for HBsAg and ten individuals, negative for this antigen (Controls) by ELISA (Abbott) kit were selected for study. About 10 ml of blood was taken from each individual by a disposable syringe, serum was separated by centrifugation at 2000 rpm for 10 minutes and distributed into four sterile glass tubes, labeled and kept in freezer at 20°C until needed.

At the time of testing doubling dilutions of each serum were made, in duplicate, in Phosphate buffered saline (PBS) at pH. 7.4^{8,9} and each dilution was tested by all the four methods according to the manufacturers' instructions. Control samples were also similarly tested by all the four methods.

Results

The results obtained by different methods and kits at various dilutions of the samples are shown in Table - 1. Upto a dilution of 1:40 all the four test kits detected HBsAg in 100% of cases except six undiluted samples which were initially negative by LA method and became positive upon dilution (prozone phenomenon). Latex agglutination method further detected the antigen upto a dilution of 1:320 in eight out of 22 cases. Beyond this dilution no case was found positive by this method. By RPHA the antigen was detected in 100% of the cases upto 1:80 dilution and in six upto a dilution of 1:1280 while all were negative beyond this dilution. By both the ELISA kits HBsAg was detected in 100% of cases upto a dilution of 1:640. By ELISA (Abbott) seven cases and by ELISA (Karpas) only two cases were found positive upto a dilution of 1:5120.

Table 1: No. of diluted samples found positive for HBsAg by different methods and kits.

Dilutions	LA	RPHA	ELISA-A	ELISA-K
Undiluted	16	22	22	22
1:10	22	22	22	22
1:20	22	22	22	22
1:40	22	22	22	22
1:80	20	22	22	22
1:160	14	21	22	22
1:320	08	18	22	22
1:640	00	13	22	22
1:1280	00	06	19	18
1:2560	00	00	16	13
1:5120	00	00	07	02
1:10240	00	00	00	00

LA = Latex agglutination method,
RPHA = Reversed passive hemagglutination method
ELISA-A = ELISA (Abbott),
ELISA-K = ELISA (Karpas).

All the control samples (10 samples diluted upto 1:40) were negative by LA and both the ELISA kits while two undiluted samples were found false positive by RPHA method (Table - 2).

As ELISA (Abbott) detected HBsAg in maximum number of cases (218), taking it as a "gold standard" results of other methods and kits were compared and sensitivity and specificity of each method was determined. By ELISA (Karpas) kit HBsAg was detected in 209 cases, by RPHA in 168 cases and by LA in 124 cases, hence sensitivity was 95.87%, 77.06% and 56.88% respectively as compared to ELISA (Abbott) kit (Table - 3).

Table 2: Comparison of Results of ELISA (Abbott) with other Methods and Kits.

	ELISA (Abbott)	
	Positive (218)	Negative (40)
ELISA (Karpas)	+ 209 - 09	00 40
RPHA	+ 168 - 50	02 38
LA	+ 124 - 94	00 40

Table 3: Sensitivity of different methods and kits for HBsAg detection.

Observation	ELISA-A	ELISA-K	LA	RPHA
Positive	218	209	124	168
Negative	00	09	94	50
Sensitivity	100%	95.87%	56.88%	77.06%

Latex agglutination method and ELISA (Karpas) were 100% specific while the specificity of RPHA was found 95% as compared to ELISA (Abbott) (Table - 4).

Table 4: Specificity of different methods and kits for HBsAg detection.

Observation	ELISA-A	ELISA-K	LA	RPHA
Positive	40	40	40	38
Negative	00	00	00	02
Specificity	100%	100%	100%	95%

Discussion

This study show that ELISA was the most sensitive method for the detection of HBsAg. The sensitivity of ELISA with Abbott kit was almost equal to the sensitive with Karpas kit ($p > 0.05$). Other two methods (LA and RPHA) were found less sensitive as compared to ELISA kits. These results are comparable to those, obtained by Mancal and co-workers¹⁰ who reported ELISA to be more sensitive than RPHA. Lakshmi et al¹¹ also reported ELISA to be superior with high sensitivity as compared to RPHA. As for as specificity is concerned RPHA was less specific (95%) while LA method and ELISA Karpas were 100% specific. In the present study all the test procedures and kits detected HBsAg in all the test samples even upto a dilution of 1:40 which indicates that carriers had sufficient antigen levels.

Peterson et al¹² also reported that most carriers in donor population had HBsAg levels, detectable even by least sensitive methods used as that time.

When the practicability and time factor were compared, ELISA appeared more time consuming which requires incubation, washing and reincubation. For ELISA (Karpas) 4-6 hours are required and for ELISA (Abbott) at least 2-3 hours are necessary for completion of the tests. Moreover, automatic washing system is required for this procedure because manual washing increases the chances of HBV transmission to laboratory personnel. For reading the results of ELISA, special photometers are required, as Quantum II for ELISA - A and Uniscan - II for ELISA - K. These instruments are very costly, difficult to maintain and expert technical staff is required to operate them.

In case of RPHA predilution of the samples is necessary and 1-2 hours incubation is required but results are observed visually. In case of LA method results are obtained within five minutes and observed visually under bright artificial light. This method (LA) has following advantages over conventional serological methods.

1. No predilution of the samples is required.
2. The test can be carried out from one drop of sample (serum or plasma) and one drop of reagent.
3. The performance of the test does not require any special equipment.
4. The results can be read visually within a few minutes.

Although the reaction time for LA method (Mentioned in the leaf insert) in five minutes, positive sera showed reaction even within 1-2 minutes and five minutes was the time after which reaction did not occurred. During testing by LA method sometimes problem occurred due to "prozone phenomenon". A few undiluted samples gave negative results but they were positive for HBsAg when tested in 1:10 and 1:40 dilution. It is therefore, necessary to test every negative sample in 1:40 dilution which is also the manufacturers instruction.

Purchase price per test for LA method (HUMAN Kit) is Rs. 30/- which is lowest as compared to other Kits (Rs. 30/- which is lowest

as compared to other Kits (Rs. 120/- for ELISA Abbott, Rs. 80/- for ELISA - Karpas and Rs. 40/- for RPHA). For ELISA these prices will only be observed if a batch of 100 tests is run, because five controls (3 negative and 2 positive) are required for each batch as compared to LA where only two controls are required. In laboratories and blood banks as individual samples are commonly received for immediate testing, so cost per test increases disproportionately.

The reagents used in LA kit have longer shelf life while the reagents (antibody sensitized cells and control cells) used in RPHA, once reconstituted, are valid for use upto two weeks only. Because ELISA kits contain enzymes, their efficacy may also be short lived as compared to other kits.

Keeping in view all the results and observations, LA method appeared to be more suitable for screening the blood donors and chronic carriers for HBsAg.

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ABSENTEEISM - AN INTRACTABLE MANAGEMENT PROBLEM A STUDY OF ABSENTEEISM OF DOCTORS IN RURAL HEALTH FACILITIES OF LAHORE DIVISION, PAKISTAN

AYUB ALI & C. MARY MATHER

Summary

This study is an attempt to investigate the problem of absenteeism of doctors working in the public sector rural health facilities of Lahore division Pakistan.

A survey was conducted in three stages. In stage I, the attendance of doctors was checked in the three districts of Lahore division, after selecting a sample of 45 BHUs and 9 RHCs in the three districts. In stage II, the doctor working in rural areas of the selected sample were interviewed using a semi structured questionnaire: while in stage III of the study, district health officers of the three districts were interviewed only 34.57 % of the doctors were found present in the rural health facilities whereas 65.4390 % (including 3.71 % on leave) were absent from their duties and only 30.86 % doctors were residing at the health facilities.

Unsuitable living conditions, low salary and unsuitable working conditions were the most frequent reasons given by the doctors. Unsuitable working condition included lack of necessary equipment, local political pressures and unavailability of necessary medicine. Lack of job satisfaction and lack of any link between rural experience and the post-graduate medical training were other concerns expressed by the doctors.

Introduction

Absenteeism is one of the important issues of human resource management. Within the health sector in Pakistan, rural health facilities present a special scenario where, probably, absenteeism has grown as a culture. Rural health facilities are of particular importance in Pakistan, as they serve 68.39 % of the population living in rural areas¹. This study is an attempt to investigate the problem of absenteeism of doctors working in the public sector health facilities of Lahore division.

The Pakistan government is spending huge amount of resources on the health care facilities in the rural areas. Considerable amount is being spent on building, equipment and staffing the basic health units and rural health centres. Unfortunately, due to what is generally thought to be an unacceptably high level of absenteeism of doctors from their duties in rural areas, these services are not fulfilling their purpose. The government has adopted different strategies to increase the attendance of doctors in rural areas (for example the rural allowance and strict supervision), but the attendance of doctors in rural health facilities is still thought to be far below the

acceptable levels. Doctors play a very important role among the range of services being provided at the rural health facilities. So when the doctor is missing in the set up, the utility and purpose of health facilities are badly affected. The following hypothesis was to be tested by this research, 'Government strategies are not effective enough to ensure an acceptable level of attendance of doctors in rural areas.'

To test the above hypothesis, following aim and objectives of the study were to be achieved.

Aim & Objectives

Aim.

The ultimate aim of the study is to provide better understanding of why doctors do or do not attend the rural health facilities and to influence the government to develop its strategies accordingly.

Objectives.

- To assess the existing situation regarding the attendance of doctors in rural areas.

- To review the different government strategies to improve the attendance of doctors in rural areas.
- To explore the possible reasons for absenteeism of doctors.
- To review different options to improve attendance of doctors in rural areas.
- To make recommendations to increase the attendance of doctors in the rural areas.

Research Design And Methodology

A survey was conducted in three stages. Each rural health facility was taken as a sampling unit. A sample of 9 RHCs and 45 BHUs was taken from the Lahore, Kasur and Sheikhupura districts from 34 RHCs and 241 BHUs. All the doctors working at these facilities were selected for the stage I & II the study. All the three district health officers were included in the study for stage III.

Stratified random sample was taken for the stage I & II. A random sample of 15 basic health units and 3 rural health centres was taken from each of the three districts by drawing lots, and all the doctors working the selected basic health units and rural health centres were included in the study. However, for stage III, all the district health officers were interviewed.

In stage I, the attendance of the doctors working in the rural areas of Lahore Division included in the sample was checked.

In stage II, the doctors working in the selected sample of rural health facilities were subsequently interviewed by using a semi-structured questionnaire to explore their views on the subject. The doctors who were found absent in stage I were also interviewed.

In stage III, all the three district health officers were interviewed using a semi-structured questionnaire to know their opinions and managerial practices.

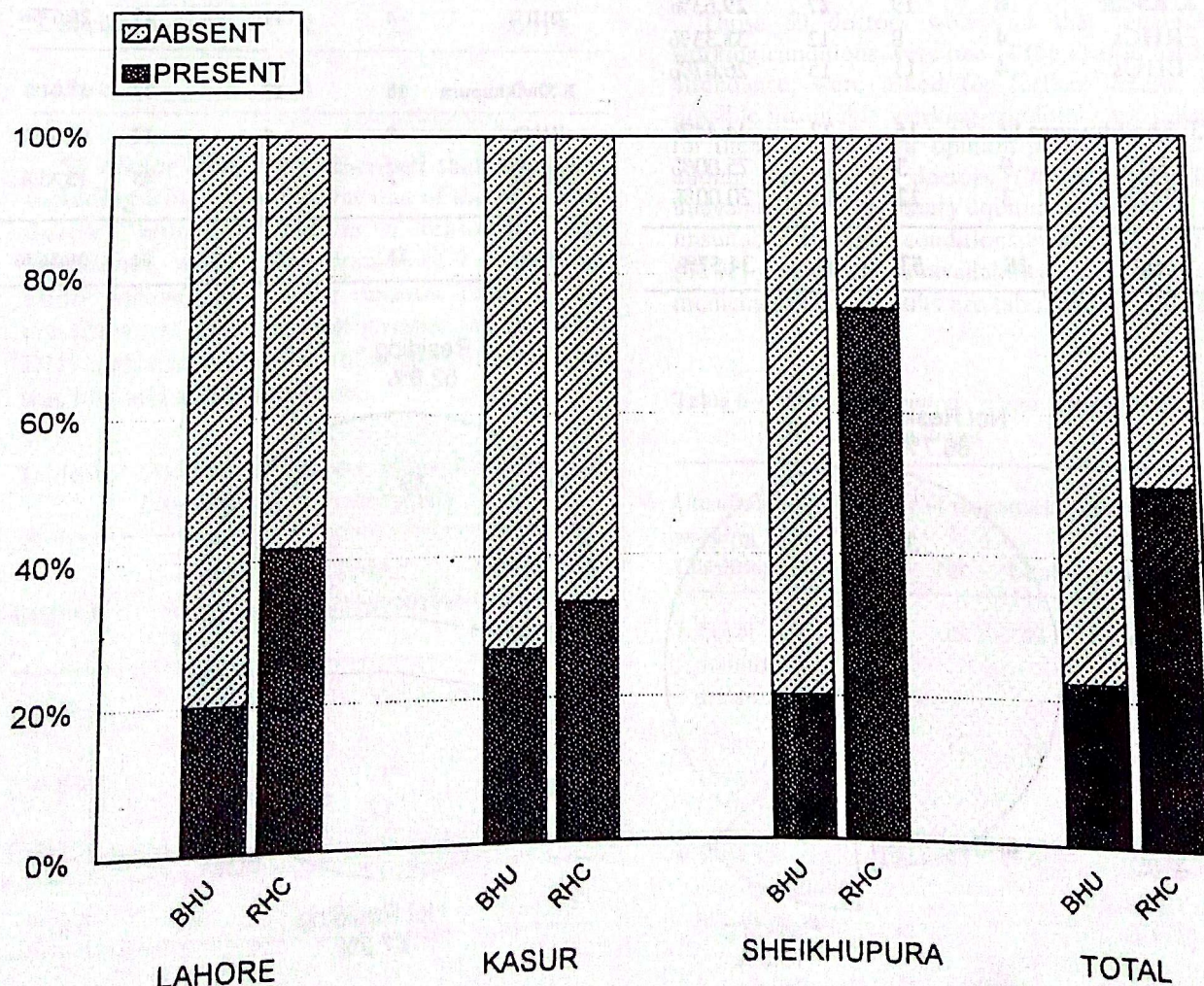


Fig. 1: Attendance of Doctors

Findings & Discussion

Table 1 shows the health facility - wise attendance of doctors working in rural areas of Lahore Division. Out of 81 doctors included in the sample, only 28 (34.57%) were found present, while 53 were absent. Out of 53 absent doctors, 3 were reported to be on leave.

Table 1 Health Facility - Wise Attendance Of Doctors In Lahore Division

District	Number of doctors			Percentage of attendance
	Present	Absent	Total	
1. Lahore	8	19	27	29.63%
RHCs	5	7	12	41.67%
BHUs	3	12	15	20.00%
2. Kasur	8	19	27	29.63%
RHCs	4	8	12	33.33%
BHUs	4	11	15	26.67%
3. Sheikhupura	12	15	27	44.44%
RHCs	9	3	12	75.00%
BHUs	3	12	15	20.00%
Total	28	53	81	34.57%

As shown in Table 2, 25(30.86 %) doctors were residing in the rural health facilities in Lahore division out of 81 doctors.

Table 2 Number of Doctors Residing at Rural Health Facilities

District	Number of doctors		Percentage of Total residents
	Resident	Non - residents	
1. Lahore	8	19	27 29.63%
RHCs	6	6	12 50.00%
BHUs	2	13	15 13.33%
2. Kasur	7	20	27 25.93%
RHCs	4	8	12 33.33%
BHUs	4	11	15 26.67%
3. Sheikhupura	10	17	27 37.04%
RHCs	8	4	12 66.67%
BHUs	2	13	15 13.33%
Total	25	56	81 30.86 %

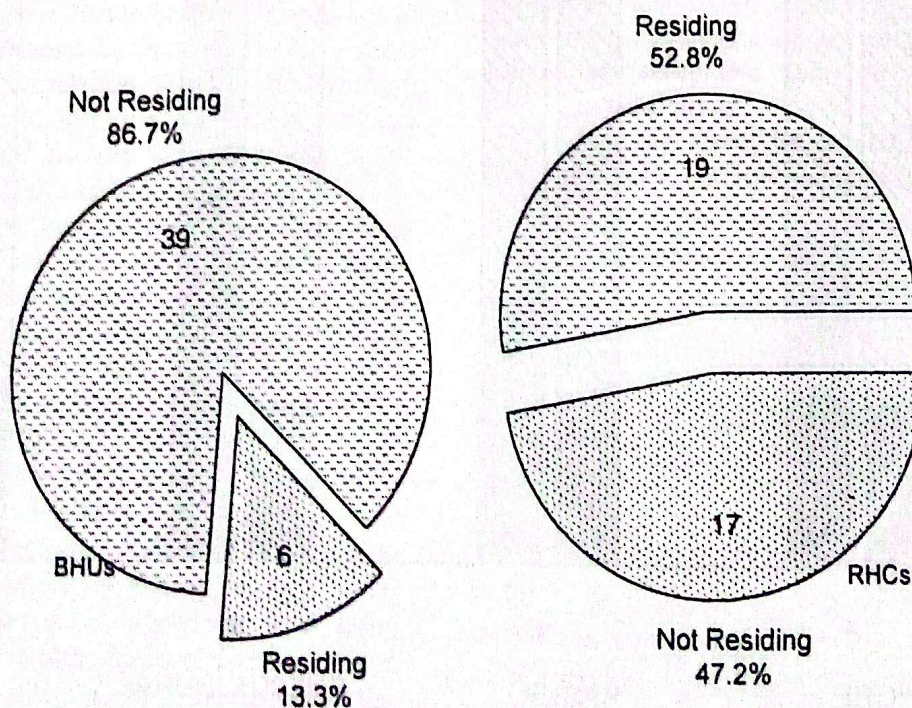


Fig. 2: Doctors residing at RHCs

The doctors working in rural areas of Lahore division, included in the sample, were interviewed in the stage II of the study to explore the reasons for absenteeism. Only those doctors (65 out of 72) were asked the questions about reasons, who thought that the attendance of doctors of rural health facilities was not reasonably high. 57 doctors were of the opinion that unsuitable living conditions were one of the reason for the low attendance of the doctors working in rural health facilities.

Table 3 *Opinions of Doctors about Living Conditions.*

District	Unsuitable living conditions		Total respondents	Percentage of positive responses
	Yes	No		
1. Lahore	20	1	21	95.24%
2. Kasur	17	4	22	72.27%
3. Sheikhpura	20	2	22	90.91%
Total	57	8	65	89.69%

58 doctor (89.23 %) described that low salary including fringe benefits was one of the reason for doctors failing to put in a reasonably high attendance, while in the opinion of 7 doctors low salary was not one of the reasons. These figures are shown in Table 5. Furthermore, all the three DHOs also said the salary of doctors of rural areas was low and needed revision.

Table 4 *Opinions of Doctors about Relationship of Low Salary to Low Attendance*

District	Low salary		Total respondents	Percentage of positive responses
	Yes	No		
1. Lahore	19	2	21	90.48 %
2. Kasur	20	2	22	90.91 %
3. Sheikhpura	19	3	22	86.36 %
Total	58	7	65	89.23 %

The relationship between attendance and unsuitable working conditions to the low attendance was also asked from 65 doctors working in the rural health facilities of the three districts of Lahore division. In the opinion of 50 doctors (76.92 %). unsuitable working conditions was also one of reasons of low attendance (i.e. less than 90 % of the required working hours). These results are shown in table 5.

Table 5 *Opinions of Doctors about of Unsuitable Working Conditions.*

District	Number of responses			Percentage of Positive responses
	Yes	No	Total	
1. Lahore	18	3	21	85.71%
2. Kasur	16	6	22	72.73%
3. Sheikhpura	16	6	22	72.73%
Total	50	15	65	76.92%

Those 50 doctors who said that unsuitable working conditions were one of the reason for low attendance, were asked for further details. Six possible unsuitable working conditions were listed for them to give their opinion plus the option of adding others. 38 doctors (76 %) identified unavailability of necessary equipment as one of the unsuitable working conditions, while 32 doctors (60 %) selected unavailability of necessary medicines, These results are tabulated in table 6.

Table 6 *Doctor's Opinions about specific Unsuitable Working Conditions*

Unsuitable working Conditions	Number of responses			Percentage of Positive responses
	Yes	No	Total	
1. Local political pressures	3	18	50	64 %
2. Unavailability of necessary medicine	38	12	50	76 %
4. Lack of co - operation of colleagues	10	40	50	20 %

5. Unhelpful attitude of junior staff	14	36	50	28 %
6. Un-cooperative attitude of the patients	7	43	50	14 %
7. Other reasons	4	46	50	8 %

All the respondents of stage II of the study (i.e. 72 doctors) were asked whether under-graduate professional training of doctors provided adequate preparation for working in the rural health facilities. Only 19 doctors (26.39 %) responded in the positive. These findings are shown district-wise in table 7.

All the respondents of stage II of the study (i.e. 72 doctors) were asked whether the system of supervision was effective enough in ensuring the attendance of doctors in rural areas. The response of 48 doctors (66.67 %) was in positive, while 24 doctors (33.33 %) responded in negative. These figures are tabulated in table 8.

Similarly there were 119 disciplinary actions taken against the rural doctors for absenteeism, in the three districts during the last 6 months. However many of these cases were still pending for final decisions.

Table 7 *Opinions of Doctors about Role of Under-Graduate Professional Training for Working in Rural Environment.*

District	Number of responses			Percentage of Positive responses
	Yes	No	Total	
1. Lahore	10	14	24	41.67 %
2. Kasur	6	18	24	25.00 %
3. Sheikhupura	3	21	24	12.50 %
Total	19	53	72	26.39 %

Table 8 *Opinions of Doctors about Effectiveness of Supervision for Ensuring Attendance of Doctors.*

District	Supervision		Total respondents	Percentage of Positive responses
	Effective	Not effective		
1. Lahore	13	11	24	54.17 %
2. Kasur	17	7	24	70.83 %
3. Sheikhupura	18	6	24	75.00 %
Total	49	24	72	66.67 %

Table 9 *Provision of Training after Recruitment of work in rural areas.*

District	Training		Total respondents	Percentage of positive responses
	Given	Not given		
1. Lahore	11	13	24	45.83%
2. Kasur	10	14	24	41.67%
3. Sheikhupura	9	15	24	37.50%
Total	30	42	72	41.67%

Similarly the respondents of stage II of the study were also asked whether they received adequate training after recruitment to work in rural areas. Only 30 doctors (41.67 %) out of 72 responded in positive, while 42 doctors (58.33 %) were of the view that they did not receive adequate training for working in rural areas. District - wise results are shown in table 9

All the respondents of stage II of the study were asked about other reasons of low attendance of doctors of rural health facilities. out of 72 doctors, 34 (47.22%) also mentioned some other reason, while in the opinion of 38 doctors (52.88%) there were no other reasons for the problem besides those mentioned earlier. The main other reasons included;

- lack of security at rural health facilities for the doctors and their families (mentioned by 9 doctors).
- lack of basic utilities in rural areas i.e. sui gas, phone and long hours of load shedding of electricity (up to 15 hours a day) > It was also mentioned by 9 doctors and two DHOs.
- experience of rural areas is not counted towards post-graduate education admissions and / no priority in post graduation. It is pointed out by 9 doctors and all the three DHOs.
- lack of recreational facilities. (pointed out by 5 doctors).

Table 10 Other Reasons for Low Attendance

District	Other reason		Total respondents	Percentage of positive responses
	Yes	No		
1. Lahore	9	15	24	37.5 %
2. Kasur	10	14	24	41.67 %
3. Sheikhpura	15	9	24	62.50 %
Total	34	38	72	47.22 %

To summarize, the findings of the study confirmed the hypothesis that government strategies were not effective enough in ensuring a reasonable level of attendance of doctors in rural areas.

The difference between the attendance of Sheikhpura and other two districts was probably

also related with the doctors residing at the rural health facilities. As explained in the next chapter, there was no relationship of other factors.

The results confirm that absenteeism is widespread and growing problem in both health service and industry². Despite being the largest single source of loss of productivity in business and industry, absence from work has not featured as prominently as might have been expected in studies in human resource management³.

Cost of absenteeism to any organization may be direct, for example employing other people or indirect, for example the effects on performance of other staff. According to an estimate absenteeism cost British industry between 9 and 13 billion pounds⁴, while according to the estimate of Confederation of British Industry this value is in the range of five thousands pounds⁵. Besides these direct costs, there are hidden costs, which have to do with moral productivity and 'example' to the rest of the department⁶. There are effect of training on their willingness to work in rural areas⁷, as physicians training programmes rarely prepare them for working in primary care centre.

Recommendations

1. All parties (doctors, managers, policy makers etc.) concerned with absenteeism should be made aware of gravity of the problem.
2. Living conditions at rural health facilities should be improved by ensuring the availability of basic amenities at the rural health facilities.
3. It should be ensured by the supervisors/managers that the doctors actually reside at the rural health facilities.
4. The salary package for rural areas should be revised with the target to make take home salary of rural area slightly higher than those of posted in the urban areas.
5. Written operational policies should be made available at the rural health facilities regarding the prescription of drugs, the availability of drugs, the type of treatment / procedures to be provided at each facility.
6. To recognize the better attendance and to use the 'Peer group pressure'⁸ for improving the attendance the results of attendance should be published.

7. The role of rural service in professional development should be further enhanced. The rural health facilities may be attached with the medical colleges and the research guidance made available to the rural physicians.
8. Supervision / monitoring of the attendance should be delegated down from the DHO to the ADHO and the incharge RHCs.
9. Training to the doctors working in rural area be provided after assessing the training needs in various areas.
10. Curricula of the professional medical education should be revised to include the component of community based medical education.

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ONTARIO 1996 MEASLES ELIMINATION CAMPAIGN NURSING STAFF PERSPECTIVE

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Introduction

The 1996 Ontario Measles Elimination Programme was a massive undertaking by the Public Health System to immunize 2.1 million students between the ages of 4 and 19 years. The responsibility of immunizing Ontario's target population in the 4 months from February to June 1996 rested largely upon public health nurses. A survey of public health nursing staff was done following the campaign in July 1996 to evaluate the ministry's central management and support services, and to seek the opinions of the staff about the campaign.

A similar survey was done in the United Kingdom following the 1994 Measles and Rubella Campaign¹. Results showed that the booklets, other publications and guidelines produced by the Department of Health for the campaign were useful and nurses found the campaign to be a rewarding and challenging experience. The objectives of the Ontario survey were to evaluate both logistic and subjective aspects of the program: the logistic aspects to identify areas for future improvement and the subjective to ascertain the effects of the campaign on health unit staff. Logistical aspects that were evaluated included ministry support services in the form of measles inservice training, the 1-800 measles hotline, supplies and promotional materials, and ministry resource materials such as the regularly issued measles bulletins and educational materials.

Measles inservice training was conducted prior to the campaign by ministry staff and the manufacturer of the measles vaccine used in the campaign (Connaught Laboratories Limited). The aim of the inservices was to review and provide specific instructions about immunization and vaccine handling procedures and to cover topics like clinic organization. These were designed to "train the trainer" to conduct inservices at their health unit. Hard copies of slides were provided

for in-house sessions. A manual was also developed to accompany the inservices. This manual was provided to all health unit campaign staff regardless of whether they attended the inservices. A central ministry measles hotline (1-800) was established to answer the multitude of staff enquiries about the technical and management aspects of the campaign. The line was staffed by ministry medical and nursing consultants on a daily rotating basis. All health units had access to the line. In certain health units the line was reserved for measles program managers or designated staff members. The ministry of Health provided the health units with vaccine, syringes, needles and alcohol swabs. Health units were provided a choice to use either hubless and hubbed syringes. To promote the campaign, the logo of a Dalmatian puppy was adopted, consistent with the age group of the majority of the target population. T-shirt, stickers, buttons and posters with the logo were distributed to all health units. T-shirts were provided to health unit staff, the stickers were for students and buttons for the school teachers.

Resource materials were developed for staff, parents, teachers and students to provide information about the campaign. Measles bulletins were sent to all health units on a bi-weekly basis. A variety of topics were covered including the rationale and promotion to the campaign, information about the vaccine, consent issues, laboratory diagnosis of measles immunity, answers to common queries as well as updates about the campaign. Educational materials for parents, students and teachers were developed to cover basic educational issues. Due to frequent calls early in the campaign from parents and teachers requesting more detailed information, a supplementary package of scientific information was sent out to all health units for distribution as required.

Subjective aspects were evaluated by enquiring about the positive and negative feelings of the staff about their campaign experience.

Methodology

Data were collected using mailed questionnaires. Ten questionnaires were distributed to each of Ontario's 42 health units, to be completed by the measles program manager and nine randomly selected public health nurses. To ensure confidentiality and candor, respondents were asked to mail the completed questionnaires directly to the ministry with no identifying information except the name of the health unit. Responses to most questions were scaled on a 5-point Likert scale, while open ended questions were used to collect opinions and subjective responses. Following receipt of the questionnaires, the open ended questions were coded. Data were analysed using Epi Info ver. 6.02 (Centers for Disease Control and Prevention, U.S.A). For purposes of analysis, the 5-point Likert scale was collapsed into three categories combining the two positive scores and the two negative scores.

Results

The response rate was 96% (405/420). Eleven percent were programme managers and 9% were public health nurses. Fifty-two percent of respondents had worked in the vaccine preventable diseases (VPD) program prior to the campaign, while 47% were non-VPD nurses, who had been seconded to the campaign from other programs.

Ministry Support Services

The results of staff evaluation of ministry support services are as follows:

1. Measles Inservice Training

Inservices were attended by 58% of staff. Seventy-two percent of the attendance found these to be useful. Those who did not find the inservices useful made remarks such as:

"Didn't give health unit staff view on how to run/organize clinic"

"Could be more detailed"

"Question and answer sessions should have taken place instead"

"Operational issues were quite superficial"

Ninety-seven percent of the staff stated that they had used the inservice manual. Seventy-three

percent of the staff whose unit it considered it useful. More VPD nurses found it to be useful than non-VPD nurses (78% versus 68%, $p = 0.0310$). A few respondents suggested that the manual should have been provided prior to the inservices to permit attendance a chance to review it beforehand.

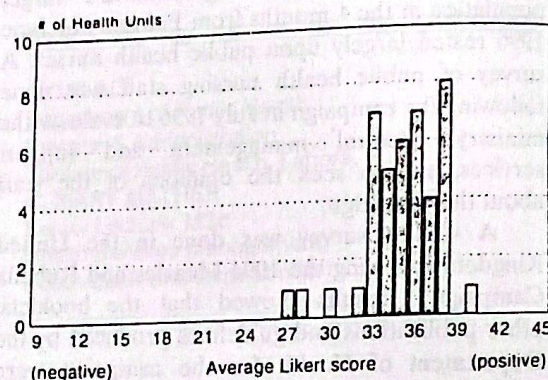


Figure 1 Staff Feeling about the Campaign

2. 1-800 Measles Hotline

The 1-800 hotline was used by 42% of respondents. Those who used it found the reply helpful (80%), prompt (78%) and the consultants accessible (74%). Seventy-nine percent of VPD staff compared to 62% of non-VPD staff found the consultants accessible ($p = 0.0079$) and 83% VPD versus 65% non-VPD staff thought the reply was prompt ($p = 0.0066$).

3. Promotional Materials

All promotional materials received an enthusiastic response. Ninety-one percent of staff considered the Dalmatian logo appropriate to the target age group and 90% felt that the promotional materials greatly enhanced the campaign. The promotional materials greatly enhanced the campaign. The proportion of respondents using the different materials and their individual usefulness is presented in Table 1.

Table 1
Frequency of use of promotional material

Promotional Material	Used	Considered Useful
T-shirts	100%	91%
Stickers	99%	97%
Buttons	99%	73%
Posters	98%	79%

Some health units used additional materials such as stuffed Dalmatians, spotted running shoes and a measles rap song.

Media promotion of the campaign by the Ministry of Health was considered insufficient by 10% of the respondents.

4. Supplies

Fifty-nine percent of staff reported the availability of choice of syringes to be important while 55% felt it was important to have had 5% of the vaccine supplied in single dose vials.

Overall 71% of staff were satisfied with the equipment provided. Sources of dissatisfaction were poor quality needles (17% of respondents stated that dullness, burrs and spurs on the needles were encountered), dry alcohol swabs (8%) and pieces of rubber stopper entering the vaccine during reconstitution (3%).

During the campaign a number of health units expressed their concern about the large amount of wasted plastic packaging materials which were not recycled. No central guidelines had been distributed about recycling and it was up to the individual health unit to make their own arrangements if they wished. Recycling required sorting the different components of the plastic materials, which created extra work. When respondents were asked to indicate their willingness to recycle if additional work was involved, 67% expressed their readiness to do so. More nursing staff were willing to recycle than program managers (77% and 53% respectively, $p = 0.041$) and 59% of VPD versus 77% non-VPD staff ($p = 0.0049$) indicated their willingness to recycle if it involved extra work.

Table 2
Effect of Campaign on Staff Level of Confidence

Technical Aspects	Increased confidence	No effect	Decreased Confidence
Playing an active role in immunization campaign	83%	16%	1%
Immunization advice and counselling	79%	20%	1%
Promoting immunization to the public	78%	21%	1%
Response to adverse events	76%	22%	2%
Giving injections	72%	27%	1%

3. Educational Materials

Ministry-produced questions and answers (Qs and As) information sheets for parents/students were used by 91% of the staff while Qs and As for teachers were used by 76%. The supplementary package of scientific information was used by 49%. Among those who used it, 79% found it to be useful. Respondents were also asked to comment on the completeness of the information for parents

and students. Sixty-eight percent thought it was adequate. Areas which were reported as requiring more information were: contraindications to immunization, side-effects of vaccine and pregnancy issues (4% each). The following comments highlight some areas needing improvement

"More details on rationale of campaign"

"Central media campaign would be helpful"

"Questions and answers and consent too wordy"

"Colour of consent forms should be different from that of fact sheets"

A poster was designed by the ministry to inform pregnant teenagers of the theoretical risk of the vaccine to the fetus. This poster was used by 65% of the staff in high schools, 52% in grades 7 and 8, 51% in public school boards and 44% in separate school boards.

The consent form for receipt of measles vaccine was widely criticized as being poorly designed and confusing. It was used by 91% of staff. Some health units designed their own forms. Suggestions were made for having one signature line instead of two for either consent or non-consent, simplifying the language and seeking more field staff input for design of rupture consent forms.

Subjective Aspects

Staff were asked to rate their level of confidence after the campaign on various technical issues. The results are presented in Table 2.

More non-VPD than VPD nurses felt an increase in confidence in giving immunization advice and counselling (85% versus 74%, $p = 0.0053$) and giving injections (81% versus 64%, $p = 0.003$). The effect of the campaign on staff experiences was also sought and the results are summarized in Table 3.

A number of significant differences were found between the responses of the VPD and non-VPD staff. VPD staff were affected more positively by the campaign than non-VPD staff. Specifically, 82% VPD versus 72% non-VPD staff reported a positive effect on morale ($p = 0.0113$), 87% VPD versus 73% non-VPD staff experienced a positive effect on professional satisfaction ($p = 0.0003$) and 87% VPD versus 71% non-VPD staff on 'personal satisfaction' ($p = 0.021$). Forty-eight percent of VPD versus 58% of non-VPD staff perceived the campaign to have a negative effect on other nursing programs ($p = 0.0038$). It was also noted that 88% of managers compared to 93% of staff reported a positive effect on profile in the community ($p = 0.0038$).

In order to give respondents a chance to express their individual feelings about the campaign, they were asked to list the three most important positive and negative aspects of the campaign. The top ten responses are listed in Table 4.

Table 3 Effect of Campaign on Subjective Aspects

Subjective aspects	Positive effect	No effect	Negative effect
Profile in community	93%	6%	1%
Team spirit	91%	7%	2%
Relations with schools	90%	8%	2%
Public awareness of importance of immunization	88%	10%	2%
Professional satisfaction	81%	11%	8%
Personal satisfaction	79%	12%	9%
Morale	78%	12%	9%
Other programs	27%	20%	53%

Table 4 *Positive and Negative Aspects of the Campaign*

Positive aspects	Negative aspects
team work (44%) profile in community (30%) relationship with schools (27%) public health benefit (19%) working with other staff (19%) well - organized / efficient (19%) increased PH awareness (13%) interaction with public (12%) interaction with kids (11%) cost - effective (7%)	neglect of other programs (30%) stressful, hard work (21%) short time frame (16%) confusing consent issues (16%) target - oriented (5%) dealing with irate parents (5%) poor quality equipment (3%) bad winter timing (3%) lack of local management support (3%) additional regular work 2%)

General Comments

The consent process was needed including better design of the consent form-(9%), "job well done" (6%) and that more advance notice should be given in the planning of future campaigns (4%).

Comments from a few respondents highlight their feelings about the campaign.

"Immunizations carried out by health units is a cost - effective and time - efficient system. Moving this responsibility to health units would free up M.D. time for more medically related interventions".

"Very difficult being withdrawn from community services. Staff morale was good during campaign, but very difficult to return to 'pick up the pieces' in other programs from which nurses were pulled".

"Cost in lost program and credibility may not have been worth it"

"Gave opportunity to carry out informal community needs assessment".

Staff feelings about the campaign by health unit

Variations in staff response to the campaign across health units were estimated by taking the sum of the Likert scale scores of the subjective aspects listed in unit. The results are presented in Figure 1.

Discussion

Overall, ministry support services were well received by health unit staff. Evaluation of these services by the field staff has shown their usefulness as well as the areas which need improvement. The inservices were primarily intended to train the trainers, who would in turn conduct local inservices. Consequently, not all staff were able to attend. Many of the staff appear to have been unaware of this policy and those who could not attend expressed their desire to have attended. It seems that the majority of the staff wanted first hand opportunity to communicate with the central organizers and felt left out when they were denied the chance to do so.

The difference between the VPD and non - VPD staff regarding the usefulness of the inservice manual could have different reasons. Perhaps non - VPD staff expected and / or required more information than the VPD staff who may be more familiar with these issues based on their area of work. The non - VPD staff likely referred to the manual for clarification and guidance more frequently including for more basic issues which were not covered adequately for their purposes.

The 1 - 800 measles hotline was found to be equally helpful by all staff members. More than half the respondents did not have access to the line. The feasibility of giving all health unit staff equal access to the line is a local management

issue which is better dealt with at the level of individual health units. The reasons for differences in VPD and non - VPD staff opinion about the accessibility of consultants and promptness of reply could be related to the fact that VPD staff were familiar with the consultants and regarded them as more accessible and the reply more prompt.

The most enthusiastic responses were about the promotional materials. Respondents cited the promotional materials as one of the 3 most positive aspects of the campaign. Even though all the items were used by all health units, stickers for students and T - shirts for health unit staff were rated the highest, with buttons for teachers and volunteers being rated as less useful.

The frequent comments made by the staff about the poor quality needles is a cause for concern which must be investigated and rectified for the future.

It was interesting to note that program managers and non - VPD nurses are more willing to recycle if it involves extra work. The fact that VPD nurses are less inclined to recycle may indicate their concern that this could become a part of their routine responsibilities. Non - VPD staff on the other hand may view this as a one time requirement. They may also be more conscious of environmental issues due to their involvement in other programs. Staff may be more aware of the large amount of waste than managers who might be less ready to recycle thinking it would increase their administrative responsibilities.

Measles bulletins were considered helpful by the majority of staff. Differences were noted between the program managers and other staff regarding the issues of timeliness and usefulness of information. Both these areas could be interrelated. If managers were not providing the bulletins to the staff in a timely fashion, staff would perceive the bulletins to be less timely and useful. Another reason for the bulletin being more useful to managers could be related to the content. Management and rationale issues may have received more coverage than individual staff questions and enquiries. It is understandable that VPD and non - VPD nurses differed in their opinion about receiving bulletins on immunization issues in the future. This information would be less relevant to the non - VPD nurses' area of work. It is still noteworthy that overwhelming 89% staff were keen to receive these bulletins.

The educational materials for parents were used by 91% while those for teachers by 76%. This suggests that parents were more concerned and likely to request these materials than teachers who may have been more inclined to view this as extra work. The reasons for the low utilization rates of the supplementary package of scientific information may be that the information was sent out at the beginning of the campaign rather than prior to the start of the campaign, by which time most of the questions may have already been answered. In addition, 26% of staff were not aware not of the existence of this material.

The pregnancy poster was not found to be very useful. Most of the staff relied less on the poster and explained pregnancy issues to students on a one to one basis. The need for better coverage of pregnancy related issues has been pointed out in the comments about the educational materials. The highest use of the poster was in high schools.

Numerous comments were made about the poor design of the consent form. A detailed evaluation of consent issues has been undertaken to identify areas for improvements.

The subjective feelings of the staff show that non - VPD nurses reported a greater increase in their level of confidence on giving immunization advice and counselling as well as practical skills of giving injections. VPD nurses may already have had confidence and experience in these issues before the campaign. Differences were also noted between the VPD and non - VPD nurses regarding the subjective response to the campaign. As expected, VPD nurses derived personal and professional satisfaction from being a part of a campaign which was related to their area of work. Similarly non - VPD nurses would be more likely to express a negative effect on other nursing programs which would receive less or no attention during the campaign. The difference in effect on morale could be related to the feelings of personal and professional satisfaction. It could also be an independent phenomenon, where the non - VPD staff felt their regular programs were perceived as less important than immunization as these had been put on hold during the campaign.

It was also noted that a lower proportion of managers than staff reported a positive effect on profile in the community. This could be because the staff are the first level of contact with the

community and are more sensitive to the community's response than the managers.

Overall, health units did not vary widely in their staff experiences during the campaign. All health units scored at or above the mid - point score of 27 (range 9 - 45; the minimum achievable score is 9 as the lowest score on the Likert scale is 1 for each of the 9 variables in Table 3). Most health units achieved a score between 33 and 38 indicating the positive effect of being a part of the campaign.

Conclusions

Evaluation of ministry support services and resource materials for the Ontario measles elimination program has shown these to be successful in facilitating the activities of field staff during the campaign. The majority of the staff perceived the campaign to be a positive experience both personally and professionally. Valuable lessons have been learned from the results of this survey. Future central immunization program planning can benefit by addressing the following issues:

1. All staff should have equal and timely access to central services and resources.
2. Policies should be adequately communicated to all health unit staff.
3. A central media campaign should be organized to promote the program.

4. Consent form design should be improved. Field staff input should be sought in this regard.
5. The negative effects of stress and neglect of other programs can be decreased by
 - hiring more staff
 - giving more advance notice and preparation time
 - scheduling a longer completion time

Acknowledgement

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HEALTH SYSTEM IN ISLAMIC REPUBLIC OF IRAN LESSONS TO BE LEARNT

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Health care is one of the most important aspect of all human endeavours to improve the quality of life, since good and sound health is essential for the strength and prosperity of a nation. The 30th World Health Assembly in Alma Ata (Kazakhstan) in 1977 set the goal of Health for all people of the world by the year 2000 (HFA 2000). World Health Organization (WHO) recognized serious gaps in HFA strategies of different countries and hence launched a new initiative referred to as 'HFA Leadership Development'. I was fortunate to be a participant of the 3rd Leadership Development Programme and in this connection I visited the Islamic Republic of Iran for 10 weeks in the beginning of 1994 to study the exemplary health system of this brotherly country. Pakistan can benefit a lot from the experiences of Islamic Republic of Iran in health sector and their system after necessary modifications can be made replicable for Pakistan.

It is a very interesting fact that before the inception of the new health system in 1979, which is also the year of revolution, the health status of Iranian population and their health indicators were very similar to those of our country. But since then, Iran has taken long strides in promotion of health of its population and is now at a stage where stories of Iranian success are quoted worldwide. The foremost reason of this success is the strong political commitment which exists at all levels, and is reflected in allocation of more than 5% of the GNP for health sector whereas we are still spending less than 1% on this vital sector. Religious decrees pronounced by Imam Khomeini and Ayatollah Golpygani concerning authorization of family planning programmes reflect the interest and support of health programmes by the topmost religious hierarchy.

Health Policy

Iran's national health policy is highly relevant to the long term objectives of attaining Health for All by the year 2000. The corresponding strategies

and health development programmes emphasize primary health care., which is generally accepted as the cornerstone for attaining Health for All by the year 2000. Increasingly, attention has been focused on finding appropriate solutions to the complex problems of expanding and extending health care services. The heavy economic and social tolls exacted by illness and disease, acute shortages of medical and paramedical staff and the concentration of 70% of all the available medical professionals in the country's five major cities, and the previous system's heavy reliance on curative treatment have forced decision makers to find new approaches to meet public health needs.

The expansion of health networks and health programmes has been based on the following five priorities:

- rural areas over urban areas.
- preventive services over curative services.
- out - patient treatment over indoor treatment.
- Outpatient specialized treatment over general hospitalized treatment.
- general hospitalized treatment over post specialized treatment.

Primary Health Care (PHC)

PHC is the essence of health delivery system of Iran and the country attributes all the progress in health status of population to this excellent approach.

Iran's PHC network is currently providing services to 90% of the urban and 7% of the rural population and plans are to expand the coverage to 100% in near future.

Along financial and planned support of the system, the Government of IR of Iran applied intensive efforts in developing a suitable infrastructure for the provision of health services, in training adequate and appropriate manpower, in exercising as far as possible correct, managerial and educational techniques and in promoting public participation. This was done in order to

gradually achieve a comprehensive network of PHC services and establish a rational referral system, with access to health services by all people.

Health House

The Health house is the most peripheral rural facility in the network and is mostly the 1st level of contact between the individual and the health system. Average population covered by the health house is 1500 and they are mostly staffed by the female community health workers known as Behverz. Minimum population for a health house is 500. If a population is between 500 - 1000 then only one female Behverz is selected. For a population of upto 1500, a male Behverz is also selected and for every additional 1000 population one female Behverz is added. If sufficient population is not present in the main village, then 2-3 satellite villages are attached to the main village.

Behverz is the key person responsible for successful implementation of PHC policies. A major contributing factor in this success has been the intimate relationship between the Behverz and the community. It was exactly with this fact in mind that choosing behverzes strictly from within the community was considered an unbreachable policy from the outset. The Behverz knows virtually everyone in the village by name and also the number of pregnant women and children under one year. They develop good relations with the village leaders and with the village council, with whom they work very closely.

The female Behverz is generally responsible for those tasks which are performed with - in the health house (i.e. receiving clients, providing routine health care to those under coverage, family planning and MCH services including antenatal check ups, immunization, recording data, providing simple curative care and medications etc). The male Behverz is on the other hand predominantly concerned with activities outside the health house (i.e. follow up cases with communicable diseases, case finding, environmental health activities, and routine care in satellite villages). This partial division of duties of course never means that either behverz can not or should not perform all duties on his or her own if necessary.

The process of training of behverz is a typical example of using appropriate technology.

Candidates are required to have completed primary school as a minimum qualification. Their studies spanning for two years are arranged on the principles of problem based learning. With the application of this training they have been able to limit the number of patients referred to doctors to less than 20% of cases.

If a behverz performs satisfactorily for four years, the government helps him or her to get admission in technician training. With the process, hardworking and promising ones can even become physicians.

Rural Health Centre

The RHC is a village based health facility covering one or more (usually 5) health houses under its supervision. Each RHC covers approximately 7500 people and is staffed by a physician, health technicians and or / assistants an aid nurse and administrative personnel. The technicians are for oral health, family health, disease control, environmental health and laboratory.

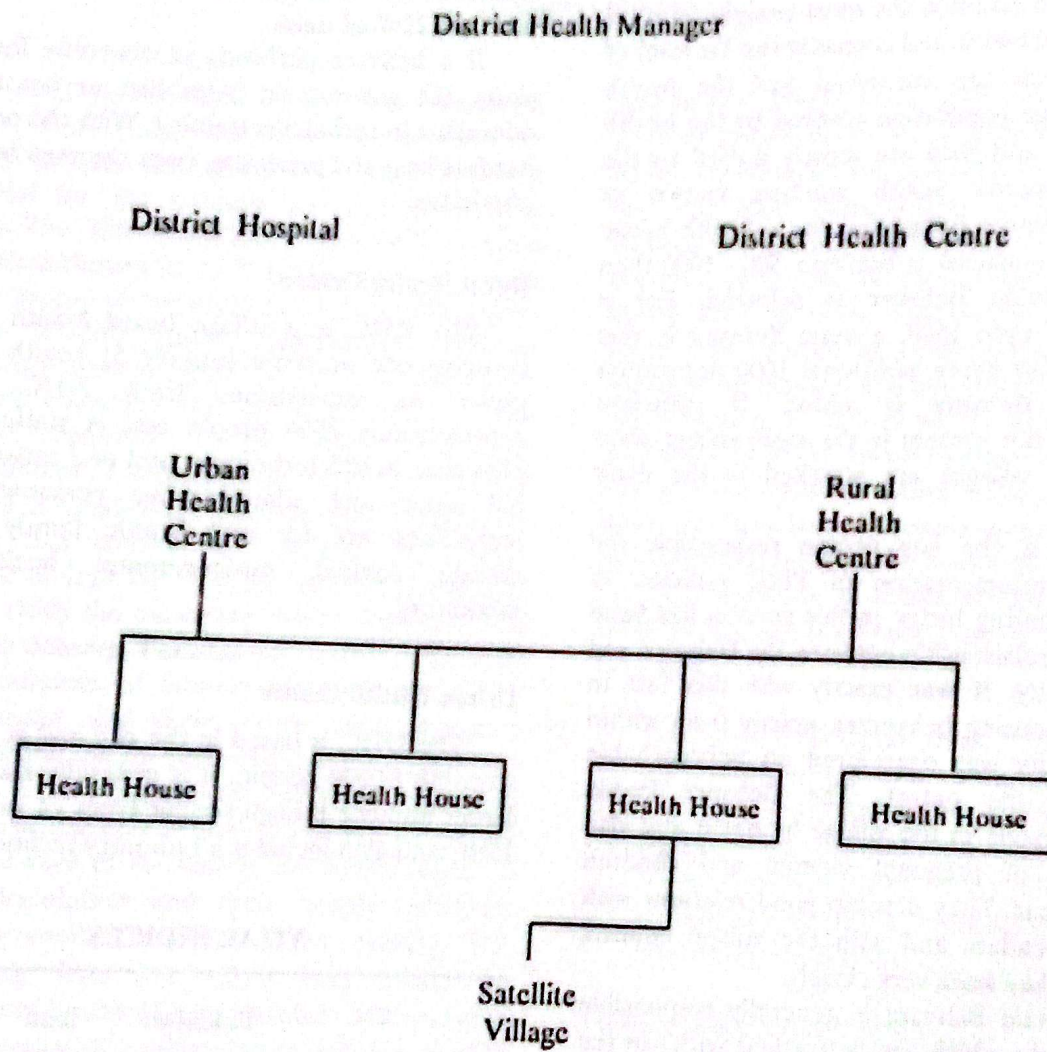
Urban Health Centre

The UHC is based in the city and is designed to cover 12,000 people. It is generally staffed by a larger number though similar types of workers, as RHC and also includes a radiology technician.

VITAL INDICES

	Pakistan 1994	Iran 1979	Iran 1994
Life Expectancy	61	57	69
Infant Mortality Rate / 1,000	104	104	51
Maternal Mortality Rate/10,000	25 - 30	30 - 40	6 - 7
Population Growth Rate	3.0	3.4	2.1

PRIMARY HEALTH CARE NETWORK SYSTEM DESIGN



The health house is the foundation of Iran's
multi - tiered health care delivery system

Significant observations

Population and Family Planning

1. Another field in which Iran has made dramatic success is population and family planning. Before revolution, population growth rate of Iran was one of the highest in the world (3.4%). But due to commitment of political and religious leaders and acceptance of public especially for surgical methods like vasectomies and tubal ligations, the country has a model family planning programme. Some factors of success are high literacy rate (more than 75%), an effective public awareness campaign, free and easy availability of contraceptives, and incentives for acceptors and providers of family planning services.
2. Another significant achievement is the merging of Medical Education and Executive Health Affairs since 1985, with the formation of Ministry of Health and Medical Education. The Chancellor of the University of Medical Sciences is also the Executive Director of the Regional Health Organization in most provinces. University teachers are involved in Public Health Programmes and health administrators share their experiences with medical students. Medical Education in Iran is more oriented towards community needs and medical students. Medical Education in Iran is more oriented towards community needs and medical students spent a prescribed time in PHC facilities.
3. All practicing physicians are required to pass one month refresher training course every five years; this can be effective in promoting the working quality of physicians.
4. Role of foreign and donor agencies is very minimal in Iran and the country stresses on self reliance resulting in sustainability of health programmes.

5. Self reliance is also emphasized in local production of medicines and vaccines. Plans are underway to benefit the ECO member countries to benefit from the vaccine production units of Iran.
6. In the land of Razi and Avicenna, there is no Unani, traditional or homeopathic system of medicine. Government allows and supports only scientific allopathy, resulting in unified and well directed health system.
7. The most notable observation was duty conscious and devoted health employees who have no concept of getting absent from duty.

It can be concluded that Iran is a good model for the countries in pursuit of the goal of HFA 2000.

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GASTRO - ENTERITIS IN NAROWAL CITY: WAS THAT AN EPIDEMIC ?

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Summary

As a large number of patients suffering from gastroenteritis were admitted in District Headquarters Hospital in August 1996, an epidemic of gastroenteritis especially cholera was suspected. In the study conducted to investigate this issue, it was observed that out of a total 269 admissions in the hospital in August 1996, 51.67% were due to gastroenteritis and among them 64.75% were children below 12 years. However, no specific epidemic pattern or significant increase as compared to previous year's admission, for the month of August, was observed. Although all the water samples showed growth of faecal coliforms, no growth of *Vibrio cholerae* was observed. Despite high endemicity of gastroenteritis, no epidemic of gastroenteritis or cholera was suggested.

Gastroenteritis Epidemic

Introduction

In the month of August 1996, Punjab was struck by heavy rains which resulted in floods in many areas. Every year Narowal District is flooded in summer, but flood water rarely enters the Narowal city.

However due to the heavy rains in August 1996, sewerage system of the city failed with the result that whole of the city was flooded with water. A large number of cases of gastroenteritis were admitted in District Headquarters (DHQ) Hospital, Narowal in August 1996. As a consequence of natural disasters diarrheal diseases may present as an epidemic and Public Health Authorities suspected an epidemic of diarrheal diseases especially cholera in the city of Narowal¹. This study was conducted to investigate this issue.

Methodology

A team comprising of an epidemiologist and a bacteriologist along with laboratory staff was constituted to investigate the incidence of gastroenteritis in Narowal city. During the investigation the team interviewed the Medical Superintendent and Paediatrician of DHQ Hospital, Narowal; District Health Officer, Narowal and Director Health Services, Gujranwala. The team also interviewed Narowal

Town Committee officials and public representatives regarding the water supply, sewage disposal, food hygiene and other public health issues of the city. Information was extracted from District Headquarters Hospital records including out-patient register, flood relief camp register, in-patient record for the years 1995 and 1996 specially for the cases who presented with gastrointestinal problems of probable infective origin including the cases recorded as suffering from gastroenteritis, dysentery, post diarrheal distention, vomiting and dehydration.

5 stool samples were collected from children suffering from diarrhoea with no history of intake of drugs at the time of admission in the paediatrics unit of DHQ Hospital Narowal. The team also collected water samples from 15 randomly selected houses in the city who are using the community piped water supply, while using standard aseptic techniques.

The data collected was analysed using computer software Epi Info 6. To present 95% Confidence Intervals (95% CI) of observed proportions 'Exact Binomial Confidence Intervals' were used. χ^2 test with Yates correction and χ^2 for trend were used as tests of significance where appropriate. $p < 0.05$ was used as cut off point for statistical significance.

Results

Qualitative Information:

Narowal city is the headquarter of the Narowal District, Gujranwala Division and consists of a population of 60,000. The town committee of the city do not have a health officer and the public health issue are supervised by a sanitary inspector. Water is supplied 8 hours per day by 9 each. The use of bleaching powder or other method of chlorination is practically non-existent. Waste water flows through a system composed of open drains and sewerage system and is disposed into 'Nala Jhajhri' or used for sewage farming. There is no concept of routine water or food testing by the municipal committee authorities. There are no medical facilities provided by the Municipal committee. The only government health facility available in the city is a 44 bedded DHQ Hospital. This facility provides medical care to residents of Narowal city and surrounding village.

Morbidity Pattern:

During the month of August a total of 2871 patients were seen in the out-patient department / Emergency department of the DHQ Hospital, out of them a total of 269 patients were admitted in the hospital. Among those admitted 19 (51.67%, 95% CI 45.78) were suffering from gastroenteritis, acute diarrhoea, vomiting, post diarrheal distention, and dehydration. Among the total 118 children admitted 90 (76.27%, 95% CI 67.56 - 83.62) were suffering from this group of illnesses. This also showed that 64.75% of the total patients of gastroenteritis etc. were children below 12 years of age. Figures 1 and 2 show the date-wise admission of total cases and children suffering from gastroenteritis to show the epidemic pattern. But taking into consideration the low number of total patients reporting on gazetted holidays and days of flood with no possible communication, no specific epidemic pattern independent of variation in total patients, was observed.

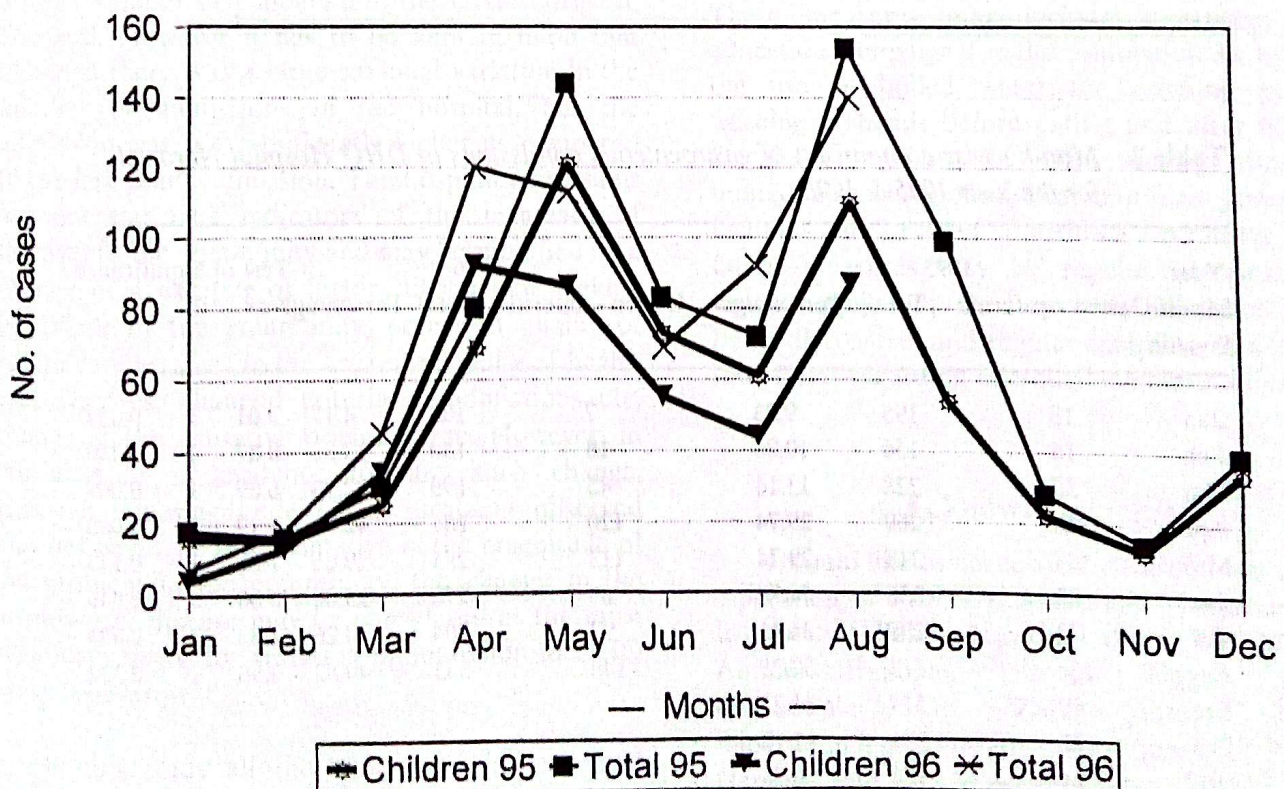


Fig 3. Admission of Gastroenteritis cases in DHQ Hospital Narowal, 1995 & 1996

During the period 24 - 8 - 96 to 1 - 9 - 96, a flood relief camp was established under the supervision of Medical Superintendent, DHQ Hospital in Narowal. As given in table 1, a total of 969 patients were examined in the campaign out of which 27.14% were suffering from gastroenteritis, with a range of 17.4% to 50.0% of total patients per day. However no statistically significant liner trend was observed ($p = 0.332$).

During the period January to August 1995, out of a total of 2213 admissions in District Headquarters Hospital Narowal 597 (26.98%, 95% CI 25.14 - 28.88) were suffering from gastroenteritis. While during the corresponding period January to August 1996, out of a total of 1989 admissions 604 (30.37%, 95% CI 28.35 - 32.44) were suffering from gastroenteritis. The difference was statistically significant ($\chi^2 = 5.9$, $p = 0.015$). However when the month wise distribution was considered, as given in table 2, it was observed that the only significant increase in the year 1996 as compared to the year 1995 was in the month of April. While for the month of August 1996, no significant increase was observed. Figure 3 shows the pattern of cases of gastroenteritis

admitted throughout the year 1995 and 1996, both for total patients and children below 12 years of age.

Table 1. Date - wise distribution of cases seen at Flood Relief Camp, Narowal

Date	Total Patients Seen	Gastroenteritis Cases	Total Percentage	95% C.I.
24 - 8 - 96	17	3	17.6%	3.79 - 43.43
25 - 8 - 96	40	13	32.5%	19.07 - 49.24
26 - 8 - 96	80	15	18.75%	10.89 - 29.03
27 - 8 - 96	86	15	17.44%	10.10 - 27.13
28 - 8 - 96	121	32	26.45%	18.84 - 35.24
29 - 8 - 96*	290	95	32.76%	27.39 - 38.49
30 - 8 - 96	18	9	50.00%	26.02 - 73.98
31 - 8 - 96	86	20	23.26%	14.82 - 33.61
1 - 9 - 96*	231	61	26.41%	20.84 - 32.59
Total	969	263	27.1%	24.36% - 30.06

χ^2 for trend = 0.94, $p = 0.332$

* The days on which in addition to the static camp, a mobile came was also established.

Table 2. Month - wise comparison of gastroenteritis admissions in DHQ Hospital Narowal for the Year 1995 & 1996

Year	1995			1996			Test of Significance		
Month	Gastro - enteritis	Total	Percentage	Gastro - enteritis	Total	Percentage	χ^2	df*	P value
Jan	18	195	9.23	7	168	4.17	3.61	1	0.057
Feb	16	156	10.26	18	130	13.85	0.87	1	0.350
Mar	30	228	13.16	45	198	22.73	6.69	1	0.009
Apr	80	269	29.74	120	285	42.11	9.17	1	0.002
May	144	319	29.74	113	285	29.65	1.86	1	0.173
Jun	83	335	24.78	69	276	25.00	0.00	1	0.949
Jul	72	298	24.16	92	304	30.26	2.83	1	0.093
Aug	154	413	37.29	140	343	40.82	0.98	1	0.322
Sep	99	317	31.23						
Oct	28	231	12.12						
Nov	14	158	8.86						
Dec	39	209	18.66						

* df = Degrees of Freedom

Laboratory Investigation

Among the five stool samples collected from children suffering from diarrhoea in DHQ Hospital Narowal, no growth of *Vibrio cholera* was obtained. Out of 15 water samples collected from Narowal city, while all samples showed the growth of coliforms, no growth of *Vibrio cholera* was obtained.

Discussion

Although epidemics of communicable diseases are not the only source of morbidity and mortality following a natural disaster. Contamination of water supply by the faecal matter is a major mode of transmission of diarrheal diseases and the increased probability of break down of water supply system leading to an epidemic of diarrheal diseases after floods is an established fact¹². Specially keeping in view a number of epidemics caused by *Vibrio cholera* 0139 in India in recent years, the concern of Public Health Officials was justified^{3,4,5,6,7}. The study has shown that there has been a high incidence of gastroenteritis in the area resulting into admission of a large number of patients into the DHQ Hospital, Narowal. However it has to be kept in mind that although there was a large seasonal variation in the number of admissions in the hospital, but the admission was not significantly higher as compared to the last year's admission. The hospital admissions are not the true indicators of the incidence of diseases in the community and may be modified by a change in a number of factors like health seeking behaviour of the community, perceived quality of health care services in the area, availability of health care services, changed criteria of admissions etc, change in the causative organism etc. However, in the absence of evidence for any such change, although the magnitude of the problem observed may not be a true representative of the magnitude of the problem in the community, the change in the incidence of disease may be considered as the most significant factor for variation in admission in DHQ Hospital, Narowal.

In this study all the water samples collected from the community piped water supply were found contaminated, which may be one of the reasons for high incidence of gastroenteritis in Narowal. Although piped water supply is known to decrease

the risk of gastroenteritis, a number of studies have indicated that poor piped water supplies has been the source of epidemics of diarrheal diseases^{8,9,10,11}. In the presence of lack of interest and shortage of funds in the town committee the alternate measures to be recommended are the methods used at household level to prevent the occurrence of the diarrhoea^{12,13}. But in this connection it has to be kept in mind that improving the water quality alone would have no effect in neighborhood with poor environmental sanitation and improvement of water quality along with better community sanitation would have a synergistic effect¹⁴.

In this study no *Vibrio cholera* has been isolated both from the water samples and stool samples collected. In the absence of typical presentation of classical cholera in patients and absence of *V. cholera* in the stools and water examined the presence of cholera in the area can not be suggested.

Despite the absence of cholera or epidemic of gastroenteritis in epidemiological and statistical frame of reference, the high endemicity of gastroenteritis warrant the aggressive and effective public health measures to improve the situation. These measures may include a strong health education campaign for the population to advocate the use of boiled water for drinking purpose, washing of hands before eating and after handling faecal matter, use of ORS during diarrhoea, immediate seeking of medical care from government facilities in case of diarrhoea / vomiting / fever. Other measures may be regular chlorination of water supply, improved quantity of water supply, better fly control and regular sampling of water and food items regarding microbial contamination.

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SATISFACTION OF PULMONARY TUBERCULOSIS PATIENTS ATTENDING PRIVATE MEDICAL PRACTITIONERS AND GOVERNMENT HEALTH FACILITIES IN GOWALMANDI LAHORE

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The aim of this study was to find out satisfaction of pulmonary tuberculosis patients with quality of care and to identify the factors affecting the satisfaction. A total of 50 patients, 25 attending private medical practitioners (PMPs) and 25 attending government health facilities (GHFs) in an urban dwelling were interviewed with the help of a questionnaire at the patient's places of residence, at private clinics or government health facilities. Satisfaction was assessed regarding access to service, competence of doctors, interpersonal relations, effectiveness, safety, continuity of care and the amenities. Factors related to and affecting satisfaction like duration of illness, delay in diagnosis, reasons for seeking second consultation, reasons for discontinuation of treatment, and reasons for preferring the private medical practitioner / government health facility which the patient was attending presently were also addressed. The patients attending PMPs were more satisfied as compared to GHFs regarding physical examination (92% in case of PMPs and 44% from GHFs), waiting time (84% from PMPs and 32% from GHFs) and interpersonal relationship (100% from PMP 72% in case of GHFs). More patients attending PMPs interrupted treatment because they were declared cured and because they themselves felt cured in comparison to those attending GHFs where more patients interrupted treatment because of economic reasons. Regarding other dimensions of satisfaction there was only a marginal difference.

Introduction

Pulmonary tuberculosis is a major global health problem. It has been estimated that 7% of all the deaths and 26% of all the preventable deaths in the world occur directly due to TB¹. Worldwide it kills more people than any other single infectious disease². The tuberculosis situation, like many other developing countries, is very serious in Pakistan. As per W.H.O estimates, more than 3 lac of new cases of tuberculosis develop in the country every year; three quarters of which are concentrated in the productive age group i.e. 15 - 59 years³.

A world congress on tuberculosis, held in 1992 to highlight the problems and to discuss recent scientific advances and global strategies for its prevention and control, discussed the important contribution that behavioral research can play in achieving control of TB. Many of the existing problems in control of the disease are rooted in

the patterns of behavior that either compromise therapy or affect the care of the patient⁴.

The present study has addressed this issue of behavioral research and focuses on satisfaction of pulmonary tuberculosis patients attending private medical practitioners and government health facilities in Gowalmandi (an urban dwelling) Lahore. The study has been conducted to find out satisfaction of patients with quality of care as well as to identify the factors affecting their satisfaction.

Patient's satisfaction is a complex mixture of perceived need, expectation of care, and experience of care. Evidence has accumulated that the care which is less satisfactory to patient is also less effective because dissatisfaction is associated with non-compliance to treatment instructions, delay in seeking further care and poor understanding and retention of medical information⁵. Patients satisfaction also reflects technical competence of doctors and evidence is

emerging that satisfaction may be directly related to improvement in the health status of the patients⁶.

Patient's satisfaction is an important dimension in the evaluation of the quality of care⁷. Quality of care consists in the application of medical science and technology in a way that maximizes its benefits to health without correspondingly increasing its risks. Patients often focus on effectiveness, accessibility, interpersonal relations and amenities as the most important dimensions of care⁸. Consumer satisfaction is becoming of fundamental importance in health care services. The reasons for this importance are; it determines compliance with recommended treatment and influences patient's choice of the provider; it is a measure of patient's involvement in decisions about care; and it can be used to choose alternative methods of organizing and providing health care⁹.

Methodology

The study was a qualitative investigation to gain insights into the satisfaction of pulmonary tuberculosis patients attending PMPs / GHFs and the intent was not to provide any statistically valid data. It was conducted in an urban area i.e.; Gwalmandi. This locality is approximately 4 Sq.Kms having an approximate population of 32000 and lies in the center of Lahore about 3 - 4 Kms. south - west of Lahore railway station. The area is mainly of low socio-economic group of people.

There were three GHFs and twenty eight PMPs in that area. Purposive sampling technique was applied and only patients of age group 15 years and above were included in the study. A total number of 50 patients of pulmonary tuberculosis, 25 from government health facilities and 25 from private medical practitioners were studied. A questionnaire was designed as a study tool and the patients were interviewed with the help of that questionnaire. The questionnaire focused on patient perception in relation to; access to service, competence of doctors, interpersonal relations, effectiveness, safety, continuity of care and the amenities. Factors related to and affecting satisfaction like duration of illness, delay in diagnosis, reasons for seeking second consultation, reasons for discontinuation of treatment, and reasons for preferring the private medical

practitioner / government health facility were also addressed.

A list of all PMPs and GHFs in Gwalmandi area was prepared by survey of the area. Afterwards all PMPs and GHFs were visited and the concerned doctors were given a brief account on the topic and purpose of the study and were requested to provide addresses of the patients of pulmonary tuberculosis who were attending their clinics / government health facilities. The patients in the premises of private clinics / GHFs at the time of visit of the surveyor, were interviewed. Patients attending PMPs were mostly not available in the private clinics at the time of visit of the surveyor nor their home addresses were available with their respective PMPs. So it became very difficult to search out pulmonary TB patients attending PMPs. Therefore all the PMPs were requested to note home addresses of Pulmonary TB patients who were attending them in future. The private medical practitioners were again visited several times with the interval of a week and the residential addresses of patients attending them were collected. Later the patients were approached at their home addresses and were interviewed with the help of local language version (urdu) of specially designed questionnaire.

Findings

I. Patient Satisfaction

More patients attending PMPs were satisfied with various dimensions of quality of care as compared to the patients attending GHFs as shown in Table 1.

II. Factors affecting satisfaction

The results of the study highlighted various factors related to or affecting patients satisfaction.

(i) Duration of illness

Among the patients attending PMPs 13 (52%) had duration of illness less than or upto 1 year; 7 (28%) had duration of illness ranging from 1 - 5 years and 5 (20%) had duration of illness more than 5 years. Among the patients attending GHFs, 14 (56%) had duration of illness less than or upto 1 year; 8 (32%) had a duration of 1 - 5 years and 3 (12%) had duration of illness more than 5 years.

Table 1 Dimension of patient satisfaction

S. No.	Dimension	Patients attending- PMPs		Patients attend- ing GHFs		Total	
		No.	%	No.	%	No.	%
1.	Technical Competence of Doctor.						
	Satisfied	25	100	20	80	45	90
	Dissatisfied	0	0	5	20	5	10
2.	Location of private clinic.						
	Satisfied	21	84	19	76	40	80
	Dissatisfied	4	16	6	24	10	20
3.	Working hours of clinic / GHF.						
	Satisfied	21	84	20	80	41	82
	Dissatisfied	4	16	5	20	9	18
4.	Examination & treatment by Doctor.						
	Satisfied	32	92	11	44	34	68
	Dissatisfied	2	8	14	56	16	32
5.	Cost of treatment.						
	Satisfied	10	40	9	36	19	38
	Dissatisfied	15	60	16	48	31	62
6.	Efficacy of Drugs taken.						
	Satisfied	21	84	22	88	43	86
	Dissatisfied	4	16	3	12	7	14
7.	Waiting Time.						
	Satisfied	21	84	8	32	29	58
	Dissatisfied	4	16	17	68	21	42
8.	Communication.						
	Satisfied	11	44	13	52	24	48
	Dissatisfied	14	56	12	48	26	52
9.	Interpersonal aspects.						
	Satisfied	25	100	18	72	43	86
	Dissatisfied	0	0	7	28	7	14

(ii) Delay in diagnosis:

Fifteen patients (60%) from PMPs and 15 patients (60%) from GHFs were diagnosed as TB case within one month of the onset of symptoms; 5 patients (20%) from PMPs and 6 patients (24%) from GHFs were diagnosed after one month and before 6 months whereas 5 patients (20%) from PMPs and 4 patients (16%) from GHFs were

diagnosed as a case of pulmonary TB after 6 months of the onset of symptoms.

(iii) Discontinuation of treatment:

11 patients (44%) from PMPs and 9 patients (36%) from GHFs had a history of interruption / discontinuation of treatment after they started taking treatment for TB, the main reasons are shown in table 2.

Table 2 Reasons for discontinuation of treatment

S. No.	Reasons	Patients attend- ing PMPs		Patients attend- ing GHFs		Total	
		No.	%	No.	%	No.	%
1.	Declared cured by doctor	4	37	3	33	7	35
2.	Patient felt himself cured	3	27		0	3	15
3.	Patient discontinued treatment due to economic reasons.	2	18	5	56	7	35
4.	Patient discontinued treatment due to social reasons.	2	18	1	11	3	15
	Total	11	100	9	100	20	100

(iv) Provision of drugs:

Among the patients attending PMPs 36% were provided drugs and 64% were not provided with the drugs. Among patients attending GHFs 64% were provided with complete range of drugs while 36% were provided the drugs partially.

(v) Reasons for preference to get treatment from PMP/GHF.

Patients attending PMPs preferred to go to their respective PMP mainly due to following reasons in the order of preference.

- Technical competence of the doctor.
- Personal relations with the doctor.
- Convenient location of the clinic.
- Good behavior of the doctor.
- Less charges of the doctor.
- Good personal character of the doctor.

Patients attending GHFs narrated the following reasons for preference to get treatment from their respective GHF in the order of preference.

- provision of treatment free of cost.
- Some one referred the patient to GHF.
- More and better treatment facilities in the GHF including indoor treatment facilities.

Discussion

The results of the study show that more patients attending PMPs interrupted treatment because they were declared cured by their doctors and because they felt themselves cured in

comparison to those attending GHFs where more patients interrupted treatment because of economic reasons. Out of 25 patients attending PMPs, 11 had history of treatment interruption. Out of these 11 patients, 4 were declared cured by the doctor, 3 felt themselves cured, 2 interrupted treatment due to social reasons and 2 interrupted due to economic reasons. Why the maximum number of patients interrupting treatment were declared as cured by their doctors is not clear. This might be related to the qualification of the doctor, length of practice of the doctor and, or case load of the doctor. Although the PMPs treating them had not postgraduate qualification, neither they had heavy case load, they cannot be held responsible for treatment interruption because the patients were not declared cured by the PMPs whom they were attending at the time of study but by their previous consultants. Why the previous consultants declared these patients as cured is not clear as well and further studies may be conducted to explore the reasons for declaring the patients as cured.

Out of 11 patients attending PMPs having history of treatment interruption 3 patients interrupted treatment because they felt themselves as cured. These 3 patients had no characteristics (family income education, occupation etc.) dissimilar to other patients. Probably they were not explained by their consultants how long they had to take medicine. Another explanation might be that they tried to save their expenditure on treatment as soon as they became symptom free. Anyway, this feeling of the patients was purely

based on their own perceptions and not on the doctors advice. Why these patients felt themselves cured is not clear from the present study and further study is recommended to explore how the patients feel themselves cured.

Out of 25 patients attending GHFs, 9 had history of treatment interruption. Out of these 9 patients 5 patients interrupted treatment due to economic reasons, 3 patients were declared cured by their doctors, 1 patients interrupted treatment due to social reasons and no patient interrupted treatment because he felt himself cured. When the 5 patients having history of treatment interruption were further investigated, it was observed that 3 of them had monthly family income < Rs. 2000/- and 2 had monthly family income ranging from Rs. 2001/- to Rs. 5000/-. In the context of education 4 were illiterate and 1 had education upto Matric. Four belonged to labor class while 1 was salaried employee. Three of them were provided with the drugs from GHFs partially while 2 were provided completely. In response to the question whether or not they could afford treatment easily or otherwise, three of them replied in positive where as the remaining two replied in negative. There does not seem any specific relation to any of the factors e.g. if we try to compare the monthly family income of the patients who interrupted treatment due to economic reasons with rest of the patients attending GHFs, it becomes evident that a total of 16 patients out of 25 had their monthly income < Rs. 2000/-, the remaining 12 patients who had their income < Rs. 2000/- did not make the economics as an excuse for their treatment interruption. It is evident therefore that it is, probably, not the income of the patient or family that plays role in treatment interruption, rather it may be patient's own perceptions or some

multidimensional elements. Further studies are recommended to explore these dimensions.

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TO IDENTIFY THE BEST METHOD OF COMMUNICATION OF HEALTH EDUCATION MESSAGE IN A RURAL COMMUNITY (UNION COUNCIL CHUNG) OF DISTRICT LAHORE

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Summary

This study was conducted in 1995 in one of Village of Union Council Chung which is a typical representative of Rural Punjab near Lahore. The objective was to identify the best method of Communication and the Hypothesis (HI) was that "the Message through the Imam Masjid or his representative from the Central Jamia Mosque of the village is best of all the other channels of communication" i.e. Posters, written message, and film etc. etc. All the methods were used with specific Parameters. The village Chung which was selected randomly consists of 600 houses. The heads of the Families or his representatives were the respondents, for interview after Health Education Programme of three months. The Community Health Workers (CHW) who were trained for the purpose filled up the Imam is the best one e.g. 60% of the head of the families told that they received the message through the mosque. The Hypothesis HI was proved true. The message by all the channels was the same e.g. "T.B. is a Curable Disease, for treatment Purpose there is clinic in main bazar of Chung, get yourself examined."

Introduction

As major part of our population e.g. 70% is living in the rural areas and majority population uneducated i.e. 78% ; so it is need of the time that there should be some method by which one can convey the messages through it. Dr. Maqsood and co-workers in 1988 worked in this rural community for his research work "UTILIZATION OF HEALTH SERVICE" by the people of Chung Union Council. He revealed that (60%) received Health Messages through religious leaders. Dr. M. Rafiq et al in his study of (KAP) revealed that 50% of the head of the families are influenced by religious leaders in 1991. In 1988-90, Dr. F. Kokub in her thesis of M. Phil revealed that the Health behavior of the families towards the treatment of TB is mainly concerned with the head of the family which is duly influenced by the mosque media or Imam or his representative. This study in 1995 to investigate the best method of communication in the rural community revealed that 60% of the total respondents total that they received the message regarding Health or TB was conveyed to them through mosque.

Methodology

The outline of the research method is in the shape of a flow sheet showing various steps and proposed time for each task was some what like this.

- | | |
|---|-----------|
| * Pre. Testing and
Repo. development | 1½ |
| * Health Education Programme
Intervention | 3 months |
| * Evaluation, Data processing
of write up. | 1½ months |

Family Planning Association of Pakistan provided Female (CHW) for interview. Transport and other expenditures were sponsored by T.B. Association of Punjab, While Technical assistance from the staff of College of Community Medicine, Lahore. The procedure was very strict and was followed seriously with few deficiencies which are of No significance. There was regular/weekly

distribution of written materials to the head of the families which was once read out before them. Posters were posted on the inner side of their doors of their houses with information. Message through Imam was delivered at each Juma Prayer addressing all the heads of the families around the mosque. The sound could reach up to all houses without fail. Film was shown in the main chowk once a week for 12 times in three months. In all the methods the message was the same. At the end of the programme the proforma was filled with yes / No. Question was that "Have you ever heard anything about T.B. during the last three months? If yes "from which source" Hand sorting as hand tallying method applies for analysis.

Findings

600 respondents were interviewed. 60% (360) told that they received information from the mosque irrespective of male/females 20% (180) received through written message 12% (72) from posters & 8% (48) from film.

Discussion

This type of studies are very rare in medical science in Agriculture, Education and Social Sciences conducted some studies. The net-shell of the results of these studies showed almost the same results while discussing the rural communities attitude towards changing behaviour / message communication about Health, Welfare or use of modern Agricultural methods i.e. modern seed or modern machinery etc. The Hypothesis (H1) is proved positive and the purpose of the study was achieved i.e. the Researcher is successful in identifying the best method of communication in the rural community which may or may not be true in urban area. The limitation of the study is that we cannot generalize this information to all the provinces which need a Separate study for this purpose.

Conclusion

In this research it is concluded that the message through mosque is the most useful one, i.e. 60% The H1 tested as positive that Health

Education message through the Imam is effective and successful.

Suggestions

Because religious leaders are respectable in the villages and are labelled as opinion leaders it is suggested that in Health Education Programme must be launched through religious leaders (Imam) in the rural areas or Punjab.

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OCCUPATIONAL HEALTH DEATH PATTERN AND CAUSES OF MORTALITY AMONG TEACHING AND NON - TEACHING STAFF OF SINDH AGRICULTURE UNIVERSITY TANDO JAM.

HUSSAIN BUX A. KOLACHI, ABDUL RASHID CH.

Summary

This study is done on the 14th deaths of teaching and non - teaching staff of Sindh agriculture University Tando Jam, during the period 1991 to 1994. Out of 14 deaths of staff members 10 were teachers and 4 were administrators, all were male. Out of 10 teachers 6 were Ph.Ds (50%) died with the age of 40 - 50 years. 10 years earlier than average life expectancy in Pakistan which is 60 years. Causes of mortality showed 9(64.28%) died due to cardiac attacks, arrest etc. 3(21.43%) died of Non - cardiac problems while 2 (14.28%) died in road accidents. Agriculture is the back bone of our economy death of agriculture University teachers and scientist with ph.D. D. qualification in early age from preventable causes in main finding and concern of present research. Perhaps it is only study of kind in Pakistan and SAARC region.

Introduction and Review of Literature

Indus Valley is famous for birth of Agriculture the noblest and oldest profession of mankind. Sindh being the cradle of agriculture has a long report of developing farming systems and techniques¹.

It is lamentable that we are importing food products worth of Rs. 33 billion annually forming 13 percent of total imports because of negligence towards agriculture sector Agriculture is contributing to GDP is 24-26 percent and accounts for half in total employment and is the largest source of foreign exchange earning². Consumes 33% of the industrial finished goods. Indus basin is one of the worlds largest natural resources capable of producing about 100 million tones of food grain annually but it produces a third of its potentials³.

Agriculture education was introduced in Sindh in the year 1939 when the King George Vth Institute of Agriculture was established in Sakrand. Sir lancet Grahm Governor of Sindh on 1st October 1940 opened this Institute. Subsequently that was shifted to Tando Jam in 1955 and same College was upgraded as Sindh Agriculture University in March 1977⁴.

If we study the factor associated with agricultural development we find that the key factor is not superior resources nor is the addition of capital such as equipment. It needs skills and useful knowledge transferred and applied through properly developed human resources. In that contest the pivotal role played by agriculture teacher must be visualised⁵.

University had awarded 4000 degrees in which 7 degrees were of Ph.Ds. University is owing 800 acres of good land for its agricultural teaching research and commercial activities. In its neighbour biggest Muslim world agricultural Atomic Energy Research Centre which is headed by Dr. Khushnood Ahmed Siddiqui. Dr. Irshad Ali Soomro was Vice Chancellor during our study period and currently Dr. Raja Ali Memon is Vice Chancellor⁶.

This study is based on the information and data regarding deaths among Teaching and Non - teaching staff of Tando Jam Sindh Agricultural Scientist and Teachers are precious asset of nation and economy. There early deaths is a Janct loss to agriculture teaching Institution, family, student and Agriculture sector. The cause of mortality and death pattern are explored in present study first of its kind in our country and perhaps in SAARC region.

Material and Method

The study is retrospective comprising four years, period from 1991 to 1994. The published obituaries in students Magazine SARANG 1994 - 95 and detailed discussions with Agriculture University Medical Officer, who is also senior GP and Fancy physics provided basis by this study. In all 14 University teaching staff and Non - teaching staff died during this study period. All were well known and highly educated figures of University, death of may teachers and officers were reported in National Press and Media. However, mortality causes were confirmed from university Medical Officer, Dr. Wali Muhammad Rahimoon.

Aims of Study

1. To Know death pattern in Agriculture University environments and occupation.
2. To know the causes of mortality among Agriculture university teachers and administrator.
3. To analyse occupational relationship with causes of mortality.
4. To recommend future line prevention and treatment to avoid early and premature death.

Results

1. Table No 1, shows that 14 teaching non-teaching senior staff died during the period 1991 to 1994. Out of total 14 deaths during the 04 years period 10 (71.42%) were teachers (Professors and Asstt: Professor) (60%) were Ph.Ds.

Table 1 Showing categories of officers teaching and non - teaching staff Who died during 1991 to 1994 in Sindh Agriculture University Tando Jam.

Category	Number	Percentage
Teaching Staff		
Professor/Assistant Professor	10	71.42
Non - Teaching Staff.		
Senior Adulterator	4	28.58
Deputy Registrar / Admn: Officer		
Estate Officer.		
Total:	14	100

2. All who died were males and there was no female senior teacher or administrator. This show agriculture is lacking in female participation at University level. (Table 2)

Table 2 Showing gender of officers who died during 1991 - 94 in Sindh Agriculture University Tando Jam.

Gender	No	Percentage
Male	14	100
Female	-	-
Total	14	100

3. The subject wise break - up as mentioned in Table No. 3 shows that one (7.14%) was teacher of irrigation and drainage while 07 (50%) were teacher in various agriculture sciences. 4 (28.5%) were administrator.

Table 3 Showing subjects and duties of teaching and non - teaching staff and officers who died during 1991 to 1994 in Sindh Agriculture University Tando Jam.

Subject and Duties	No	Percentage
Veterinary Sciences.	1	7.14
Poultry.	1	7.14
Irrigation and drainage	1	7.14
Agricultural Sciences	7	50
Administration	4	28.57
Total	14	100

4. Age wise breaking up reveals that 06 (50%) dies within the age of 40 - 49 and 6 (42.85%) in the age of 50 to 59 years only one (7.14%) survived beyond the age of 60 years.

Table 4 Showing Age of Teachers and Officers who died during 1991 - 94 in Sindh Agriculture University Tando Jam.

Age in Years	No	Percentage
40 - 49	7	50
50 - 59	6	42.85
60 and above	1	7.14
Total	14	100

5. The average age of the University teachers and Officials was 53 years and for Ph.D teachers average age was 52.05 years and for administrator average age was 51.25 years. It shows that no one survived upto the National average life expectancy of 60 years Ph.D Professors died 8 years earlier while the Non - teaching staff administrators died 9 years earlier (see Table No. 5)

Table 5 Showing Average age of various categories of teachers and officials who died during 1991 Sindh Agriculture University Tando Jam.

Categories	Average age in years
Ph.D. Teachers.	52.5
Non - Ph.D. Teachers	53
Administrators.	51.25

6. The table 6 shows that out of 14 deaths 9 (64.28) were due to cardiac reasons (Heart attack / myocardial infarction/arrest etc) 3 (21.43%) were Non - cardiac deaths while two (14.28%) were road traffic accident deaths.

Table 6 Causes of Deaths among teachers and officers who died during 1991 to 1992 in Sindh Agriculture University Tando Jam.

Cause of death	No	Percentage
Cardiac (Attack and Arrest)	9	64.28
Non Cardiac.	3	21.43
Road Traffic Accidents.	2	14.28
Total	14	100

Discussion

The study reveals that cardiac and other violent causes of mortality i.e. 64.28% cardiac and 14.28% violent Road Traffic accident were leading causes of deaths among teaching and non-teaching staff of Tando Jam Agricultural University. It is in line with other studies conducted in USA, India and China (WHO 1987) and Pakistan but no such study conducted in University and Agriculture setting is reported. All studies are in general population or in children.

Risk factor quoted by Black burn 1980 and Heller 1987 cited by Mahmuda Mubasher and S.A. - Sayed⁵ can be the cause of cardiac risk factors which culminated in early deaths of agricultural scientists and teachers. Factors are Male Sex, inactivity, Hypercholesterolemia smoking, Hypertension, personality having time conscious aptitude etc. The road traffic accident is also important cause of early deaths in this study and well reported in WHO literature⁶.

The said part of study shows that among 14 who died were Ph.Ds and survived for average age of

52.05 years while average life expectancy is 60 years in Pakistan. It is important that University has awarded 7 - Ph.Ds. degrees since 1975. One teacher and equal number has died and death is due to avoidable causes. University has 59 Ph.D. teachers and this loss is directly 10.16% it means this death rate is not averted within short period while lot of Ph.Ds teachers may suffer the same end as had happened with their colleagues. It is high time to launch preventive cardiology programme in Agriculture University and other Universities of Pakistan to avert cardiac disease catastrophe.

Recommendations

1. Screening cardiac causes in teaching and non teaching and administrative staff be done.
2. Smoking and high cholesterol diet be avoided.
3. Exercise and good health maintaining habits be promoted.
4. primary cardiac care unit in existing health facilities be added.
5. Pipe water supply from canal irrigation be examined as can be possible risk factor and underground tube well water supply be made available.
6. Regular consultancy services by expert cardiologist be hired by university for staff and teachers including regular cholesterol check ups.
7. Epidemiological research and environmental study be initiated.

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