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The prevalence of low back pain and risk factors among adult population in Afyon region, Turkey

Afyonkarahisar ilinde erişkinlerde bel ağrısı sıklığı ve etkileyen faktörler

Levent ALTINEL, Kamil Cagrı KOSE, Volkan ERGAN, Cengiz ISIK, Yusuf AKSOY, Aykut OZDEMIR, Dilek TOPRAK,[1] Nurhan DOGAN[2]

Afyonkarahisar Kocatepe University, Faculty of Medicine, Department of Orthopaedics and Traumatology, [1]Department of Family Medicine, [2]Department of Statistics

Amaç: Toplumumuz için bir örneklem olarak, Afyonkarahisar il merkezi ve kırsalında yaşayan erişkin bireylerde bel ağrısı sıklığı ve bunu etkileyen önemli risk faktörleri araştırıldı.

Çalışma planı: Afyon il merkezi dahil, 18 ilçe ve bunlara bağlı 57 belediyelik olmak üzere toplam 75 bölgede saha taraması yapıldı. Çalışma için belirlenen yeterli örneklem büyüklüğü 1990 olup, çalışma kapsamında 2035 kişiye (1194 kadın, 841 erkek) ulaşıldı. Bireylere yaş, meslek, cinsiyet, boy, kilo, bel ağrısı öyküsü, hipertansiyon, diyabet ve sigara kullanımı ile ilgili sorular soruldu. Depresyon değerlendirmesinde Ruhsal Belirti Tarama Listesi (Symptom Checklist-90-Revised- SCL-90) kullanıldı.

Sonuçlar: Afyon ilinde yaşam boyu bel ağrısı sıklığı %51 bulundu. Tüm olguların %13.1'inde kronik bel ağrısı vardı. Kadınların %63.2'si, erkeklerin %33.8'i hayatında en az bir kez bel ağrısı geçirmişti (p=0.001). Meslek grupları içinde bel ağrısı en fazla ev kadınlarında (%64.2) görüldü (p=0.0001); bu grupta yaş ve beden kütle indeksi (BKİ) çalışan kadınlara göre daha yüksekti. Depresyon (p=0.016) ve BKİ (p=0.000) artışının bel ağrısı riskini artırdığı; sigara kullanımı, hipertansiyon ve diyabet öyküsünün bel ağrısı sıklığını etkilemediği görüldü. Hekime başvurmama nedenleri arasında önemli bir neden maddi imkansızlıktı (%39.7).

Çıkarımlar: Bel ağrısı için bildirilen risk faktörlerinin birçoğu ülkemiz için de geçerlidir. Ev kadınlarına yönelik bel koruma, beslenme ve aile planlaması eğitimi verilmesine gereksinim vardır. Maddi imkansızlıklar nedeniyle hekime başvurmayan bireylere sosyal güvence kazandırılarak hekime başvuru artırılabilir.

Anahtar sözcükler: Afyon; bel ağrısı/epidemiyoloji; prevalans; risk faktörü.

Objectives: This study was designed to determine the prevalence of and risk factors for low back pain (LBP) in a sample of Turkish population among adults living in the Afyon region, Turkey.

Methods: A field screening investigation was performed in a total of 75 areas including the city center, 18 districts, and 57 associated small municipalities. Adequate sample size was determined as 1,990 and a total of 2,035 individuals (1,194 females, 841 males) were enrolled. Participants were inquired about age, occupation, sex, height, weight, history of LBP, hypertension, diabetes, and smoking. Depression symptoms were evaluated using the Symptom Checklist-90-Revised.

Results: The prevalence of lifetime LBP was 51%, and the prevalence of chronic LBP was 13.1%. Overall, 63.2% of women and 33.8% of men had LBP at least once in their lives (p=0.001). With regard to occupation, the highest incidence of LBP was seen in housewives (64.2%; p=0.0001), whose age and body mass index (BMI) were also higher compared to employed women. Depression (p=0.016) and increased BMI (p=0.000) were found to increase the risk for LBP, whereas smoking, hypertension, or diabetes were not correlated with the prevalence of LBP. Poverty was found to be the leading cause (39.7%) for not presenting to a physician.

Conclusion: Among risk factors reported for LBP, many are also effective in Turkish population. Special attention should be given to the education of housewives in terms of low back protection, healthy nutrition, and family planning. Poverty seems to be a significant barrier to patient presentation to physicians, requiring extended social security coverage.

Key words: Afyon; low back pain/epidemiology; prevalence; risk factors.

Correspondence / *Yazışma adresi:* Dr. Levent Altınel. Selçuklu Mah., Adnan Kahveci Bulvarı, Seçme Sitesi, A4, D: 6, 03200 Afyon.
Phone: +90272 - 214 20 65 Fax: +90272 - 217 20 29 e-mail: leventaltinel@yahoo.com

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Low back pain is a highly prevalent discomfort that leads to labor force losses in all societies. It ranks fifth among reasons of consulting a physician.[1] Eighty percent of the active population suffers low back pain at a certain period of their lives.[2]

Risk factors affecting low back pain vary based on the structures of societies, income levels, and conditions of living. Although there are many epidemiological studies on low back pain in the World literature, the number of studies conducted in Turkey on this topic is quite low. As far as we know, there are two epidemiologic studies that explore the prevalence of low back pain and risk factors in the Turkish society.[3,4] One of these studies was conducted in rural Eskisehir and the other one in central Antalya. According to the 2000 census, 65% of the Turkish society lives in city centers whereas 35% lives in the rural sections.[4] As one of the two previously conducted studies was conducted on the rural population and the other on urban population, they are far from reflecting the Turkish society as a whole. In this study, the prevalence of low back pain and associated risk factors have been explored in a way representing the entire population in the city centre and rural sections of the Afyonkarahisar city.

Materials and method

Our study was conducted within the scope of an Afyon Kocatepe University research project after the obtaining approvals of the Afyonkarahisar Governor's Office and Afyon Kocatepe University, Faculty of Medicine Ethics Board.

Sample formation

In the identification of the universe of this study, the 2000 census and the distribution of the population in citys and sub-citys were taken into consideration. The stratified randomization method was used in the determination of the sufficient sampling size; when sampling formation error was taken as 5% and standard deviation as ±2%, the minimum number of healthy individuals over the age of 18 that were aimed to to go through health screening was found to be 1987.[5,6] While the sample was being formed, care was attached to ensure that the sub-city populations are represented in proportion with their share in the overall population of the city. However, when the sub-citys were considered separately, settlements that represent 80% of the population of each sub-city were selected and therefore, certain settlements were neglected in the study. Areas with crowded populations were preferred in the identification of the settlement areas we aimed to reach. We set a target of inquiring at least 20 individuals in the visited settlements. Household Assessment Forms (HAF's) were utilized in the determination of who were going to be included in health screening in the settlement units we aimed to reach. The related HAF cards were selected randomly. Taking age distribution rates in the city of Afyonkarahisar into consideration in the identification of individuals, the distribution of persons in the sub-citys and municipal villages to be included in the sample were made.

Individuals were inquired with questions associated with topics that constitute the subject matter of the study and their responses were noted. Age, sex, occupation, height, weight, marital status, number of pregnancies, smoking history, hypertension, and diabetes were inquired. Low back pains requiring treatment or lasted whole day and for at least two weeks were considered positive back pain. A standard five-stage inquiry form was used to determine the severity of low back pain.[6] In order to identify the effects of low back pain on business life, difficulty while performing the work, leaving the workplace before end of business, having to obtain medical reports, and drop of working productivity were inquired. The treatment

Table 1. Lifetime prevalence of low back pain among participants

	General (n=2035)		Females (n=1194)		Males (n=841)	
Low back pain prevalence	Number	Percent*	Number	Percent	Number	Percent
Never suffered	997	49.0	440	36.9	557	66.2
Suffered	1038	51.0	754	63.2	284	33.8
1 to 5 times	680	33.4	438	36.7	242	28.8
6 to 10 times	56	2.8	48	4.0	8	1.0
More than 10 times	36	1.8	29	2.4	7	0.8
Continuous (chronic) pain	266	13.1	239	20.1	27	3.2

*All the percentages are calculated based on column totals

Table 2. Distribution of pain severity in those with chronic low back pain (n=266)

Pain severity		Number	Percent
I	Mild	6	2.3
II	Middle, does not affect my work	50	18.8
III	Middle, does affect my work	110	41.4
IV	Severe, slightly affects my daily life	49	18.4
V	Severe, considerably affects my daily life	51	19.2

method preferences of individuals when they suffer low back pain as well as the reasons of not preferring to consult a physician if they do so. After obtaining chronic disease history from the patients, their general physical examinations and psychiatric evaluations were done and blood samples for blood glucose were collected. In the psychiatric examinations, depression symptoms were evaluated using the Symptom Checklist-90-Revised.

The statistical evaluation of the collected data and blood glucose results was made using the SPSS ver.12.0 software. Chi-square test, body mass index, occupations, marital status, hypertension, diabetes, and smoking were used to compare the groups whereas binary logistic regression analysis was used to identify the effects of risk factors such as depression. In the model identification process, stepwise regression approach and forward model selection was used.

Results

A field screening investigation was performed in a total of 75 districts comprised of 18 sub-citys including the Afyonkarahisar central city and 57 municipal villages attached to them and 2035 persons were reached. Among the participants, 1038 stated that they suffered serious low back pain at least once or more throughout their lives whereas lifetime prevalence of low back pain (LPLBP) among individuals over the age of 18 was 51.0%. It was observed that 33.4% of the participants suffered low back pain 1 to 5 times throughout their lives (Table 1). The prevalence of chronic low back pain, on the other hand, was 73.1%, 79.0% of which had characteristics that affected the daily life and work life of the individual (Table 2).

While the prevalence of lifetime low back pain suffering was higher among the female population (63.2 %) as compared to that among the males (33.8%), no sex differences were found in chronic low back pain. Although lifetime low back pain suffering risk looks slightly higher between the ages of 41 and 64 (Table 3), no significant differences were found between the age groups in patients with chronic low back pain.

Table 3. Factors affecting suffered low back pain

		Suffers from low back pain (n=1038)		Does not suffer from low back pain(n=997)			
Risk factors		Number	Percentage	Number	Percentage	*Total*	*p*
Age groups	19-40	264	45.8	313	54.2	577	0.04
	41-64	659	53.9	563	46.1	1222	
	≥65	115	48.7	121	51.3	236	
Sex	Female	754	63.2	440	36.9	1194	0.0001
	Male	284	33.8	557	66.2	841	
Marital status	Single	25	26.3	70	73.7	95	0.0001
	Married	1013	52.2	927	47.8	1940	
Pregnancy (n)	1-3	185	59.3	127	40.7	312	0.03
	≥4	511	66.4	259	33.6	770	
Occupation	Blue-collar	241	34.4	460	65.6	701	0.0001
	workers	730	64.3	405	35.7	1135	
	Housewife	67	34.0	130	66.0	197	
Income level	0-500	755	53.3	661	46.7	1416	0.004
(TRY)	501-1500	201	46.3	233	53.7	434	
	>1500	13	34.2	25	65.8	38	

Table 4. Risk factors affecting of low back pain

Risk Factors*		Coefficient	*p*	Odds ratio	%95 confidence interval
Body mass index	≥30, <30 kg/m^2	0.473	0.000	1.605	1.243 - 2.072
Occupation	Blue-collar workers**	–	0.000		
	Housewife	0.986	0.000	2.681	2.073 - 3.467
	Retired, civil servant	-0.275	0.179	0.759	0.508 - 1.135
Marital status	Single, married	0.637	0.051	1.890	0.998 - 3.580
Depression	Yes, no	0.613	0.016	1.846	1.119 - 3.045

*Insignificant risk factors are not shown in the table **Reference group.

While the prevalence of low back pain were similar between blue- and white-collar workers, the prevalence of low back pain was very significantly higher among housewives with a rate of 64.3% as compared with that in other occupations (p=0.0001). The prevalence of low back pain was higher in married persons than single ones. Similarly, the frequency of low back pain was higher among females who experienced four or more pregnancies as compared with those who experienced one to three pregnancies (Table 3). When income distribution was considered, it was found that 70% of the participants had a monthly income of lower than TRY 500 and the prevalence of low back pain was higher in this group as compared with the others (Table 3).

In our study, depression was found in 5% of all the individuals. Low back pain story was positive in 71.6 of the individuals who had depression.

According to the results of the regression analysis, to which 1279 participants without missing data were included, higher body mass index and depression increased low back pain risk, smoking was not found as a risk factor (Table 4). Hypertension and diabetes, two of the other systemic diseases that are prevalent in the Turkish society, were not found to be associated with low back pain. Being a housewife, doing manual work, and being married were found to increase the risk of low back pain (Table 4).

The prevalence of low back pain was higher among housewives as compared with that among working women (Table 5). When the factors affecting this higher rate were examined, it was found that the average age and body mass indexes of housewives were higher. While the rates of other systemic diseases such as depression, hypertension, and diabetes were similar in the two groups, the rate of smokers was higher among working women.

While the rate of consulting a physician for treatment among patients with low back pain was found to be 48.8% (Table 6), financial constraints played the biggest role in not preferring to see a physician (Table 7).

Discussion

Factors contributing to low back pain development can be grouped as physical, occupational, and psychological reasons. The prevalence of low back pain varies as structural characteristics, development levels, and habits of societies change. In our study, the prevalence and possibly contributing factors of low back pain among adults in the city of Afyonkarahisar as a sampling of the Turkish population were investigated.

Table 5. Factors affecting low back pain risk among housewives

	Housewives (n=1135)			Working women (n=59)			
	Number	Percent	Aver SD	Number	Percent	Aver SD	*p*
Suffered low back pain	730	64.3		24	40.7		0.001
Body mass index (kg/m2)			29.1±6.1			26.2±5.0	0.001
Age			48.1±12.7			43.5±14.0	0.007
Smokers	103	9.1		18	30.5		0.0001
Depressive patient	79	7.0		5	8.5		0.799
Hypertensive patient	778	68.6		42	71.2		0.774
Diabetic patient	161	14.2		8	13.6		0.893

Table 6. Treatment preferences in suffered low back pain (n=1038)

Treatment preferences	Sayı	Yüzde
I see a doctor	507	48.8
I have a bonesetter fix it	46	4.4
I apply poultice or cream, keep it warm, and have household members massage it	188	18.1
Other	297	28.6

Arslantaş et al.[3] have found the annual prevalence of low back pain in rural Eskisehir as 50.7%. Gilgil et al.[4] have reported the prevalence of LTLBP in Antalya as 46.6% whereas Eryavuz and Akkan[7] reported that LTLBP is 33.9% among factory workers. In a study conducted on 3000 adults among the Australian population, the prevalence of LTLBP was found to be 79.2%.[8] Krismer et al.[9] reported LTLBP prevalence to be between 60% and 85%. In our study, the prevalence of LTLBP was found to be 51%. Although the differences between the reported rates can be attributed to research universes, prevalence types explored, and differences in the definition of pain, it is obvious that the prevalence of LTLBP is lower in Turkey.

Despite the differences in factors affecting low back pain prevalence in various studies, there are some common areas as well. While low back pain is generally observed between the ages of 20 and 40, with higher age coupled with increased spine degeneration, the prevalence of low back pain can increase.[2] In our study, the number of low back pain suffering stories was higher in the 41-64 year age group among our groups of young, middle-aged, and elderly groups whereas this rate did not increase in the group with an age of 65 and higher.

In their study on 350 hospital employees, Bejia et al.[2] have identified more low pack pain cases in women, those with heavy load lifting stories, obese individuals, smokers, and patients with migraine as well as in married or divorced individuals as compared with singles; and in contrast, they have found reduced prevalence of low back pain in those doing sport activities. In a study conducted on females in rural England, low back pain risk was found higher among those who work in heavy farm work and have had more than two pregnancies.[10] In their study on 772 persons who have suffered low back pain, Kwon et al.[11] examined six risk factors (namely age, weight, smoking, educational level, exercising level, and stress) that may be reasons of low back pain and found that only the educational and exercising levels correlated with low back pain. In a study on nurses and welders, it has been reported that employees who do not exercise regularly, smoke, and are obese suffer low back pain during their professional lives and LTLBP prevalence is 58%.[12] Bogduk[13] has reported that psychological factors such as depression, anxiety, and stress are among cases of low back pain. Low back pain risk increases in psychic disorders such as neurosis, hysteria, and conversion as well.[1] Certain orthopedic disturbances such as osteoarthritis, osteoporosis, and rheumatoid arthritis as well as some cardiovascular and cerebrovascular diseases (palsy, heart failure, angina pectoris, etc.) frequently coexist with low back pain. Such a correlation has not been found in insulin-dependant diabetics.[14] Arslanta_ et al.[3] mention age, female sex, and heavy load lifting as risk factors for low back pain whereas Eryavuz and Akkan[7] report that low economic levels, physical work, working in stressful jobs, non-exercising, and multiple pregnancy are risk factors among factory workers. Age groups, sex, body mass index, physical labor along with occupation, diabetes, hypertension, and depression were examined as risk factors in our study. Although smoking is quite widespread in Turkey, a correlation between smoking and low back pain was not found. In consistency with related studies, it has been found that female sex, obesity, multiple pregnancies of four or more times, low income levels, and depression increase the prevalence of low back pain. Accompanying diseases such as hypertension and diabetes were not found to be correlated with low back pain, either. Body mass index and elder age, two of the risk factors we investigated in housewives, among whom the prevalence of low back pain is the highest, were found to be significant. The rate of consulting a physician due to low back pain in rural Eskisehir has been found to be 33.1%.[3] In our study we conducted in our city Afyonkarahisar, this rate

Table 7. Reasons of not consulting a physician (n=531)

Reasons of not consulting a physician	Number	Percent
I don't have enough money	211	39.7
I don't trust doctors	12	2.3
Doctors spend too much time for diagnosis and treatment	21	4.0
We have transportation problems	16	3.0
Other	89	16.8
No answer	182	34.3

was found higher (48.8%), which may be attributed to the fact that the central sub-city data were added to the results of the rural areas. It is promising that the rate of consulting bonesetters is only 4.4% in our city. An important reason for not consulting a physician is financial constraints and patients attempt to eliminate pain with their personal efforts. The fact that transportation problems and lack of trust in physicians is as high as nearly 10% is dismaying. A significant number of patients have not declared their reason for not consulting a physician, which suggests that this rate can even be higher. In especially acute low back pain cases, refraining from not immediately necessary examinations and starting drug therapy urgently could increase clinical success levels, the number of trips that the patient would make to access treatment, and trust in physicians.

In conclusion, the prevalence of LPLBP is not too high in Turkey and lower than literature averages, contrary to common belief. Many risk factors cited in literature do exist for the Turkish society as well. Low back pain prevalence is highest among housewives and they should be provided training on low back protection, nutritional control, and family planning. Providing social security coverage to individuals who are unable to consult a physician due to financial constraints could increase the total number of admissions.

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