Summer Training at
Aga Khan Health Services, India
Mumbai
(April 9-May 31, 2012)

To Identify and Analyse Gaps in the Current Follow Up Strategy of Nutrition and Lifestyle Intervention Programme

By
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Under the guidance of
Dr. J.P. Singh

Post Graduate Diploma in Hospital and Health Management
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Institute of Health Management Research,
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CERTIFICATE

This is to certify that Dr.Rohit D. Yarmal from the Institute of Health Management research Jaipur has undergone summer training at Aga Khan Health Services India, in Mumbai from April 9th to 31st May 2012.

The candidate himself carried out all the studies related to her Summer Training. His approach to the studies has been sincere, scientific and analytical. This summer training is partial fulfillment of the course requirement and is recommended for the award of Post Graduate Diploma in Hospital and Health Management.

I wish him success for future endeavor.

Dr. P. R. Sodani

Dean Academic and Student affairs

IHMR, Jaipur.

Jagajeet Prasad Singh
Dr. J.P. Singh

Assistant Professor

IHMR, Jaipur

Aga Khan Health Service, India

AKHSI/Admin/12/ 1st June 2012

INTERNSHIP COMPLETION CERTIFICATE

This is to certify that **Dr. Rohit Yarmal**, a student of Institute of Health Management Research, Jaipur, has successfully completed his internship (From 9th April 2012 to 1st June 2012) at Aga Khan Health Service, India. During the period of his internship he was involved in the study **"To identify and analyse gaps in the current follow up strategy of Nutrition and Lifestyle Intervention Programme (NLIP) in Junagadh Gujarat"** and was found sincere in his approach.

We wish him/her all the best for his/her future endeavours.

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I am extremely grateful to my mentor, Ms. Harshada Bhalerao, who took a lot of interest in my work and provided immense academic and moral support during the project. Despite her hectic schedule, she took a lot of pain to polish my writing skills. She motivated me a lot throughout the project and was kind enough to go through every chapter of the report and provide her feedback.

I also wish to convey my heartfelt thanks to Mr. Amirali Dinani, Mr. Vinod Thakkar and the other local health board members of Junagadh for their affectionate approach and help. I also thank all the other staff people of AKHC for giving me all the assistance I required during my internship.

My sincere thanks are also due to my mentor, Dr. J. P. Singh and teachers at IHMR, Jaipur for their immense support and guidance. I am really thankful to Dr. Prahlad R. Sodani for all his efforts to place the PGDHM students in organizations of such repute, for summer training.

I am also grateful to all the respondents, their family members, the people who participated and provided the key information which helped me in data collection. Otherwise this study could not have been possible.

Abbreviations :

AKHSI : AGA KHAN HEALTH SERVICE INDIA

NCD: NONCOMMUNICABLE DISEASE

NLIP: NUTRITION AND LIFESTYLE PROGRAMME

RHB: REGIONAL HEALTH BOARD

LHB: LOCAL HEALTH BOARD

MPW: MULTIPURPOSE WORKER

LIG: LOWER INCOME GROUP

LMIG: LOWER MIDDLE INCOME GROUP

HMIG: HIGHER MIDDLE INCO GROUP

HIG: HIGHER INCOME GROUP

BMI: Body Mass Index.

ABOUT THE ORGANIZATION

Aga Khan Health Service, India strives to be an integrated health system recognized for its quality, volunteerism and innovative information, education and communication.

AKHSI focuses on promotion of effective and sustainable healthcare of underserved populations, with special attention to women and children in specific region in the states of Gujarat, Maharashtra and Andhra Pradesh. AKHSI has a central office located in Mumbai.

AKHSI: as an organization

(1) 6 Regional Health Boards (RHB) &

(2) 30 Local Health Boards (LHB).

The local health board manages preventive health services through outreach activities, which are delivered and implemented by lady health visitors and multipurpose workers, including these 281 Health community involved in health promotion and prevention in which field staff visit regularly.

These RHB's and LHB's are responsible for programme implementation.

THE MISSION OF AGA KHAN HEALTH SERVICES, INDIA

The mission of Aga Khan Health Service, India (AKHS,I) is to provide access to good quality, comprehensive health care and promote physical ,social and mental well-being in the target population through a sustainable health system, including a multi specialty hospital, based on the principles of volunteerism and community participation.

Aga Khan Health Service, India running with number of creative and informative programmes for their community in throughout the country. Currently the organization conducting several core programs, they are:

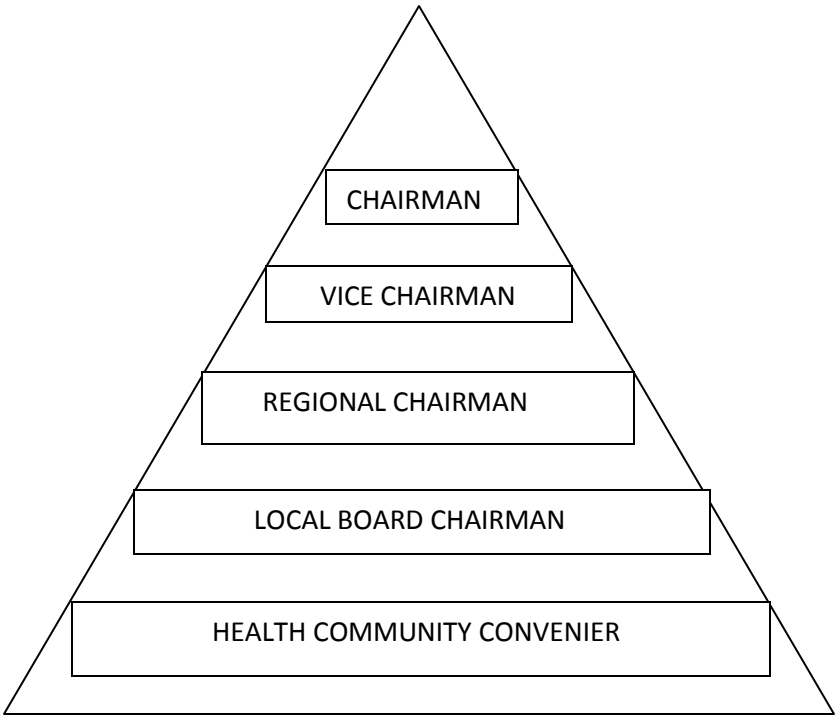
Serial No.	Core Programme	Objective	Strategies
1	Non Communicable Disease Control	[1]Create awareness in the Target population on various NCD and its risk factors, encouraging them to adopt a healthy life-style by reaching out to 70% of the local health committees [2]Ensure early detection of NCD through screening of 60% of the population (30 years & above) and expand the follow –up programme to diagnosed cases of NCD to 50% of the local health committees.	Behavior change communication for NCD'S with focus on cardio-vascular diseases. NLIP for NCD risk factor reduction Initiate follow up of diagnosed cases in 50% of the local health committees
2	Reproductive and Child Health	Health education sessions on RCH in 90% of the local health committees. Ensure initiation of breastfeeding within 1 hour in at least 50% of newborns. Ensure colostrums feeding in at least 90% of newborns. Ensure full immunization coverage in 100% of infants.	Programme for expected and young mothers of 0-3 years children. Programme for women between 15-49 years
3	Anaemia Control	Reduce the prevalence of anaemia to 45% amongst women in reproductive age group and children (3-14 years) through awareness, education, hemoglobin checkup, treatment with iron folic acid (IFA) and follow up.	Behavior change communication for anaemia control. Screening for anaemia
4	Health Insurance	Ensure financial access of the Target population to quality health care by facilitating and actively promoting adequate health	Facilitate between health insurance companies and regional

		insurance coverage in 65% of the Target population (which includes EWS families)	council. Health insurance awareness programme. Health insurance survey.
5	Health Education for Children & Youth	Create awareness amongst children on healthy lifestyles and behavior by covering 100 RECs and all 14 AKDN hostels. Reduce the prevalence of anaemia by 30% amongst age group (6-9 years, 10-14 years and 15-24 years)	Behavior change communication Screening for anaemia.

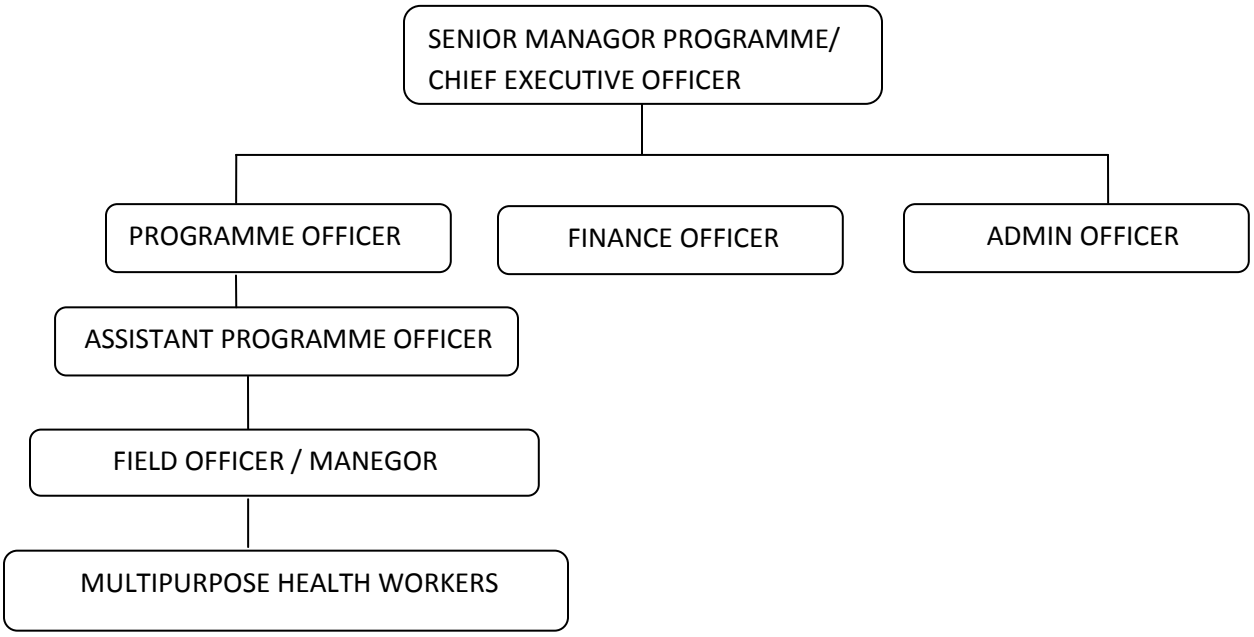
Organization Hierarchy:

The Aga khan Health Services, I is organization that running with their paid as well as volunteers staff. The chairman is headed by all successive administrative volunteer staff that is categorized with certain positions. Paid staff's including programme officer; finance officer and admin are headed by Senior Manager Programme**.**

Volunteer Staff:



PAID STAFF: The schematic presentation of hierarchy for the paid staff is as follows



Executive summary

With the rapid industrial development, Indian economy is showing an upward trajectory in progress. The rate of urbanization in India is on rise and has increased by three percent in a decade. With the rapid urbanization and population explosion, chronic diseases show their ubiquity in India in a prominent manner as 50.8 million patients of diabetes and 120 million patients of hypertension are in India. Diabetes and hypertension have become common diseases in India now due to undesirable lifestyle alterations in the form of a diet rich in saturated fat, salt, and excess calories, decreased physical activity, addictions like tobacco and alcohol, and augmentation of psychosocial stress by large segments of population are contributing to the observed shift in the pattern of prevailing diseases and causes of death in India thus increasing burden on Indian health system.

The urban population is suffering from these adverse health outcomes is obvious, but along with them in the rural population the prevalence of these diseases is also increasing with almost same proportion. Around 50% of patients from rural area remain undiagnosed of diabetes and hypertension due to illiteracy, poverty and lack of awareness.

To control this on a community level AKHSI started NLIP (Nutrition and Lifestyle Intervention programme) in year 2011 on a pilot basis in three regions of AKHSI, Gujarat namely North Saurashtra region, Southern Saurashtra region and north eastern region. IEC was done intensively in these regions. My objective in the study was To identify and analyse gaps in the current follow up strategy of Nutrition and Lifestyle Intervention Programme in the southern Saurashtra region, Junagadh**.**

WHO steps questionnaire with some additional questions was the tool used for the survey of people in the age group of 25-50. The result of the survey show high prevalence of obesity and physical inactivity in the community. The community members lack proper knowledge about NCDs..

The major findings in the study done are

The response to questions on personal habits is in negative in almost all of the cases. This has an implication for the future enquiries. Zero prevalence of alcohol consumption is difficult to accept.
According to the Body mass Index of classification of WHO, almost 60 percent people fell in the category of overweight and above.
Only 17% were involved in the vigorous physical activity in their work.
11percent were hypertensive in the community.
5percent are diabetics.
Only 17percent were involved in the vigorous physical in their work.
There was no change in negative habit of the people like consuming tobacco.
The frequency of the IEC activity was very low in frequency in some local health committees.

Conclusion:

The magnitude of the NCD epidemic is accelerating, and the pressing need for stronger and more focused approach responses is increasingly recognized as not much has been learnt about the causes, prevention and treatment of NCDs over the past three decades in India.

Improved health care, early detection and timely treatment could be effective approach for reducing the impact of NCDs. For this there should appropriate knowledge about the NCDs and changes in lifestyle dietary habits, and physical activity of the people should be encouraged. NLIP has been running for the same purpose but the frequency of the IEC activity is too low in the area.

Introduction:

Chronic diseases like diabetes and hypertension persist for longer duration and often have recurrent complications.. They are showing worrying trends which create a major threat to global public health, not only because they affect a large proportion of the population, but also because they have started to appear earlier in life. People with diabetes and hypertension are at increased risk of developing long term complications related to cardiovascular, renal, ophthalmic, neurological, cerebro-vascular, and peripheral vascular systems. As a result of these diseases and their complications, people with diabetes have more frequent and intensive encounters with the healthcare system.

According to the World Diabetes Foundation the number of diabetic patients increased from 177 million to 248 million in the last decade and the number of hypertensive patients reached up to 1 billion globally. In developing countries the frequency is rising dramatically due to high rate of urbanization. In the world, 70percent of the current cases of diabetes occur in low- and middle income countries. With an estimated 50.8 million people living with diabetes, India has the world's largest diabetic population. Moreover these chronic diseases are creating a substantial health and economic burden for them as these diseases persist for the lifetime.
Since independence, the Government of India had tried and succeeding in eradicating many communicable diseases on a huge level but with population expansion and increasing attraction towards sedentary lifestyle, India of the burden of chronic diseases can stymie the glittering growth of Indian economy. These chronic diseases are controllable by changes in lifestyle dietary habits and other preventable measures. However, these diseases persist lifelong, and if the poor cannot seek medical care, they will suffer from many crippling complications related to cardiovascular and nervous system of body. Some of these complications could be life threatening and can result in death

Many studies show a relationship between health and income, with the poorest sections of the population being the most vulnerable. Poor people are at an increased social disadvantage in terms of the incidence of chronic diseases like diabetes and hypertension, as well as access to treatment. They also show lower rates of acceptance of health-promoting behaviors compared with other sectors of society. Thus, policies need to favor the poor and appropriately targeted, as poor people are most at risk and have the least power to effect change.
Comprehensive costs of treatment studies from developing countries are scarce. There have been few studies from India that have calculated the cost of care of diabetes and hypertension. The need for such studies is thus obvious. As most of the patients with diabetes and hypertension are treated as outpatients, this study was undertaken in a community based rural clinic to assess the cost of ambulatory care of diabetes and hypertension.
The strong economy has brought Sedentary and luxurious lifestyle in India and now days is becoming the inevitable part of the lives of Indians. With the luxury of life the quality of life of Indians has improved and they became victims of some lifestyle diseases like diabetes, hypertension and CVDs. As these lifestyle diseases are affecting large chunk of people and The global increase in the prevalence of diabetes is due to population growth, aging, urbanization and

an increase of obesity and physical inactivity. The primary determinants of the epidemic are the rapid epidemiological transition associated with changes in dietary patterns and decreased physical activity. Unlike in the West, where older populations are most affected, the burden of diabetes in Asian countries is disproportionately high in young to middle-aged adults. This could have long-lasting adverse effects on a nation's health and economy, especially for developing countries.

The increasing prevalence of overweight and obesity is a major problem in the community .People who are overweight are at higher risk of developing type 2 diabetes mellitus, cardiovascular disease and certain types of cancer. In addition, their health-related quality of life decreases due to the overweight as well as NCDs. Physical inactivity is the fourth most common risk factor of death in the world (WHO, 2002). It increases the risk of coronary heart disease, stroke, type 2 diabetes, obesity,, and is therefore recognized as one of the most important preventable risk factors that is causing the rising global burden of NCDs .Currently, a sedentary lifestyle widely exists in developed countries, where intensive automation in almost all sectors of the economy led to a rapid reduction of energy consumption in most professions. People have less time to walk and to make some physical activity at office work time. This can be called as "disease of civilization" (WHO, 2002) (WHO, Preventing chronic diseases: a vital investment, 2005). Same thing is happening in the developing countries too.

Literature Review:

From Burden to "Best Buys": Reducing the Economic Impact of Non-Communicable Diseases

in Low- and Middle-Income Countries. By Professor David E. Bloom (Harvard School of Public Health), Dr Dan Chisholm (World Health Organization)

"This report addresses current information gaps in our understanding of how to mitigate these challenges by highlighting recent findings about the social costs of NCDs and the resource needs for managing these conditions. Specifically, the report brings together findings from two new studies aimed at equipping decision-makers in government, civil society and the private sector with key economic insights needed to help reduce the growing burden of NCDs"

IMPROVING LIFESTYLES, TACKLING OBESITY:

THE HEALTH AND ECONOMIC IMPACT OF PREVENTION STRATEGIES

This paper reviews about the A review was undertaken to identify existing cost-benefit and cost-effectiveness analyses of interventions to improve diet and physical activity. This follows a previous preliminary review of the "Cost-effectiveness of interventions to prevent or treat obesity and type 2 diabetes" undertaken by the OECD Secretariat in the year 2004

According to NFHS-3 reports, over two percent of women and men aged 35-49 suffer from diabetes. By age 50-54, over five percent of men suffer from diabetes. The total per capita income is usually high in urban areas compared to rural areas and the cost of treatment of these chronic diseases is also high in urban areas. The cost of treatment is increasing with increasing duration of treatment, complications, hospitalization, surgery, insulin therapy and urban setting. Ramchandran S et al. found that in patients with diabetes up to16percent of the annual income is spent on the treatment of diabetes. (Ramachandran A. Ramachandran S., Snehalatha C., Kapur A., Williams R., and Shobhana R., Ramarao P., Lavanya A., Williams A., Vijay V.)

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Studied published by Kapur A. et al.; and Rayappa PH et al.; V. Mohan et al. presented the comparative studies on expenditure of diabetes including direct and indirect costs and concluded that the cost of treatment is high in earning subjects in comparison of non earning subjects because perhaps the non earning subjects have ignored the diseases. They have also mentioned

that subjects without complications had an 18percent lower cost while those with three or more complications had a 48percent higher cost.

Rationale:

To understand if the NLIP program was effective in the community. NLIP was started with a baseline survey and community based activities in 2011. In the following years it was necessary to follow up the behavioral changes (partially anticipated as outcomes of the NLIP) in the community members. Thus a small study was necessary to assess the awareness, utilization of the NLIP facilities and find the gaps in follow up strategy of the programme.

Research Question

1) What is the effectiveness of the NLIP programme as compared to previous year's baseline survey?

2) What are the barriers for behavior change within a community?

Objectives:

1: To identify and analyse gaps in the current follow up strategy of NLIP.

2: To assess the awareness about NCD`s in age group (25-50).

3: To evaluate effectiveness of the lifestyle intervention with comparison to previous years Base-line survey indicators.

Methodology:

Type of study

Descriptive cross sectional study based on primary data because the objective of this study is to evaluate the effectiveness of the lifestyle intervention and find the gaps in the implementation strategy.

Sampling technique was simple random sampling method.

Sampling Design probability proportionate sampling

Study Area Junagadh health board of AKHSI

Tool for the Study

Structured questionnaire will be used as tool. Questions from the questionnaire were asked face to face interview to individual with prior consent. Volunteers were also interviewed in the study with different questionnaire attached in the annexure. The questions in the questionnaire were closed ended ones. Focused group discussion was also conducted to study the perception of the people and volunteers towards the programme.

Data collection:

All the eligible candidates were interviewed in door to door visit with prior verbal consent. Each interview required around 10 -15minutes.

Data was gathered on following

- socioeconomic and demographic status
- Tobacco consumption
- Alcohol consumption
- Dietary Assessment
- Physical Activity
- Recreational activity
- Hyper Tension
- Diabetes
- Obesity
- Arterial Blood pressure
- Heart rate.
- Weight, height, hip& waist circumference.

Socio-demographic profile of the responders

Gender: Survey was conducted on 86 males and 95 female target population.

Gender Table No: 1

Gender	Frequency	Percent
Male	86	47.5
Female	95	52.5
Total	181	100.0

Age classification:

As the target population of the programme was 25-50 years. Responders were distributed in the 5 age groups from 25-50. When calculated the mean age of the sample is 39.9

Age classification Table No: 2

Age group	Frequency	Percent
25-30	32	17.7
31-35	31	17.1
36-40	34	18.8
41-45	41	22.7
46-50	43	23.8
Total	181	100

Type of Family:

Nuclear and joint are the two types of family.71.8percent of the sample size lived in a nuclear family and 28.2 percent lived with joint family.

Type of Family. Table No: 3

	Frequency	Percent
Nuclear	130	71.8
Joint Family	51	28.2
Total	181	100.0

Education Level:

The literacy level is also very high only 2.2 percent people were illiterate.

Education Level Table No:4

	Frequency	Percent
Illiterate	4	2.2
No Formal schooling	2	1.1
Primary school	14	7.7
Secondary	101	55.8
Post graduate	10	5.5
Total	181	100.0

Marital status: **Marital status Table No: 5**

	Frequency	Percent
Never married	13	7.2
Married	163	90.1
Divorced	3	1.7
Widowed	2	1.2
Total	181	100.0

Main Work Status in Past 12 months:

Most of the m ales were self employed and are shop owners, whereas females are house wives and do household chores. So they lack vigorous physical activity as such in their work.

Main Work Status in Past 12 months Table No: 6

	Frequency	Percent
unemployed but able to work	12	6.6
unemployed but unable to work	2	1.1
Housewife	74	40.9
Worker	1	.6
Self employed	69	38.2
government employed	7	3.9
Nongovernment Employee	15	8.3
Farmer	2	1.2
Total	181	100.0

Income Group: Income groups according to the target population criteria are as follows

Sr. no	Income groups	Income per month
1	LIG rural	0-6 thousand
2	LIG urban	0-9 thousand
3	LMIG	9-17 thousand
4	HMIG	17-32 thousand
5	HIG	More than 40 thousand

The classification of the income groups was done on the target population criteria of income. According to these criteria almost 54.1 percent were in the lower middle income group.38.1 percent were classified as the higher middle income group.

	Frequency	Percent
LIG	14	7.7
LMIG	98	54.1
HMIG	69	38.1
Total	181	100.0

Tobacco Consumption

Tobacco control is a major public health imperative which will provide the benefit, for NCD prevention. Tobacco-related cancers, CVD, and chronic obstructive airway disease are amongst the diseases which can be effectively prevented if abstinence from tobacco and cessation of the tobacco habit are encouraged in the population .comparison of this variable done with previous base line

45 percent of responders said that there family members use tobacco where as it was 52 percent in the previous year but the current personal use has shown increase which has almost increased Four percent i.e. from 15percent to 19 percent. People here chew tobacco more than in the form of smoking. 20 – 25 is the age where maximum of the community members started using the tobacco products.

Smokeless tobacco products 2012 Table No: 8

	Frequency	Percent	Valid Percent	Cumulative
yes	32	17.7	94.1	94.1
no	2	1.1	5.9	100.0
Total	34	18.8	100.0	
Total	181	100.0		

Alcohol Consumption:

As alcohol consumption is banned in the state by the state government nobody admitted that they consume it. This has an implication for the future enquiries. Zero prevalence of alcohol consumption is difficult to accept.

Dietary assessment

100 percent people consume fruits and vegetables which is good. But the consumption of the fruits varied as 50 percent consumed daily one serving of the fruits. About vegetables almost all of them consumed vegetables daily 2 servings.

Salt intake

Salt intake has to be reduced when one is hypertensive and has no implication when one is not hypertensive but 60percent of them said that they don't add salt after cooking in the food.22 percent said that they add when salt is required. The salt intake has also increased as 98 percent of the responders last year said that they don't need extra salt

Type of Oil

72percent people used cotton seed oil. No one uses margarine which has dangerous consequences later in the life as it contains high amount of saturated fats.

Type of Oil Table No:

	Frequency	Percent	Valid Percent	Cumulative Percent
vegetable oil	6	3.3	3.3	3.3
cotton seed oil	132	72.9	72.9	76.2
groundnut oil	32	17.7	17.7	93.9
other	6	3.3	3.3	97.2
nothing in particular	5	2.8	2.8	100.0
Total	181	100.0	100.0	

Hypertension:

Hypertension affects approximately one billion individuals worldwide and is the major risk factor for coronary heart disease, heart failure, cerebro-vascular disease and chronic renal failure. The high incidence of these diseases and the high prevalence of hypertension in most societies make it the important cause of worldwide morbidity and mortality.

This has replicated in the target population society also as almost 11 percent of the target population people knew that they were suffering from hypertension compared to 13 percent in the previous year. But only 10 out of the 20 people are taking actual treatment for the disease. Rest has not started it or they are defaulter. Almost all of them were advised some changes in their physical activity i.e. to do more exercise, to lose weight and to reduce salt intake. Those who are hypertensive 65percent of them are obese and 90 percent of them lack physical activity. Gender-wise description tells that 65percent of them are females and 35percent are males. By this we can say that hypertension is directly proportional to lack of physical activity and obesity in the community people. When blood pressure was recorded 18 had their systolic arterial blood pressure above 140 mm of hg.

NO of hypertensive in the two years 2011 and 2012 are given in the table below

No of hypertensive in 2011 Table no:

	Frequency	Percent
yes	16	13.0
no	106	87
Total	123	100.0

No of hypertensive in 2012 Table no:

	Frequency	Percent
Yes	20	11.0
No	161	89.0
Total	181	100.0

Diabetes:

India is the diabetic capital of the world almost 50. 8 million cases are recorded to be diabetic in the country. The study clarifies that only 5percent knew that they were diabetic. Of that diabetic case 77percent are obese and 89 percent were lacking vigorous activity**.** Out of the 9 cases reported 7 are taking treatment. The percentage of diabetics decreased when compared to previous year base line whish was 9.8percent . They were also advised to lose weight and to do more exercise.

No of Diabetics Table No:

	Frequency	Percent
Diabetics	9	5.0
Non diabetics	172	95.0
Total	181	100.0

Obesity:

Almost 37.6percent were told by health-worker that they were obese. But when there BMI was calculated after recording their height and weight the following tables show the gender wise classification of the BMI according to WHO.

Males

	Frequency	Percent
Under wt	**1**	**1.16**
Normal	**41**	**47.67**
over wt but pre-obese	**35**	**40.69**
obese class 1	**7**	**8.13**
obese class2	**2**	**2.32**
Total	**86**	**100**

Females

	Frequency	%
Under wt	**1**	**1.06**
normal	**30**	**31.91**
over wt but pre-obese	**33**	**34.04**
obese class 1	**24**	**25.53**
obese class2	**5**	**5.31**
obese class3	**2**	**2.12**
Total	**95**	**100**

According to BMI calculated women (67%) are more obese as compared to males (51%) in the community. 59 percent of them are either in the category of overweight or obese. And they even do not take any treatment for the same. 26 is the mean BMI of the sample.

NLIP:

Almost all of them were visited by MPW for follow-up of NCD**.**

As the multipurpose health worker visits Target population every month, so none of them missed his visit. But there were variation in the timings when they met multipurpose worker. Almost 90 percent said that they met MPW last month and 10 percent said that they last met him 2 months back.

Stats for the advice received by them in last health visit are as follows

52 percent of them received advice to change in diet but only 10 percent followed the advice.

Physical exercise was advised to 30 percent but only 8.8 percent were doing physical activity as advised by health worker.

54 were told to bring change in lifestyle, which is 29.8 percent of the total responders and is very much significant

But only four have made changes in their lifestyle.

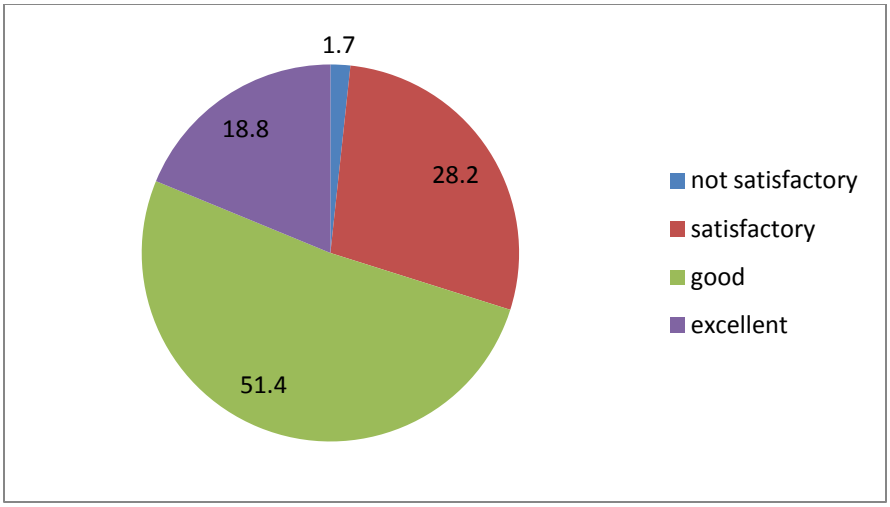
88.9 percent were involved in various IEC activities for the NLIP Nutrition and lifestyle intervention programme. 11.1 percent were not involved in any of these activity. IEC activity they attended or took participation was video show and discussion, which were held at the respective target population. The video which were shown as a part of an IEC activity was held six months before and the discussions were held in Target population two months ago

IEC activities were in the language understood by them was the response of 71.3 percent and 19.3 percent told that they did not understand the IEC activity due to the language used.

23.8 percent said that they were not helped by NLIP to bring changes in diet.

28.7 percent said that their diet changed somewhat after the

PERCEPTION OF THE PEOPLE TOWARDS THE PROGRAMME



When asked what can be done to make programme better 28% said that more frequent IEC activities should be conducted some of them also advised that financial help and proper healthcare professional is needed. Even few said that there was language barrier in the IEC activity.

Volunteer

Volunteer were also surveyed to find out the gaps and analyze them in the follow up strategy of the programme. 8 volunteers worked in the programme including one MPW, one local board chairman one regional board secretary.

There survey was done on variables such as

Basic knowledge about NCD

Perception towards programme

Orientation

Feedback

Coordination

Support required

Basic knowledge about NCD :

All the volunteers had basic knowledge about NCDs such as which are NCDs. how they are preventable and general awareness about the Nutrition and lifestyle intervention programme.

Perception towards the programme was good and they knew what they were doing in the programme.

Orientation: only four members had attended the orientation programme for NLIP. Rest had not attended it and they replied that they would like to attend if there is one.

Feedback: Volunteers did not received proper feedback from the upper authorities. 50 percent told that they got good response from the people and 50 percent said that they got satisfactory response. People have to be encouraged to participate in the programme. They were not willingly participating in the programme. The reason behind this may be lack of awareness or financial constraints as majority of them belonged to lower middle income group.

When asked about any support required for betterment of the programme IEC activity should be done by healthcare professional , increase the volunteers in the programme and provide financial support to the poor people were the responses.

Conclusion:

The study revealed the fact that most of the target population was aware of NCDs and there causal factors. Most of them had knowledge about NCDs but that was improper or half. Most of them replied that the MPW or volunteer visited to their homes regularly and enquire about NCDs to them, even they advice about the lifestyle change and dietary habits to them. This shows good reputation of the NLIP. The perception of the target population community towards the programme was good.

In the findings, we saw that most of the people are aware of Nutrition and lifestyle change sto be made in NCDs. They were following it, this would make themselves as behavior change model for the community and encourage others. According to volunteers people require more support in the form of finances and volunteers.

The programme has started last year only on pilot basis so when compared to this base line survey most of the indices were similar. As the change of behavior would require more time for the people. So now we can't go to any proper conclusion about the effectiveness of the programme right now .But as said by volunteers who are working on ground level surely this has increased the awareness among the people about the NCDs. Their attitude is positive towards the disease and lifestyle changes. But as large no of people fall in the lower middle income group they should be provided financial help for screening. By looking at analysis of hypertension, diabetes and obesity we can find out delayed tendency in seeking healthcare. The volunteers are working on knowledge imparted to them by their colleagues, but a proper orientation programme would enhance knowledge of this people.

NLIP is catering the need of community by imparting proper knowledge through this programme. This in turn would decrease the disease burden in the future by preventing the NCD

Recommendations

- Monthly IEC activity should be arranged with some local healthcare professionals.
- A doctor can be if possible appointed who would be better option for screening and imparting knowledge about the NCDs.
- IEC should be in local language which is understood by local target population people.
- There is no pathology laboratory attached to the health board, where concessional facilities can be made available to poor class people.
- Proper orientation program can be conducted for the volunteers for various programmes not only NLIP.
- As if now there are female volunteers only working in the as health volunteers young males can also be appointed so that they them self become behavior hange model for other young males.
- BCC activities may be undertaken in order to provide information as well as to dispel myths and misperceptions using various communication strategies like; peer leaders, volunteers, health providers etc.
- Exchange of dialogues and conversations and meeting with gate-keepers may be arranged in order to promote discussions about NCD health matters at local levels.
- Information on negative aspects of alcohol use, unhealthy diet and physical activity and early screening of NCDs may be provided to parents, community and religious leaders.
- We should be give focus on counseling, care and interpersonal communication with the community and especially problematic and high risk cases in life style and NCD health issues.

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ANNEXURE

Frequency Table

1. Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	86	47.5	47.5	47.5
	Female	95	52.5	52.5	100.0
	Total	181	100.0	100.0	

2.Highest Level Of education completed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Illiterate	4	2.2	2.2	2.2
	No Formal schooling	2	1.1	1.1	3.3
	Primary school	14	7.7	7.7	11.0
	Secondary	101	55.8	55.8	66.9
	High School	23	12.7	12.7	79.6
	Graduate	27	14.9	14.9	94.5
	Post graduate	10	5.5	5.5	100.0
	Total	181	100.0	100.0	

3Main Work Status in Past 12 months

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	unemployed but able to work	12	6.6	6.6	6.6
	unemployed but unable to work	2	1.1	1.1	7.7
	Housewife	74	40.9	40.9	48.6
	Worker	1	.6	.6	49.2
	Self employed	69	38.1	38.1	87.3
	government employed	7	3.9	3.9	91.2
	Nongovernment Employee	15	8.3	8.3	99.4
	Farmer	1	.6	.6	100.0
	Total	181	100.0	100.0	

4.Type of Family

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nuclear	130	71.8	71.8	71.8
	Joint Family	51	28.2	28.2	100.0
	Total	181	100.0	100.0	

5 Income goup on an avearge annual earning of house hold

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LIG	14	7.7	7.7	7.7
	LMIG	98	54.1	54.1	61.9
	HMIG	69	38.1	38.1	100.0
	Total	181	100.0	100.0	

6 Family members use tobacco

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	84	46.4	46.4	46.4
	No	97	53.6	53.6	100.0
	Total	181	100.0	100.0	

7 Personal use of Tobacco

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	35	19.3	19.3	19.3
	No	146	80.7	80.7	100.0
	Total	181	100.0	100.0	

8 considered quitting tobacco

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	26	14.4	76.5	76.5
	no	8	4.4	23.5	100.0
	Total	34	18.8	100.0	
Missing	System	147	81.2		
Total		181	100.0		

9 currently smoke any tobacco products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	3	1.7	7.3	7.3
	NO	38	21.0	92.7	100.0
	Total	41	22.7	100.0	
Missing	System	140	77.3		
Total		181	100.0		

10 Age when started smoking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20	2	1.1	66.7	66.7
	22	1	.6	33.3	100.0
	Total	3	1.7	100.0	
Missing	System	178	98.3		
Total		181	100.0		

11 Do you smoke Daily

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	3	1.7	100.0	100.0
Missing	System	178	98.3		
Total		181	100.0		

12 No of cigarettes, bidis smokes daily

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	.6	33.3	33.3
	4	1	.6	33.3	66.7
	12	1	.6	33.3	100.0
	Total	3	1.7	100.0	
Missing	System	178	98.3		
Total		181	100.0		

13 Past history of smoking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1	.6	100.0	100.0
Missing	System	180	99.4		
Total		181	100.0		

14 Age when stopped smoking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	.6	100.0	100.0
Missing	System	180	99.4		
Total		181	100.0		

15 Smokeless tobacco products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	33	18.2	94.3	94.3
	no	2	1.1	5.7	100.0
	Total	35	19.3	100.0	
Missing	System	146	80.7		
Total		181	100.0		

16 Daily use of smokeless tobacco products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	34	18.8	100.0	100.0
Missing	System	147	81.2		
Total		181	100.0		

17 Past history of smokeless tobacco products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	16	8.8	100.0	100.0
Missing	System	165	91.2		
Total		181	100.0		

18 Age when you stopped using smokeless tobacco products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	35	1	.6	33.3	33.3
	40	1	.6	33.3	66.7
	45	1	.6	33.3	100.0
	Total	3	1.7	100.0	
Missing	System	178	98.3		
Total		181	100.0		

19 Have you ever consumed alcohol

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	181	100.0	100.0	100.0

20 Do you eat fruits and vegetables

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	181	100.0	100.0	100.0

21 Frequency of consuming fruits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Daily	90	49.7	49.7	49.7
	5-6 days per week	19	10.5	10.5	60.2
	1-4 days a week	64	35.4	35.4	95.6
	1-3 days a month	8	4.4	4.4	100.0
	Total	181	100.0	100.0	

22 Frequency of consuming vegetables

	Frequency	Percent	Valid Percent	Cumulative Percent
Daily	165	91.2	91.2	91.2
5-6 days per week	16	8.8	8.8	100.0
Total	181	100.0	100.0	

23 Salt consumption

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	116	64.1	64.1	64.1
	YES , WHEN I FEEL SALT IS	37	20.4	20.4	84.5
	ALWAYS	28	15.5	15.5	100.0
	Total	181	100.0	100.0	

24 Type of oil in use

	Frequency	Percent	Valid Percent	Cumulative Percent
vegetable oil	6	3.3	3.3	3.3
cotton seed oil	132	72.9	72.9	76.2
groundnut oil	32	17.7	17.7	93.9
Other	6	3.3	3.3	97.2
nothing in particular	5	2.8	2.8	100.0
Total	181	100.0	100.0	

25 How many times do you have meal outside

		Frequency	Percent	Valid Percent	Cumulative Percent
	0	100	55.2	55.2	55.2
	1	60	33.1	33.1	88.4
	2	20	11.0	11.0	99.4
	3	1	.6	.6	100.0
	Total	181	100.0	100.0	

26 Work involving vigorous activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	31	17.1	17.1	17.1
	no	150	82.9	82.9	100.0
	Total	181	100.0	100.0	

27 work involving moderate intensity activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	62	34.3	34.3	34.3
	2	119	65.7	65.7	100.0
	Total	181	100.0	100.0	

28 Walk or use bicycle to get to and from the places

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	39	21.5	21.5	21.5
	No	142	78.5	78.5	100.0
	Total	181	100.0	100.0	

29 Hypertensive

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	20	11.0	11.0	11.0
	No	161	89.0	89.0	100.0
	Total	181	100.0	100.0	

30 currently receiving any treatment/ advice for raised blood pressure

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	10	5.5	50.0	50.0
	No	10	5.5	50.0	100.0
	Total	20	11.0	100.0	
Missing	System	161	89.0		
Total		181	100.0		

31 No of Diabetics

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	9	5.0	5.0	5.0
	No	172	95.0	95.0	100.0
	Total	181	100.0	100.0	

32 currently receiving any treatment or advice for raised BSL prescribed by a doctor

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	7	3.9	77.8	77.8
	NO	2	1.1	22.2	100.0
	Total	9	5.0	100.0	
Missing	System	172	95.0		
Total		181	100.0		

33 No of obese people in sample

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	69	38.1	38.1	38.1
No	112	61.9	61.9	100.0
Total	181	100.0	100.0	

34 currently receiving treatment or advice to lose/ control your weight prescribed by a doctor

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	4	2.2	6.1	6.1
	no	62	34.3	93.9	100.0
	Total	66	36.5	100.0	
Missing	System	115	63.5		
Total		181	100.0		

37 Change in diet

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	55	30.4	30.4	30.4

35 Visit of health Volunteer

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	181	100.0	100.0	100.0

36 Last time when volunteer visited you

	Frequency	Percent	Valid Percent	Cumulative Percent
last month	166	91.7	91.7	91.7
two months ago	12	6.6	6.6	98.3
last quarter	3	1.7	1.7	100.0
Total	181	100.0	100.0	

	no	126	69.6	69.6	100.0
	Total	181	100.0	100.0	

38 HAVE YOU BROUGHT CHANGES

		Frequency	Percent	Valid Percent	Cumulative Percent
	YES	10	5.5	16.9	16.9
	NO	49	27.1	83.1	100.0
	Total	59	32.6	100.0	
Missing	System	122	67.4		
Total		181	100.0		

39 Physical Exercises

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	56	30.9	30.9	30.9
No	125	69.1	69.1	100.0
Total	181	100.0	100.0	

40 Changes in physical Activity

	Frequency	Percent	Valid Percent	Cumulative Percent
YES	16	8.8	25.0	25.0
NO	48	26.5	75.0	100.0

Total	64	35.4	100.0	

41 Quit Tobacco

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	24	13.3	15.9	15.9
	no	127	70.2	84.1	100.0
	Total	151	83.4	100.0	
Missing	System	30	16.6		
Total		181	100.0		

42 HAVE YOU BROUGHT CHANGES

		Frequency	Percent	Valid Percent	Cumulative Percent
	YES	2	1.1	8.3	8.3
	NO	22	12.2	91.7	100.0
	Total	24	13.3	100.0	
Missing	System	157	86.7		
Total		181	100.0		

	Frequency	Percent	Valid Percent	Cumulative Percent

43

yes	54	29.8	29.8	29.8
No	127	70.2	70.2	100.0
Total	181	100.0	100.0	

Changes in Lifestyle

44 HAVE YOU BROUGHT CHANGES

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	161	89.0	89.0	89.0
No	20	11.0	11.0	100.0
Total	181	100.0	100.0	

45

	Frequency	Percent	Valid Percent	Cumulative Percent
yes	161	89.0	89.0	89.0
No	20	11.0	11.0	100.0
Total	181	100.0	100.0	

46 Mode of IEC activities

		Frequency	Percent	Valid Percent	Cumulative Percent
	Discussion	80	44.2	47.9	47.9
	Video Shows	87	48.1	52.1	100.0
	Total	167	92.3	100.0	
Missing	System	14	7.7		
Total		181	100.0		

47 IEC language best known to you

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	132	72.9	79.0	79.0
	No	35	19.3	21.0	100.0
	Total	167	92.3	100.0	
Missing	System	14	7.7		
Total		181	100.0		

48 Frequency of IEC

	Frequency	Percent	Valid Percent	Cumulative Percent
last month	78	43.1	45.1	45.1
six months ago	94	51.9	54.3	99.4

6	1	.6	.6	100.0
Total	173	95.6	100.0	
System	8	4.4		
Total	181	100.0		

49 NLIP helped in bringing change in your diet

		Frequency	Percent	Valid Percent	Cumulative Percent
	Not at all	43	23.8	24.4	24.4
	some what	52	28.7	29.5	54.0
	fairly well	51	28.2	29.0	83.0
	Very well	25	13.8	14.2	97.2
	Excellent	5	2.8	2.8	100.0
	Total	176	97.2	100.0	
Missing	System	5	2.8		
Total		181	100.0		

50 Change in physical activity

	Frequency	Percent	Valid Percent	Cumulative Percent

strongly disagree	9	5.0	5.0	5.0
Disagree	19	10.5	10.5	15.5
neutral	109	60.2	60.2	75.7
Agree	40	22.1	22.1	97.8
strongly agree	4	2.2	2.2	100.0
Total	181	100.0	100.0	

51 Given up/ reduced consumption of tobacco

	Frequency	Percent	Valid Percent	Cumulative Percent
not applicable	128	70.7	70.7	70.7
Yes	3	1.7	1.7	72.4
No	50	27.6	27.6	100.0
Total	181	100.0	100.0	

52 Perception about programme

	Frequency	Percent	Valid Percent	Cumulative Percent
not satisfactory	3	1.7	1.7	1.7
Satisfactory	51	28.2	28.2	29.8
Good	94	51.9	51.9	81.8
Excellent	33	18.2	18.2	100.0
Total	181	100.0	100.0	

53 maintained the change in your physical activity

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	50	27.6	27.9	27.9
	No	128	70.7	71.5	99.4
	3	1	.6	.6	100.0
	Total	179	98.9	100.0	
Missing	System	2	1.1		
Total		181	100.0		

54 CHANGES TO BE MADE TO MAKE PROGRAMME BETTER

		Frequency	Percent	Valid Percent	Cumulative Percent
	IEC ACTIVITY FROM HEALTHCARE PROFESSIONALS	52	28.7	75.4	75.4
	ENSURE MORE FINANCIAL HELP	11	6.1	15.9	91.3
	MORE FREQUENT ACTIVITIES IN GUJARATI LANGUAGE	6	3.3	8.7	100.0
	Total	69	38.1	100.0	
Missing	System	112	61.9		
Total		181	100.0		

55 BMI GROUPS

	Frequency	Percent	Valid Percent	Cumulative Percent

	under wt	1	.6	.6	.6
	NORMAL	71	39.2	39.7	40.2
	over wt pre-obese	67	37.0	37.4	77.7
	OBESE CLASS 1	31	17.1	17.3	95.0
	OBESE CLASS 2	7	3.9	3.9	98.9
	OBESE CLASS 3	2	1.1	1.1	100.0
	Total	179	98.9	100.0	
Missing	System	2	1.1		
Total		181	100.0		

54 CHANGES TO BE MADE TO MAKE PROGRAMME BETTER

		Frequency	Percent	Valid Percent	Cumulative Percent
	IEC ACTIVITY FROM HEALTHCARE PROFESSIONALS	52	28.7	75.4	75.4
	ENSURE MORE FINANCIAL HELP	11	6.1	15.9	91.3
	MORE FREQUENT ACTIVITIES IN GUJARATI LANGUAGE	6	3.3	8.7	100.0
	Total	69	38.1	100.0	
Missing	System	112	61.9		
Total		181	100.0		

55 BMI GROUPS

		Frequency	Percent	Valid Percent	Cumulative Percent
	under wt	1	.6	.6	.6
	NORMAL	71	39.2	39.7	40.2
	over wt pre-obese	67	37.0	37.4	77.7
	OBESE CLASS 1	31	17.1	17.3	95.0
	OBESE CLASS 2	7	3.9	3.9	98.9
	OBESE CLASS 3	2	1.1	1.1	100.0
	Total	179	98.9	100.0	
Missing	System	2	1.1		

55 BMI GROUPS

		Frequency	Percent	Valid Percent	Cumulative Percent
	under wt	1	.6	.6	.6
	NORMAL	71	39.2	39.7	40.2
	over wt pre-obese	67	37.0	37.4	77.7
	OBESE CLASS 1	31	17.1	17.3	95.0
	OBESE CLASS 2	7	3.9	3.9	98.9
	OBESE CLASS 3	2	1.1	1.1	100.0
	Total	179	98.9	100.0	
Missing	System	2	1.1		
Total		181	100.0		