



UNIVERSITI PUTRA MALAYSIA

**DIETARY PATTERN AND ITS RELATIONSHIP WITH
HEALTH-RELATED FACTORS AMONG PATIENTS WITH
CORONARY ARTERY DISEASE IN AN IRANIAN HOSPITAL**

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CORONARY ARTERY DISEASE IN AN IRANIAN HOSPITAL**

By

HALEH ESMAILI

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,
in Fulfilment of the Requirements for the Degree of Master of Science**

April 2013

DEDICATION

To the meanings of my life:

My dear mother and father



Abstract of thesis presented to the senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

DIETARY PATTERN AND ITS RELATIONSHIP WITH HEALTH RELATED FACTORS AMONG PATIENTS WITH CORONARY ARTERY DISEASE IN IRANIAN HOSPITAL.

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April 2013

Chair: Associate Professor Rokiah Mohd Yusof, PhD

Faculty: Medicine and Health Sciences

The prevalence of coronary artery disease (CAD) has increased in recent times in developing countries like Iran. In Iran, about 50% of all deaths per year are caused by CAD and mostly due to behavioral factors such as unhealthy dietary pattern. The objective of this cross-sectional study was to determine dietary patterns and their relationship with socio-demographics, health-related factors, biochemical characteristics, blood pressure and body mass index (BMI) among coronary artery disease patients in Fatemeh-Zahra Hospital, Sari, Iran.

Data on socio-demographics, smoking status and supplement intake of CAD patients were collected via a self-administered questionnaire. Dietary pattern was assessed by semi-quantitative food frequency questionnaire, while the physical activity level was assessed by using the International Physical Activity Questionnaire. Weight, height and blood pressure were measured using a weight scale, body meter and blood

pressure scale (ABN-mercury sphygmomanometer) by trained nurses. The serum lipid profile was measured using Ebra- auto analyzer by trained technician. The data of socio-demographic, lipid profile, weight, height and blood pressure were collected from patients' record. Data were analyzed by using Statistical Package for Social Sciences (SPSS) 18.

A total of 250 subjects (52% males and 48% females) who fulfilled the selection criteria participated in this study. The mean age of the subjects was 59.68 ± 10.26 years and 51.6% of the subjects had low physical activity (total Met-min/wk <600). Most of the subjects were non-smokers (72.8%) and did not take supplements (89.2%). Mean of BMI was 26.68 ± 4.42 kg/m² and 43.6% were overweight and 21.6% were obese. Mean of triglyceride, total cholesterol, LDL, and HDL were 183.7 ± 94.8 mg/dl, 179.7 ± 42.5 mg/dl, 100.8 ± 31.5 mg/dl, 36.6 ± 9.06 mg/dl respectively. The mean of systolic blood pressure was 123.5 ± 12.5 mmHg and diastolic blood pressure was 80.07 ± 8.1 mmHg.

The dietary patterns were identified using factor analysis. The first factor that explained 12.15% of variances was the traditional pattern. The second pattern, with 12% of variances was the western pattern. The third pattern with 9.06% of variances was the healthy pattern. Educational level [uneducated ($p = 0.007$) and primary school ($p = 0.004$)], income ($p = 0.028$), physical activity ($p = 0.016$) and being a housewives ($p = 0.005$) were associated with the traditional pattern. Smoking ($p = 0.040$), farmers, housewives ($p = 0.001$) and age ($p = 0.000$) associated with the

western pattern. Urban residence ($p = 0.015$), male ($p = 0.049$), farmers ($p = 0.020$) and income ($p = 0.027$) were associated with the healthy pattern.

Based on the biochemical characteristics, blood pressure and BMI, the traditional pattern was significantly associated with increase in systolic and diastolic blood pressure ($\beta = 0.133$ and $\beta = 0.148$ respectively) and decrease in LDL ($\beta = -0.127$) and HDL ($\beta = -0.182$). The western pattern was significantly associated with increase in total cholesterol ($\beta = 0.16$), LDL ($\beta = 0.13$) and BMI ($\beta = 0.12$). The healthy pattern was significantly associated with decrease of TG ($\beta = -0.123$), BMI ($\beta = -0.170$), systolic ($\beta = -0.130$) and diastolic blood pressure ($\beta = -0.135$).

In conclusion, these findings indicated that the healthy pattern was practiced by less number of subjects with percentages of variance lower than other patterns. Also, this study provided insight into the socio-demographic and health-related factors that are related to dietary patterns of coronary artery disease and factors that are influenced by dietary patterns. This study can also be used to strengthen public health strategies that aim to improve dietary intake for primary and secondary prevention of CAD.

Abstrak tesis yang dikemukakan kepada Senta Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

**POLA DIET DAN PERKAITANNYA DENGAN FAKTOR KESIHATAN
DALAM KALANGAN PESAKIT PENYAKIT KORONARI ARTERI DI
HOSPITAL IRAN.**

Oleh

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April 2013

Pengerusi: Profesor Madya Rokiah Mohd Yusof, PhD

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Prevalens penyakit koronari arteri (CAD) telah meningkat masakini di negara-negara membangun seperti Iran. Di Iran, lebihkurang 50% daripada kematian per tahun disebabkan oleh CAD dan kebanyakannya disebabkan faktor tingkahlaku seperti pola diet yang tidak sihat. Objektif kajian garis lintang ini adalah untuk menentukan pola diet dan perkaitannya dengan faktor sosio-demografi, faktor kesihatan, ciri biokimia, tekanan darah dan index jisim tubuh (IJT) dalam kalangan pesakit CAD di hospital Fatemeh-Zahra, Sari, Iran.

Data sosio-demografi, status merokok dan pengambilan suplemen di kalangan pesakit CAD telah diperolehi melalui borang soal-selidik. Pola diet telah ditentukan melalui borang kekerapan makanan semi-kuantitatif, manakala tahap aktiviti fizikal telah ditentukan menggunakan borang soal-selidik aktiviti fizikal antarabangsa. Berat, tinggi dan tekanan darah telah diukur oleh jururawat terlatih, menggunakan

timbang (Seca), meter tubuh dan alat tekanan darah (*ABN-mercury sphygmomanometer*). Profil serum lipid telah diukur menggunakan *Ebra-auto analyzer* oleh teknician terlatih. Semua data di perolehi daripada rekod pesakit. Data telah dianalisis menggunakan *Statistical Package for Social Sciences* (SPSS) versi 18.

Seramai 250 subjek (52% lelaki dan 48% perempuan) yang telah memenuhi kriteria pemilihan bagi peserta telah terlibat dalam kajian ini. Min umur subjek adalah 59.68 ± 10.26 tahun dan 51.6% daripada subjek mempunyai rendah aktiviti fizikal (jumlah Met-min/minggu < 600). Kebanyakan subjek tidak merokok (72.8%) dan tidak mengambil suplemen (89.2%). Min bagi IJT adalah 26.68 ± 4.42 kg/m² dan 43.6% adalah lebih berat badan dan 21.6% adalah obes. Min TG, jumlah kolesterol, LDL, dan HDL adalah 183.7 ± 94.8 mg/dl, 179.7 ± 42.5 mg/dl, 100.8 ± 31.5 mg/dl, 36.6 ± 9.06 mg/dl masing-masing. Min tekanan darah sistolik adalah 123.5 ± 12.5 mmHg dan tekanan darah diastolik adalah 80.07 ± 8.1 mmHg.

Pola diet telah dikenalpasti menggunakan analisis faktor. Faktor pertama yang menerangkan 12.15% varians adalah pola tradisional. Pola kedua, dengan 12% varians adalah pola barat. Pola ketiga dengan 9.06% varians adalah pola sihat. Tahap pendidikan (tidak berpendidikan ($p = 0.007$) dan sekolah rendah ($p = 0.004$), pendapatan ($p = 0.028$), aktiviti fizikal ($p = 0.016$) dan surirumah ($p = 0.005$) adalah berkait secara dengan pola tradisional. Merokok ($p = 0.040$), petani, surirumah ($p = 0.001$), dan umur ($p = 0.000$) berkait dengan pola barat. Tinggal di bandar ($p = 0.015$), lelaki ($p = 0.049$), petani ($p = 0.020$) dan pendapatan ($p = 0.027$) berkait dengan pola sihat.

Berasaskan ciri-ciri biokimia, tekanan darah dan BMI, pola tradisional adalah berkait secara signifikan dengan meningkat tekanan darah sistolik dan diastolik ($\beta = 0.133$ dan $\beta = 0.148$ masing-masing) dan kurang bagi LDL ($\beta = -0.127$) dan HDL ($\beta = -0.182$). Pola barat secara signifikan berkait dengan bertambah paras jumlah kolesterol ($\beta = 0.16$), LDL ($\beta = 0.13$) dan BMI ($\beta = 0.12$). Pola sihat secara signifikan berkait dengan berkurangan paras TG ($\beta = -0.123$), BMI ($\beta = -0.170$), tekanan darah sistolik ($B = -0.130$) dan diastolik ($\beta = -0.135$).

Kesimpulannya, penemuan ini menunjukkan bahawa pola sihat telah diamalkan oleh kurang bilangan subjek dengan peratus varians rendah daripada pola-pola yang lain. Kajian ini juga, telah memberi pendedahan kepada faktor sosio-demografi dan faktor yang berkait dengan kesihatan dengan pola diet pesakit koronari arteri dan faktor yang mempengaruhi pola diet. Kajian ini juga boleh digunakan untuk memperkukuhkan strategi kesihatan awam yang bertujuan untuk memperbaiki pengambilan diet bagi pencegahan utama dan sekunder penyakit CAD.

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I certify that a Thesis Examination Committee has met on (29 April 2013) to conduct the final examination of HALEH ESMALI on her thesis entitled **“DIETARY PATTERN AND ITS RELATIONSHIP WITH HEALTH RELATED FACTORS AMONG PATIENTS WITH CORONARY ARTERY DISEASE IN AN IRANIAN HOSPITAL”** 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 Master of Science. Members of the Thesis Examination Committee were as follows:

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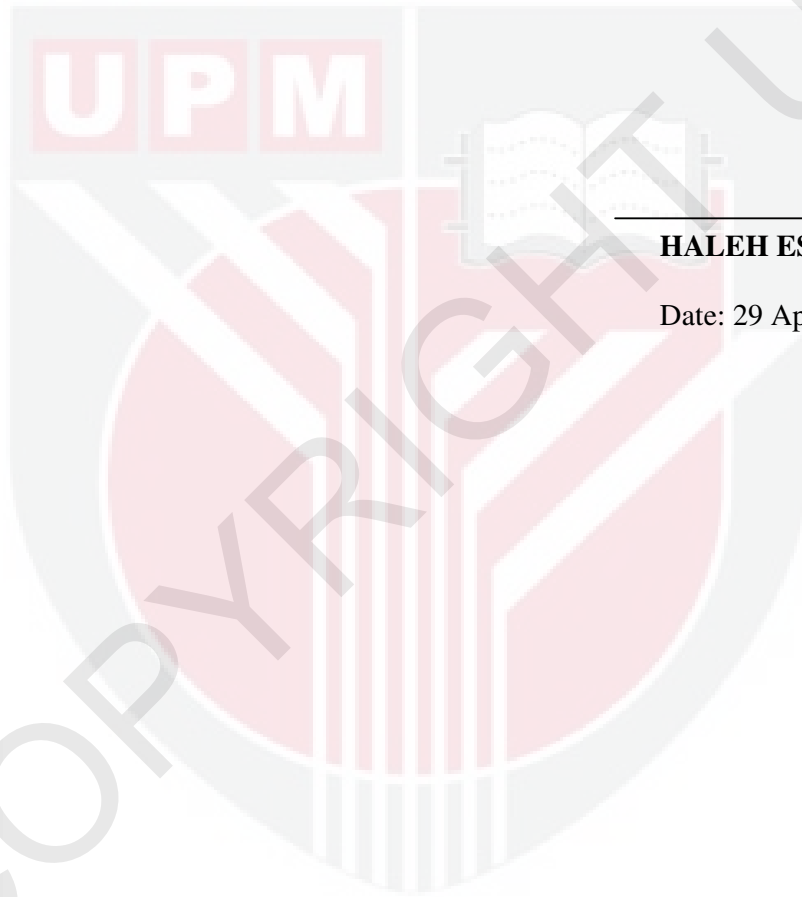
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DECLARATION

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 institutions.



HALEH ESMALI

Date: 29 April 2013

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