



Faculty of Medicine and Health Sciences

**A STUDY ON THE KNOWLEDGE, ATTITUDE AND PRACTICE ON
DIABETES MELLITUS AMONG POPULATION AGED 18-YEARS-OLD
AT NANGA SEKUAU RESETTLEMENT SCHEME FROM 25TH APRIL
TO 10TH JULY 2011**

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MELLITUS AMONG POPULATION AGED 18-YEARS-OLD AT NANGA SEKUAU
RESETTLEMENT SCHEME FROM 25TH APRIL TO 10TH JULY 2011**

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**Faculty of Medicine and Health Sciences
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DECLARATION

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TABLE OF CONTENTS

	Page
Acknowledgements	iii
Table of Contents	v
List of Tables	viii
List of Figures	x
Abstract	xii
CHAPTER 1- INTRODUCTION	
1.1 Background	3
1.2 Statement of Problem	5
1.3 Objective	7
1.3 Hypothesis – research hypothesis & null hypothesis	8
1.4 Operational Definitions	8
1.5 Literature review	10
CHAPTER 2 : RESEARCH METHODOLOGY	
2.1 Research Design	21
2.2 Population and Sampling	21
Inclusion and Exclusion Criteria	23
2.3 Variables	24
2.4 Methods of Data Collection	24
2.5 Data Entry And Analysis	26

CHAPTER 3- HEALTH INTERVENTION

3.1	Introduction	30
3.2	Pre-intervention Activities	30
3.2.1	Health Talk	30
3.2.2	Pre-intervention Day	31
3.4	Intervention day	34
3.5	Post-intervention	39

CHAPTER 4- RESULTS

4.1	Introduction	46
4.4	Level of Knowledge	55
4.5	Level of Attitude	64
4.6	Level of Practice	69
4.11	Comparison of Pre- and Post-Intervention	83

Score of the Respondents in terms of

Level of Knowledge and Level of Attitude

CHAPTER 5 : DISCUSSION	
5.1 Pre-intervention	96
5.1.1 Knowledge	97
5.1.3 Attitude	102
5.1.4 Practice	108
5.2 Post intervention	113
CHAPTER 6- CONCLUSION	
6.1 Conclusions	120
6.2 Recommendations	121
Bibliography	124
Appendices	
A- Consent form (English Version)	134
B- Consent form (Malay Version)	136
C- Questionnaire (English Version)	138
D- Questionnaire (Malay Version)	143

LIST OF TABLES

1.0	The sample size of the population calculated using OpenEpi version 2.3 (Dean, Sullivan, & Soe, 2010).	22
2.0	Number of respondents for each longhouse	23
3.0	Gantt Chart	29
3.1	Result of health screening	36
4.1	Distribution of the respondents' answers on general questions on diabetes mellitus	58
4.2	Distribution of the respondents' answers on signs and symptoms of diabetes mellitus	59
4.3	Distribution of the respondents' answers on risk factor of diabetes mellitus	60
4.4	Distribution of the respondents' answers on ways to control diabetes mellitus	61
4.5	Distribution of the respondents' answers on complications of diabetes mellitus	62
4.6	Distribution of the respondents' answers on ways to control diabetes mellitus	63
4.7	Distribution of the respondents' attitude toward seeking knowledge on diabetes mellitus	66
4.8	Distribution of the respondents' attitude toward prevention on diabetes mellitus	67
4.9	Distribution of the respondents' attitude toward treatment on diabetes mellitus	68
4.10	Distribution of the respondents' practice on diabetes mellitus	71
4.11	Distribution of the respondents by food pyramid practice on diabetes mellitus	72
4.12	Distribution of the respondents by physical activity practice on diabetes mellitus	73
4.13	Relationship between knowledge on diabetes mellitus and socio-demographic characteristics	74

4.14	Relationship between attitude towards diabetes mellitus and socio-demographic characteristics	76
4.15	Relationship between level of practice on control of diabetes mellitus and socio-demographic characteristics	79
4.16	Inter-relationship between the level of knowledge, attitude and practice on diabetes mellitus	82
4.17	Relationship between changes of knowledge and socio-demographic characteristic	83
4.18	Relationship between changes of attitude and socio-demographic characteristic	87
4.19	Relationship between changes of practice and socio-demographic characteristic	90
4.20	Relationship between changes of practice and socio-demographic characteristics	93

LIST OF FIGURES

1.0	Research methodology flow chart	27
3.1	Respondents awareness of intervention day	39
3.2	Sources of respondents awareness of intervention day	40
3.3	Attendant of respondents on intervention day	41
3.4	Reasons of respondents absent of intervention day	41
3.5	Respondents rating toward intervention day	42
3.6	Rating of the health talk by the respondents	43
3.7	Rating of the exhibition by the respondents	43
3.8	Rating of the health screening by the respondents	44
3.9	Rating of the pamphlet by the respondents	44
4.1	Distribution of the respondents by sex	47
4.2	Distribution of the respondents by age	48
4.3	Distribution of the respondents by occupation	49
4.4	Distribution of the respondents by level of education	50
4.5	Distribution of the respondents by monthly income category	51
4.6	Distribution of respondents by BMI category	52
4.7	Distribution of respondents by marital status	53
4.8	Prevalence of diabetes mellitus among the sampled population	54
4.9	Distribution of respondents by source of diabetes mellitus information	55
4.10	Histogram of total knowledge score	56
4.11	Distribution of the respondents by category of knowledge on diabetes mellitus	57

4.12	Histogram of total attitude score	64
4.13	Distribution of the respondents by category of attitude on diabetes mellitus	65
4.14	Histogram of total practice score	69
4.15	Distribution of the respondents by category of practice on diabetes mellitus	71
4.16	Post-intervention changes of knowledge on diabetes mellitus	84
4.17	Post intervention changes of attitude on diabetes mellitus	85
4.18	Post Intervention Changes of Practice on Diabetes Mellitus	86

ABSTRACT

Introduction

Diabetes is a non-communicable disease of growing concern nowadays. It is now recognized as major global health problem of pandemic proportions. An intervention programme was conducted among the residents of seven longhouses at Nanga Sekuau Resettlement Scheme from 25th April to 10th July 2011 with a view to assess their changes of knowledge, attitude and practice (KAP) on diabetes mellitus.

Objectives

The main objective of the study was to determine the level of knowledge, attitude and practice on diabetes mellitus among population in Nanga Sekuau, Sibuh and to determine the changes of knowledge, attitude and practice on diabetes mellitus following intervention.

Method

The multi-stage sampling method was used and an interview-based pre-tested questionnaire was administered among the longhouse residents, with a total of 192 respondents being included in the programme. Explanations were given whenever the respondent was unable to understand the question during the interviews. Completed data was analyzed with the SPSS (Statistical Package for Social Sciences) version 17.

Results

Majority of the respondents were non-diabetic. Their knowledge on the disease was not satisfactory as there were 54.7% of respondents with good knowledge. For their attitude was satisfactory also with 55.7%, the total score for practice was satisfactory with 52.1% having good practice. There was a statistically significant positive correlation was found between knowledge and attitude and also knowledge and practice ($p < 0.05$). There was also positive correlation between attitude and practice toward diabetes mellitus but the correlation was not

statistically significant ($p>0.05$). The results also showed that the knowledge, attitude and practice of the respondents toward diabetes mellitus improved significantly after the health intervention. The result showed that the health intervention programme at the longhouses was effectively improved the residents' knowledge, attitude and practice on diabetes mellitus.

Conclusion

Most of the risk factors of diabetes mellitus are modifiable. We can prevent the complication of the diabetes mellitus. Hence, steps should be taken to improve the community's knowledge on the modifiable risk factors and complications of diabetes mellitus. This will improve the attitude and practice among the community. The health intervention conducted at the seven longhouses of Nanga Sekuau Resettlement Scheme was proven effective in improving the residents' knowledge, attitude and practice toward diabetes mellitus.

ABSTRAK

Pengenalan

Diabetes mellitus (kencing manis) adalah suatu penyakit tidak berjangkit yang semakin merisaukan baru-baru ini. Kini diabetes telah dikenalpasti sebagai salah satu masalah kesihatan global yang mencapai tahap pandemik. Suatu program intervensi telah diadakan dalam kalangan penduduk di tujuh buah rumah panjang di Skim Penempatan Semula Nanga Sekuau dari 25 April hingga 10 Julai 2011 dengan matlamat untuk mengenal pasti pengetahuan, sikap dan praktis (KAP) terhadap penyakit diabetes mellitus.

Objektif

Objektif utama kajian ini adalah untuk mengenal pasti tahap pengetahuan, sikap dan praktis terhadap diabetes mellitus dalam kalangan penduduk Nanga Sekuau, Sibu dan untuk mengenal pasti perubahan tahap pengetahuan, sikap dan praktis terhadap diabetes mellitus selepas intervensi.

Kaedah

Kaedah multi-stage sampling telah digunakan dan soal selidik telah diberi kepada para penduduk dan diisi berdasarkan temubual, dengan jumlah 192 responden disertakan dalam program tersebut. Penerangan lanjut diberi jika responden tidak memahami soalan semasa temubual. Data yang lengkap telah dianalisa dengan SPSS (Statistical Package for Social Sciences) versi 17.

Keputusan

Majoriti daripada responden adalah bukan diabetik. Tahap pengetahuan mereka tentang penyakit tersebut tidak memuaskan kerana hanya 54.7% daripada responden yang ada tahap pengetahuan yang bagus terhadap diabetes mellitus. Tahap sikap mereka memuaskan dengan skor 55.7% yang mempunyai tahap sikap baik; dan tahap praktis mereka juga memuaskan

dengan skor 52.1% yang mempunyai tahap praktis baik. Terdapat korelasi (correlation) atau pertalian positif yang penting secara statistik antara pengetahuan dan sikap dan juga antara pengetahuan dan praktis ($p < 0.05$). Terdapat juga korelasi positif antara sikap dan praktis terhadap diabetes mellitus tetapi korelasi tersebut tidak penting secara statistik ($p > 0.05$). Keputusan juga menunjukkan bahawa pengetahuan, sikap dan praktis responden terhadap diabetes mellitus telah meningkat selepas intervensi kesihatan diadakan. Keputusan ini menunjukkan bahawa program intervensi kesihatan di rumah-rumah panjang adalah efektif dalam meningkatkan pengetahuan, sikap dan praktis dalam kalangan penduduk terhadap diabetes mellitus.

Kesimpulan

Kebanyakan faktor-faktor risiko diabetes mellitus boleh diubah. Kita boleh mengelak komplikasi-komplikasi diabetes mellitus. Oleh itu, tindakan seharusnya diambil bagi meningkatkan pengetahuan komuniti tentang faktor-faktor risiko yang boleh diubah serta komplikasi diabetes mellitus. Ini akan meningkatkan sikap dan praktis dalam komuniti. Intervensi kesihatan yang telah diadakan di tujuh rumah panjang di Skim Penempatan Semula Nanga Sekuau telah terbukti efektif dalam meningkatkan pengetahuan, sikap dan praktis dalam kalangan penduduk terhadap diabetes mellitus.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Gale and Anderson (2009a) defined diabetes mellitus as “a syndrome of chronic hyperglycaemia due to the relative insulin deficiency, resistance or both” (p.1047). Based on the World Health Organization (WHO) and International Diabetes Federation (IDF) (2006), it is defined as a chronic disease, which occurs when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin it produces which subsequently leads to an increased concentration of glucose in the blood.

Diabetes mellitus affects millions of people worldwide. It was estimated that there would be almost double the increase in the number of people with diabetes from 171 million in 2000 to 366 million in 2030 (Wild *et al.*, 2004). Hence, diabetes mellitus is a serious growing public health concern with a vital human and economic burden in Malaysia. According to the Malaysian National Health Morbidity Survey III 2006, the prevalence of diabetes in Malaysia was 11.6% whilst in Sarawak, the prevalence was 10.0% (Letchuman *et al.*, 2010). In 1993, the prevalence of diabetes among Malaysian adults was 8.2% in urban areas and 6.7% in rural areas (WHO, 2000). The study done by Letchuman and his colleagues in 2010 showed that urban areas had a prevalence of diabetes at 12.2% as compared to rural areas at 10.6% which both areas showed a rising trend from 1993.

In accordance to the age prevalence, there was a general trend where those 18 to 19 years old had a prevalence of 2.0% while those 60 to 64 years old had a prevalence of 20.8 to 26.2% (Letchuman *et al.*, 2010). However, there was no gender difference in the prevalence of diabetes as reported by Letchuman *et al.* (2010).

Apart from that, in Malaysia, the number of people with diabetes mellitus also steadily increased over the years with an estimate of 0.65% in 1960, to 2% in 1982, while complication rates and associated diseases amongst diabetics are significantly high (Oldroyd *et al.*, 2005). There were 942 000 diabetics in Malaysia in 2000 and the prevalence are expected to increase to 2.48 million by 2030 (WHO). As of the year 2010, the current Malaysian population was 28.25 million and the total population of Sarawak was 2.506 million (Department of Statistics Malaysia, 2010).

The increased prevalence and trends of diabetes is partly due to the lack of knowledge and poor attitude towards diabetes as a whole among the Malaysian population. A recent study done by Badruddin Naeema *et al.*, (2002) showed that overall knowledge regarding diabetes was not satisfactory in Pakistan. Around 54% had poor knowledge about diabetes. 34% had fair knowledge about diabetes while only 13% had good knowledge.

There are many risk factors related to diabetes mellitus. Almost 90% of cases, genetic predisposition are responsible. It is due to the defects of genes that lead to the peripheral insulin resistance and reduced insulin secretion by pancreatic beta cells, thus, leading to development of type 2 diabetes mellitus. Apart from that, obesity is related to the development of type 2 diabetes mellitus particularly the central abdominal obesity which is associated with increased insulin resistance. In an obese person who is non-diabetic, there is increased level of insulin and down regulation of insulin receptors (Funk, 2006). Sedentary lifestyle is correlated with obesity as it also increased risk of type 2 diabetes mellitus. Physical inactivity is also a risk factor but it involves genetic and environmental factors. Recent study suggested that reduced intake of dietary fibers, reduced glycaemic carbohydrates and whole grain cereals contributed to increased risk of type 2 diabetes mellitus (Uusitupa, 2002).

The practice or preventive measures concerning diabetes among the general population showed a relationship with the level of knowledge and attitude (Kamel *et al.*, 1999). Practices such as exercise and proper dietary practices will help to prevent the development of diabetes and to control the diabetic level in patients who are already known to have diabetes. Kamel *et al.* (1999) concluded that diabetic patients lacked knowledge and consequently had low levels of self-care practices and this is expected, as health information of some kind may be necessary before a personal health action is carried out (Kamel *et al.*, 1999). On the other hand, according to Sarawak Health Department (2011) official website, there are few measures taken where they are conducting routine screening for diabetes mellitus in 53 government polyclinics and health clinics in Sarawak lately. As a result from this, a total of 2800 diabetic patients have been detected from the month of January till June 2002.

The knowledge, attitude and practice regarding diabetes also reflect the underlying behavioural, environmental and social factors of the target community (Mafauzy, 2006). At the end of this study and intervention, we hope to impact the study population towards reducing risk factors in diabetes and for those who are already diagnosed with diabetes, have a better control of their disease and increased quality of life.

1.2 Background Information

Sibu Division is one of the eleven administrative divisions of Sarawak with a total area of 8,278.3 square kilometres. It is the third largest division after Kuching Division and Miri Division.

The population of Sibul Division was 293,514 in the year 2010. The ethnic groups are mostly Iban, Chinese, Malay and Melanau. It consists of 3 districts which are Sibul, Kanowit and Selangau.

On the other hand, Selangau is a small town which is located by the Pan Borneo Highway (Sibu-Bintulu Road). It is located approximately 74 km from Sibul town, 84 km from Mukah town and 134 km from Bintulu town. Selangau town is the administrative town for the Selangau district. The population of the district in 2010 is 24,412, with the Iban as the majority. There are also Chinese, Malay and Melanau in Selangau.

This study focused on the Iban community at Nanga Sekuau. Nanga Sekuau was located at Selangau District, approximately 45 kilometres away from Sibul town. It consisted of 24 longhouses and the population was estimated of more than 2000 residents and Iban ethnic was the major community group (98%) with remaining 2% shared by other races such as Melanau and Chinese. Majority of them worked as farmers. Some of them worked as government servants or involve in private sectors.

Nanga Sekuau is well-equipped by various infrastructures including the clean water supply provided by JKR water supply, 24 hour electrical supply provided by Sarawak Electrical Supply Company (SESCO). There is also a Nanga Sekuau Health Clinic run by 2 medical assistant, 2 staff nurses, 2 community nurses, 2 drivers and 3 health attendants. It provides range of health services including Outpatient Department (OPD), Mother and Child Healthcare Centre (MCHC), Village Health Team (VHT), School Health Team, Special Children Early Intervention Program and '*Program Warga Emas*'. Apart from that, primary school SK Penghulu Imban, district police station and a market are also available within that area. This longhouses area is accessible by road and also by means of water transportation.

Out of 24 longhouses in Nanga Sekuau, 7 longhouses are selected for this study. There are Rumah Tungku ak Balang, Rumah Renang ak Usit, Rumah Saba ak Banggang, Rumah Kiroh ak Luyoh, Rumah Dominic Daud ak Ansi, Rumah Francis ak Jetai and Rumah Rossidah ak Gendi. The estimated population for each longhouse is around 120 people. Overall, the estimated population is 840 people inclusive the adults and children. The estimated doors of each longhouse are 20 doors each. Majority of the residents at the longhouse are the elderly. Diseases such as diabetes mellitus, hypertension and gout are common in those areas of longhouses mentioned above.

1.3 Statement of Problem

Diabetes mellitus is one of the most common chronic diseases affecting people worldwide. The International Diabetes Federation (IDF) Diabetes Atlas (2009a) estimates that 285 million people around the world have diabetes. This total is expected to rise to 438 million within 20 years. Each year a further 7 million people develop diabetes. IDF predicts by 2030, the South East Asia Region would have an estimated diabetes prevalence of 8.4% and impaired glucose tolerance (IGT) prevalence of 6.4% affecting 1200 million people age 20 to 79 years old (IDF Diabetes Atlas, 2009b).

In Malaysia, prevalence of diabetes mellitus in 2006 was found to be 11.55% by a study conducted by Third National Health Morbidity Survey team, compared to 8.2% in 1996, thus indicating this health problem as a growing concern among the community. Diabetes has become one of the leading causes of morbidity and mortality globally.

According to research done by Wong and Rahimah in 2004, achieving glycaemic goal has always been a problem, especially in a developing country with inadequate facilities such

as in Sarawak in Malaysia. Evidence suggest that in more affluent parts of the country, the rural prevalence is higher than in less affluent rural area (IDF Diabetes Atlas, 2009b).

In one study at Kenya, 27.2% of all the respondents had a good knowledge of diabetes; of these 52% had tertiary education; 25% had secondary education while 14% and 9% had primary and no education, respectively. Only 49% of the respondents had a positive attitude towards while 41% demonstrated good practices towards diabetes (Maina *et al.*, 2010). Another study done at Cheras, Kuala Lumpur on the level of awareness on diabetes mellitus and the level of physical activity among Malaysian public, they found that 66.7% of respondents with highest education level had the highest level of awareness, followed by 27.8% for those with secondary education and 5.6 for poor educational background (Ayiesah *et al.*, 2010).

The second National Health Morbidity Survey team estimated that in 2006, the prevalence of diabetes Mellitus will be around 10% but the third National Health and Morbidity Survey found that the prevalence of diabetes mellitus in 2006 is 11.55%. In spite of all intervention taken by Malaysian government the prevalence of diabetes mellitus still increased beyond estimation.

The Ministry of Health have established a non-profit organization which is The National Diabetes Mellitus Institute (NADI). It has been active in creating awareness for better care and prevention of diabetes, its complications and co-morbidities. In conjunction with the national target we have decided to conduct a cross sectional study to assess the level of knowledge, attitude and practice towards diabetes mellitus among community in Nanga Sekuau. In this research, we also want to identify the effect of socio demographic factors on the level of knowledge, attitude and practice among the sampled population.

The research results was analyzed to assess the level of knowledge, attitude and practice concerning diabetes mellitus among this community. The outcome of this research provided appropriate guidelines to researchers, resulting in better care to the people with diabetes mellitus, ultimately leading to a reduction in morbidity and mortality among a large segment of the population.

1.4 Objective

1.4.1 General Objective

The main objective of the study was to determine the level of changes on knowledge, attitude and practice on diabetes mellitus among the population of Nanga Sekuau, Sibu following health promotion intervention. So, the ultimate objective of the study was to increase the awareness among the population in Nanga Sekuau towards diabetes mellitus and promote healthy lifestyle.

1.4.2 Specific Objectives

- i. To assess the socio-demographic characteristic of respondents i.e. age, gender, education level, occupation, household income and personal or family history of diabetes mellitus.
- ii. To assess the level of knowledge of the respondents regarding diabetes mellitus in term of risk factors, sign and symptoms, complications, preventions and treatments.
- iii. To estimate the prevalence of diabetes mellitus among the sampled population.

- iv. To assess the respondent's level of attitude in seeking knowledge, treatment, prevention of risk factors contributing to diabetes mellitus.
- v. To assess the level of practice concerning diabetes mellitus among the respondents in reducing risk factors and delay in complications.
- vi. To determine the relationship of knowledge, attitude and practice with socio demographic factors.
- vii. To compare the level of changes on knowledge, attitude and practice concerning diabetes mellitus between pre-intervention and post-intervention.

1.5 Hypothesis

- i. There is a significant difference in level of knowledge, attitude and practice between different socio-demographic characteristics.
- ii. There is an increase of the level of knowledge, attitude and practice on diabetes post-intervention.

1.6 Operational Definition

Diabetes mellitus

Relative or absolute lack of insulin leading to uncontrolled carbohydrate metabolism (fasting blood glucose $>7\text{mmol/L}$ or random blood glucose $>11.1\text{mmol/L}$).

Diabetic respondent

Respondent who have been diagnosed with diabetes mellitus at any time in their life by a medical doctor.

Non-diabetic respondent

Respondent who do not suffer from diabetes mellitus.

Knowledge