

STRESS COPING SKILLS AMONG DIABETES SUFERERS IN SEPANG SELANGOR MALAYSIA

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ABSTRACT

Stress is a potential contributor to elevate blood glucose level in diabetic patients and diabetes, which is the leading cause of many chronic diseases, is showing increasing trend among adults in every country. This study investigates the prevalence of diabetes among stress sufferers and to identify stress coping skills in rural and urban area of Sepang, Selangor. A cross-sectional study were conducted in a village and housing estate area in Sepang, Selangor with sample of 196 in Kg UluTeris and 174 in Taman Mawar. A simple random sample of adults aged 18 years and above was selected. Data was collected by an interviewed questionnaire and blood collection. Overall, 33.7% of respondents in rural and 54.6% in urban areas were having stress. The rural-urban difference in prevalence of diabetes among stress respondents were greatest with 50.5% in urban, whereas 37.9% in rural. It was also higher compared to non-diabetics in urban area. The common cause of stress in urban was work and coping skill was self-distraction, whereas in rural area was family and religious activities, respectively. It is crucial for this group of subjects to practice appropriate stress coping skills and practice healthy life style.

Keywords: stress, diabetes mellitus, rural, urban, stress management

1.0 INTRODUCTION

World Health Organization (2001) has define mental health as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community. Stresses can be external (from the environment, psychological, or social situations) or internal (illness, or from a medical procedure).

Yvette C. Terrie (2010) stated that stress can exacerbate various medical conditions, such as asthma, hypertension and fluctuations in blood glucose levels in diabetic patients. Stress is a potential contributor to chronic hyperglycemia in diabetes because it stimulates the release of various hormones, which can result in elevated blood glucose levels (Richard S. et al, 1992).

The prevalence of diabetes for all age-groups worldwide was estimated to be 2.8% in 2000 and 4.4% in 2030 (Sarah W. et al, 2004) and it is the leading cause of kidney failure, non-traumatic lower-limb amputations, new cases of blindness and also major cause of heart disease and stroke in United States (NDIC, 2011).

Coping has been viewed as a stabilizing factor that may assist individuals in maintaining psychosocial adaptation during stressful events. Thus, the actual reaction to an environmental event may be as important as the event itself (Robin, 2002). Therefore appropriate stress coping skill might be useful to maintain blood sugar level and prevent from development of diabetes.

Hence, this study was design to determine the prevalence of diabetes among stress sufferers of Sepang, Selangor and to identify their stress coping skills.

2.0 METHODOLOGY

Cross-sectional study was conducted in a village and housing estate area in Sepang, Selangor. The areas have been chosen because they have different characteristic, in which Kg Ulu Teris is a village located in a rural area, whereas Taman Mawar 2 is located in town. Rural is an area with population less than 10,000 people having agriculture and natural resources (MRRD, 2010) and urban is defined as an area with a population of 10,000 or more (Department of Statistics, 2010).

A simple random sample of Malaysian aged 18 years and above, and have been residents for at least one year, was selected. Residents with mental disorder, having hearing impairment and do not understand Malay language, were excluded.

Data were collected through:

- i. Questionnaire interview, which had been pre tested;
- ii. random blood sugar was taken and the measurement was adapted from CPG for Management of Type 2 Diabetes Mellitus (CPG 4th ed., 2009)

RBS Categories: Normal : < 7.0 mmol/l

Risk : 7.0-11.0 mmol/l

Diabetic : > 11.0 mmol/l

- iii. DASS 21 has been used to assess the stress level (Lovibond, S.H. et al, 1995).

Stress Categories: Normal : < 15

Stress : ≥ 15

3.0 RESULTS

One hundred ninety-six (196) and one hundred and seventy four (174) adults were selected from Kg UluTeris and Taman Mawar 2 respectively.

Table 1. Prevalence of stress among respondents

Stress status	Kg UluTeris			Taman Mawar 2		
	No.	%	P value	No.	%	P value
Normal	130	66.3	0.001	79	45.4	0.001
Stress	66	33.7		95	54.6	
TOTAL	196	100		174	100	

Only 66 (33.7%) respondents from Kg UluTeris and 95 (54.6%) from Taman Mawar 2 were having stress (Table 1). Overall, the percentage of having stress were higher in Taman Mawar 2 compared to Kg UluTeris ($p=0.001$).

Table 2 presents the characteristics of respondents with stress. Majority of the respondents from both areas were still married (69.7% and 71.5% respectively), had secondary education (63.6% and 68.4% respectively) and working as supportive staffs (42.4% and 33.7% respectively). Female (57.6%) and 40-49 age range (30.3%) were the majority respondents who were having stress in Kg UluTeris. Whereas male (41.1%) and 30-39 age range (41.1%) were higher in Taman Mawar 2. According to race, almost all respondents were Malays.

Table 2 Socio-demographic characteristics of respondents with stress

Sociodemography	Prevalence of stress			
	Kg UluTeris		Taman Mawar 2	
	No.	%	No.	%
Gender Male	28	42.4	39	41.1
Female	38	57.6	56	38.9
Age 18-19 years old	6	9.1	4	4.2
20-29 years old	13	19.7	18	18.9
30-39 years old	10	15.2	39	41.1
40-49 years old	20	30.3	21	22.1
50-59 years old	14	21.2	7	7.4
60-69 years old	3	4.5	6	6.3
Race Malay	66	100	89	93.7

Chinese	0	0	5	5.3
Indian	0	0	1	1.0
Other	0	0	0	0
Marital Status				
Single	17	25.8	21	22.1
Married	46	69.7	68	71.5
Divorced	2	3.0	3	3.2
Widow	1	1.5	3	3.2
Education Level				
No formal education	4	6.1	1	1.1
Primary education	7	10.6	1	1.1
Secondary education	42	63.6	65	68.4
Tertiary education	13	19.7	28	29.4
Occupation				
Managerial	2	3.0	11	11.6
Professionals	1	1.5	13	13.7
Supportive	28	42.4	32	33.7
Self-Employed	6	9.1	5	5.3
Retired	0	0	2	2.1
Unemployed	4	6.1	5	5.3
Housewives	16	24.2	18	18.9
Students	9	13.7	9	9.4
TOTAL	66	100	95	100

Table 3 Prevalence of diabetic sufferer among respondents who have stress

Diabetic Status	Stress status					
	Kg UluTeris		P value	Taman Mawar 2		P value
Yes (%)	No (%)	Yes (%)		No (%)		
Yes	25 (37.9)	14 (10.3)	0.630	48 (50.5)	35 (44.5)	0.111
No	41 (61.1)	116 (89.2)		47 (49.5)	42 (55.5)	
TOTAL	66	130		95	8	

Among the respondents who were having stress, 37.9% and 50.5% were also having diabetes in Kg UluTeris and Taman Mawar 2, respectively (Table 3). The prevalence of diabetes was also higher

among stress respondents in Taman Mawar 2, compared to non-diabetes. However statistically was not significant ($p=0.111$).

Table 4 Causes of stress among respondents who have stress and diabetes

Causes of stress	Kg UluTeris			Taman Mawar 2		
	No.	%	P value	No.	%	P value
Education	1	4.0	0.001	5	10.4	0.001
Family	18	72.0		17	35.4	
Financial	2	8.0		3	6.3	
Work	4	16.0		23	47.9	
TOTAL	25	100		48	100	

Table 4 shows the common causes of stress among the residents who were also diabetic sufferer. In Kg Ulu Teris, family is the main cause of stress (72%) followed by work, financial and education ($p=0.001$). Whereas work (47.9%), family (35.4%) and education (10.4%) were the higher causes of stress in Taman Mawar 2 ($p=0.001$).

Table 5 Stress coping skill among respondents who have stress and diabetes

Stress coping skill	Kg UluTeris			Taman Mawar 2		
	No.	%	P value	No.	%	P value
Emotional social support	3	12.0	0.690	2	4.2	0.919
Exercise	1	4.0		2	4.2	
Religious coping	10	40.0		7	14.6	
Relax	4	16.0		16	33.3	
Self-distraction	5	20.0		17	35.4	
Smoking	2	8.0		4	8.3	
TOTAL	25	100		48	100	

Forty percent of respondents in Kg UluTeris used religious activities to reduce their stress, whereas self-distraction (35.4%) was the most common stress coping skill used in Taman Mawar 2 (Table 5). However statistically were not significant ($p=0.690$ and $p=0.919$ respectively).

4.0 DISCUSSION

Depressed adults have a 37% increased risk of developing type 2 diabetes mellitus compared to those who aren't (Knol et al., 2006). A review by Pouwer F et al (2010) found that not only depression, but general emotional stress and anxiety are also associated with an increased risk for the development of type 2 diabetes. It was comparable with this study but true only in urban area. This might be due to diet, which typically high consumption of fast food because they have the option to choose and accessible to a lot of different take away fast food restaurants, as reported by Omar (2012) where 84% from rural schools eating at fast food restaurants compared to 93.3% from urban schools.

There are many causes of stress, including daily hassle, work conflict and family conflict. A study in the United States showed that 76% of people cited money and work as the leading cause of their stress (APA 2010). It was comparable with this study especially in urban area, in which work was the main causes, whereas family was the leading cause in the rural area. The finding was supported by David R. (1983), where for rural families, high rates of stress were associated with low levels of interaction because it was speculated that family interaction is, comparatively, more highly valued in the rural family.

Studies have revealed that prevalence of stress were higher in women (28%) [APA, 2010], married people (17.7%) [Kocalevent, R. et al., 2011], Malay (35%) [Yusoff, M. et al., 2010] and managerial group (29.2%) [Adzlin, U., 2011]. In this study, prevalence of stress were higher among women in rural area. This might explain why there are more women with diabetes than men (Sarah et al, 2004). However the higher prevalence of stress among married people and Malay were comparable to this study. The higher prevalence of stress among supportive staffs might be due to long hours job, heavy workload or poor physical work conditions as stated by Michie S. (2002).

Type 2 diabetes (non-insulin-dependent) mellitus is not only one of the most complicated diseases managed in primary care, but patients with diabetes experience a decrease in their 'quality of life' compared with healthy individuals and that functional health status decreases as complications become more severe (Hwee LW, 2005). Richard S. et al, (2002) reported 32% of patients who had stress management showed lower level of HbA_{1c} compared to only 12%. Therefore stress management might be an effective treatment modality for diabetic patients with stress.

There are different ways to cope with stress. Women are far more likely than men manage stress by reading (57 % vs. 34 % for men) and overall, tend to report more stress management activities that connect them with other people, like spending time with friends or family (54 % vs. 39 %) and going to church or religious services (27 % vs. 18 %) [APA, 2010]. Another study done by Sudhaker, C. and Gomes, L. (2010) revealed 100% agree that stress is unavoidable and try to accept it, whereas other ways to reduce stress were opt for discussion with their spouse or loved ones (95%), engage in hobbies like reading or listening music (93.33%) and put the problem aside (86.66%). Few use avoidance coping strategies like blame someone else for their problem (8.33%), sleep more than usual (5%) and eat more (1.33%). Coping responses can be described as positive or negative and as reactive (i.e. reacting to an individual's own thoughts and feelings) or active

(dealing with actual stressful situations or events). Active or reactive coping responses can be positive or negative, depending on the situation and the content of the response (Shields N,2001).This study showed that rural area population preferred religious activities (eg: pray, go to mosque) for their stress management compared to self-distraction (eg: shopping, sleeping, eating) and relax (eg: meditation) in urban. These results may reflect the age of population in the areas, in which there were many older age residents in rural area compared to urban area. However percentage for negative responses such as smoking was very low for both areas (8% in Kg Ulu Teris and 8.3% in Taman Mawar 2).

5.0 CONCLUSION

Although diabetic stress was more common in urban than rural but there is a potential the prevalence was getting higher. In association with increasing diabetes prevalence, this will inevitably result in increasing proportions of deaths from cardiovascular disease, as well as increased prevalence and associated consequences of other complications of diabetes. An awareness to practice appropriate stress management is crucial, not only could reduce stress but indirectly may prevent development of diabetes. More exploratory behavioral analysis and comprehensive evidence-based strategies of intervention should be introduced, including periodic monitoring.

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