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Research Report

**A cross-sectional study on knowledge, attitude and
practice towards diabetes mellitus and the distribution
of diabetes mellitus among the population aged 35
years and above from 15 June to 30 July 2002
at Kampung Babu, Debak**

Group 1 B Debak

2002

Declaration

We declare that this research originates from our own effort, except for certain facts and citations with the sources have been clearly listed in the bibliography

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Abstract

A cross sectional study on knowledge, attitude, and practice toward diabetes mellitus and the distribution of diabetes mellitus among the population aged 35 and above was carried out at Kampung Babu, Debak, from 15 June to 30 July 2002 by fourth year medical students from the Faculty of Medicine and Health Science, University Malaysia Sarawak (UNIMAS). 158 respondents who are chosen through universal sampling were interviewed face-to-face from door to door using semi-structured questionnaires. The data collected was analyzed by using SPSS for windows. About two third (65.2%) of the respondents were female due to the fact that most of the males work outstation. It was also found that half of respondents (52%) had not received any formal education. Screening clinic session on 138 respondents found that there were 10 diabetic patients, which gave the prevalence of diabetes mellitus among adult population aged 35 and above, 7.2%. Out of total 10 cases, 4 were known cases, 6 were newly diagnosed cases. Three quarters (75%) of the respondents heard about diabetes mellitus. Half of them claimed that they heard about diabetes mellitus through their family member, friends, and neighbors. It was found that the respondents had low knowledge level with regards to all aspects of knowledge about diabetes mellitus with the highest was knowledge about complication (35%) and the lowest was knowledge about treatment (17%). The major reason that level of knowledge about diabetes was inadequate was that half of the respondents had not received any formal education. Test showed that there was a significant relationship on knowledge about diabetes mellitus to educational level. It was a good sign that 57% of the respondents had positive attitude toward treatment and prevention of diabetes mellitus. The majority of the respondents choose to seek medical attention if they were told to have diabetes mellitus. There was significant impact on attitude toward treatment and prevention of diabetes mellitus as age decrease and educational level increase ($p < 0.05$). 60% of the respondents engaged in positive practice on preventive measures of diabetes mellitus. Such practice appeared to be more influence by their traditional lifestyle and religion especially regarding the methods of cooking, sugar intake, and alcohol consumption. However, most of the respondents had inadequate exercise practice in terms of duration and frequency of exercise weekly. It is believe that knowledge, attitude and practice can determine the health status of the community. By having a sufficient knowledge about diabetes can facilitate and motivate the community to improve their heath status. This subsequently changes the attitude and practice of the community regarding diabetes mellitus. After the survey, an intervention program with the theme "Kenali Kencing Manis - Hidup Sihat" was carried out at the study area on the 19 July 2002. This program was aimed to improve and to bring about a positive change in the knowledge, attitude and practice toward diabetes mellitus among the population studied.

Abstrak

Satu kajian rentas telah dijalankan untuk mengkaji pengetahuan, sikap, dan amalan terhadap penyakit kencing manis serta taburan penyakit ini di kalangan penduduk yang berumur 35 tahun dan ke atas di Kampung Babu, Debak dari 15 Jun hingga 30 Julai 2002 oleh pelajar-pelajar perubatan dari Fakulti Perubatan dan Sains Kesihatan, University Malaysia Sarawak (UNIMAS). Sebanyak 158 responden dipilih melalui kaedah persampelan universal. Mereka ditemuramah berdasarkan borang soal selidik separa struktur secara bersemuka dari pintu ke pintu. Data yang dikumpul, dianalisa menggunakan *SPSS* untuk *Windows*. Lebih kurang dua pertiga (65.2%) daripada responden merupakan golongan wanita kerana kebanyakan golongan lelaki bekerja di kawasan luar. Separuh (52%) daripada responden tidak pernah menerima pendidikan formal. Sesi klinik yang dijalankan terhadap 138 responden telah mengesan seramai 10 pesakit kencing manis. Enam daripada 10 orang ini merupakan kes baru. Tiga perempat daripada responden mengetahui tentang kencing manis. Setengah daripada mereka mengetahui penyakit ini melalui ahli keluarga, kawan-kawan, dan jiran tetangga. Kebanyakan responden mempunyai tahap pengetahuan yang tidak mencukupi mengenai kencing manis dengan tahap pengetahuan mengenai komplikasi paling tinggi (35%) dan tahap pengetahuan mengenai rawatan paling rendah (17%). Ini mungkin disebabkan separuh daripada responden tidak pernah menerima pendidikan formal. Ujian statistik menunjukkan ada perbezaan yang signifikan di antara tahap pendidikan dengan tahap pengetahuan mengenai kencing manis. ($p < 0.05$) Lima puluh tujuh peratus daripada responden mempunyai sikap yang positif terhadap rawatan dan pencegahan penyakit ini. Kebanyakan mereka akan memilih rawatan klinik sekiranya didapati menghidap kencing manis. Perbezaan yang signifikan wujud antara sikap responden terhadap rawatan dan pencegahan penyakit ini apabila umur meningkat dan tahap pendidikan lebih tinggi. Enam puluh peratus daripada responden melibatkan diri dalam amalan pencegahan kencing manis. Amalan ini banyak dipengaruhi oleh cara hidup tradisional dan juga agama mereka terutamanya mengenai cara memasak, pengambilan gula, dan pengambilan minuman keras. Walau bagaimanapun, kebanyakan mereka tidak melakukan senaman yang mencukupi dari segi kekerapan dan jangka masa senaman. Adalah dipercayai bahawa pengetahuan, sikap dan amalan banyak mempengaruhi taraf kesihatan komuniti. Pengetahuan yang mencukupi dapat membantu dan mengalakkan komuniti untuk meningkatkan taraf kesihatan mereka. Ini seterusnya membawa kepada perubahan sikap dan amalan komuniti terhadap penyakit kencing manis. Selepas melakukan kajian, program intervensi bertemakan "Kenali Kencing Manis – Hidup Sihat" telah dijalankan di kawasan ini pada 19 Julai 2002. Tujuan program ini adalah untuk memperbaiki dan membawa kepada perubahan positif tentang pengetahuan, sikap dan amalan terhadap kencing manis di kalangan penduduk Kampung Babu.

Table of Contents

Declaration		i
Acknowledgement		ii
Abstract		iv
Abstrak		v
Table of Contents		vi
List of Tables		viii
List of Figures		ix
Chapter I	Introduction	1
	1.1 Morbidity, Mortality and Financial Burden	4
	1.2 Diagnosis of Diabetes Mellitus	4
	1.3 Study Area	5
Chapter II	Statement of Problem and Literature Review	7
	2.1 Statement of Problems	7
	2.2 Conceptual Framework	8
	2.3 Literature Review	9
Chapter III	Objectives	11
	3.1 General Objectives	11
	3.2 Specific Objectives	11
	3.3 Hyphoteses	12
Chapter IV	Research Methodology	13
	4.1 Research Design	13
	4.2 Populations and Sampling	13
	4.3 Inclusion and Exclusion Criteria	13
	4.4 Study Instruments	14
	4.5 Data Collection	14
	4.6 Data Analysis	15
	4.7 Operational Definitions	15
Chapter V	Results of Survey	18
	5.1 Sociodemographic Characteristics of Research Samples	18
	5.1.1 Gender	18
	5.1.2 Age	19
	5.1.3 Race	21
	5.1.4 Occupation	21
	5.1.5 Level of Monthly Family Income	22
	5.1.6 Level of Education	24
	5.2 Knowledge	26

	5.2.1 Sources of Knowledge on Diabetes Mellitus	26
	5.2.2 Knowledge on Risk Factor of Diabetes Mellitus	27
	5.2.3 Knowledge on Symptoms of Diabetes Mellitus	30
	5.2.4 Knowledge on Pathology of Diabetes Mellitus	32
	5.2.5 Knowledge on Complications of Diabetes Mellitus	34
	5.2.6 Knowledge on Treatment of Diabetes Mellitus	36
	5.2.7 Knowledge on Prevention of Diabetes Mellitus	38
	5.2.8 Overall Knowledge on Diabetes Mellitus	41
	5.3 Attitude	43
	5.3.1 Health Seeking Behaviors	43
	5.3.2 Preferred Method of Treatment	43
	5.3.3 Attitude Towards Treatment and Prevention of Diabetes Mellitus	44
	5.4 Practice	48
	5.4.1 Overall Practice on Preventive Measures of Diabetes Mellitus	48
	5.4.2 Exercise	49
	5.4.3 Cooking Practice	50
	5.4.4 Practice of Sugar Intake	51
	5.4.5 alcohol Consumption	52
	5.4.6 Smoking	52
	5.4.7 Blood Sugar Checking	53
	5.5 Prevalence	54
Chapter VI	Discussion	
	6.1 Knowledge on Diabetes Mellitus	56
	6.1.1 Knowledge on Pathology of Diabetes Mellitus	57
	6.1.2 Knowledge on Risk Factors of Diabetes Mellitus	58
	6.1.3 Knowledge on Symptoms of Diabetes Mellitus	59
	6.1.4 Knowledge on Complications of Diabetes Mellitus	60
	6.1.5 Knowledge on Treatment of Diabetes Mellitus	60
	6.1.6 Knowledge on Prevention of Diabetes Mellitus	61
	6.1.7 Overall Knowledge on Diabetes Mellitus	62
	6.2 Attitude	62
	6.3 Practice	65
	6.4 Prevalence	67
Chapter VII	Limitations, Recommendations and Conclusion	69
	7.1 Limitations and Recommendations	69
	7.2 Conclusion	72
Bibliography		75
Appendix		79
Timetable / Schedule		79
Budget		81
Questionnaire		82

List of Tables

Table 5.1.1. Age groups and gender crosstabulation	20
Table 5.1.2. Mean age according to gender	20
Table 5.1.3. Level of education and level of monthly family income crosstabulation	23
Table 5.1.4. Level of education and gender crosstabulation	25
Table 5.1.5. Age group and level of education crosstabulation	25
Table 5.2.1. Sources of knowledge on diabetes mellitus	27
Table 5.2.2. Knowledge on risk factors of diabetes mellitus	27
Table 5.2.3. Level of knowledge on risk factors of diabetes mellitus by age group, income group, and level of education	29
Table 5.2.4. Knowledge on symptoms of diabetes mellitus	30
Table 5.2.5. Level of knowledge on symptoms of diabetes mellitus by age group, income group, and level of education	31
Table 5.2.6. Knowledge on pathology of diabetes mellitus	32
Table 5.2.7. Level of knowledge on pathology of diabetes mellitus by age group income group, and level of education	33
Table 5.2.8. Knowledge on complication of diabetes mellitus	34
Table 5.2.9. Level of knowledge on complication of diabetes mellitus by age group, income group, and level of education	35
Table 5.2.10. Knowledge on treatment of diabetes mellitus	36
Table 5.2.11. Level of knowledge on treatment of diabetes mellitus by age group, income group, and level of education	37
Table 5.2.12. Method of prevention of diabetes mellitus	38
Table 5.1.13. Level of knowledge on prevention of diabetes mellitus by age group, income group, and level of education	40
Table 5.2.14. Overall level of knowledge on diabetes mellitus by age group, income group, and level of education	42
Table 5.3.1. Responds toward the disease	43
Table 5.3.2. Attitude towards treatment and prevention of diabetes mellitus	45
Table 5.3.3. Attitude toward treatment and prevention of diabetes mellitus by age group, income group, and level of education	47
Table 5.4.1. Exercise practice among the respondents in terms of duration and frequency	50
Table 5.5.1. Sociodemographic characteristics of diabetics found in 138 samples	55
Table 6.1.1. Level of knowledge on diabetes pathology, risk factors, symptoms, complications, treatment, and prevention	57

List of Figures

Figure 1.1. Map of South-east Sarawak showing Debak town	6
Figure 1.2. Map of Kampung Babu, Debak	6
Figure 5.1.1. Number of respondents by gender	18
Figure 5.1.2. Number of respondents by age	19
Figure 5.1.3. Number of respondents by race	21
Figure 5.1.4. Percentages of respondents by occupation	22
Figure 5.1.5. Percentage of respondents by level of monthly family income	23
Figure 5.1.6. Percentage of respondents by level of education	24
Figure 5.2.1. Percentage of respondents had ever heard of diabetes mellitus	26
Figure 5.2.2. Level of knowledge on risk factors of diabetes mellitus	28
Figure 5.2.3. Level of knowledge on symptoms of diabetes mellitus	30
Figure 5.2.4. Level of knowledge on pathology of diabetes mellitus	32
Figure 5.2.5. Level of knowledge on complication of diabetes mellitus	34
Figure 5.2.6. Level of knowledge on treatment of diabetes mellitus	36
Figure 5.2.7. Respondents' answer to the preventability of diabetes mellitus	38
Figure 5.2.8. Level of knowledge on prevention of diabetes mellitus	39
Figure 5.2.9. Overall level of knowledge on diabetes mellitus	41
Figure 5.3.1. Method of treatment preferred	44
Figure 5.3.2. Attitude towards treatment and prevention of diabetes mellitus	46
Figure 5.4.1. Overall practice towards preventive measure of diabetes mellitus	49
Figure 5.4.2. Exercise practice among the respondents	50
Figure 5.4.3. Cooking practice among the respondents	51
Figure 5.4.4. Number of teaspoon of sugar per drink	51
Figure 5.4.5. Number of cup of sweet drink daily	52
Figure 5.4.6. Percentage of respondents who were smokers for the past 6 months	53
Figure 5.4.7. Percentage of respondents who had checked their blood sugar level	53

CHAPTER I

INTRODUCTION

According to the World Health Organization (WHO), it is estimated that currently about 150 million of the world adult population are diabetic. It is estimated that the total number of diabetic patients in the world will increase to 300 million by the year of 2025. This number calls for active intervention for the disease. (American Diabetes Association: 2000)

In Malaysia, the prevalence of diabetes mellitus is on the increase. According to the National Health and Morbidity Survey 1996, the prevalence of diabetic patients in the country was 8.3% of which 5.7% were diagnosed diabetes and 2.6% are undiagnosed. “ In addition, the variability of the estimated observed prevalence by states, the urban population having higher prevalence, the increasing prevalence by age and higher prevalence in lower educational level groups.” was noted by Dr. Rugayah Bakri in the report of the second National Health and Morbidity Survey Conference.

According to the National Health and Morbidity Survey, the estimated of diabetic population in Malaysia is approximately 1.7 million, which is approximately 7.7% of the population, and is expected to double by the year of 2010. (National Health and Morbidity Survey: 1996)

According to the American Diabetes Association, people with diabetes can reduce their risk for complications if they are educated about their disease, learn and practice the skills necessary to better control their blood glucose levels, and receive regular check-ups from their health care team. (American Diabetes Association: 2000)

The three cornerstones of diabetes management are diet, physical activity and medication if needed. According to Anderson J. et al, diabetes management should consider nutrition, physical activity and pharmacological therapies that optimize the individual personal health and fitness goals. They also stated that, the goal of nutrition therapy for people with diabetes is to improved metabolic control, to maintain near-normal blood glucose levels, to achieve optimal serum lipid levels, to attain a reasonable, achievable and maintainable body weight, to prevent and treat acute and long-term complications and to improve overall health through optimal nutrition. (Harrison's Principle of Internal Medicine: 1998)

Diabetes mellitus is a metabolic disorder in which there is inability to oxidize carbohydrates, due to disturbance of the normal insulin mechanism, producing hyperglycaemia, glycosuria, polyuria, thirst, hunger, emaciation, weakness, acidosis, sometimes leading to dyspnea, lipemia, ketonuria and finally coma (Dorland's Medical Dictionary: 1995).

There are two types of diabetes mellitus, Type 1 (Insulin Dependent Diabetes Mellitus) and Type 2 (Non Insulin Dependent Diabetes Mellitus). Type 1 Diabetes Mellitus usually occurs in children and young adults and was previously known as juvenile diabetes. In Type 1 diabetes, the body does not produce insulin. Type 2 Diabetes Mellitus is the most common form of diabetes. In Type 2 diabetes, it is either due to insulin insufficiency or insulin resistance or both. It is a non-insulin dependent diabetic mellitus. The risks factors of getting diabetes mellitus are certain ethnicity like African American, old age, obesity, physical inactivity, positive family history of diabetes, prior history of gestational diabetes and impaired glucose tolerance. (Center for Disease Control: 1999)

Diabetes mellitus is associated with a numbers of behavioral, environmental and social factors such as diet, level of obesity and physical activity. The risk of diabetes is higher in those with a family

history of diabetes and with advancement of age. Any population that increases its bodyweight is going to increase its prevalence of type 2 Diabetes. (American Diabetes Association: 2000).

Diabetes mellitus can present with acute or subacute symptoms. Acute presentations includes polyuria which is due to the osmotic diuresis that results when blood glucose levels exceeds the renal threshold, thirst which is due to loss of fluid and electrolytes and weight loss which is due to fluid depletion and the accelerated breakdown of fat and muscle secondary to insulin deficiency. Young people may present with a brief 2-4 weeks history and complain of this classic triad of symptoms. If these early symptoms are not recognized and treated earlier, it may lead to ketoacidosis. In subacute presentation, the clinical onset may be over several months, particularly in older patients. The classic triad of symptoms is usual features, with other symptoms as lack of energy, visual blurring or *Candida* infection. (Kumar and Clark: 1999)

Diabetes is often associated with long-term complications that can affect every system of the body. It can result in eye disorders including blindness, heart diseases, stroke, kidney failure, limb amputation and nerve damage. (Kumar and Clark: 1999)

Study on community knowledge, attitude and practice on diabetes can determine whether the community was aware of diabetes and its prevention.

The knowledge, attitude and practice of the community towards Diabetes Mellitus play an important role in this disease. As no research had been conducted in Kampung Babu, Debak, a cross-sectional study on knowledge, attitude and practice related to diabetes mellitus and its distribution among

the population aged 35 and above from 15 June to 30 July 2002 at Kampung Babu, Debak was carried out.

1.1 Morbidity, Mortality and Financial Burden

Diabetes mellitus is a silent killer. Based on the death certificate data, diabetes mellitus contributed to 198,140 deaths in 1996 making it the 7th leading cause of death in US. It is believed that each year, at least 190,000 people in US die as a result of diabetes and its complications.

Diabetes mellitus causes a great loss to the country. Studies done in the US showed that the total annual economic cost of diabetes in 1997 was estimated to be US\$98 billion. This included US\$44 billion in direct medical treatment costs and US\$ 54 billion for indirect costs attributed to disability and mortality.

1.2 Diagnosis of Diabetes Mellitus

Diagnosis of diabetes mellitus is evaluated through routine physical examination and laboratory tests such as urine test, random blood glucose and fasting plasma glucose. Revised criteria for diagnosing diabetes mellitus based on laboratory tests have been issued by consensus panels of experts from the National Diabetes Data Group and the World Health Organization.

According to the WHO guideline, the criteria for the diagnosis of diabetes mellitus are based on classic symptoms of diabetes mellitus (polyuria, polydipsia, weight loss) either plus random plasma glucose concentration ≥ 11.1 mmol/L (200 mg/dL); or symptoms plus fasting plasma glucose ≥ 7.0 mmol/L (126 mg/dL); or symptoms plus two hours plasma glucose ≥ 11.1 mmol/L (200 mg/dL) during an

oral glucose tolerance test. (Alberti et.al.: 1999) In the absence of unequivocal hyperglycemia and acute metabolic compensation, these criteria should be confirmed by a repeat testing on a different day.

1.3 Study Area

Debak town is located in the district of Betong, part of the division of Sri Aman (Simanggang) in Sarawak. It is situated about 300km from Kuching and about 100km from Sri Aman town. According to the history, Debak was founded by the Saribas Malay society. The main ethnic group in Debak is Iban followed by Malay and Chinese.

Debak is well equipped with basic facilities of electricity and water supply. There are a few rows of shop houses, post office, government offices, library and schools centred around a single street. Health services available in Debak included an outpatient clinic, a Maternal and Child Health Clinic, and a rural clinic. In addition to that, they also have a *bomoh* in the village.

The research focuses on Kampung Babu, one of the Malay villages in Debak. It is the third oldest Malay village in Debak. From the mapping survey of the village, the actual number of houses is 156 units. The estimated total population there is more than 400 people. The main occupation is farming with a minority of residents working as teachers and officers.

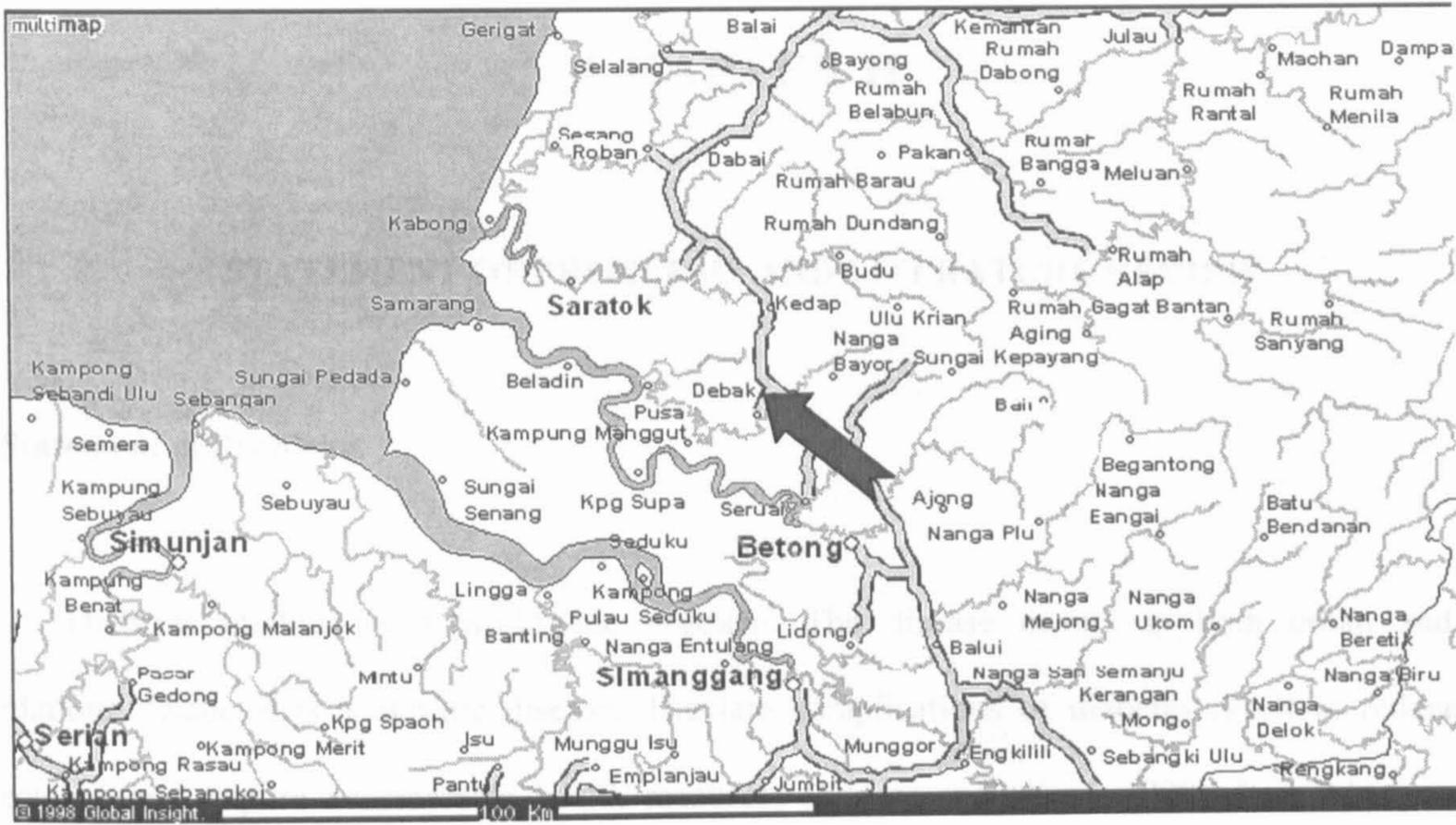


Figure 1.1. Map of South east Sarawak showing Debak town

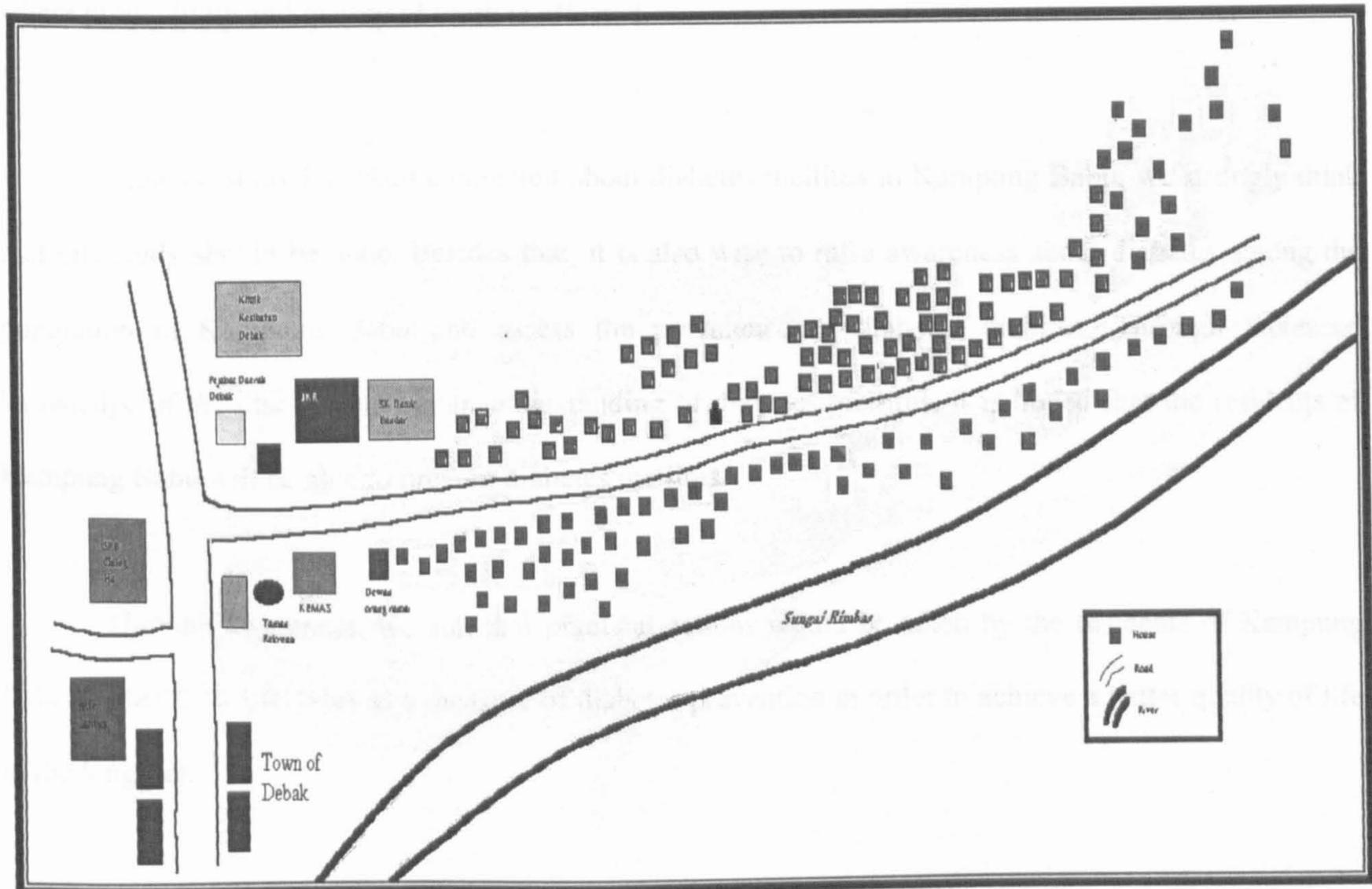


Figure 1.2. Map of Kampung Babu, Debak

CHAPTER II

STATEMENT OF PROBLEMS AND LITERATURE REVIEW

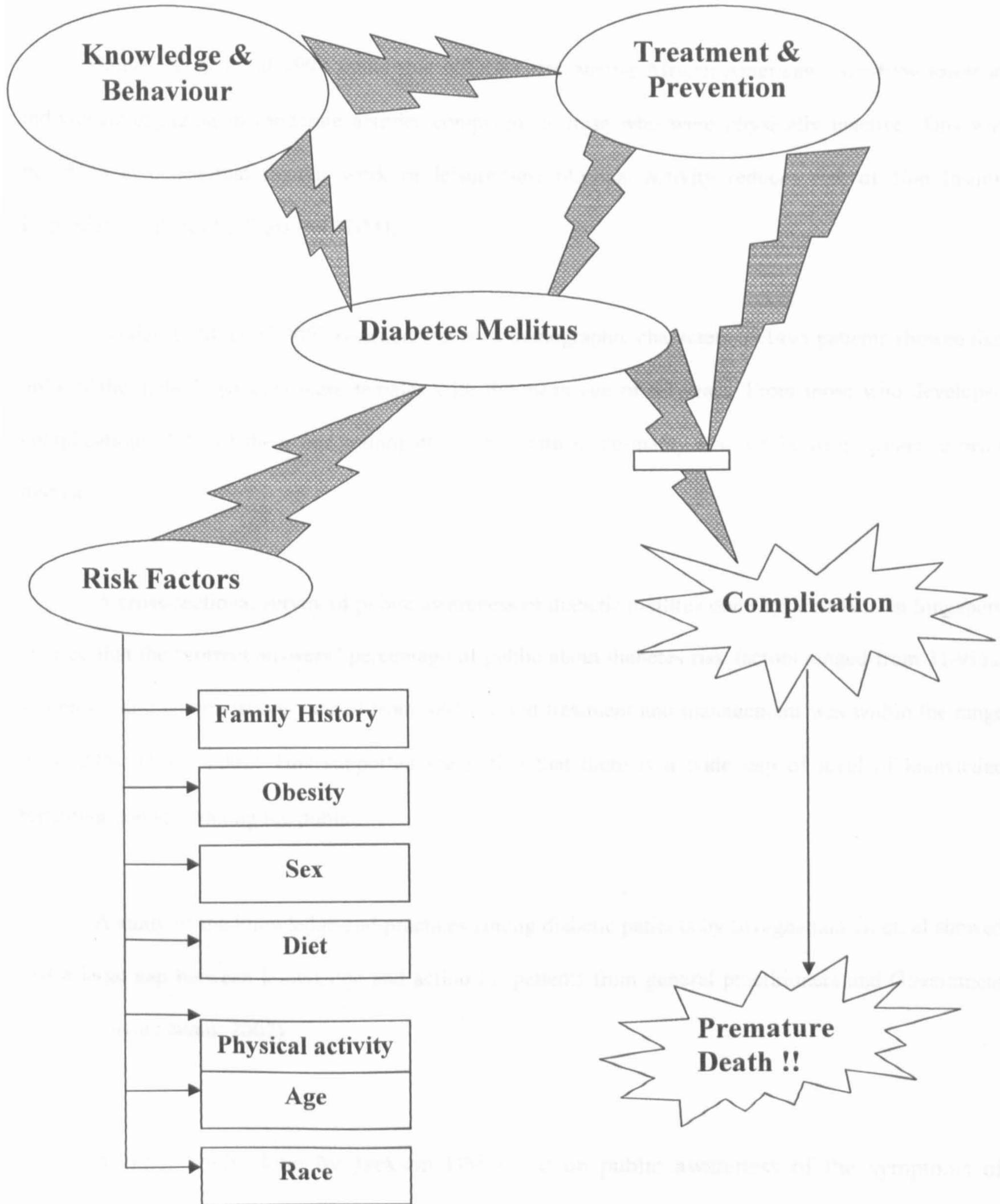
2.1 Statement of Problems

Diabetes mellitus is a worldwide problem. The disease occurs in both urban and rural populations. Diabetes is a chronic disease. The late complications of diabetes result in reduced life expectancy and require considerable health resources (Kumar and Clark: 1999). It can be prevented through proper knowledge, attitude and practices in the community. Besides being a troublesome disease with unpredictable outcomes, it is also a great financial burden to the patient and also to the country where productivity and quality of work is affected.

Since no study has been conducted about diabetes mellitus in Kampung Babu, we strongly think that one study should be done. Besides that, it is also wise to raise awareness about diabetes among the population in Kampung Babu and assess the prevalence of diabetes mellitus. Through increased knowledge of the disease and better understanding of diabetes mellitus, it is hoped that the residents of Kampung Babu will be able to prevent diabetes mellitus.

Through awareness, we aim that practical actions would be taken by the residents of Kampung Babu to alter their lifestyles as a measure of diabetes prevention in order to achieve a better quality of life in the long run.

2.2 Conceptual Framework



2.3 Literature Review

James, S. A. et. al 1998 found that NIDDM risk among African-Americans was 65% lower in individuals engaging in moderate activity compared to those who were physically inactive. This was based on evidence that regular work or leisure-time physical activity reduces risk of Non Insulin Dependent Diabetes Mellitus (NIDDM).

Sender, P. M. et. al 2002 revealed that sociodemographic characters of 1495 patients showed that 56% of the diabetic patients were females with the mean age of 62 years. From those who developed complications, 26% of them had retinopathy, 3.5% with nephropathy and 3.5 % with ischaemic heart disease.

A cross-sectional survey of public awareness of diabetic mellitus done by Wee H.L. in Singapore showed that the “correct answers” percentage of public about diabetes risk factors ranged from 31-91%, symptoms and complications ranged from 48-81% and treatment and management was within the range of 35-87%. (Wee: 2002) This supported the notion that there is a wide gap of level of knowledge regarding diabetes among the public.

A study of the knowledge and practices among diabetic patients by Sivagnanam G. et. al showed that a large gap between knowledge and action in patients from general practitioners and Government Clinics. (Sivagnanam: 2002)

Another study done by Jackson DM et. al on public awareness of the symptoms of diabetes mellitus showed that the public’s knowledge of diabetes symptoms was poor. This has a strong impact on the prevalence of diabetes mellitus in general population. (Jackson: 2002)

A study of knowledge of diabetes mellitus, diets and nutrition in diabetic patients, non-diabetic patients, nursing personnel and third year medical students by Karlander SG. et. al showed that knowledge concerning diabetes was better than those for diet-nutrition. This shows that the knowledge about the importance of diet control in the prevention of diabetes is still lacking. (Karlander: 2002)

Another study done by Williams MV. et. al on the relationship of functional health literacy to patient's knowledge of their chronic disease, a study of patients with diabetes showed that a total of 94% of patients with diabetes and adequate functional health literacy knew the symptoms of hypoglycaemia compared with only 50% of those with inadequate literacy. (Williams: 2002)

CHAPTER III

OBJECTIVES AND HYPOTHESIS

3.1 General Objectives

- (i) To study the knowledge, attitude and practice of diabetes mellitus among the adult population aged 35 years and above in Kampung Babu, Debak.
- (ii) To determine the distribution of diabetes mellitus among those aged 35 years and above in Kampung Babu, Debak from 15 June 2002 until 30 July 2002.

3.2 Specific Objectives

- (i) To assess the level of knowledge on diabetes mellitus such as symptoms, risk factors, complications, treatment and preventive measure of diabetes mellitus among the population studied.
- (ii) To study the attitude towards treatment and preventive measures of diabetes mellitus among the study population
- (iii) To study the practice of preventive measures related to diabetes mellitus among the study population.

- (iv) To determine the prevalence of diabetes mellitus among those aged 35 years and above in Kampung Babu, Debak.
- (v) To study the distribution of diabetes mellitus according to age, gender, family history, family income and Body Mass Index (BMI) in this population.

3.3 Hypotheses

- (i) Population with high educational level had adequate knowledge on pathology, risk factors, symptoms, treatment, complications and prevention of diabetes mellitus.
- (ii) Population with high educational level had positive attitude towards prevention of diabetes mellitus.
- (iii) Traditional medicine is the preferred method of treatment among the population.
- (iv) There is no practice in prevention of diabetes mellitus among study population.
- (v) Prevalence of diabetes mellitus in the population studied is low.
- (v) A small number of the diabetic patient among the population studied remains undiagnosed.

CHAPTER IV

RESEARCH METHODOLOGY

4.1 Research Design

The research design used in this study is a cross sectional study. It was conducted in Kampung Babu, Debak from 15 June 2002 until 30 July 2002. A cross-sectional study was chosen because it is easy, simple, time saving and relatively inexpensive; thus suitable for a students' project.

4.2 Populations and Sampling

The population in Kampung Babu, Debak consisted of approximately 400 residents living in 170 units. The populations over aged 35 and above are 200. Universal sampling was used with participation rate of 79%.

4.3 Inclusion and Exclusion Criteria

Adult residents of Kampung Babu, Debak aged 35 years and above with or without diabetes mellitus were included.

Exclusion criteria are those who were non-residents or stayed less than a year, residents aged less than 35 years of age, those who refused to be interviewed, residents who were unresponsive and residents who were unavailable after 3 times on attempts to interview.