ORIGINAL PAPER

Mater Sociomed. 2015 Jun; 27(3): 163-166

Demographic and Socioeconomic Characteristics Among Primary Health Care Users Diagnosed with Osteoarthritis in Albania

Fatos Hoxha¹, Argjent Tafaj², Enver Roshi², Genc Burazeri³¹Health Center No. 3, Tirana, Albania²University of Medicine, Tirana, Albania³Department of International Health, School for Public Health and Primary Care (CAPHRI), Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, The NetherlandsCorresponding author: Fatos Hoxha, MD. Address: Rr. "Qemal Stafa", No. 30, Tirana, Albania. Telephone: 00355692130485; E-mail: hoxhafatos69@yahoo.com

ABSTRACT

Aim: The aim of this study was to describe the distribution of demographic factors and socioeconomic characteristics among primary health care users diagnosed with osteoarthritis in Albania, a transitional country in the Western Balkans. **Methods:** This study included all individuals diagnosed with osteoarthritis during January 2013 – December 2014 in selected primary health care centers in Tirana, the capital city of Albania. Overall, 1179 adult individuals were diagnosed with osteoarthritis (521 men and 658 women) during this time period. The overall mean age of study participants was 59.0 ± 10.1 years (60.1 ± 10.6 years in men and 58.1 ± 9.6 years in women). The diagnosis of osteoarthritis was based on the history of the disease, physical examination, laboratory findings and radiological findings. Binary logistic regression was used to assess the sex-differences regarding demographic factors and socioeconomic characteristics among participants diagnosed with osteoarthritis. **Results:** In multivariable-adjusted logistic regression models, female gender was inversely associated with the age-group ($OR=0.67$, $95\%CI=0.47-0.95$) and educational level ($OR=0.39$, $95\%CI=0.25-0.61$), but positively related to rural birthplace ($OR=1.47$, $95\%CI=1.14-1.89$) and unemployment ($OR=1.40$, $95\%CI=1.02-1.92$) of the patients diagnosed with osteoarthritis. **Conclusion:** Our findings provide novel evidence about the distribution of demographic factors and socioeconomic characteristics among adult individuals diagnosed with osteoarthritis in primary health care services in Albania. Future studies should assess the distribution of the major risk factors for osteoarthritis among adult men and women in transitional Albania.

Key words: Albania, demographic and socioeconomic characteristics, osteoarthritis, primary health care.

1. INTRODUCTION

Osteoarthritis is a multifaceted disease caused by the interaction of multiple genetic and environmental factors (1, 2). Osteoarthritis is a joint disease that mostly affects cartilage, which is the slippery tissue that covers the ends of bones in a joint (3). As a matter of fact, osteoarthritis is the most common type of arthritis (4, 5).

Osteoarthritis occurs most often in older people (6). However, it may also involve younger individuals who occasionally get osteoarthritis, mainly from joint injuries (6).

Osteoarthritis usually develops gradually over time. The main risk factors for development of osteoarthritis include older age, overweight and obesity, joint injury, joints that are

not properly formed, genetic defects in joint cartilages, and stresses on the joints from certain jobs and playing sports or other physical activities (7, 8).

Nonetheless, among all the other putative risk factors, age is considered as one of the strongest risk factors for osteoarthritis of all joints (6, 8, 9). From this point of view, the increase in the prevalence and incidence of osteoarthritis with age is deemed a consequence of cumulative exposure to various risk factors and biologic changes that occur with aging that may make a joint less able to cope with adversity, such as cartilage thinning, weak muscle strength, or oxidative damage (7).

To date, there is scarce evidence about the magnitude and distribution of osteoarthritis in the adult population of Albania,

a post-communist country in the Western Balkans which has been undergoing a rapid socioeconomic and political change in the past two decades. There is evidence of a clear demographic transition in Albania, with a six-year increase in the mean age of the population from 2001 to 2011 (10). This demographic change is reflected in an increase of the older population subgroup, where the proportion of individuals aged 65 years and over in Albania amounted up to 11% in 2011 (10). Furthermore, the rapid process of transition in Albania over the past twenty five years has been associated with an intensive process of migration, both internal (from rural areas to urban areas of the country) and external (mostly to the neighboring countries such as Greece and Italy, but also Germany and the United Kingdom) (11). Migration leads to an increased ageing process (12) which goes in line with an increase in the prevalence of osteoarthritis. Nevertheless, there is almost no formal (well-documented) evidence on the prevalence and correlates of osteoarthritis in the adult population of Albania to date.

In this framework, the aim of our study was to describe the distribution of demographic factors and socioeconomic characteristics among primary health care users diagnosed with osteoarthritis in transitional Albania.

2. METHODS

This study included all individuals diagnosed with osteoarthritis during January 2013 – December 2014 in selected primary health care centers in Tirana, the capital city of Albania. Overall, 1179 adult individuals were diagnosed with osteoarthritis (521 men and 658 women) during this time period. The overall mean age of study participants was 59.0 ± 10.1 years (60.1 ± 10.6 years in men and 58.1 ± 9.6 years in women).

The diagnosis of osteoarthritis was established in line with the recommendations of the American College of Rheumatology criteria for the clinical diagnosis of osteoarthritis (13,14):

History of the disease: self-reported presence of pain, aching, stiffness, or other symptoms in the joints affected by osteoarthritis;

Physical examination: difficulties in flexion/extension and rotation of the joints (range of motions), tenderness, crepitations, or enlargement of the joints;

Laboratory findings: erythrocyte sedimentation rate, rheumatoid factor, C-reactive protein and uricemia, and;

Radiological findings: joint space narrowing and presence of osteophytes.

Fisher's exact test was used to compare the distribution of demographic factors and socioeconomic characteristics among male and female participants diagnosed with osteoarthritis. On the other hand, binary logistic regression was used to assess the sex-differences regarding demographic factors and socioeconomic characteristics among primary health care users diagnosed with osteoarthritis in Tirana. Crude (unadjusted) and subsequently multivariable-adjusted odds ratios (ORs) and their respective 95% confidence intervals (CIs) were calculated. All the statistical analyses were done by use of the Statistical Package for Social Sciences (SPSS, version 17.0).

3. RESULTS

Table 1 presents the distribution of demographic factors and socioeconomic characteristics among primary health care users diagnosed with osteoarthritis in Tirana during the period

Variable	Total (N=1179)	Men (N=521)	Women (N=658)	p†
Age-group:				
<60 years	622 (52.8)*	249 (47.8)	373 (56.7)	0.001
≥60 years	557 (47.2)	272 (52.2)	285 (43.3)	
Place of birth:				
Rural area	404 (34.3)	160 (30.7)	244 (37.1)	0.013
Urban area	775 (65.7)	361 (69.3)	414 (62.9)	
Employment:				
Employed	481 (40.8)	227 (43.6)	254 (38.6)	<0.001
Unemployed	288 (24.4)	98 (18.8)	190 (28.9)	
Retired	410 (34.8)	196 (37.6)	214 (32.5)	
Marital status:				
Not married	277 (23.5)	119 (22.8)	158 (24.0)	0.344
Married	902 (76.5)	402 (77.2)	500 (76.0)	
Educational level:				
Low	495 (42.0)	187 (35.9)	308 (46.8)	<0.001
Middle	493 (41.8)	220 (42.2)	273 (41.5)	
High	191 (16.2)	114 (21.9)	77 (11.7)	
Income level:				
Low	308 (26.1)	122 (23.4)	186 (28.3)	0.017
Middle	650 (55.1)	284 (54.5)	366 (55.6)	
High	221 (18.7)	115 (22.1)	106 (16.1)	
Social status:				
Low	358 (30.4)	142 (27.3)	216 (32.8)	0.025
Middle	671 (56.9)	300 (57.6)	371 (56.4)	
High	150 (12.7)	79 (15.2)	71 (10.8)	

Table 1. Distribution of demographic factors and socioeconomic characteristics among primary health care users diagnosed with osteoarthritis in Tirana during 2013-2014. * Absolute numbers and their respective column percentages (in parentheses). † P-values from Fisher's exact test.

2013-2014. Overall, 622 (52.8%) of the patents were less than 60 years of age, whereas 557 (47.2%) of them were 60 years or above. There was evidence of a statistically significant difference in the age-distribution between men and women: the proportion of older men (60 years and above) was higher than in women (52.2% vs. 43.3%, respectively), indicating that osteoarthritis developed at an earlier age in women compared to men ($P=0.001$). Regarding the place of birth, the proportion of men who were born in urban areas was higher in men than in women (69.3% vs. 62.9%, respectively), a difference which was statistically significant ($P=0.013$). Furthermore, the prevalence of unemployment was substantially and significantly higher in women compared to men (28.9% vs. 18.8%, respectively; $P<0.001$). On the other hand, there was no statistically significant difference in the proportion of men and women distinguished by their marital status ($P=0.344$). The proportion of a higher educational attainment (more than 12 years of formal schooling) was considerably higher in men than in women (21.9% vs. 11.7%, respectively), a finding which was highly statistically significant ($P<0.001$). Similarly, the prevalence of a higher income level was significantly higher in men compared to women (22.1% vs. 16.1%, respectively; $P=0.017$). Likewise, the prevalence of a higher social status was significantly higher in men than in women (15.2% vs. 10.8%, respectively; $P=0.025$).

Table 2 presents the sex-differences with regard to the demographic factors and socioeconomic characteristics between primary health care men and women diagnosed with osteoarthritis in Tirana during the period 2013-2014. In crude (unadjusted) logistic regression models, there was an inverse association of female gender with age ($OR=0.70$, $95\%CI=0.56-0.88$), but a positive relationship with rural birthplace ($OR=1.33$,

Variable	Crude (unadjusted models)		Multivariable-adjusted models	
	OR (95%CI)*	P*	OR (95%CI)*	P*
Age-group:				
<60 years	1.00 (reference)		1.00 (reference)	
≥60 years	0.70 (0.56-0.88)	0.002	0.67 (0.47-0.95)	0.024
Place of birth:				
Urban area	1.00 (reference)		1.00 (reference)	
Rural area	1.33 (1.04-1.70)	0.022	1.47 (1.14-1.89)	0.003
Employment:		<0.001 (2)†		0.114 (2)†
Employed	1.00 (reference)	-	1.00 (reference)	-
Unemployed	1.73 (1.28-2.34)	<0.001	1.40 (1.02-1.92)	0.039
Retired	0.98 (0.75-1.27)	0.855	1.04 (0.72-1.52)	0.831
Marital status:				
Not married	1.00 (reference)		1.00 (reference)	
Married	0.94 (0.71-1.23)	0.638	0.85 (0.64-1.14)	0.289
Educational level:		<0.001 (2)		<0.001 (2)
Low	1.00 (reference)	-	1.00 (reference)	-
Middle	0.75 (0.58-0.97)	0.029	0.74 (0.54-1.00)	0.052
High	0.41 (0.29-0.58)	<0.001	0.39 (0.25-0.61)	<0.001
Income level:		0.017 (2)		0.457 (2)
Low	1.00 (reference)	-	1.00 (reference)	-
Middle	0.84 (0.64-1.11)	0.233	1.09 (0.79-1.52)	0.590
High	0.61 (0.43-0.86)	0.005	0.90 (0.58-1.39)	0.632
Social status:		0.025 (2)		0.851 (2)
Low	1.00 (reference)	-	1.00 (reference)	-
Middle	0.81 (0.63-1.06)	0.120	0.96 (0.72-1.29)	0.808
High	0.59 (0.40-0.87)	0.007	1.08 (0.67-1.76)	0.752

Table 2. Sex-differences regarding demographic factors and socioeconomic characteristics among primary health care users diagnosed with osteoarthritis in Tirana during 2014-2015. * Odds ratios (OR: women vs. men), 95% confidence intervals (95%CI) and p-values from binary logistic regression.. † Overall p-value and degrees of freedom (in parentheses).

95%CI=1.04-1.70). Furthermore, there was evidence of a positive association between female gender and unemployment (OR=1.73, 95%CI=1.28-2.34), but not with retirement (OR=0.98, 95%CI=0.75-1.27). There was no significant association with marital status (P=0.638). On the other hand, there was a strong inverse association between female gender and educational level (overall P<0.001): the odds of a higher educational attainment were considerably lower among women with osteoarthritis compared to men (OR=0.41, 95%CI=0.29-0.58). Similarly, the odds of a higher income level and a higher social status were both significantly lower among women than in men diagnosed with osteoarthritis (OR=0.61, 95%CI=0.43-0.86 and OR=0.59, 95%CI=0.40-0.87, respectively).

Upon simultaneous adjustment for all the demographic factors and socioeconomic characteristics, female gender was inversely associated with age-group (OR=0.67, 95%CI=0.47-0.95) and educational level (OR=0.39, 95%CI=0.25-0.61), but positively related to rural birthplace (OR=1.47, 95%CI=1.14-1.89) and unemployment (OR=1.40, 95%CI=1.02-1.92). On the other hand, in multivariable-adjusted models, the association of gender with income level and social status disappeared (Table 2).

4. DISCUSSION

Main findings of our study conducted in Tirana – the Albanian capital city – include an inverse (negative) association of female gender with the age-group and educational level of primary health care users diagnosed with osteoarthritis. On the other hand, there was evidence of a positive association of female gender with rural birthplace and unemployment of study participants controlling for a wide array of other demographic and socioeconomic factors.

Our study revealed that women in Tirana are more likely

to develop osteoarthritis than men. This finding is compatible with many previous reports from the international literature which indicate that females have a higher prevalence of osteoarthritis and also suffer from more severe forms of osteoarthritis compared to their male counterparts (9). The strong positive association of osteoarthritis with menopause has suggested that hormonal factors may play a crucial role in the development of this condition (7). However, it should be noted that results on the effect of estrogen have been controversial in this regard (15-17). In the randomized clinical trial referred to as the “Heart and Estrogen/Progestin Replacement Study”, in a group of older postmenopausal women with heart disease, no significant difference was noted in the prevalence of knee pain or its resultant disability between participants taking estrogen plus progestin therapy or those taking placebo (9,18). On the other hand, results from the Women’s Health Initiative indicated that, women on estrogen replacement therapy were 15% less likely to require total knee or hip arthroplasty compared to women not taking such therapy, but that estrogen combined with progestin therapy was not associated with the risk of joint replacement (9,19).

Our study may have several limitations pertinent to the sample representativeness and the information collected. We included in this study all individuals diagnosed with osteoarthritis who sought medical care in selected primary health care centers in Tirana. However, these health centers included in our study are representative to the overall primary health care facilities in Tirana. From this perspective, the overall sample of primary health care users diagnosed with osteoarthritis in these health centers included in our study is assumed to be representative of the overall adult primary health care users in Tirana. Yet, primary health care users may not necessarily reflect the overall

adult population of Tirana. Therefore, our findings cannot be generalized to the overall adult population of Tirana, but are confined to the primary health care users only. Furthermore, at best, findings from this study are generalized to the adult population residing in Tirana and not the general population of Albania. The instruments for data collection were based on the international protocols and best practices and recommendations for establishment of the clinical diagnosis of osteoarthritis (13,14). Nevertheless, the self-reported data on socioeconomic characteristics of study participants may have been subject to information bias, at least to some extent.

5. CONCLUSION

Notwithstanding the possibility of the aforementioned limitations, our findings provide novel evidence about the distribution of demographic factors and socioeconomic characteristics among adult individuals diagnosed with osteoarthritis in primary health care services in Tirana, the capital of Albania. Future studies should assess the distribution of the major risk factors for osteoarthritis among adult men and women in transitional Albania.

CONFLICT OF INTEREST: NONE DECLARED.

REFERENCES

- Rodriguez-Fontenla C, Gonzalez A. Genetics of osteoarthritis. *Reumatol Clin*. 2015; 11: 33-40. DOI: 10.1016/j.reuma.2014.05.004.
- Spector TD, MacGregor AJ. Risk factors for osteoarthritis: genetics. *Osteoarthritis Cartilage*. 2004; 12 Suppl. A: S39-44.
- Dawson J, Linsell L, Zondervan K, et al. Epidemiology of hip and knee pain and its impact on overall health status in older adults. *Rheumatology*. 2004; 43: 497-504.
- Zhang W, Moskowitz RW, Nuki G, et al. OARSI recommendations for the management of hip and knee osteoarthritis, Part II: OARSI evidence-based, expert consensus guidelines. *Osteoarthritis Cartilage*. 2008; 16: 137-162.
- Pavelka K. A comparison of the therapeutic efficacy of diclofenac in osteoarthritis: a systematic review of randomised controlled trials. *Curr Med Res Opin*. 2012; 28: 163-178. DOI: 10.1185/03007995.2011.649848.
- Felson DT, Lawrence RC, Dieppe PA, et al. Osteoarthritis: new insights. Part 1: the disease and its risk factors. *Ann Intern Med*. 2000; 133: 635-346.
- Zhang Y, Jordan JM. Epidemiology of osteoarthritis. *Clin Geriatr Med*. 2010; 26: 355-369. DOI: 10.1016/j.cger.2010.03.001.
- Lawrence RC, Felson DT, Helmick CG, et al. Estimates of the prevalence of arthritis and other rheumatic conditions in the United States. Part II. *Arthritis Rheum*. 2008; 58: 26-35.
- Felson DT, Zhang Y. An update on the epidemiology of knee and hip osteoarthritis with a view to prevention. *Arthritis Rheum*. 1998; 41: 1343-1355.
- Institute of Statistics (INSTAT). Population and housing census, 2011. Tirana: INSTAT; 2012. Available from: http://www.instat.gov.al/media/178070/rezultatet_kryesore_t_censurit_t_popullsis_dhe_banesave_2011_n_shqip_ri.pdf (Accessed: March 15, 2015).
- Burazeri G, Goda A, Tavanzhi N, Sulo G, Stefa J, Kark JD. The health effects of emigration on those who remain at home. *Int J Epidemiol*. 2007; 36: 1265-1272.
- Albanian Institute of Public Health. National health report: Health status of the Albanian population. Tirana, Albania, 2014. <http://www.ishp.gov.al/wp-content/uploads/2015/01/Health-report-English-version.pdf> (Accessed: March 15, 2015).
- Altman R, Alarcón G, Appelrouth D, et al. The American College of Rheumatology criteria for the classification and reporting of osteoarthritis of the hip. *Arthritis Rheum*. 1991; 34: 505-514.
- Altman R, Asch E, Bloch D, et al. Development of criteria for the classification and reporting of osteoarthritis. Classification of osteoarthritis of the knee. Diagnostic and Therapeutic Criteria Committee of the American Rheumatism Association. *Arthritis Rheum*. 1986; 29: 1039-1049.
- Wluka AE, Cicuttini FM, Spector TD. Menopause, oestrogens and arthritis. *Maturitas*. 2000; 35: 183-99.
- Hannan MT, Felson DT, Anderson JJ, Naimark A, Kannel WB. Estrogen use and radiographic osteoarthritis of the knee in women. The Framingham Osteoarthritis Study. *Arthritis Rheum*. 1990; 33: 525-532.
- Nevitt MC, Cummings SR, Lane NE, et al. Association of estrogen replacement therapy with the risk of osteoarthritis of the hip in elderly white women. Study of Osteoporotic Fractures Research Group. *Arch Intern Med*. 1996; 156: 2073-2080.
- Nevitt MC, Felson DT, Williams EN, Grady D. The effect of estrogen plus progestin on knee symptoms and related disability in postmenopausal women: The Heart and Estrogen/Progestin Replacement Study, a randomized, double-blind, placebo-controlled trial. *Arthritis Rheum*. 2001; 44: 811-818.
- Cirillo DJ, Wallace RB, Wu L, Yood RA. Effect of hormone therapy on risk of hip and knee joint replacement in the Women's Health Initiative. *Arthritis Rheum*. 2006; 54: 3194-3204.