

THE ASSOCIATION OF SHIFT WORK AND  
METABOLIC SYNDROME AMONG FEMALE  
NURSES IN HOSPITAL UNIVERSITI SAINS  
MALAYSIA, KUBANG KERIAN, KELANTAN.

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## LIST OF ABBREVIATIONS

AHA	American Heart Association
ATP III	Adult Treatment Panel III
BMI	Body Mass Index
CI	Confidence Interval
CHD	Coronary Heart Disease
CVD	Cardiovascular diseases
DASS	Depression, Anxiety, Stress Scale
<i>df</i>	Degree of freedom
LDL-C	Low density lipoprotein- Cholesterol
HDL-C	High density lipoprotein- Cholesterol
HUSM	Hospital Universiti Sains Malaysia
IARC	International Agency for Research on Cancer
IDF	International Diabetes Federation
ILO	International Labour Organization
IQR	Inter quartile range
IR	Insulin Resistance syndrome
JCQ	Job Content Questionnaire
MET	Metabolic energy expenditure
NCD	Noncommunicable Disease Section, Ministry of Health Malaysia
NCEP	National Cholesterol Education Program
NHMS	National Health Morbidity Survey
NIH	National Institutes of Health
OR	Odds ratio

OCP	Oral contraceptive pills
ROC	Receiver Operating Characteristics
RR	Relative risk
SD	Standard Deviation
SE	Standard Error
SPSS	Statistical Package for Social Science
TG	Triglyceride
USA	United States of America
USM	Universiti Sains Malaysia
WC	Waist circumference
WHO	World Health Organization
WHR	Waist Hip Ratio

## **ABSTRAK**

### **PENGENALAN**

Pekerja syif telah didapati berisiko mendapat penyakit jantung koronari. Kebelakangan ini banyak pertubuhan kesihatan telah merangkumkan beberapa faktor risiko untuk penyakit jantung koronari dan diabetes kepada satu sindrom bernama Sindrom Metabolik. Kajian ini telah direka bentuk untuk menentukan prevalen sindrom metabolik menggunakan definasi NCEP (ATP III), mengetahui ciri-ciri jururawat wanita di HUSM, Kubang Kerian yang mendapat sindrom metabolik dan menentukan hubungkait antara kerja syif dan sindrom metabolik dalam kalangan jururawat wanita di HUSM, Kubang Kerian, Kelantan.

### **METODOLOGI**

Satu kajian hirisan lintang telah dijalankan daripada bulan Januari hingga April 2009 ke atas 404 jururawat wanita di HUSM, Kubang Kerian. Semua jururawat yang memenuhi kriteria yang dikehendaki telah diambil sebagai peserta dalam kajian, iaitu seramai 227 orang yang bekerja secara syif dan 177 orang yang bekerja waktu pejabat. Data kajian dikumpul dengan menggunakan borang kajiselidik yang mengandungi maklumat tentang sosiodemografi, sejarah pekerjaan dan aktiviti fizikal serta soalan-soalan DASS 42 yang telah disahkan. Pemeriksaan antropometrik, tekanan darah dan darah vena berpuasa telah diambil bagi setiap peserta untuk tujuan ujian profil lipid dan ujian glukos darah. Data kajian telah dianalisa dengan ujian-t, ujian chi-square dan 'multiple logistic regression'.

## **KEPUTUSAN**

Majoriti peserta kajian adalah jururawat berbangsa Melayu dengan purata (SD) umur mereka adalah 42.1 (7.19) tahun. Purata (SD) jangka masa bekerja sebagai jururawat di HUSM adalah 17.8 (6.33) tahun. Majoriti jururawat tidak melakukan aktiviti fizikal (91.1%) dan 14.1% didapati mempunyai stres. Prevalen sindrom metabolik di kalangan jururawat adalah 24.3% (95% CI: 20.1, 28.5). Faktor-faktor signifikan menyumbang kepada sindrom metabolik selepas analisa multivariat ialah tempoh keseluruhan berkhidmat (tahun) dan tempoh perjalanan sehala ke tempat kerja (minit).

## **KESIMPULAN**

Prevalen sindrom metabolik yang tinggi menunjukkan jururawat adalah golongan pekerja yang berisiko tinggi untuk mendapat penyakit jantung koronari. Faktor-faktor pekerjaan yang mempunyai hubungkait dengan sindrom metabolik dalam kajian ini adalah tempoh keseluruhan berkhidmat dan tempoh perjalanan sehala ke tempat kerja, walaubagaimanapun tiada hubungkait antara sindrom metabolik dengan bekerja secara syif dan stres.

## **KATA KUNCI**

*Sindrom metabolik, jururawat, bekerja syif, pekerjaan*

## **ABSTRACT**

### **INTRODUCTION**

Shift workers were found to be at risk for coronary heart disease (CHD). Lately many health organizations have clustered the risk factors for CHD and diabetes to a syndrome called metabolic syndrome. This study was designed to determine the prevalence of metabolic syndrome using the definition by NCEP (ATP III), to describe the characteristic of female nurses in HUSM, Kubang Kerian with metabolic syndrome and to determine the association between shift work and metabolic syndrome among female nurses in HUSM, Kubang Kerian, Kelantan.

### **METHODOLOGY**

A cross sectional study was conducted between January to April 2009 among 404 female nurses in HUSM, Kubang Kerian. There were 227 shift workers and 177 day workers. All workers who fulfilled the study criteria were included in this study. Data collected using a questionnaire which consists of sociodemographic, occupational history and physical activity as well as DASS 42 questions (validated Malay version). Anthropometric, blood pressure measurement and fasting venous blood were taken from each subject for fasting lipid profile and fasting blood sugar. Data were analysed by t-test, chi-square test and multiple logistic regression.

## **RESULTS**

Majority of the respondents were Malay nurses with the mean age (SD) of 42.1 (7.19) years old. The mean (SD) duration of employment was 17.8 (6.33) years. Majority of nurses were physically inactive (91.1%) and 14.1% were having stress. The overall prevalence of metabolic syndrome was 24.3% (95% CI: 20.1, 28.5). The significant factors associated with metabolic syndrome after multivariable analyses were total duration of employment (years) and one way commuting time to work (minutes).

## **CONCLUSION**

High prevalence of metabolic syndrome indicates that nurses are occupational high risk group for CHD. Occupational factors significantly associated with metabolic syndrome in this study are total duration of employment and one way commuting time to work, however there is no significant relationship between metabolic syndrome with shift work and stress.

## **KEYWORDS**

*Metabolic syndrome, nurses, shift work, occupational*