ASSOCIATION BETWEEN OCCUPATIONAL STRESS AND LIFESTYLE FACTORS WITH METABOLIC SYNDROME AMONG NURSES IN AHVAZ CITY, IRAN.

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By

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Chair: Proffesor Zalilah Mohd Shariff,PhD

Faculty: Medicine and Health Sciences

Despite the fact that metabolic syndrome is an important health concern among nurses, very little research has examined metabolic syndrome and the contributing factors to its development in Ahvaz, Iran. Therefore, this present cross-sectional study was conducted in 13 hospitals Ahvaz city. There are 3000 registered nurses in the 13 hospitals making up the sampling frame of the study. A total of 450 of these nurses were randomly recruited based on the exclusion and inclusion criteria. Blood tests as well as anthropometric measurements were taken and all the nurses were given the study questionnaire.

Eventually, 417 out of the 450 nurses continued and completed the project (responsive rate 92.66%). The mean age of the participants was 35±7.78 year, and the mean years of job experiences were 9.58±6.98 years. About 10.8% of the participants had metabolic syndrome based on the ATPIII-definition. Meanwhile,
abdominal obesity was observed in 36.7% of the respondents (n=153). The prevalence of hypertension, high fasting blood glucose, high triglyceride and low HDL-cholesterol were 5.5%, 3.6%, 19.9%, and 22.1%, respectively. Only about one percent of the nurses had all the four metabolic syndrome components. High-level cholesterol was found in 25% of the respondents. The prevalence of Low HDL-cholesterol concentrations and the high LDL-cholesterol were 67.9% and 47.2% respectively. The prevalence of high triglyceride level was 22%. The prevalence of high-level fasting glucose (6.10-6.93 mmol/l) was 3.6%. A total of 142 (34.1%) respondents was classified in the 1st tertile occupational stress category (Score: 178-247), 134 (32.1%) were classified in the 2nd tertile category (Score: 248-270) and 141 (33.8%) were classified in the 3rd tertile category (271-354) as well.

The majority of nurses had either low (188 or 44.6%) or high (78 or 18.7%) physical activity levels. About 153 (36.7%) had moderate physical activity. Body mass index ($\chi^2=6.013$, $p=0.049$) and fasting plasma glucose ($F=9.452$, $p=0.009$) were significantly related to occupational stress respectively. In addition, total cholesterol was significantly related to occupational stress ($\chi^2=27.886$, $p=0.001$). Moreover the LDL cholesterol ($\chi^2=14.255$, $p=0.007$), healthy diet ($\chi^2=52.248$, $p=0.001$) western diet ($\chi^2=13.718$, $p=0.008$; $F=566.530$, $p=0.001$), traditional diet, were significantly related to occupational stress respectively. In addition, exposure to smoking was significantly related to metabolic syndrome ($\chi^2=8.055$, $p=0.005$). A significant association was found between age with occupational stress, ($\beta=0.266$, S.E=0.278, $p=0.001$). A significant association was seen among nurses who was exposed to smoke with occupational stress, ($\beta=-0.104$, S.E=0.001, $p=0.034$). A strong association between systolic blood pressure ($\beta=0.245$, S.E=2.417, $p=0.001$), diastolic
blood pressure ($\beta=0.204$, S.E=0.180, $p=0.001$) and sex; ($\beta=0.128$, S.E=1.876, $p=0.015$) was seen respectively. Beside results showed association between fasting plasma glucose with age ($\beta=204$ S.E=0.180, $p=0.001$) and education ($\beta=-0.112$, S.E=4.183, $p=0.034$) respectively. HDL cholesterol showed significant association with sex ($\beta=-0.075$, S.E=0.055, $p=0.032$), and marital status ($\beta=0.128$, S.E=0.724, $p=0.015$) respectively as well. Triglyceride with sex ($\beta=0.118$, S.E=12,126, $p=0.017$); and marital status ($\beta=-0.164$, S.E=6.635, $p=0.001$) showed significant association respectively. Similarly, triglyceride was significantly associated with education level ($\beta=-0.152$ S.E=11.685, $p=0.003$), as well as physical activity moderate ($\beta=0.125$, S.E=0.001, $p=0.041$) and leisure time recreation moderate (travel) ($\beta=0.113$ S.E=0.006, $p=0.042$). Likewise waist circumference had significant association with age, sex, marital status, years of job experience, education, high physical activity, and healthy diet ($p<0.05$). Additionally, a structural equation modeling analysis was performed to test the proposed mediation model. The model showed no effects of occupational stress factors on metabolic syndrome through lifestyle behavior. In conclusion, lifestyle behavior did not mediate the relationships between occupational stress and metabolic syndrome.
Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah.

PERKAITAN DI ANTARA TEKANAN KERJA, PAN FAKTOR-FAKTOR PENGAMBILAN MAKANAN DAN GAYA HIDUP DENGAN SINDROM GANGGUAN METABOLIKDI KALANGAN JURURAWAT DI BANDAR AHVAZ, IRAN.

Oleh

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Seramai 417 orang jururawat daripada 450 orang jururawat bersetuju untuk mengambil bahagian (kadar pengambilan jurawat adalah 92.66%). Min umur peserta adalah 35 ± 7.78 tahun, dan min pengalaman bekerja adalah 9.58 ± 6.98 tahun. Kira-kira 10.8% daripada peserta mempunyai sindrom metabolik berdasarkan definisi ATPIII. Sementara itu, 36.7% daripada keseluruhan responden mempunyai obesiti di bahagian abdomen. Prevalen hipertensi, tinggi paras glukosa dalam darah berpuasa, tinggi paras trigliserida dan rendah paras kolesterol berketumpatan tinggi masing-masing adalah 5.5%, 3.6%, 19.9%, dan 22.1%. Hanya kira-kira satu peratus daripada jururawat mempunyai kesemua empat komponen sindrom metabolik. Paras kolesterol yang tinggi didapati dalam 25% daripada responden. Prevalen kolesterol berketumpatan tinggi yang rendah dan kolesterol berketumpatan rendah yang tinggi masing-masing adalah 67.9% dan 47.2%. Prevalen paras trigliserida yang tinggi adalah 22%. Prevalen paras glukosa darah (6.10-6.93mmol/l) adalah 3.6%. Kira-kira 142 (34.1%) responden telah dikelaskan dalam kategori tertile pertama untuk tekanan pekerjaan (Skor: 178-247), 134 (32.1%) dalam kategori tertile kedua (Skor: 248-270) dan 141 (33.8%) responden dalam kategori tertile ketiga (271-354).

Majoriti jururawat mempunyai aktiviti fizikal sama ada rendah 44.6% and atau tinggi 18.7% masing-masing dengan. Seramai 153 (36.7%) jururawat mempunyai aktiviti fizikal yang sederhana. Indeks jisim tubuh($\chi^2 = 6.013$, $p = 0.049$): dan glukosa berpuasa ($F = 9.452$, $p = 0.009$) mempunyai perkaitan yang signifikan dengan tekanan pekerjaan setiapnya. Jumlah kolesterol juga mempunyai perkaitan yang signifikan dengan tekanan kerja ($\chi^2 = 27.886$, $p = 0.001$). Seterusnya, kolesterol berketumpatan rendah($\chi^2 = 14.255$, $p = 0.007$), diet yang sihat ($\chi^2 = 52.248$, $p = 0.001$), diet cara barat($\chi^2 = 13.718$, $p = 0.008$), diet cara tradisional mempunyai ($F =$
566.530, p = 0.001) perkaitan yang signifikan dengan tekanan kerja masing-masing dengan setiapnya. Pendedahan kepada rokok juga mempunyai perkaitan yang signifikan dengan sindrom metabolism (χ^2 = 8.055, p = 0.005). Perkaitan yang signifikan ditunjukkan antara umur dengan tekanan kerja(β = 0.266, SE = 0.278, p = 0.001) Perkaitan yang signifikan dilihat di kalangan jururawat yang telah terdedah kepada rokok dengan tekanan pekerjaan,(β = -0.104, SE = 0.001, p = 0.034). Perkaitan yang kuat dilihat antara tekanan darah sistolik(β = 0.245, SE = 2.417, p = 0.001), tekanan darah diastolik(β = 0.128, SE = 1.876, p = 0.015) dan jantina dengan setiapnya adalah. Selain itu, hasil kajian menunjukkan perkaitan antara glukosa berpuasa dalam plasma dengan usia (β = 0.204, SE = 0.180, p = 0.001) dan pendidikan (β = -0.112, SE = 4.183, p = 0.034) masing-masing dengan setiapnya. Kolesterol berketumpatan tinggi juga menunjukkan perkaitan yang signifikan dengan jantina(β = -0.075, SE = 0.055, p = 0.032) dan status perkahwinan(β = 0.128, SE = 0.724, p = 0.015) setiapnya. Trigliserida dengan jantina(β = 0.114, SE = 12.126, p = 0.017) dan status perkahwinan(β = -0.164, SE = 6.635, p = 0.001) juga menunjukkan perkaitan yang signifikan masing-masing dengan setiapnya. Begitu juga trigliserida yang menunjukkan perkaitan yang signifikan dengan tahap pendidikan(β = -0.152 SE = 11.685, p = 0.003), serta aktiviti fizikal yang sederhana (β = 0.125, SE = 0.001, p = 0.041) dan rekreasi masa lapang yang sederhana (perjalanan) (β = 0.113 SE = 0.006, p = 0.042) adalah signifikan masing-masing dengan. Begitu juga dengan lilitan pinggang yang mempunyai perkaitan yang signifikan dengan umur, jantina dan status perkahwinan, tahun pengalaman bekerja, pendidikan, aktiviti fizikal yang susah, dan diet yang sihat (p <0.05). Jambahan pula analisis model persamaan struktur telah dijalankan untuk menguji model pengantaraan yang dicadangkan. Model ini menunjukkan faktor tekanan kerja tiada skesan kepada sindrom metabolik melalui
tingkah laku gaya hidup. Kesimpulannya, tingkah laku gaya hidup bukan merupakan pengantara bagi perkaitan antara tekanan kerja dan sindrom metabolik.
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I certify that a Thesis Examination Committee has met on (6/2/2013) to conduct the final examination of Mahin Salimi on her Doctor of Philosophy of thesis entitled "Association Between Occupational Stress And Lifestyle Factors with Metabolic Syndrome Among Nurses in Ahvaz City, Iran.." in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The committee recommends that the student be awarded the Doctor of Philosophy of Nutritional Sciences.

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DECLARATION

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or at any other institution.

MAHIN SALIMI

Date: 6 February 2013
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>v</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>ix</td>
</tr>
<tr>
<td>APPROVAL</td>
<td>x</td>
</tr>
<tr>
<td>DELARATION</td>
<td>xii</td>
</tr>
<tr>
<td>LIST OF TABLE</td>
<td>xviii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xxi</td>
</tr>
<tr>
<td>LIST OF ABBREVIATION</td>
<td>xxii</td>
</tr>
<tr>
<td><strong>CHAPTER</strong></td>
<td>1</td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1. Background</td>
<td>1</td>
</tr>
<tr>
<td>1.2. Statement of the Problem</td>
<td>6</td>
</tr>
<tr>
<td>1.3. Objectives of the study</td>
<td>9</td>
</tr>
<tr>
<td>1.3.1. Main Objective</td>
<td>9</td>
</tr>
<tr>
<td>1.3.2. Specific Objectives</td>
<td>10</td>
</tr>
<tr>
<td>1.4. Research Framework</td>
<td>11</td>
</tr>
<tr>
<td>1.5. Significance of the Study</td>
<td>15</td>
</tr>
<tr>
<td>1.6. Glossary for terms</td>
<td>17</td>
</tr>
<tr>
<td>2. LITERATURE REVIEW</td>
<td>19</td>
</tr>
<tr>
<td>2.1. Metabolic Syndrome</td>
<td>19</td>
</tr>
<tr>
<td>2.1.1 Definition of metabolic syndrome</td>
<td>19</td>
</tr>
<tr>
<td>2.1.2. Prevalence of metabolic syndrome</td>
<td>27</td>
</tr>
<tr>
<td>2.1.2.1 Metabolic syndrome in developed countries</td>
<td>27</td>
</tr>
<tr>
<td>2.1.2.2 Metabolic syndrome in developing countries</td>
<td>29</td>
</tr>
<tr>
<td>2.1.2.3 Metabolic syndrome in Iran</td>
<td>31</td>
</tr>
<tr>
<td>2.2. Risk factors of metabolic syndrome</td>
<td>31</td>
</tr>
<tr>
<td>2.2.1 Demographics and socioeconomic factors</td>
<td>32</td>
</tr>
<tr>
<td>2.3. Lifestyle behaviors</td>
<td>36</td>
</tr>
<tr>
<td>2.3.1 Dietary factors</td>
<td>36</td>
</tr>
<tr>
<td>2.3.1.1 Energy intake</td>
<td>38</td>
</tr>
<tr>
<td>2.3.1.2 Energy density</td>
<td>39</td>
</tr>
</tbody>
</table>
2.3.1.3 Nutrient intake 40
  2.3.1.3.1 Nutrient Adequacy Ratios (NARs) and metabolic syndrome 43
  2.3.1.4 Mean adequacy ratio (MAR) 46
  2.3.1.5 Dietary pattern 47

2.3.2 Physical activity 51

2.3.3 Cigarette smoking 55

2.4 Metabolic Syndrome Risk Factors 57
  2.4.1 Hyperlipidemia 57
  2.4.2 High blood glucose 58
  2.4.3 Hypertension 60
  2.4.4 Body weight body composition 61

2.5 Consequence of Metabolic Syndrome 64
  2.5.1 Cardiovascular disease 64
  2.5.2 Peripheral arterial disease 65
  2.5.3. Nonalcoholic steatohepatitis 67

2.6 Definition of Stress 67
  2.6.1 Measurement of stress 68
    2.6.1.1 Psychological Questionnaires 69
    2.6.1.2 Physiological Measures 71
    2.6.1.3. Autonomic measures 72
    2.6.1.4 Blood pressure 72
    2.6.1.5 Cardiac Vagal Tone (VT) 74
    2.6.1.6 Salivary alpha-amylase 74
    2.6.1.7 Salivary cortisol 75
  2.6.2 Demographic and socio economic determinants of stress 77
  2.6.3 Stress and dietary intake 82
  2.6.4 Stress and life style behaviors 84
  2.6.5 Consequences of stress 87
  2.6.6 Stress and metabolic risk factors 89
    2.6.6.1 Stress and hyperlipidemia 90
    2.6.6.2 Stress diabetes mellitus and insulin resistance 91
    2.6.6.3 Stress and obesity 92
    2.6.6.4 Stress and blood pressure 93

2.7 Summary 95

3. MATERIALS AND METHODS 97
  3.1. Study design 97

xiv
3.2. Study location

3.3. Sample size

3.4. Study Respondents
   3.4.1 Inclusion Criteria
   3.4.2 Exclusion Criteria

3.5. Sampling procedure

3.6. Study Approval

3.7. Data collection procedure

3.8. Measurements obtained in this study
   3.8.1 Socio-demographic information
   3.8.2. Health status history
   3.8.3 Anthropometric measurements
   3.8.4 Lipid and glucose profile
   3.8.5 Blood pressure
   3.8.6 Dietary intake
      3.8.6.1 Energy density
      3.8.6.2 Energy and nutrient adequacy
      3.8.6.3 Dietary pattern
   3.8.7 Occupational Stress
      3.8.7.1 Validation of stress questionnaire
      3.8.7.2 Internal consistency
      3.8.7.3 Physical activity
   3.8.8 Smoking

3.9 DATA ANALYSIS

4. RESULTS
   4.1. Sample Characteristics
   4.2. Occupational Stress
   4.3 Lifestyle Behaviors
      4.3.1 Dietary intake
      4.3.2 Dietary Pattern
      4.3.3 Physical Activity
      4.3.4 Smoking Habits
   4.4 Anthropometric Measurements
   4.5 Blood Pressure
   4.6. Blood lipid profile and fasting plasma glucose
   4.7 Metabolic Syndrome
   4.8 Analytical Comparison between Threetertilee Occupational Stress
4.9 Association between independent variables and Metabolic Syndrome 148
4.10 Socio-demographics, Stress, Dietary behavior and Metabolic Syndrome 153
4.11 Occupational Stress and Socio-demography Factors, Lifestyle Behavior 156
4.12 Metabolic syndrome risk factors and socio-demographic factors, lifestyle behavior. 157
4.13 Mediation analysis 163
  4.13.1 Mediation effect of lifestyle behavior between occupational stress and metabolic syndrome in nurses. 163
  4.13.2 Mediation effect of exposure to cigarettes smoking between occupational stress and metabolic syndrome in nurses. 168
  4.13.3 Mediation effect of energy density between occupational stress and metabolic syndrome in nurses. 169
  4.13.4 Mediation effect of mean adequacy ratio (MAR) between occupational stress and metabolic syndrome in nurses. 170
  4.13.5 Mediation effect of healthy pattern between occupational stress and metabolic syndrome in nurses 172
  4.13.6 Mediation effects of western pattern between occupational stress and metabolic syndrome in nurses. 173
  4.13.7 Mediation effects of traditional pattern between occupational stress and metabolic syndrome in nurses. 175
  4.13.8 Mediation effect of physical activity between occupational stress and metabolic syndrome in nurses. 176

5. DISCUSSION 178
  5.1 Prevalence of Metabolic Syndrome among Nurses 178
  5.2 Prevalence of Occupational Stress among Nurses 179
  5.3 Hypertension 181
  5.4 Fasting plasma glucose 182
  5.5 Dyslipidemia 184
  5.6 Anthropometry 189
  5.7 Metabolic syndrome and socio-demographic factors 191
  5.8 Metabolic Syndrome and Life Style Behavior 194
    5.8.1 Energy density intake and metabolic syndrome 194
    5.8.2 Mean adequacy ratio (MAR) and Metabolic Syndrome 195
    5.8.3 Dietary pattern and metabolic syndrome 196
    5.8.4 Physical Activity and Metabolic Syndrome 198
    5.8.5 Cigarette Smoking and Metabolic Syndrome 199
  5.9 Occupational Stress and Metabolic Syndrome 201
  5.10 Social – Demographical Characters and Occupational Stress 202
5.11 Life Style Behavior Occupational Stress
5.11.1 Energy density and occupational stress 205
5.11.2 Mean adequacy ratio (MAR) and Occupational stress 207
5.11.3 Dietary pattern and Occupational stress 207
5.11.4 Occupational Stress and Smoking 209
5.11.5 Occupational stress and physical activity 209
5.12 Mediation Effect of Life Style Behavior and Metabolic Syndrome and Occupational Stress In nurses 211

6-CONCLUSION
6.1 Conclusions 214
6.2 Recommendation 216
6.3 Limitation of the Study 219

REFERENCES 225
APPENDICES 286
BIODATA OF STUDENT 360
LIST OF PUBLICATIONS 362