Physical inactivity and low quality of life of Turkish women after hospitalization for coronary heart disease: Inferences from EUROASPIRE III

Türk kadınlarında koroner kalp hastalığı nedeniyle hastanede yatış sonrası fiziksel hareketsizlik ve düşük yaşam kalitesi: Euroaspire III'ten çıkarımlar

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ABSTRACT

Objective: The present objective was to compare changes in lifestyle between (i) Turkish women and Turkish men, and (ii) Turkish women and European women, after hospitalization for coronary heart disease (CHD). Risk factor management, physical activity, mood, and quality of life (QOL) indices were compared.

Methods: A total of 2268 women (25.3% of 8966 patients, mean age: 65.8±9.0 years) were interviewed using the European Action on Secondary and Primary Prevention by Intervention to Reduce Events III (EUROASPIRE III). In the Turkey cohort, 65 women (mean age: 63.3±9.9 years) and 273 men (mean age: 59.1±9.6 years) were interviewed, and underwent clinical and biochemical tests at a minimum of 6 months after hospital admission. Patients completed the Godin Leisure-Time Exercise Questionnaire (GLTEQ), the International Physical Activity Questionnaire (IPAQ), the Hospital Anxiety and Depression Scale (HADS), and questionnaires assessing QOL.

Results: After hospitalization for CHD, (i) Turkish women have lower participation in cardiac rehabilitation (CR) programs and lower physical activity indices than European women, (ii) Turkish women have lower physical activity indices than Turkish men, (iii) HADS anxiety scores and HADS depression scores were higher for Turkish women than for Turkish men, (iv) HADS anxiety scores and HADS depression scores were higher for Turkish women than for European women, (v) QOL indices were lower for Turkish women than for either European women or Turkish men.

Conclusion: Turkish women engage in less physical activity, have lower QOL, and have higher rates of depression and anxiety after hospitalization for CHD than either of the other groups assessed. Every effort should be made to increase physical activity, and CR program adherence in general, particularly in female patients.

ÖZET

Amaç: Koroner kalp hastalığı nedeniyle hastaneye yatıştan sonra yaşam tarzı değişikliklerinin, risk faktörü yönetiminin, fiziksel aktivitenin, duygudurum ve yaşam kalitesi indekslerinin (i) Türk kadınları ve Türk erkekleri; (ii) Türk kadınları ve Avrupalı kadınlar arasında karşılaştırılması amaçlandı.

Yöntemler: EUROASPIRE III (the European Action on Secondary and Primary Prevention by Intervention to Reduce Events III) kapsamında toplam 2268 kadın hastayla (8966 hastanın %25.3'ü, ortalama yaş 65.8±9.0 yıl) görüşüldü. Türkiye kohortunda hastaneye başvurudan en az altı ay sonrasında 65 kadın (ortalama yaş 63.3±9.9 yıl) ve 273 erkek hastayla (ortalama yaş 59.1±9.6 yıl) görüşme yapıldı; klinik ve biyokimyasal testler uygulandı. Hastalara Godin Boş Zaman Egzersiz Anketi (GLTEQ), Uluslararası Fiziksel Aktivite Anketi (IPAQ), Hastane Anksiyete Depresyon Ölçeği ve yaşam kalitesini değerlendiren anketler yapıldı.

Bulgular: Koroner kalp hastalığı nedeniyle hastaneye yatıştan sonra, (i) Türk kadınlarında Avrupalı kadınlara göre kardiyak rehabilitasyon programına katılım ve fiziksel aktivite indeksleri daha düşüktür, (ii) Türk kadınlarında Türk erkeklerine göre fiziksel aktivite indeksleri daha düşüktür, (iii) Türk kadınlarında Türk erkeklerine göre HADS anksiyete skoru ve HADS depresyon skoru daha yüksektir, (iv) Türk kadınlarında Avrupalı kadınlara göre HADS anksiyete skoru ve HADS depresyon skoru daha yüksektir, (v) Türk kadınlarında Avrupalı kadınlara ve Türk erkeklere göre yaşam kalitesi indeksleri daha düşüktür.

Sonuç: Türk kadınlarında koroner kalp hastalığı nedeniyle hastaneye yatış sonrası fiziksel aktivite ve yaşam kalitesi indeksi düşük, depresyon ve anksiyete yüksektir. Özellikle kadınlar olmak üzere tüm hastalarda fiziksel aktivitenin ve kardiyak rehabilitasyon programına uyum artırılması sağlanmalıdır.

Physical inactivity (lack of physical activity) is accepted as a modifiable major risk factor of coronary heart disease (CHD). Regular physical activity is described as a key target in therapeutic lifestyle changes. Physical inactivity has been identified as the fourth leading risk factor for global mortality (6% of deaths globally). Moreover, physical inactivity is the main cause of approximately 25% of diabetes mellitus (DM) cases and 30% of CHD cases.[1,2] Available evidence clearly indicates that physically active women experience lower CHD rates than inactive women.[3] Regular physical activity decreases the risk of acute coronary syndrome (ACS), regulates arterial blood pressure (BP), and helps prevent obesity.[4,5] However, it has been shown that most at-risk women do not engage in moderate to vigorous leisure time activity.[6]

Physical activity is especially important after hospitalization for CHD, and participation in cardiac rehabilitation (CR) programs has been shown to promote many health benefits among patients with CHD. [7] Also shown to decrease morbidity and mortality associated with CHD, and enhance overall quality of life (QOL), CR programs offer a viable means of improving physical capacity, reducing emotional distress, and modifying risk factors.[7] Unfortunately, the focus of CR tended to favor males, in spite of evidence that CHD is a leading cause of morbidity and mortality for both genders.[8]

The European Action on Secondary and Primary Prevention by Intervention to Reduce Events (EUROASPIRE) program is a multicenter European survey designed to determine how clinical guidelines on cardiovascular disease (CVD) prevention are imple-

Abbreviations:

ACS	Acute coronary syndrome
BMI	Body mass index
BP	Blood pressure
CHD	Coronary heart disease
CR	Cardiac rehabilitation
CVD	Cardiovascular disease
DM	Diabetes mellitus
EQ-5D	EuroQol 5 dimensions questionnaire
EQ-VAS	EuroQol score and a visual analogue scale
EUROASPIRE	European Action on Secondary and Primary Prevention by Intervention to Reduce Events
GLTEQ	Godin Leisure-Time Exercise Questionnaire
HADS	Hospital Anxiety and Depression Scale
HT	Hypertension
IPAQ	International Physical Activity Questionnaire
LDL	Low-density lipoprotein
METs	Metabolic equivalents
QOL	Quality of life
SF-12	12-item Short-Form Health Survey

mented in daily practice in European countries.[9] In order to better understand disparities among genders, the present objective was to compare CHD management, physical activity, mood, and QOL indices between Turkish women and men enrolled in the EUROASPIRE III Turkey cohort. These indices were also compared between Turkish and European women enrolled in the EUROASPIRE III.

METHODS

Participants and study protocol

Details of the study protocol are reported elsewhere.[9] EUROASPIRE III was performed in 2006–2007 in 22 European countries. A total of 2268 women (25.3%) and 6698 men (74.7%) were interviewed, and 17 centers from 3 Turkish provinces were included. A total of 669 medical records (of 510 men and 159 women) were reviewed, and 338 patients (50.5%, 65 women and 273 men) were interviewed at least 6 months after an acute coronary event or the interventional procedure.

Measures of physical activity and quality of life

Walking was measured by Godin Leisure-Time Exercise Questionnaire (GLTEQ).[10,11] Participants were asked to recall average free time spent walking, weekly, over the past 2 months. The GLTEQ contains 3 open-ended physical activity questions pertaining to the average frequency of mild (minimal effort, no perspiration, a casual walk), moderate (not exhausting, light perspiration, a good brisk pace), or strenuous (heart beats rapidly, sweating, walking as fast as possible) physical activities (with examples of each) performed during free time in a typical week.[10,11] The short version of the International Physical Activity Questionnaire (IPAQ) was also administered. [12] Short-form data were utilized to estimate the total weekly level of physical activity (metabolic equivalents [METs]/hour/week) by classifying reported hours as low, moderate, or high, according to MET energy expenditure estimates.[12]

Patients also completed a Hospital Anxiety and Depression Scale (HADS) questionnaire composed of statements related to either generalized anxiety or depression.[13] Following examination by physician, researchers conducted an interview. Each item corresponded to a 4-point (0–3) score, so possible total scores ranged from 0–21 for anxiety and 0–21 for

depression. Analysis of a further sample, in the same clinical setting, determined that a score of 0–7 for either subscale would be considered within normal range. Possible or probable depression was concluded when a score was ≥8.[13]

The EuroQol 5 dimensions questionnaire (EQ-5D) was performed to assess QOL. The EQ-5D includes a self-classified EuroQol score and a visual analogue scale (EQ-VAS). The EuroQol consists of a 5-item descriptive system, and is used to assess health in the 5 areas of mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. There are 3 possible responses for each area: no difficulty, some/moderate difficulties, and extreme difficulties. The EQ-VAS is a vertical, graded (0–100 points) 20-cm "thermometer," with 100 points representing the "best imaginable health state" and 0 representing the "worst imaginable health state." Respondents rate their health status on the day of the survey. Health states defined by the EQ-5D may eventually be converted to a single summary or composite index by applying scores from a standard set of values (or preferences) derived from general population samples. The EuroQol score formula was based on UK coefficients (range: -0.59–1.00).[14] Z scores were calculated by comparison to UK population norms (based on observations from the Measurement and Evaluation of Health Survey, Centre for Health Economics, University of York).[15]

The 12-item Short-Form Health Survey (SF-12) was also utilized.[16] Scores are estimated for 4 areas of health (physical function, the role of physicality, the role of emotions, and mental health) with 2 items each, while 4 other areas (bodily pain, general health, vitality, and social functioning) are assessed with a single item. All items are used to calculate physical and mental health summary scores with an algorithm empirically derived from the data of a US general population survey.[17] SF-12 scores are standardized as T-scores; the general population has an average of 50 (and an SD of 10). Higher scores indicate better health, such that a person scoring 30 is reporting a level of health that is 2 SDs below the population average.[18]

Ethical issues and responsibility statement

All data were stored according to provisions of national data protection regulations. National coordinators were responsible for securing approval from local ethics committees. Approval from the Ministry of Health Central Ethics Committee was obtained on August 31, 2006 for the Turkey cohort. Written, informed consent, a signed declaration, was obtained from each participant by the investigator.

Statistical analyses

Distribution of data was assessed by single-sample Kolmogorov–Smirnov test. Data are represented as mean±SD for normally distributed continuous variables, as median, 25th, and 75th percentile values for skew-distributed continuous variables, and as frequencies for categorical variables. The chi-square test was used to compare categorical variables among groups. For numerical variables, independent sample t-test or Mann-Whitney U test were used for inter-group comparisons. A p value of <0.05 was considered statistically significant. For inter-group comparisons, Bonferroni correction was performed, and a p value of <0.025 was considered statistically significant.

RESULTS

Characteristics of the survey population

A total of 2268 women (25.3% of the total 8966 participants, mean age: 65.8±9.0 years) were interviewed in the context of the EUROASPIRE III. In the Turkey cohort, 65 women (19.2% of 338 participants, mean age: 63.3±9.9 years) and 273 men (80.8% of 338 participants, mean age: 59.1±9.6 years) were interviewed. Overall, the prevalences of overweight (body mass index [BMI] ≥25 kg/m^2), hypertension (HT), fasting plasma glucose, and self-reported DM, were higher in Turkish women than in European women. BP control in cases of HT, high-density lipoprotein cholesterol, and lipid-lowering drug use were higher in European women than in Turkish women.

Compared to Turkish men, prevalence of overweight, BMI, central obesity, HT, total cholesterol, low-density lipoprotein (LDL) cholesterol, high-density lipoprotein cholesterol, fasting plasma glucose, and self-reported DM were higher in Turkish women. Details regarding patient characteristics and cardiovascular risk factors at interview are shown in Table 1.

Medical treatment at interview

Recommendation of a CR program, attendance of a CR program, and prescription of statins and angiotensin-converting-enzyme inhibitors were lower in Turk-

Table 1. Patient characteristics and cardiovascular risk factors at interview: EUROASPIRE III

	Turkish women (n=65)	European women (n=2203)	$p^{\dagger}$	Turkish men (n=273)	$p^{\ddagger}$
Age at interview,	63.3±9.9	66.0±8.9	0.033	59.1±9.6	0.030
Smoking (%)	12.3	10.0	0.67	24.2	0.044
Smoking or CO in breath >10 ppm (%)	12.3	11.0	0.84	25.6)	0.032
Body mass index (kg/m²), mean±SD	30.9±4.8	29.7±5.2	0.047	28.1±3.6	<0.001
Waist circumference (cm), mean±SD	97.0±12.6	95.8±13.6	0.46	96.6±11.2	0.80
Prevalence of overweight (BMI ≥25 kg/m²), (%)	93.8	81.2	0.013	81.2	0.014
Central obesity, (Waist circumference ≥102/88 cm in men/women), (%)	77.8	73.4	0.56	32.8	<0.001
Systolic blood pressure (mmHg), mean±SD	149.6±22.6	142.5±22.2	0.015	139.1+22.3	0.001
Diastolic blood pressure (mmHg), mean±SD	85.3±12.6	82.9±12.0	0.13	82.6±12.2	0.11
Systolic blood pressure/Diastolic blood pressure ≥140/90 mmHg, %	66.2	54.1	0.06	45.6	0.004
SBP/DBP ≥140/90 mmHg or ≥130/80 mmHg for diabetics (%)	73.8	59.0	0.02	50.7	0.001
Hypertension (%)	89.2	87.9	0.85	74.2	0.013
Undetected hypertension (%)	4.2	10.9	0.16	28.5	<0.001
Use of antihypertensive drugs (%)	81.5	80.1	0.87	57.2	<0.001
Blood pressure on target (%)	18.9	34.4	0.026	40.6	0.004
BP on target among all patients using antihypertensive drugs (%)	23.7	39.4	0.015	49.8	<0.001
Total cholesterol (mmol/L), mean±SD	5.14±1.41	5.02±1.28	0.51	4.54±1.09	0.002
HDL cholesterol (mmol/L), mean±SD	1.19±0.22	1.28±0.31	0.002	1.02±0.21	<0.001
Triglycerides (mmol/L) mean±SD	1.91±1.21	1.65±1.06	0.10	1.71±0.98	0.16
LDL cholesterol (mmol/L) mean±SD	3.08±1.15	2.98±1.09	0.50	2.75±0.94	0.016
Total cholesterol ≥5 mmol (%)	49.2	43.3	0.37	32.8	0.019
HDL cholesterol <1 mmol for men and <1.2 mmol/L for women (%)	49.2	43.4	0.37	43.4	0.37
Fasting triglycerides ≥1.7 mmol (%)	35.7	34.8	0.89	50.4	0.89
LDL cholesterol ≥3 mmol (%)	39.6	40.1	0.97	36.8	0.88
Lipid-lowering drug use (%)	58.5	78.4	<0.001	34.1	0.52
TC <5 mmol among patients using lipid-lowering drugs (%)	66.7	63.4	0.73	67.6	0.20
LDL <3 mmol among patients using lipid-lowering drugs (%)	78.1	67.8	0.25	76.6	0.29
Self-reported diabetes (%)	50.8	29.8	<0.001	21.4	<0.001
FPG, mmol/L, median (25th and 75th percentiles)	6.65 (5.87-10.76)	6.34 (5.82-7.43)	0.012	6.04 (5.65-6.71)	0.001
Undiagnosed diabetes, (FPG ≥7 mmol/L), %	7.1	13.7	0.41	8.8	0.94
Glycaemic control in diabetic subjects (<7 mmol/L), %	29.6	29.9	0.98	35.4	0.80
HbA1c <7% in diabetic subjects (%)	40.9	39.9	0.96	39.0	0.88

BP: Blood pressure; CO: Carbon monoxide; DBP: Diastolic blood pressure; FPG: Fasting plasma glucose; HDL: High-density lipoprotein; IQR: Interquartile range; LDL.: Low-density lipoprotein; SBP: Systolic blood pressure; TC: Total cholesterol. †Refers to p value for comparison of Turkish and European women. ‡Refers to p value for comparison of Turkish women and men. For inter-group comparisons, Bonferroni correction was performed, and a p value of <0.025 was considered statistically significant.

Table 2. Medical treatment after index event at interview

	Turkish women (n=65)	European women (n=2203)	$p^\dagger$	Turkish men (n=273)	$p^\ddagger$
Secondary prevention treatment					
Aspirin or antiplatelets (%)	90.8	88.2	0.57	91.6	0.83
☐ Blockers (%)	67.7	81.2	0.008	75.3	0.27
Statins (%)	58.5	76.2	0.001	66.5	0.25
ACE inhibitors (%)	43.1	59.7	0.007	52.4	0.21
Angiotensin II receptor antagonist (%)	29.2	14.9	0.001	16.5	0.023
ACE inhibitors or Angiotensin II receptor antagonists (%)	70.8	73.5	0.67	68.6	0.77
Cardiovascular risk factor treatment					
Anticoagulants (%)	0	5.6	0.047	2.6	0.35
Calcium antagonists (%)	24.6	30.9	0.34	11.8	0.011
Nitrates (%)	29.2	34.7	0.43	18.5	0.06
Diuretics (%)	43.1	41.3	0.80	23.9	0.002
Insulin (%)	23.4	8.4	<0.001	8.1	0.001
Oral antidiabetic agent (%)	24.6	16.8	0.13	11.4	0.006
Other medications					
Digitalis glycosides (%)	4.6	2.5	0.41	4.4	0.79
Anti-arrhythmic drugs (%)	3.1	3.8	0.75	1.1	0.25
Fibrates (%)	1.5	2.5	0.73	1.5	0.98
Cardiac prevention or rehabilitation					
Advised to follow a program (%)	9.4	43.0	<0.001	6.8	0.59
Attendance to a program (at least half of the sessions) (%)	0	31.9	<0.001	2.6	0.35

ACE: Angiotensin converting enzyme. †Refers to p value for comparison of Turkish and European women. ‡Refers to p value for comparison of Turkish women and men. For inter-group comparisons, Bonferroni correction was performed, and a p value of <0.025 was considered statistically significant.

ish women, compared to European women. However, prescription of angiotensin II receptor blockers and insulin were more common in Turkish women. Use of antithrombotic drugs, beta-blockers and renin-angiotensin-aldosterone system blockers were similar in both groups.

Recommendation of a CR program, attendance of a CR program, and prescription of antithrombotic drugs, beta-blockers, statins, angiotensin-converting-enzyme inhibitors, and renin-angiotensin-aldosterone system blockers were similar between Turkish women and Turkish men. Prescription of angiotensin II receptor blockers, calcium antagonists, nitrates, and insulin and oral antidiabetic agents was more common in Turkish women than Turkish men. Details of medical treatment at interview are shown in Table 2.
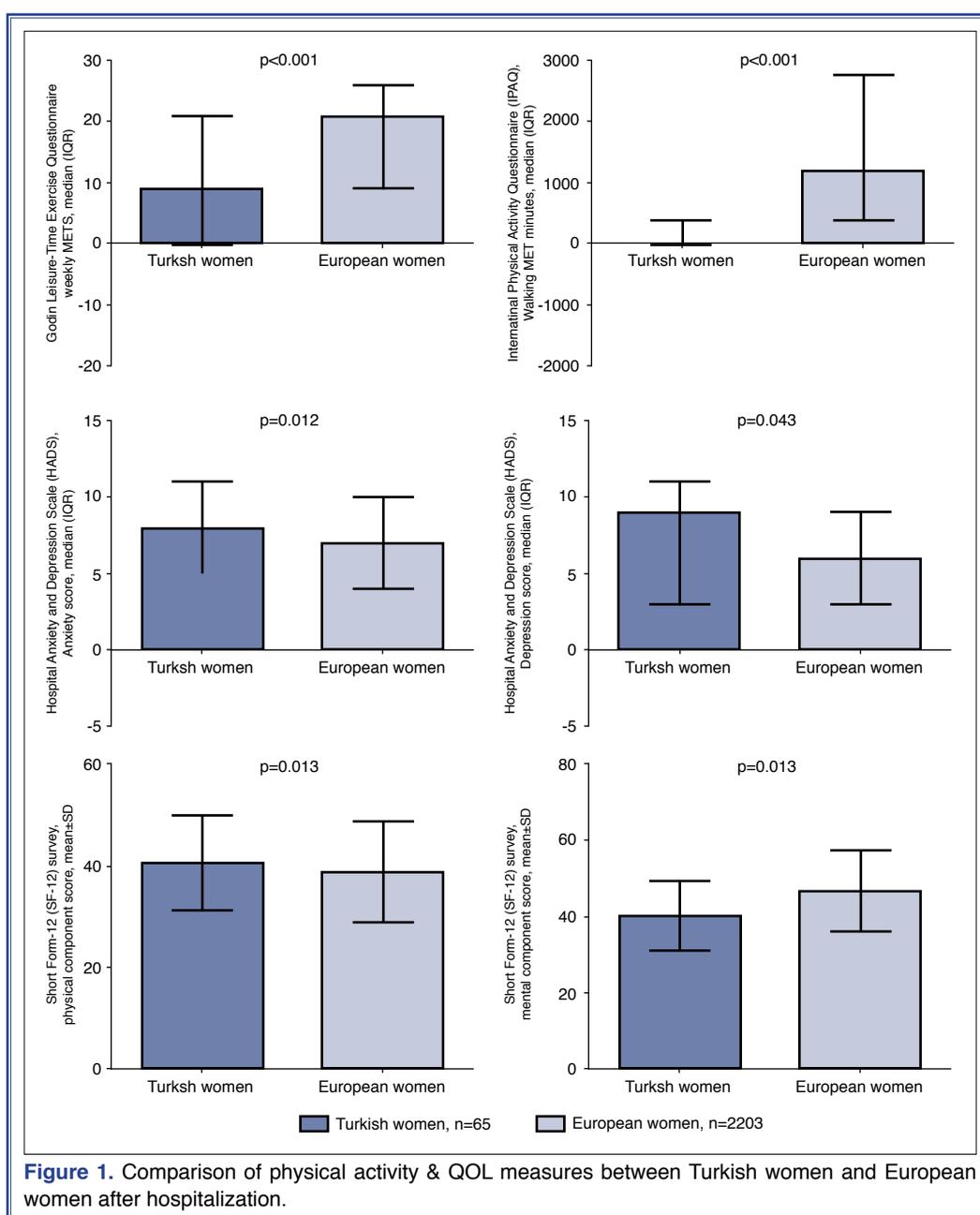
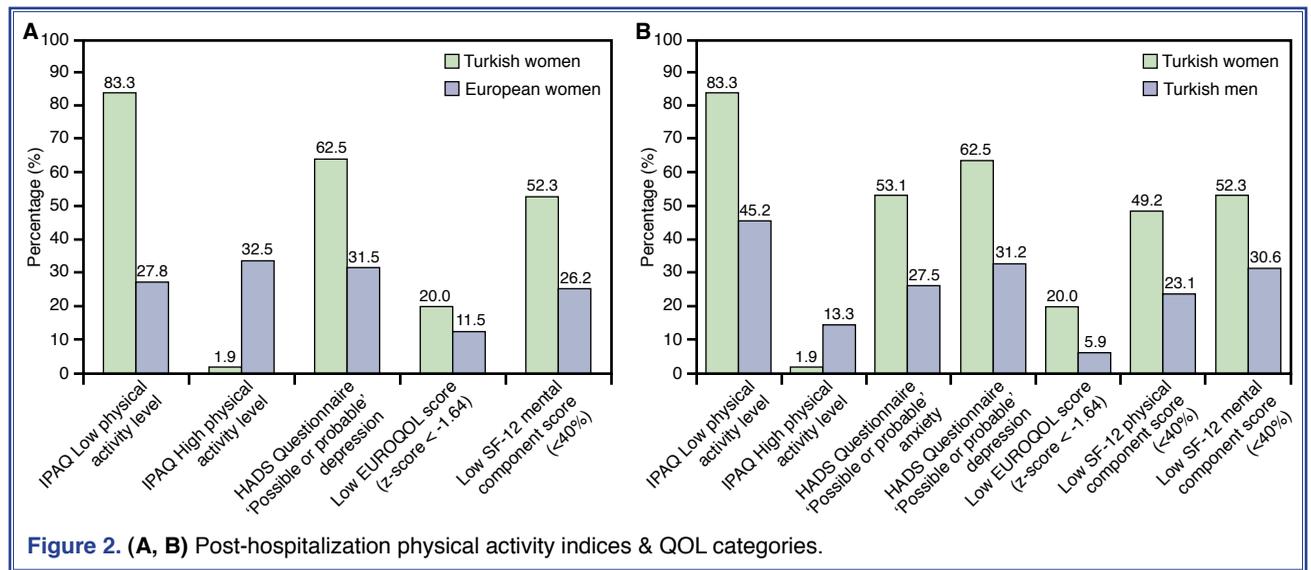**Physical activity and quality of life measures after hospitalization**

Physical activity assessed by GLTEQ [9.0 (0.0–21.0) weekly METs *vs*. 21.0 (9.0–26.0) weekly METs, p<0.001] and IPAQ weekly physical activity [0 (0–396) walking MET minutes *vs*. 1188 (396–2772) walking MET minutes, p<0.001] were lower in Turkish women than European women after hospitalization for CHD (Figure 1). HADS anxiety score [8 (5–11) *vs*. 7 (4–10), p=0.012] and depression score [9 (3–11) *vs*. 6 (3–9), p=0.043] were higher in Turkish women than European women after hospitalization for CHD. The SF-12 mental component (40.2±9.2 *vs*. 46.7±10.6, p<0.001) score was lower in Turkish women than their European counterparts. Prevalence of low IPAQ physical activity, low EuroQol score (z score <-1.64),

low SF-12 mental component score (<40%) and possible or probable depression was more common in Turkish women than European women (Figure 2).

Physical activity assessed by GLTEQ [9.0 (0.0–21.0) weekly METs *vs.* 21.0 (12.0–48.0) weekly METs, p=0.001] and IPAQ weekly physical activity [0 (0–396) walking MET minutes *vs.* 693 (0–1980) walking MET minutes, p=0.012] was lower in Turkish women than Turkish men after hospitalization for CHD (Figure 3). HADS anxiety score [8 (5–11) *vs.* 5 (2–8), p=0.001] and depression score [9 (3–11)

vs. 5 (2–8), p= 0.001] were higher in Turkish women than Turkish men after hospitalization for CHD. EuroQol score [0.66 (0.52–0.80) *vs.* 0.85 (0.73–1.00), p=0.001], SF-12 physical component (40.6±9.4 *vs.* 47.0±9.6, p<0.001), and SF-12 mental component (40.2±9.2 *vs.* 45.0±9.9, p<0.001) scores were lower in Turkish women than Turkish men. However, EQ-VAS scores were similar between genders. Prevalence of low IPAQ physical activity, low EuroQol score (z score <-1.64), low SF-12 physical and mental scores (<40%) were more common in Turkish women than

Figure 1. Comparison of physical activity & QOL measures between Turkish women and European women after hospitalization.

Figure 2. (A, B) Post-hospitalization physical activity indices & QOL categories.

Turkish men. Percentages of participants with possible or probable anxiety and possible or probable depression were also higher in Turkish women than in Turkish men (Figure 2).
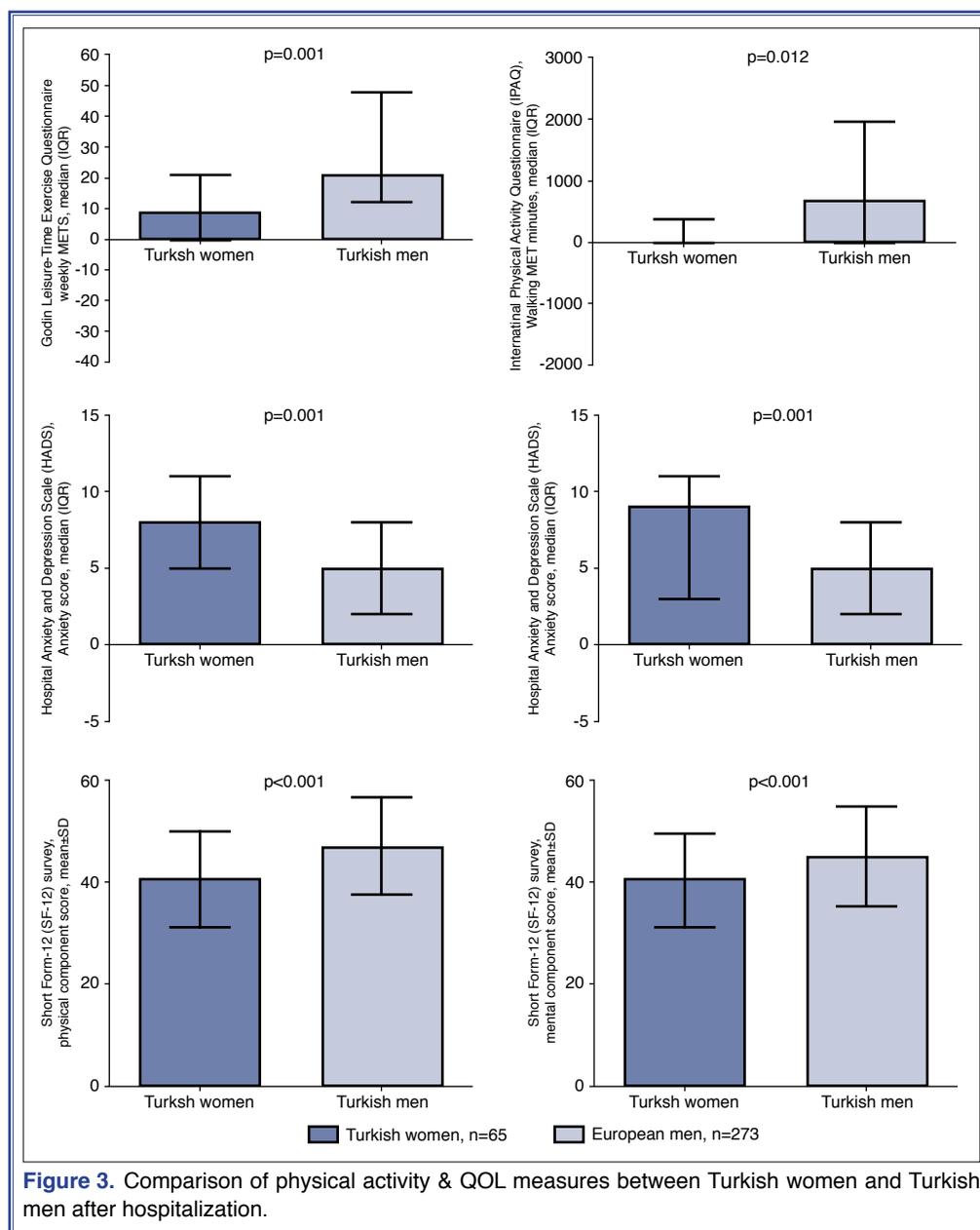
DISCUSSION

Primary findings were as follows: after hospitalization for CHD, (i) Turkish women have lower participation in CR programs and lower physical activity indices than European women, (ii) Turkish women have lower physical activity indices than Turkish men, (iii) HADS anxiety and depression scores were higher in Turkish women than Turkish men, (iv) HADS anxiety and depression scores were higher in Turkish women than European women, and (v) QOL indices were lower in Turkish women than European women and Turkish men.

Evidence accumulated over the last several decades regarding treatment and outcome of CHD reveals disparities that bear a clear relationship to gender.[19,20] In the EUROASPIRE III Turkey cohort, we found that Turkish women had higher BMI, HT, total cholesterol, LDL cholesterol and self-reported DM than their male counterparts. Interestingly, Turkish women also had a higher prevalence of HT and self-reported DM than European women. There were subtle differences in the medical management of men and women; nitrates, calcium antagonists, diuretics, and insulin were more frequently prescribed in women than in men, probably in relation to the higher preva-

lence of angina and burden of cardiovascular risk factors in women. Of the patients receiving treatment for HT and DM, women were less likely to achieve therapeutic goals. A possible explanation may be worse titration of drug treatments in women.[21] In accordance with this, lower use of treatment during ACS has been reported in women, compared to men. Another possible explanation is that therapeutic targets are harder to accomplish in women, because they have a worse cardiovascular risk profile than men.[21,22] To sum up, this data highlights shortcomings in control of BP, LDL cholesterol, and DM in women, compared to men, after hospitalization for CHD.

A large number of observational studies have found that regular leisure time, physical activity, and exercise are associated with decreased risks of CVD and CHD morbidity and mortality.[1,4] Leisure-time physical activity is associated with decreased prevalence of established risk factors for CVD, such as HT, dyslipidemia, plasma fibrinogen, inflammatory markers, and obesity.[1,23] Physical activity and participation in a CR program have been demonstrated to improve function and psychosocial wellbeing following CHD-related hospital admission.[24] Women experience similar benefits from exercise, and participation in a CR program may even offer women additional benefits, as they encounter greater difficulties with symptoms, physical function, adjustment, and risk factor modification during recovery. Women also report greater pain and fatigue, mostly due to rapid return to household and caring activities. Overall attendance rates of

Figure 3. Comparison of physical activity & QOL measures between Turkish women and Turkish men after hospitalization.

CR programs are low for both men and women, with only 15–30% of eligible patients enrolled. However, rates of attendance for women are 10–40% below those of men.[24]

Results of the present study demonstrate that rates of CR program attendance and physical activity indices of Turkish women are extremely low, compared to those of European women. Although the same rates and indices are also extremely low for Turkish men, they have higher physical activity indices than their female counterparts.

Literature regarding gender-related differences in QOL of CHD patients is sparse and somewhat inconsistent. The same differences in ACS patients have been addressed in several studies, and while no QOL discrepancies were found,[25,26] it was noted that women reported higher levels of depression and anxiety, less social support,[25] and had increased risk of death and long length of stay during subsequent hospitalizations.[26] It has also been reported in multiple studies that women described worse QOL following ACS, compared to men, as measured by elevated levels of anxiety and depression, poorer general health,

and overall worse psychosocial profiles.[27,28] It was presently found that HADS anxiety and depression scores were higher in women participating in the EUROASPIRE III Turkey cohort. EuroQol, and SF-12 physical and mental component scores were also lower in Turkish women than in Turkish men. In addition, EuroQol and SF-12 mental component scores were lower in Turkish women, compared to their European counterparts.

Conclusion

Results of the EUROASPIRE III Turkey cohort show that in spite of the wide dissemination of clear, evidence-based guidelines, their integration into routine clinical care has been disappointing. After hospitalization, there was no major difference in the pharmacological management of CHD among genders. However, Turkish women achieved therapeutic targets for BP, LDL cholesterol, and fasting plasma glucose less often than Turkish men. Physical activity and QOL indices after hospitalization for CHD were lower in Turkish women than Turkish men and European women. These findings indicate that both clinicians and patients pay insufficient attention to lifestyle risk factors (smoking, diet) and physical activity, which then unfavorably impact obesity, BP, lipid profile, and glucose management. Turkish women have higher risk of depression and anxiety after hospitalization for CHD. Moreover, they do not participate in CR programs. Given that a physician's recommendation is a very important factor in the decision to participate in a program, every effort should be made to increase program adherence and to educate physicians on the benefits specific to women. Professional, comprehensive, and multidisciplinary programs appropriately adapted to a country's medical, cultural, and economic position are necessary in order to raise standards in preventive cardiology, particularly for female patients.

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