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# Determinants of Health & Health Seeking Behavior among Families

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## Abstract

**Background:** There have been studies on morbidity patterns among families, but no study has been undertaken on health determinants and health seeking behavior of the people of Kerala especially in Kozhikode. All diseases can be prevented or modified if we address the lifestyle and determinants of health among families. And thus, investigating the broader contextual issues can help us improve the health services offered and see if their health needs are met or not.

**Aims:** The present study was aimed at assessing the availability and access to health determinant factors, their health seeking behavior and exploring the degree of awareness of the study subjects about various determinants of health and good lifestyle.

**Materials and Methods:** A community based cross-sectional study of 120 adjacent families who are registered under the Family practice unit of Department of Family Medicine Kozhikode was undertaken. Information regarding various determinants of health and health seeking behavior was collected using proforma and field study. Data was entered and analyzed using SPSS software.

**Results:** Out of 519 subjects, 47% were males and 53% were females. Maximum number of study subjects were in the age group of 21-60 years (58%). We observed that 98.2% were literate and majority (65.2%) belonged to lower middle class. Eighty four percent had grossly inadequate intake of fruits and vegetables. Eighty five percent were not getting even adequate protein in the diet. Almost all of them (98.5%) were not even aware of what constitutes a balanced diet. But majority were consuming fast foods and junk foods. The mean BMI was higher than normal. Only 59% were apparently healthy, 41% had one or other chronic illnesses, like hypertension, diabetes, ischemic heart disease, Stroke, etc. The locality was having poor waste management practices contributing to the rising toll of infectious diseases.

**Conclusions:** The prevalence of Non-Communicable Disease (NCD) was high in the study population. Lack of balanced diet, lower intake of fruits and vegetables, higher intake of fried fish and meat, sedentary habits, lower socioeconomic status had a significant association with NCD. The subjects were deprived of or not aware of determinants of health. Health education regarding lifestyle modification, physical activity and weight reduction was advocated during the study.

**Keywords: Social health; Family practice; Family medicine; NCD; Health determinants; Health seeking**

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## Introduction

Health status of a population or individual is determined by several mutually interacting factors. To a large extent factors such as where we live, what we eat, the state of our physical and social environment, income, education and awareness on good lifestyle and food habits all have considerable impact on health [1]. The determinants of health include awareness and accessibility to basic needs, the social and economic environment, physical environment, person's individual characteristics and behaviors including diet and lifestyle. It is the right combination of these factors and the social empowerment for practicing good lifestyle habits that determine individual and population health [2]. In countries like India these factors are never taken into consideration when with the limited resources we struggle to cope up with services related to morbidity as well as mortality [3]. A society's understanding of the determinants of health has an important influence on the strategies it uses to maintain and improve the health of its population. A clean and safe environment, adequate income, meaningful roles in society, good housing, adequate sanitation, affordable nutritious and balanced food, education and social support within communities all contribute towards good health [4,5]. It is therefore imperative to study the impact of all determinants of health and health seeking behavior

and investigate the broader contextual issues to improve the health services offered and see if their health needs are met [5-7]. There have been studies on morbidity patterns among families but no study have been undertaken on studying the health determinants and health seeking behavior of northern districts of Kerala especially Kozhikode.

## Materials and Methods

A community based cross-sectional study was conducted in Nellikode of Kozhikode district of North Kerala from April 2016 to March 2017. Kozhikode district consists of 75 panchayats with a population of 3,086,293 with 1,470,942 Males and 1615351 Females [8]. The area was selected for the study, keeping in mind the feasibility of continuous monitoring by the Department of Family Medicine as Nellikode comes under the rural field practice area of the department. From the selected area, the first house was chosen by simple random method (currency method) followed by consecutive houses till the sample size was achieved. Subjects who gave consent for the study and who are residing in the panchayat for more than 6 months were included in the study. Data collection was done by conducting house visits. Participants were interviewed based on a questionnaire regarding their availability and access to health needs and activities with respect to their health determinants for which a detailed proforma was set up. Field study was undertaken to study the details of their housing and other amenities and all individuals were interviewed in detail for each of the health parameters and their morbidity status if any. As diet include several components, this study measured it in five major categories, a) adequacy of protein intake, b) frequency of protein intake, c) adequacy of fruits and vegetables d) consumption of fried/oily foods, and e) consumption of fast foods [5,9]. Each of these categories was defined by the number of days of consumption of specific foods in a usual week. A written informed consent was taken from each participant. Blood pressure was measured using mercury sphygmomanometer. Weight was measured with electronic weighing scale. All the data collected were coded and entered in Microsoft Excel sheet and analyzed using statistical software SPSS 16.

## Results

The Nellikode unit under the Department of Family Medicine, Government Medical College Kozhikode has 220 adjacent families registered with it. Total members in these 220 families are 880 out which 519 available members from 120 families were studied, the total number of persons included in the study was 58.9% from all age groups. Some adults had gone for work and children had gone to schools and hence could not be included. The study was conducted to find out the determinants of health and health seeking behaviors among families. The population studied was representative sample of the Kerala rural/semi urban with the age and gender distribution as expected. 15.8% were not engaged in any work and it may be due to higher elderly population above 65 years, or it could be that increased prevalence of morbidities which affected their work. Out of 519 subjects 244 (47%) were males and 275 (53%) were females with a male to female ratio of 1000:1127. Maximum number of subjects were in the age group of 21-65 years (58%). There were 16.6% of people above 65 years (geriatric), which is higher than district average of 12.6% [10]. 98.2% were literate with male literacy rate 96.8% and female literacy rate 94.5%. The literacy rate of Kozhikode is 94.7% and that of Kerala is 93.91%. These are comparable to literacy rate of Kozhikode district and Kerala State [11]. 15.8% were not engaged in any work and the employed were involved in manual labour (16.4%), sales (15.2%) and business (5%). Mean number of family members was 4.91. Majority of the subjects (65.2%) belonged to lower middle class [12].

It was observed that 5% of the total population were current smokers and among the males aged 20 years or above the prevalence of smoking was 26.4% which is higher than previous studies [13,14]. No females were currently smoking. Among males above 20 years, 8.7% were regularly consuming alcohol. The prevalence of Diabetes in the study population was 13.46% and that of hypertension was 15.19%.

Five percent of the study subjects were strict vegetarians. Large majority (85%) did not include adequate protein in the diet. They also had grossly inadequate intake of vegetables and fruits, 86% had very low frequency of vegetables intake and 82% had very low frequency of fruits intake. Apparently adequate intake of fruits and vegetables was observed only in 1.7%. Only 51.3% consumed some amount of vegetables once a day whereas the desired intake is three servings per day at least. The mean BMI of the population was 23.18 with a minimum of 11.48 and maximum of 35.56. Most of the study subjects were using fast food items very often. Majority of the subjects (84.4%) consumed fast food 1-2 times a day. It is thus obvious that the same people who were not getting a balanced diet consumed unwanted items ending up eating excess calories too with their added preservatives, artificial colors and flavors [5]. It is disheartening to notice that 98.5% of the population in the study were not aware of the principles of balanced diet. Also, in the study population the physical activity was very low. The excess caloric intake with the wrong kind of food and low physical activity would have contributed to the higher BMI and diseases related to these [9]. There were 161 subjects out of 519 subjects with one or other chronic diseases like diabetes, hypertension, cardiovascular disease or thyroid diseases (41%). We studied the relation between fruits intake and the prevalence of chronic diseases, it was found that out of this 161 people 82 were either not taking fruits or were taking less than once a week. The $p$ value for this observation was 0.041. Thus, a significant association between reduced frequency of fruits intake and chronic diseases was established. Similar was the observation with vegetables in take too. Thus, it is possible to conclude that reduced intake of fruits and vegetables is one of the most important reasons for chronic illnesses [15]. More over the study found that majority of the subjects regularly took fried fish/meat and 10% (54) even preferred fried fish/meat only. Fried fish and meat would be destroying the protein in it and producing toxic substances like nitrosamines which are carcinogenic. It is mentioned in literature that even Vitamin B12 is destroyed by frying meat [5,16].

We also looked into the relation between physical activity and BMI. Physical activity has been categorized for the purpose of study into mild, moderate and severe. In the study population 32.4% were not having any physical activity or engaged in mild physical activity, 47.2% in moderate physical activity and 20.4% in severe physical activity. It was found that those who engaged in severe physical activity had a low mean BMI (17.5), those engaged only in mild physical activity had a high mean BMI of 25.91. Thus there is a significant association ($p$ value<0.05) between physical activity and BMI. In our study 17.5% of the subjects (91) consume fast foods (health drinks, bakery items, and aerated drinks) more than 2 times a day. 66.9% (347) consume fast foods 1-2 times a day. Only 15.6% (81) never consumed any fast food.

The mean BMI of the study population was 23.18 Kg/m$^2$ which is

the upper limit of normal for Asian population [17,18]. This means that, even though the quality of food was poor the quantity was in excess and also the study population had less physical activity. All these are pointers to the reasons behind chronic illnesses. In this study it was found that 70 subjects (13.46%) were suffering from diabetes mellitus,79 subjects (15.19%) were suffering from hypertension, 4 subjects (0.7%) had stroke, 12 (2.3%) had IHD and 49 subjects (9.42%) had other chronic diseases like Thyroid illness, Rheumatoid arthritis etc.

Socioeconomic factors and standards of living of the population: 87.8% of the families live in concrete house, 10.4% in tiled house and 1.7% in thatched house. All houses had electrical supply. According to NFHS-4 99.5% of houses in urban Kerala and 98.9% of houses in rural Kerala were electrified [17]. All the houses had septic tank attached to their home. 58.3% had a distance of more than 7.5meter between septic tank and water source; Whereas 41.7% had distance of even less than 7.5 meter. 62.6% depended on well water and 21.7% depended on piped water for drinking [19]. Only 48.7% had organized waste management practices that included use of biogas, compost, while 51.3% lacked it. Majority (62.6%) of families had mosquito breeding places in their surroundings. Regarding plastic waste 76.5% used to segregate waste and it used to be collected by municipality. Even more upsetting was the observation that 17.4% used to burn plastic and 5.2% used to dump them. 13% of houses were using LPG as source of fuel, 80.9% were using both LPG and wood as fuel. 25.2% were using only western closets and 60% were using only Indian closets and the rest were using both.

### Health seeking behavior

Majority (63.5%) were dependent only on modern medical treatment, but 6.1% were dependent on Ayurveda and 2.6% on homeopathy alone. Rest were dependent on combination of therapies. Primary care facilities were utilized for their ailments by 56.5%, which included general practitioners and PHC's. It was disturbing to note that 17.4% were going to tertiary care centers, and 7% were dependent on secondary care hospitals for all their ailments including primary care. In the study half of those who utilized private providers justified their choice with availability related reasons and quality related reasons. Younger subjects were observed to prefer private facilities and self-treatment while older ones preferred PHCs and self-treatment. 34.8% availed used of auto or private vehicles to reach their health facility to seek treatment. There were 61.7% who had insurance facility and 38.3% didn't have any. About 11 families (9.6%) were having debts occurring due to their medical expenses. 98.3% of the children were immunized and only 2 children were unimmunized as their family was against immunization. On questioning whether they were satisfied with the health care facility available to them through the family practice unit of department of Family Medicine, 89.3% of the population said they were satisfied. The reasons for un-satisfaction being lack of facility for investigations, non-availability of free medicines and lack of access. In the study the fact that majority depended on well water is a matter of concern taking into consideration of the fact that independent wells and septic tanks for each house are situated in small plots and the distance between septic tank and well becomes an important public health issue. Lack of safe drinking water, poor waste management and closeness of septic tank to wells points to the rising toll of infectious diseases in 2016-2017 (28 subjects) compared to 2015-2016 (20 subjects) in the locality. There were 10 cases of dengue fever, 5 chickenpox, 9 had chikungunya and 4 had viral hepatitis in the households under study. The fact that 44% are not using services of generalist doctors means a lot in terms of increasing health expenditure mostly because of absence of organized primary care facilities even in a semi urban society which we studied [18,20].

## Discussion

There are several studies in literature on non-communicable diseases and their relation with smoking and alcohol but there are only very few studies on dietary pattern and its adequacy and its relation with chronic diseases. This might be because the measurement of diet is difficult, time consuming and it is difficult to work out whether one's dietary pattern is good or not. This study was aimed at addressing this lacunae in a population based study. Eliciting a dietary history was the most difficult part of the study as there are many wrong concepts. Unless carefully asked, history regarding vegetables intake may be wrong because majority consider potatoes, and all other roots and tubers and even pulses as vegetables. Besides dry fruits and boiled bananas were also considered as fruits by the majority in the study. The population studied had grossly inadequate intake of vegetables and fruits. This could be the reason for rising number of non-communicable diseases in our country, as on one side the protective elements in diet are missing and on the other side, naturally they end up eating excess of calorie-rich fast foods to fill their stomach, in the absence of high fiber vegetables and fruits [5]. The dietary picture must be the same all over Kerala, the state which is better in terms of the health indices as compared to the rest of India. The prevalence of good dietary practice in the study population was only 20.4% and it was lesser when compared with similar studies in the neighbouring states and which was 29% [21,22]. To compound the issues further 98.5% were not even aware of what constitutes a balanced diet. This holds significant in a scenario where the study population is having a significant burden of NCD's (41.1%).

On the whole good dietary practices are absent among the majority of the people in the study and it must be the same all over India, and it is a matter of serious concern considering the increasing disease burden in the country. In addition this study had shown that their BMI was on the higher side, which means that they eat more and do no exercise and put on weight. Such a dietary habit with overeating, poor intake of vegetables and fruits and lack of exercise must be playing the major role in development of hypertension, diabetes, cancers and other chronic illnesses.

In our study there was no significant relation between socioeconomic status, age and dietary habits. The probable reason may be the globalisation and industrialisation which lead to life style modification and transition of dietary behaviour of Kerala people regardless of the socio economic strata, from a healthy diet to unhealthy diet. Just by increasing the knowledge of individual subjects on dietary habits may not lead to improved dietary pattern. From the study it is clear that interventions focussing on family members and other important decision makers in the society, who could have control over the diet of the family and the society, may help develop a better dietary pattern.

The study showed that 41% had one or other chronic illness, which is not a small number - this indicates the higher disease burden in our society and the need for urgent social action to prevent them. Especially since it is all related to poor diet, poor physical activity and bad habits.

On the whole, the poorer households appeared to depend more on the public sector for hospitalized treatment than the better-off sections of the population. For minor illness many preferred PHC's and general practitioners/family doctors. For in hospital treatment many preferred private hospitals/medical college hospital. Most subjects explained that their choice of a private provider was by their dissatisfaction with previous treatments, problems of access in the public sector, long queues in public sector and/or the easy availability of private providers. Half of those who utilized private providers justified their choice with availability-related reasons, and quality-related reasons (32%) suggested inadequate services in the public system on previous occasions). This suggests that the poorest are constrained by situational factors to utilize the public sector. This underlines the necessity for public institutions to respond to the needs of the poor by assuring services with a focus on effective availability and quality. This also emphasizes the need to have an efficient primary care system to make health affordable and acceptable to all groups. In our study Younger residents were observed to prefer private facilities and self-treatment, while older residents preferred PHCs and self-treatment, which could be a disturbing trend in future, if not addressed by policy changes. Both people suffering from chronic ailments and people with ailments which were still continuing when the survey was taken were found to prefer General practitioner and Medical College. We did not find a significant difference in levels of utilization between those belonging to different socioeconomic strata.

## Conclusions

Only 58.85% of the people were apparently healthy and the prevalence of NCDs was found to be very high (41%) [18,20]. Large majority (84%) of the subjects had grossly inadequate fruits and vegetables intake and 85% did not even include adequate protein in the diet. 98.5% were not aware of what constitutes a balanced diet. Lack of balanced diet, lower intake of fruits and vegetables, higher intake of fast foods, fried fish and meat, sedentary habits and lower educational status had a significant association with NCD [21]. The mean BMI of the study population was high, this only shows that those who are apparently healthy in the study population are now waiting to develop one or other chronic diseases in the near future, because what they ate is only an unbalanced diet and their bodies are vulnerable to all disease including infections [5,16]. 51.3% of families lacked organized waste management and 62.6% had mosquito breeding places. The distance between wells and septic tanks were found grossly inadequate, which needs urgent intervention by providing safe potable drinking water through pipes at least in crowded places. Thus, we provide enough opportunities for all the infectious agents to grow and spread. This was reflected in the rising toll of infectious diseases in the area. There is a significant association between morbidity and lower educational status and lower socioeconomic status. This only tells that we need to focus on health education, empowerment of the people for the social determinants of health through social security and human development initiatives. Regarding health seeking behavior, still the majority depended on PHC's and family doctors/ general practitioners, in spite of the fact that primary care facilities are neglected as compared to tertiary care, even in the state of Kerala. 89.3% of the population said that they were satisfied by the health care facility provided by Family health unit of the Department of Family Medicine, reinforcing the need for enhanced primary care.

## Recommendations

Similar studies should be carried out in other areas as well to bring about improvement in health sector. To improve health care, we need to focus on creating awareness among the public on the social determinants of health, empower the people to have universal access to the social determinants and need to prioritize the spending of resources, including promotion of primary care rather than focusing on tertiary care and hospitals [5].

## Limitations

The study group didn't have a control group for comparison and recall bias on taking history about diet.

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