

IOMC 2008 Proceedings Book
**A Collection of the 1st International Online
Medical Conference Papers**

Mostafa Nejati & Forouzan Bayat Nejad
(editors)

Universal Publishers
Boca Raton, Florida

*IOMC 2008 Proceedings Book:
A Collection of the 1st International Online Medical Conference Papers*

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Universal Publishers
Boca Raton, Florida • USA
2008

ISBN-10: 1-59942-966-7
ISBN-13: 978-1-59942-966-3

www.universal-publishers.com

Introduction:

IOMC 2008 is the first online conference on Medicine taking place in 2008. It aimed to provide a forum for discussing and presenting research findings, studies, and experiences in the field of medicine, to create an opportunity for medical, nursing, and pharmaceutical/pharmacology researchers, students, professors, physicians, practitioners, researchers, executives, scientists, specialists and activists to meet each other online and share their research papers, and to provide a chance to find new research colleagues and partners for future research works.

An International Advisory Committee (IAC), comprising international experts and Medical Professors guided the development of the conference program and agenda. A Program Scientific Committee (PSC) supplemented the activities of IAC, and decided on identification of moderators and speakers, evaluated conference papers, and finalized the agenda for the conferences.

The quality of papers was so high and the participants were pleased with the technological facilities and organization of the event.

The conference was successfully held on May 10 and 11, 2008 with over 50 participants from around the world. Experts and participants from across the globe came together to share their research findings and knowledge through this FIRST ever held ONLINE medical conference.

IOMC is the FIRST ever-introduced and held Online Medical Conference internationally and at a global scale attracting medical practitioners, students, professors, researchers, and activists from around the world submitting their research findings to the conference and discussing the latest medical findings online. It is an annual conference in the field of medicine which is held by International Online Knowledge Services Provider (IOKSP) annually. More information about this conference can be found at <http://www.iomc.ioksp.com/>

The online nature of IOMC saves the conference participants from paying extra costs of travel, accommodation, and visa. Instead, conference participants can simply register to the conference and log in to conference website in order to attend different conference presentations and workshops online.

Sincerely:

Mostafa Nejati Ajibisheh and Forouzan Bayat Nejad (Conference Managers)

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Full Papers

Prevalence of Macrosomic Babies in University Malaya Medical Centre

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Abstract

Objective: The objective of this study is to determine the maternal factors and their relationship with foetal macrosomia.

Materials and methods:

This was a descriptive study. All deliveries between 1st September 1999 to August 2004 were studied. There were 54 macrosomic babies. The data was analysed using SPSS for windows version 9.0.

Results:

Malays constituted (68.5%), the Chinese (16.7%) and Indians (9.3%) of the macrosomic babies. Fifty percent (50%) of the mothers were multiparous, (51.9%) overweight and (18.5%) obese women.

Conclusion:

The finding suggests that there was association between race, overweight, obesity, multiparty, gestational diabetes mellitus and macrosomia. Despite the high number of vaginal delivery in these mothers having macrosomic babies, there is no increase of maternal - infant complications.

Key words: Macromia, Maternal factors,

Introduction.

Macrosomia is defined as either foetal weight greater than the 90th percentile for gestational age, or as weight greater than 4,000 grams (1, 2, 3, 4). Several factors increase a patient's risk of having a macrosomic infant. The major risk factor is maternal diabetes, which results in a twofold increase in incidence of macrosomia (2). Other causal factors are obesity, pregnancy overweight, or excessive gaining weight during pregnancy, multiparty, advanced maternal age, previous macrosomic infant and prolonged gestation (5). Maternal weight over 70 kg, weight gain greater than 20 kg during pregnancy and maternal diabetes all can increase foetal macrosomia by approximately 20%. Macrosomia also increases with advancing gestational age, with a 15% macrosomic rate at 41 weeks gestation and a 20% incidence at 42 weeks gestation.

The mothers of these infants have increased rates of birth trauma such as vaginal and perineal trauma and increased rate of caesarian section. There is a slight increase in perinatal mortality with macrosomia. The diabetic macrosomic babies tend to suffer from impaired glucose intolerance in adolescence. Some of babies suffer from mechanical trauma e-g- Erbs palsy (6). The major worry during vaginal delivery is shoulder dystocia and sometimes shoulder dystocia can lead to permanent disability or death in an otherwise normal infant.

The incidence of macrosomia is variable from 3.67% in Bengal, 6% in Iran to 10% in Canada and 15% in Denmark (2, 3, 4, 5). Foetal macrosomia complicates more than 10% of all pregnancies in United State. It is associated with increased risk of caesarian section and trauma to birth canal and also the foetus. In Finland in the past 30 years Teramo reported a marked increase in the number of macrosomic infants (34%) as well as stillbirth in diabetic pregnancies, despite an unchanged perinatal mortality rate (2.2%). A study in Mauritius showed that the incidence of macrosomia was highest in the gestational diabetes group and the rate was also significantly increased in the pregestational diabetes group weighed > 4500 gram (2%) (7). This study is to determine the prevalence of macrosomia in the University Malaya Medical Centre, Kuala Lumpur

Methodology:

This is a retrospective study. All deliveries from the Medical Records Office of the University Malaya Medical Centre (UMMC) from 1st September 1999 up to 31st August 2000 were included in this study. All maternal factors of the macrosomic babies (> 4000 grms.) born during this period were reviewed and analysed using the SPSS Version 9. Twin pregnancies, miscarriage and termination of pregnancies were excluded from this study. The data was analysed using the SPSS version 9.

Findings

There were a total of 5300 deliveries during the period 1st September 1999 to 31st August 2000 in the UMMC. Of these there were only 54 macrosomic babies and the prevalence rate of macrosomia was 1.1%. Thirty-seven (68.5%) were Malays, 9 (16.7%) were Chinese, 5 (9.3%) were Indians, and 1 (1.9%) case was other ethnic group and in 2 cases the ethnicity was not recorded. Twenty-nine of them were males (53.7%) and 22 (40.7%) were females while 3 (5.6%) of them the sex was not stated. Table 1 shows that majority of the mothers who had macrosomic babies were from 35-40 yrs of age.,

Table 1. Macrosomia by Maternal age.

Maternal age group	Frequency	Percent
25- 29 yrs.	15	27.7
30-34 yrs.	14	25.9
35-40 yrs.	21	38.8
Unknown	4	7.4
Total	54	100

Gravida and para

Twenty seven 27 (50%) were of the mothers were multipara while 17 (31.5%) were primipara, 3 (5.6%) grandmultipara and 4 (7.4%) of them the para was not recorded. Gravida 3 had the highest number of 15 (27.8%) macrosomic babies, gravida 4 had 24% while and primigravida had 3.7%

Weight gain in Pregnancy

In term of excessive gaining pregnancy (more than 12 kg), 8 (14.8%) of them with excessive weight gain during pregnancy, 42 (77.8%) gained weight with 12 kg or less and 4 (7.4%) were unknown.

According to WHO classification (11) of over weight, the body mass index (BMI) was measured and classified. 12 (22.2%) women were found to be normal, 28 (51.9%) women were found to be overweight, 10 (18.5%) women were found to be obese and 4 (7.4%) were unknown.

Maternal Disease among mothers

Regarding maternal disease 40 (74.1%) mothers had no maternal disease, 9 (18.0 %) mothers had gestational diabetes mellitus (GDM) and Malays constituted the majority of them, 1 case was Insulin Dependent Diabetes and 4 (7.4%) mothers were unknown. There were 4 (7.4%) mothers with past history of macrosomic baby while the majority 46 (85.2%) mothers had no past history and 4 (7.4%) mothers were not known.

Mode of delivery

Concerning the mode of delivery, 24 (48.0 %) mothers were delivered by spontaneous vaginal delivery, 21 (42.0 %) mothers were delivered by caesarian section, 4 (8.0 %) mothers were delivered by ventose extraction, 1(1.9%) delivered with forceps and 4 of them were unknown. There was only one case with foetal shoulder dystocia

Table 2. Cross- tabulation between ethnicity, age group and baby sex.

Age group	Malays		Chinese		India n		Others		Total l
	M	F	M	F	M	F	M	F	
25-29	5	6	-	2	-	1	-	1	15
30-34	6	3	1	1	3	-	-	-	14
35-40	11	5	2	3	-	-	-	-	21
Total	22	14	3	6	3	1	-	1	50

Note: Female/ male ratio is high among the Chinese age group 35-40 and among Indian age group 30-34.

Discussion and conclusion

The prevalence of macrosomia in this study was 1.1% of all deliveries in the University Malaya Medical Center during the period. Another study showed it was 8.2%⁸ More Malay women delivered macrosomic babies (34%) compared to Chinese (10%) and Indians (2%). These figures may not be representative because most Chinese women prefer to deliver their babies in private hospitals, while the Malays and Indians prefer to deliver their babies in public hospital. More male infants were born with macrosomia compared to females; as is also seen in another studies (5). Most women delivered macrosomic babies were aged between 25 to 34 years (27%) compared to women aged 35 to 40 years (24%), on the other hand there was no women with macosomia below the age of 25 years.

There was no significant difference between gestational age and macrosomia; the majority of cases were delivered at term compared to only one case that delivered post term. The multiparous mothers had a higher prevalence of macrosomic babies (27%) compared to grandmultipara (3%) and primipara mothers.

The majority of mothers with macrosomic babies did not have any past medical history. N.Wah Cheung also showed that 34 percent of macrosomic

infants are born to mothers without any risk factors (9). However in this study it was found that ten mothers (18%) had medical history of Gestational Diabetes Mellitus (GDM). There was a higher incidence of gestational diabetes among Malay mothers who had macrosomic babies although the Second National Health and Morbidity survey Diabetes in Malaysia in 1996, found that the prevalence of diabetes was highest among Indians (11.5%). If Gestational Diabetes is not controlled well the rate of macrosomic babies may increase to 24 %. (10). It is well known that foetal hyperglycemia can lead to accumulation of fat in subcutaneous tissue and this would lead to a big baby.

Regarding the mode of delivery, 42% were delivered by caesarian section and 8.0% were delivered by ventose extraction, this would lead to a significant hazard for both mother and baby as the result of caesarean section and ventose extraction. A study done in Iran, concerning method of delivery showed that caesarian carried out for 33 persons (15.5%) in macrosomic group in contrary to 40 persons (11.5%) in control group ($P < 0.037$). Vaginal delivery carried out for 180 persons (84.5%) in macrosomic group in contrary to 303 persons (87.3%) in control group.

Acknowledgement

I would like to thank the staff of the Record department of the University Malaya Medical Centre for allowing use the records and Osama for collecting and analyzing the data.

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Gp Leadership Through Participatory Action Research: A Strategy for Healthy Outcome for Rural, Small & Isolated Communities

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Abstract

This paper suggests that it is the process of how general practitioners (GPs) lead the community they are working with by planning research, collecting data, and sharing information that becomes significant for healthy outcomes for all stakeholders. Significant evidence confirms that GP as a transformational leader who facilitates planning, organising, leading & controlling, is capable of improving community awareness, commitment and collective leadership attaining evidence based health gains. The following report is about participatory action research (PAR) that I facilitated as a GP while at Atiu (1986-1988) in the Cook Islands, and highlights that in rural areas, where the population is small & community cohesive, PAR would achieve gains beyond the GP clinic.

Rationale: PAR enhances relevance, commitment to, and use of data for improved service delivery and health, while valuing collective knowledge, skills & expertise. It is capable of bringing the community together towards a common goal, bridging any cultural gaps, overcome distrust of research, improve quality & validity of research, and help practice on better information. Such a leadership by rural GPs would strengthen research and action capacity of all partners, benefit all stakeholders through gained knowledge, recognise & promote 'holistic' thinking, while developing a self reliant community with 'higher order wellness'.

Short-term outcomes: Awareness through PAR in Atiu, created a sense of urgency as regards personal and community health. This was evident from the changes in personal hygiene and behaviour patterns, introduction of health & sex education at schools, and dietary supplementation of iron, folic acid, calcium & fluoride for pregnant ladies. Such leadership was instrumental in the provision of pour flush or flush toilets for all and improving garbage disposal system for the island. Health education through videotapes, print media, public night-time dialogue sessions, and various workshops for youth, etc. were the results of such a leadership. Such an endeavour resulted in the formation of democratically represented 'Atiu Health Promotion Committee' that was a step towards self-reliance and community empowerment. This community based PAR prompted the community to provide low cost housing for its poor, and health department to provide mass management of certain communicable diseases reducing their incidence drastically. The leadership

also facilitated procurement of resources for protected water supply, flush toilets, low-cost shoes and socks for school children, a diesel electric generator for the local hospital, and a dental chair & unit for the school, all through donations.

Long-term outcomes: It has facilitated, and would likely facilitate overall development of the local community. The PAR stimulated further study on 'Atiuan Household Economics', study on fish poisoning, and study on another isolated community in Mangaia (the Cook Islands). It helped establish priority area in public & private building, curriculum planning for schools through identified needs, and public health education. It provided a reference point for community action groups, health staff, researchers and health policy and development planners. In addition to the multiskilling of the local health staff, it has been seen to provide a healthy direction for youth. The body of information has become an integral consideration in all forward planning for local & visiting development planners.

In conclusion, PAR facilitated by local GPs in rural, isolated and small community areas not only benefits the community in the short-run, but also facilitates overall long-term development of that community setting a path that can guide similar communities.

Introduction

Atiu, a volcanic Southern Group island in the Cook Islands, is about 120 miles from Rarotonga. At the time of study (1986-1988) there were 1,040 permanent inhabitants all of whom were Polynesian Maori except for three families of mixed or other races (including my family).

The economic base of the island had been traditionally fourfold with almost all the 180 families operating on a combination of government employment, remittance from overseas relatives, subsistence farming and minor secondary employment.

There are five centrally located villages in the island which is about 15 miles in perimeter. Each branch of government is represented on the island, among which numbered a primary and secondary school and a small hospital.

Health services in the Cook Islands were free and on Atiu consisted of a resident doctor, a small staff, a one room clinic, a small dental annex and an eight bed ward. Equipment and facilities were at the low level and most serious cases needed to be referred to the state Hospital in Rarotonga, to be further referred if need be.

Historically, Atiuan Health Services had remained fairly static for several years. Services were Spartan but adequate in terms of direct medical treatment Public Health awareness and practice in terms of hygiene, home care, nutrition, diet, dental care, care of the very young and very old has been at a low level for a long time. Morale generally was reported

to have been somewhat low for some time (CEO, Health Department Staff and the Chairman Island Council's opinion).

My posting in Atiu began in June 1986.

I discovered very rapidly that the general health of the people did not appear to give reason for any grave alarm. My overall observation was that there appeared to be one or two areas of concern but, in general, the current health situation in terms of personal well-being was above normal developing world standards. My concern, however was directed at the rather alarming lack of general public health awareness in the community at large and the several domestic and public areas which fell below WHO minimum standards. This was coupled with a concern that there appeared to be developing a semi-permanent need for expatriate officers like myself. I was alarmed to note that the community saw this as inevitable and this had little motivation, I found, to achieve a full understanding of Public Health, its rationale and its practices for themselves.

I thus commenced my research for two basic reasons. Firstly, I felt that the total absence of any form of in-depth analysis of the current health situation at an individual and family level, did not offer a basis for positive development of any of my successors. Secondly, I felt that such a full in-depth analysis might form the basis upon which an intensive program of Public Health education might be mounted.

The research set out to assemble data which could lead to an understanding of the health, disease, demographic and behaviour patterns, physical geography, housing, external environment, education and economic development standards of the community which had any direct or indirect bearing on the then health situation on Atiu. I also took the rare opportunity, in such a small, closed society, to envisage a 100% analysis of the people, individual by individual and family by family.

My intention from the outset was also to utilise the research project as a means of in-service, on-the-spot manpower training for my staff. The particular thrust of this training was in collection of data, acquisition of data analysis skills and the general methodology of academic health research. This, I felt, would also serve to provide the community with a professional body of experienced Public Health workers able to make rapid assessments and evaluation based upon fact.

In addition, I felt that the research would obviate the need for a new doctor to spend much of his or her valuable contract time merely learning about the society one was caring for. This, I believed, was especially important in view of the expected continuing appointment of overseas specialists on contract.

The research was also planned to be of direct use to the public at large in enabling them to obtain a sounder grasp of Public and Personal Health patterns in their community. I believed the acquisition of such knowledge to be a very important first step in the encouragement of sound and healthy practice at home and in the community, a step towards positive health development.

Carrying out of this comprehensive research, I believed, would develop confidence in the people's minds towards their existing local and national health services, considered to be lacking then.

Finally, I envisaged the research as having wider implications for the Cook Islands medical service as a whole, given that the situation on Atiu represents a fairly typical set of health problems and situations whether in an outer Island or in Rarotonga. For this reason, I decided to ensure that presentation of data was in an internationally acceptable form, of as high a standard as possible in our circumstances and at all times bore in mind the uses to which the data could be put at a national level.

How the Study Was Done

Data Collection and Survey Procedure

On an average 40 persons were interviewed and examined thoroughly every day in each village hall one by one. The recorded data included information about epidemiology, demography and behaviour patterns. Each home, office, community feast and the surrounding was inspected for the environmental and food hygiene, housing, employment and ownership characteristics.

Pulse and blood pressure were recorded after about 10 minutes rest and in a sitting position. The lower of the two consecutive readings using a random zero sphygmomanometer was used. Phase V diastolic was recorded.

For filaria a wet peripheral film from each individual was examined.

Haemoglobin estimation was done on over 50% of the population suspected clinically (pallor as suspected by me) to be anaemic.

Stools for ova and cysts were examined by routine method under a microscope covering the whole population.

General and specific ophthalmic and optometric examination was done on those suspected of any eye pathology by the team of visiting optometrists from New Zealand.

Drinking water was sent for analysis for Fluoride content.

Potential mosquito breeding sites were searched, samples of larvae collected and examined microscopically.

School children were checked for footwear and the skin problems.

Thorough clinical examination of all the individuals was done to find out any clinically detectable disease which included communicable and non-communicable diseases. In addition important hospital record was included into the survey.

Diagnostic Criteria and Definition

For most of the communicable and non-communicable diseases a typical signs and symptoms of a disease were considered the diagnostic criteria.

Finding of ova and/or cyst and/or worm under a microscope and/or seen with naked eye, was the criteria of diagnosing intestinal worm infestation.

For anaemia WHO definition was followed i.e. from ages 6 months to 6 years for both sexes Haemoglobin (Hb.) below 11 gm/dl., for ages from 6 years to 14 years for both sexes a Hb. level of below 12 gm/dl., and for those over 14 years of age Hb. below 13 gm/dl for males and below 12 gm/dl for females was considered anaemia.

Eye examination was done by way of refraction, funduscopy and slit lamp examination.

Obesity was assessed using BMI (Body Mass Index - weight in Kg/ht. In meters square). Relative Ideal Weight (IW) of 120% from Caucasian standards corresponds to a BMI of 25 in females and 27 in males. In our case keeping Polynesian factor in view BMI of 30 for females and 32 in males or above was taken as obesity. Those within 120% to 139% IW were considered to be overweight.

Hypertension definition was taken from WHO, accordingly BP of >160/>95 mm Hg was taken definite hypertension. People with BP < 140/<90 mm Hg were considered normotensive. Those falling within the above two ranges were considered to be borderline hypertensive.

Smoking up to 10 cigarettes a day was taken as mild smoking, from 10-20 cigarettes a day was taken moderate smoking and over 20 cigarettes a day was taken as heavy smoking.

For drinking the following were taken as approximate equivalents: 1/2 pint beer (5-6%) = 1 large peg of spirits (40-45%) = 1/2 a standard glass of wine (10-12%) = 1 1/2 local coconut shell cups of tumunu (8-10% - bush beer). Moderate drinking 420 gm. - 840 gm of alcohol per week i.e. 7-14 bottles of wine or 14-28 bottles of beer (large size) or 21-42 local cups of tumunu or 2/3 - 1 1/2 bottles of whisky (up to 1600 ml) - per week or in part combination of any of the above to making roughly about 420 gm.-840 gm of alcohol was considered as moderate. Any amount more than moderate was considered heavy drinking while the amount below was considered mild drinking.

For over-crowding: persons-per-room was analysed in this survey, as the size of the rooms and ventilation standards are fairly good for practically all the houses. The standards followed here were 1 room 2 persons; 2 rooms 3 persons; 3 rooms 5 persons; 4 rooms 7 1/2 persons (children from 1-10 years counted 1/2) and 5 or more rooms 10 persons (additional 2 persons for each further room). A baby under 12 months was not counted.

For a mosquito breeding site, finding and identifying the larvae under a microscope was the criteria. And, 1.1 mg/L Fluoride content in water was taken as normal.

What the Results Were

Population

Atiu had a total population of 1042 during the research period. This included 4% Infants, 8% Pre-school and 45% school and college going age (See figure 1).

Major Communicable Diseases

Skin diseases found included *Tenia versicolor* (27%) and Ringworm (4%) with at least one member in 73% of the families having Head lice, and 25% families having at least a member harbouring scabies.

Amongst Intestinal worm infestations there were 41% with Whip worm, 10% with Round worms and one each with Pin worm and *Strongyloides stercoralis*. In total 47% of the population was suffering from one or the more of the above parasites (See figure 2).

There were four cases of Elephantiasis. However, no case of positive microfilaria in microfilarial wet film was found.

There is one young girl of Tubercular cervical lymphadenitis (clinical and responding to chemotherapy). There are five old treated cases of Koch's chest with two out of them clinically reactivated and on re-treatment.

20% of the school and college children were found to be having boils, blisters and minor infected injuries on feet and legs. Only 20% of the children were using foot wear in the form of either shoes (10%) or Jandals (10%). Others remained bare feet all along.

Major Non-communicable Diseases

64% of the people were having poor oral and dental hygiene. 39% were having caries of one or more teeth, 4% required partial dentures, 1% required full dentures, 37% have already had dental fillings done, 39% were having partial dentures, 7% were having full dentures and, in all there were 83% persons needing one or the other dental management. 19% of the population was having definite hypertension. (See figure 4) and another 6% population was found to be borderline hypertensive.

14% population was overweight and 16% population was obese (see figure 3).

8% population is obese and has definite hypertension as well.

From age six months to six years 29%, from six years to 14 years 44% and for over 14 years of age 13% are anaemic (females double the number). For all ages 24% of the people are anaemic (considering all those clinically normal as normal). (Iron deficiency anaemia) (see figure 7).

3% of the population was suffering from and on treatment for type II diabetes mellitus. (Males 7.5% and females 10% over the age of 20 years). 50% were obese diabetics (Male: Female (MALE:FEMALE (M:F) = 1:4), 25% were overweight diabetics (M:F =

4:3), and 25% were normal weight diabetics (M:F = 3:1). There is one case with diabetic neuropathy.

3% of the population was having gout and was already on treatment. 3% of the total population was having recurrent allergic Bronchial Asthma. There are two cases with positive Rheumatic history. There is no case with Rheumatic Cardiac complications found clinically. There was no case of Protein Energy Malnutrition. There was no clinical case of duodenal ulcer. There were 4 cases of Grand Mal Epilepsy.

There were 6% Refractive error (old age) cases. 1/2% had mature senile Cataract. There was one case with visceral larva migrans in left vitreous.

There were 2 Congestive Heart Failure cases, 4 Cerebro-Vascular Accident cases, 2 chronic bronchitis with emphysema cases, 7 Chronic Suppurative Otitis Media cases, and 6 cases with varicose veins. No cases of Leprosy, clinically detectable cancer, syphilis and gonorrhoea were detected. There were no cases of Angina Pectoris and/or Myocardial Infarction history detected.

79 ladies were using either contraceptive pills (20) or taking depot provera (20), or had sterilisation done (21), or were using Intra Uterine Devices (18). There were about 215 eligible ladies out of whom 37% were on one or the other birth control method.

There were 125 deliveries within last 6 years i.e. about 20 live births per thousand per year, 52% ladies were unmarried who gave birth out of which 11% were below 18 years and school going, and 41% were over 18 years of age. 48% were married out of which 1% were below 18 years of age and the rest 47% were over 18 years of age.

24% houses had overcrowding. There were 43% houses with straight dry pit toilets, 47% houses with pour flush water seal pit toilets and 10% houses with septic tank water seal flush toilets. 60% households were using rain water for drinking and 40% used water from piped supply. 44% families had an electric refrigerator with freezer or a freezer. On an average, 12 hours of electric power was supplied per day to the consumers.

51% of the adults (M:F = 3:1) were gainfully employed. There were 88 families with scooters, 21 with cars and 7 with trucks.

Out of 611 (population over 10 years of age) there were 2% mild, 4% moderate and 14% heavy smokers. On the other hand there were 3% mild, 9% moderate and 14% heavy drinkers (see Fig. 6). 80% of the population had substituted at least to 50% its local food with readymade high energy - low roughage food. Salt was consumed in every preparation.

Walls of the majority houses were made up of concrete blocks (41%) and fibrolite (34%). There were only 1 1/2% houses with traditional timber/lime walls. The majority bathrooms were outside the main building (83%). 9% households had no bath and used the open space. 10% people had bath inside the house.

The majority had kitchen apart from the house (57%). 9% had it inside. There were 9% people who had no kitchen and cooked in the open or in the bedroom when there was

rain. 66% were using traditional earth oven for cooking out of which 27% used kerosene oil at times. 37% were most of the times dependent on gas for cooking.

There were 7 major swamps breeding mosquitoes (*Culex annulirostris*). Tree holes, coconut tree tops, coconut shells, tires, drums and small ditches were other sites where mosquitoes were breeding (*Culex fatigans*, *Aedes polynesiensis* and *Culex annulirostris*). The fluoride content from various sources ranged from 0.05 mg/L to 0.14 mg/L.

Discussion on the Main Findings and Inferences

Now when we look back and go through all the exercise we have been doing including the reviews with the people of Atiu, we come to a conclusion that the following are the main fields where we have to be more conscientious in future and we have to work earnestly to see the people of Atiu on the way to attain higher order well-being, individually, and collectively as a community.

1. Common diseases and their probable causes
2. Common ‘not so healthy’ behaviour patterns and the life styles of the people
3. Much demanding school health
4. Performance gaps in the effective healthcare management in the past

Common Diseases and Their Probable Causes

Oral and Dental Diseases

This is a place where almost every person who can walk and talk is having some or the other oral and/or dental problem. In spite of this, the people have smiling faces and are less conscientious about their bad oral and dental state. This largely depicts their ignorance about the fact that oral and dental health is important not only at an individual level, but also at the community level. Also, this points out clearly that the dental health education and the dental health management had been either inadequate or ineffective which, now, must be efficiently and effectively improved. The more probable factors contributing to such a dental health status of people in Atiu are as follows:

1. Poor oral and dental hygiene due to the ineffective and/or lack of dental health education
2. Increasing dependence on simple sugars and readymade foods, and higher levels of alcohol drinking
3. Low fluorine/ fluoride content in the vegetables and the water on Atiu.
4. Performance gaps in the management of the problem in the past

High Blood Pressure, Overweight, and Obesity

All the garbage disposal areas in Atiu are full of thousands of food tins and beer bottles, and hardly you will find a person walking on the road side, as almost every family has got a car or a scooter which many use even when they have to visit a neighbour. In olden times people had least access to ready made foods, simple sugars, and alcohol. In addition, there was no motorised transport or equipment, and they had to labour hard to grow their eatables, which probably kept them away from obesity, high blood pressure and other interdependent problems.

Overeating was a practice in the old times as a result of higher need for calories and their conservation due to the hard physical labour they had to do, be it long trip canoe fishing or manual agriculture. Heavy eating practice remains, but the local foods are replaced at least to over 50% by the ready made foods which have more calories per unit weight and have nil or very low roughage content. The results are obvious.

Atiu has a high obesity and blood pressure prevalence. Their simplicity and freedom from most anxieties due to the socio-cultural and comparative geographic isolation, is perhaps keeping them free from major heart problems in spite of an abundance of hypertension, smoking and obesity. However, as a result, one of the commonest causes of death remains to be the cerebro-vascular accidents

The probable factors other than heredity contributing toward high prevalence of overweight, obesity and hypertension on Atiu are as follows:

1. Over eating and comparatively less physical exercise
2. High animal fat intake, especially pig meat, frozen chicken meat and corned beef
3. High coconut cream and sauce, butter and meat intake
4. High carbohydrate diet, especially the ready made tin foods, etc., and more simple sugars and low fibrous food intake
5. High salt intake
6. High alcohol intake
7. Reduction in consumption of local fibrous foods
8. Less effective health education

Skin Diseases, Especially Fungal Skin Diseases, Head Lice and Scabies

Welcome and farewell kisses of Atiuans, their hugging and shaking hands is so warm and from the core of their hearts that one may not find better people as a society on Earth. But like their oral and dental status, each family has got one or more of the above diseases and are generally not bothered about their prevailing fungal skin diseases, head lice and scabies. This indicates that health and education have been lacking in management of the problem. Contributing factors for these problems include:

1. Poor personal hygiene, sharing of clothes, combs, hair brushes, etc.
2. Frequent intimate physical contacts with those having such problems, including social mixing
3. Warm humidity
4. Improper looking after of pets - dogs and cats. Also, probably the pigs may be the carriers, too
5. Random management of cases instead of mass treatments at a time
6. Non availability of continuous water supply within the living premises for maintenance and improvement of personal hygiene
7. Ineffective healthcare and education in the past

Intestinal Worm Infestations

If we had microscopically examined the stools with a concentrated method and on three consecutive occasions on each person, probably the positive results would have been much higher than the 47% figure we had. This indicates the level of community's personal and food hygiene, effect of unprotected non-continuous water supply, and the resultant sanitation. This also indicates the gaps in the past management of the problem. Mass treatments, protected water supply, good sanitation, good personal hygiene, and effective health education are the only tools which can eradicate this facet of ill health.

Common factors contributing to this problem are enumerated below:

1. Poor personal and food hygiene
2. Dogs, cats, pigs and birds as carriers
3. Improper use and maintenance of the pit toilets, lack of pour flush or flush toilets
4. Lack of abundant and continuous water supply to the houses
5. Lack of proper sanitation
6. Nuisance created by cockroaches and flies
7. Random treatment of the cases rather than simultaneous mass management
8. Ineffective health education in the past

During 'umukai' (community feasts) which are quite common here, the system of hand washing has been that all the people have to wash their hands in the same bowl of water before and after the meals, no matter how dirty your hands were - put your hands in water in the common bowl, scrub them inside the bowl, and the bowl is passed on to the next person, and there could be any number of people using the technique before the bowl gets refilled with more water.

Main water tanks have lots of birds' excreta from the catchment roofs which since were constructed, it is informed, were not cleaned or repainted. In addition, most homes have hundreds of cockroaches transferring disease from one place to another.

Most people have close contact with either dogs or cats or both, and the pigs, in addition to their very poor personal hygiene which added to the dilemma.

Anaemia

One of the major problems of Atiu had been the ever decreasing population on the island and perhaps that was why older people were enthusiastic to see more kids in their families within shortest possible time span. This contributed to kids with anaemia, besides many other problems to the mothers and the society. The contributing factors for high anaemia rates in Atiu are believed to be the following:

1. Multiple pregnancies
2. Babies to anaemic mothers
3. Improper/insufficient spacing of children
4. Avoidance of local foods, especially green vegetables
5. Practice of no iron and folic acid supplementation during pregnancy and lactation
6. Gaps in health delivery and education in the past

Filaria

All the credit to the public health inspectors in Atiu, sincere efforts of whom have eradicated Filaria from this island. It is them who see that the antimicrofilaria tablets are taken by each and every one in their presence every 3 months. There are 4 cases of Elephantiasis on the island.

Type II Diabetes Mellitus

But for salt intake, probable causes of type II DM are the same as those for high blood pressure. 'Tumunu,' the bush beer, may be an additional factor in deranging the pancreatic function.

Gout

Gout is there probably due to low excretion of uric acid by the kidneys, a hereditary trait for the Polynesians. High purine diet and over-indulgence in alcohol are perhaps two major additional factors.

Various Allergies and Allergic Bronchial Asthma

These phenomena are probably due to various and mixed allergies out of which allergies to sea food, some pollens, to pine apples, coconut cream, pork skin and fat, and dust are

well known here. The respiratory tract stage of *Ascaris lumbricoides* may also be a factor in causing asthmatic picture or causing sensitisation. An HLA related genetic factor causing Atopic dermatitis may also be responsible.

The Common ‘Not-So-Healthy’ Behaviour Patterns and Life Styles of the People on Atiu

- Improper and/or Poor Personal Hygiene: Most people do not much care as regards their cleanliness and proper care of the skin, hair, hands and nails, teeth and oral cavity, legs and feet and food hygiene, etc. is concerned. Cause - ignorance due to ineffective health education.
- Avoidance of local foods and more dependence on certain ready foods and simple sugars, whereas total quantity of food per meal remaining the same. Cause - lack of proper education.
- Over-eating and unbalanced diet. Cause - lack of proper education.
- Overcrowding in the dwelling units. Cause - ignorance and poverty.
- Multiple pregnancies without proper spacing, and pregnancies to young girls mostly unmarried, and at times school going. Cause - lack of school health education and sex education, lack of sexual and reproductive health awareness of the parents, and lack of a healthy family planning education, especially during the ante-natal care.
- Smoking and drinking, especially heavy. Cause - ignorance about the dangers of heavy smoking and drinking, and social freedom.

Much Demanding School Health

Incoordination, and lack of effort and/or strategy on the part of the public health staff and the education staff as regards the students’ discipline in personal hygiene, etc., and lack of guidance from the parents is depicted through the following findings where school children generally have:

- long dirty nails
- long and/or improperly maintained hair
- at most times no use of shoes/socks/jandals
- no regular teeth brushing
- no daily bath
- Dirty clothes wearing, etc.