



UNIVERSITI PUTRA MALAYSIA

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

MAHIN SALIMI

FPSK(p) 2013 3

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**Thesis submitted to the School of Graduated Studies, Universiti Putra Malaysia,
in Fulfillment of the requirement for degree of Doctor of Philosophy**

February 2013

Abstract of thesis presented to the Senate of Universiti Putra Malaysia, in Fulfilment
of the requirement for the degree of Doctor of Philosophy

**ASSOCIATION BETWEEN OCCUPATIONAL STRESS AND LIFESTYLE
FACTORS WITH METABOLIC SYNDROME AMONG NURSES IN AHVAZ
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By

MAHIN SALIMI

February 2013

Chair: Professor 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 (6.10-6.93mmol/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 ($\beta=0.204$ 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, PAM FAKTOR-FAKTOR PENGAMBILAN MAKANAN DAN GAYA HIDUP DENGAN SINDROM GANGGUAN METABOLIKDI KALANGAN JURURAWAT DI BANDAR AHVAZ, IRAN.

Oleh

MAHIN SALIMI

Februari 2012

Pengerusi : Proffesor Zalilah Mohd Shariff,PhD

Fakulti : Perubatan dan Sains Kesihatan

Walaupun sindrom metabolismik adalah satu masalah kesihatan yang penting di kalangan jururawat, penyelidikan mengenai sindrom metabolismik dan faktor penyumbangannya di Ahvaz, Iran adalah. Oleh itu, kajian keratan rentas ini telah dijalankan di 13 hospital di bandar Ahvaz. Rangka persampelan kajian ini adalah 3000 orang jururawat yang berdaftar di 13 hospital tersebut. Seramai 450 orang jururawat telah direkrut secara rawak berdasarkan kriteria pengecualian dan kriteria kemasukan kajian. Ujian darah serta ukuran antropometri telah diambil dan semua jururawat telah diberi borang soal selidik kajian.

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 metabolik ($\chi^2 = 8.055, p = 0.005$). Perkaitan yang signifikan ditunjukkan antara umur dengan tekanan kerja ($\beta = 0.266, SE = 0.278, p = 0.001$). Perkaitan yang signifikan dilihat di kalangan jururawat yang telah terdedah kepada rokok dengan tekanan pekerjaan, ($\beta = -0.104, SE = 0.001, p = 0.034$). Perkaitan yang kuat dilihat antara tekanan darah sistolik ($\beta = 0.245, SE = 2.417, p = 0.001$), tekanan darah diastolik ($\beta = 0.128, SE = 1.876, p = 0.015$) dan jantina dengan setiapnya adalah. Selain itu, hasil kajian menunjukkan perkaitan antara glukosa berpuasa dalam plasma dengan usia ($\beta = 0.204, SE = 0.180, p = 0.001$) dan pendidikan ($\beta = -0.112, SE = 4.183, p = 0.034$) masing-masing dengan setiapnya. Kolesterol berketumpatan tinggi juga menunjukkan perkaitan yang signifikan dengan jantina ($\beta = -0.075, SE = 0.055, p = 0.032$) dan status perkahwinan ($\beta = 0.128, SE = 0.724, p = 0.015$) setiapnya. Trigliserida dengan jantina ($\beta = 0.118, SE = 12.126, p = 0.017$) dan status perkahwinan ($\beta = -0.164, SE = 6.635, p = 0.001$) juga menunjukkan perkaitan yang signifikan masing-masing dengan setiapnya. Begitu juga trigliserida yang menunjukkan perkaitan yang signifikan dengan tahap pendidikan ($\beta = -0.152, SE = 11.685, p = 0.003$), serta aktiviti fizikal yang sederhana ($\beta = 0.125, SE = 0.001, p = 0.041$) dan rekreasi masa lapang yang sederhana (perjalanan) ($\beta = 0.113, SE = 0.006, p = 0.042$) 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.



ACKNOWLEDGEMENTS

I am heartily thankful to my supervisor, Prof. Zalilah Mohd. Shariff, whose encouragement, guidance and support from the initial to the final level enabled me to develop an understanding of the subject. Her willingness to share her expertise has been invaluable to guide me through the process. Additionally, I would also like to offer my heartfelt thanks to the members of my supervisory committee Dr. Mohd. Nasir Mohd. Taib, Associate professor Dr Hejar Abdul Rahman, Associate professor Dr Reza Amani, for their encouragements and great feedbacks. Appreciation is also extended to Dr Azadeh saki and blessed Dr Mehrdad Borhani for sharing his insightful comments regarding to this study.

Furthermore, I would like to extend my sincerest appreciation to Dr Mohamad Hossien Sarmast Shoushtari, the President of Ahvaz Jundishapur University of Medical Sciences (AJUMS), and dean of faculty of medicine Dr Mozaffari, and head of social medicine department Dr Nikkoy. I owe my deepest gratitude to all hospitals and nurses which involved in this research.

Lastly, I offer my regards and blessings to all of those who supported me in any respect during the completion of the project. In addition, I wish to thank the many people whom I am unable to mention in deep for their support during difficult times.

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.

Name of Chairperson, PhD

Associated prof.Dr. Mary Huang Soo Lee
Medicine and Health Sciences
Universiti Putra Malaysia
(Chairman)

Name of Examiner 1, PhD

Prof. Dr. Latiffah Abdul Latiff
Faculty Medicine and Health Sciences
Universiti Putra Malaysia
(Internal Examiner)

Name of Examiner 2, PhD

.Dr. Chan Yoke Mun
Medicine and Health Sciences
Universiti Putra Malaysia
(Internal Examiner)

Name of External Examiner 2, PhD

Associated prof. Dr. Patanee Winichagoon
Faculty Nutrition,
Institute of Nutrition, Mahidol University
Country Thailand
(External Examiner)



SEOW HENG FONG, PhD
Professor and Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 30 April 2013

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of requirement for degree of Doctor of Philosophy. The members of Supervisory Committee were as follows:

Zalilah Mohd Shariff, PhD

Professor

Faculty of Medicine and Health Sciences

Universiti Putra Malaysia

(Chairman)

Mohd Nasir Bin Mohd Taib, PhD

Associate Professor

Faculty of Medicine and Health Sciences

Universiti Putra Malaysia

(Member)

Hejar Abd Rahman, PhD

Associate Professor

Faculty of Medicine and Health Sciences

Universiti Putra Malaysia

(Member)

Reza Amani, PhD

Associate Professor

Faculty of paramediccine

Jondi-Shapour University of Medical Sciences Iran-Ahvaz

(Member)

BUJANG BIN KIM HUAT, PhD

Professor and Dean

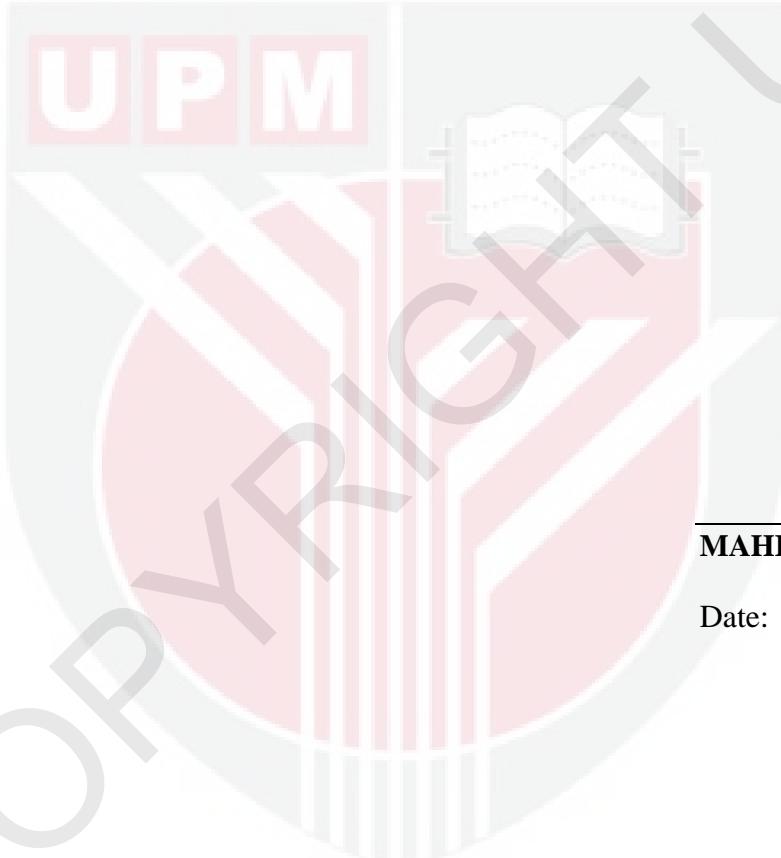
School of Graduate Studies

Universiti Putra Malaysia

Date:

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

	Page
ABSTRACT	ii
ABSTRACT	v
ACKNOWLEDGEMENT	ix
APPROVAL	x
DELARATION	xii
LIST OF TABLE	xviii
LIST OF FIGURES	xxi
LIST OF ABBREVIATION	xxii
 CHAPTER	
1. INTRODUCTION	1
1.1. Background	1
1.2. Statement of the Problem	6
1.3. Objectives of the study	9
1.3.1. Main Objective	9
1.3.2. Specific Objectives	10
1.4. Research Framework	11
1.5. Significance of the Study	15
1.6. Glossary for terms	17
2. LITERATURE REVIEW	19
2.1. Metabolic Syndrome	19
2.1.1 Definition of metabolic syndrome	19
2.1.2. Prevalence of metabolic syndrome	27
2.1.2.1 Metabolic syndrome in developed countries	27
2.1.2.2 Metabolic syndrome in developing countries	29
2.1.2.3 Metabolic syndrome in Iran	31
2.2. Risk factors of metabolic syndrome	31
2.2.1 Demographics and socioeconomic factors	32
2.3. Lifestyle behaviors	36
2.3.1 Dietary factors	36
2.3.1.1 Energy intake	38
2.3.1.2 Energy density	39

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

3.2. Study location	97
3.3. Sample size	99
3.4. Study Respondents	99
3.4.1 Inclusion Criteria	100
3.4.2 Exclusion Criteria	100
3.5 Sampling procedure	100
3.6 Study Approval	103
3.7 Data collection procedure	103
3.8 Measurements obtained in this study	104
3.8.1 Socio-demographic information	104
3.8.2 Health status history	104
3.8.3 Anthropometric measurements	105
3.8.4 Lipid and glucose profile	106
3.8.5 Blood pressure	107
3.8.6 Dietary intake	108
3.8.6.1 Energy density	109
3.8.6.2 Energy and nutrient adequacy	109
3.8.6.3 Dietary pattern	111
3.8.7 Occupational Stress	114
3.8.7.1 Validation of stress questionnaire	116
3.8.7.2 Internal consistency	116
3.8.7.3 Physical activity	118
3.8.8 Smoking	121
3.9 DATA ANALYSIS	121
4. RESULTS	123
4.1. Sample Characteristics	123
4.2. Occupational Stress	125
4.3 Lifestyle Behaviors	127
4.3.1 Dietary intake	127
4.3.2 Dietary Pattern	133
4.3.3 Physical Activity	136
4.3.4 Smoking Habits	137
4.4 Anthropometric Measurements	138
4.5 Blood Pressure	140
4.6. Blood lipid profile and fasting plasma glucose	140
4.7 Metabolic Syndrome	141
4.8 Analytical Comparison between Threetertilee Occupational Stress	144

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	205
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