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Low Back Pain, Disability and Related Risk Factors among a sample of Women in Tehran, Iran

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Background: low back pain is a common health problem that has many consequences, including disability and absence from work. This study aimed to determine the prevalence of Low Back Pain among women referred to Quds clinic in Tehran, Iran.

Material and Methods: This cross-sectional study was conducted on women referred to Quds clinic, in East of Tehran. A total of 100 patients were studied over a period of one month. Two questionnaires were used for this study. The first one contains general information such as age, height, weight, Body Mass Index (BMI), education level, smoking and physical activity. Also the participants were asked whether over the past two weeks had LBP or not and if yes their pain severity was measured through Visual Analogue Scale (VAS). The second questionnaire was Roland-Morris Disability Questionnaire (RDQ) that was only available to persons that expressed a report of pain over the past two weeks. Data were analyzed using SPSS.

Results: 52 patients (52%) of the samples reported LBP. Also significant relationship between LBP and functional disability was shown ($P < 0.05$). More than 48% of patients who had LBP were physically low performance. Age, weight, body mass index, physical activity hours, number of pregnancy and parity and level of education were significantly associated with the severity of LBP ($P < 0.05$) whereas height, employment status and cigarette smoking were not significantly associated with LBP ($P > 0.05$).

Conclusion: The results of this study showed individual suffering from LBP were more likely to suffer from disability.

Keywords: Low Back Pain, Disability, Risk Factors

Introduction

Low back pain is a common health problem (Strine & Hootman 2007, Shiri et al., 2008). that has many consequences, including disability (Webb et al., 2003). and absence from work (Webb et al., 2003, Meerding et al., 2005). Pain and disability result from LBP has global prevalence and in many industrialized countries has become epidemic (May, 1999) so that approximately a fifth of patients' visits are related to their LBP. The annual cost of patients with LBP is estimated at $ 1. 6 billion that according to the figures it is one of the most costly diseases (Maniadakis & Gray, 2000). LBP is one of the most common musculoskeletal disorders in the world affecting approximately 70 to 80% of all population in the period of life About 18% of the general population experience LBP each year and 7% of adult population consult their family doctor with LBP symptom. (Bener et al., 2014). It can cause large decrease of the functional capacity that indicates the maximum possible functionality that a person can gain in a given time, i. e., it opposites with the independence and quality of life (Organização Mundoal da Saúde 2003).

Cultural differences between various nations in terms of pain perception or report of pain may cause variations in the prevalence of LBP among different communities (foster, 2011, Rapoport et al., 2004; Biglarian et al., 2012; Latza et al., 2004, Walker, 2000; Lemeunier et al., 2012; Hart et al., 1976; Roland & Fairbank, 2000, Benner et al.,

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2004). In Iran the highest and lowest incidence of LBP were seen in the Caspian and south of Iran respectively with an average of 84.1% and 13% respectively (Azizpour et al., 2013). Meta-analysis studies in Iran suggested that the prevalence of the disease in women of reproductive age and pregnant was with an average 66.30% (%54. 5-%78.1, CI = 95%) more than other groups in society (Azizpour et al., 2014). In a study in Tehran, the prevalence of LBP in women was reported 57.3% (Ansari et al., 2010).

Risk factors for back pain are multifactorial, including the physical, personal, social, psychological factors and habits. In several studies, the impact of deferent risk factors on LBP has been investigated that was noted briefly in this study. Windhaven and et al found significant associations between overweight and age with musculoskeletal chronic LBP in women but there was no significant association between smoking, level of education and physical activity with LBP (Wijnhoven, 2006). In another study Altinel and colleagues examined the prevalence of and risk factors for LBP among adults living in the Afyon region, Turkey. In this way the factors of nutritional health, education, housewives and family planning issues were significantly associated with the incidence of LBP whereas smoking, hypertension, or diabetes were not correlated with the prevalence of LBP (Altinel et al., 2008).

Given the multi factorial nature of LBP and its high prevalence in societies, especially among women, It seems that having a clear scientific view of the risk factors and the prevalence of LBP and evaluation of LBP-related disability, enable to design programs aimed at increasing public health and improve quality of life and reduce the side effects of it. Assessment of the population functional capacity enables to provide identifying the limitations and loss of autonomy of individuals. Through the functional capacity evaluation strategies, promote health of the women aiming at delaying or preventing disabilities can be defined. Therefore, this study aimed to examine the prevalence of and risk factors for LBP also LBP-related disability in women referred to a clinic in East Tehran.

Methods

This cross-sectional study was conducted on patients referred to Gods clinic, which was affiliated to Social Security Organization located in East Tehran. The study population consisted of women who due to their health problems referred to this clinic during a month. All women entered into the study if they met inclusion/exclusion criteria and had willing to participate in the study. A total of 100 patients were studied over a period of one month. Inclusion criteria were female gender and age less than or equal to 18 years. Participants were excluded if they were suffering from congenital diseases in the spine, were pregnant and also had a history of trauma or accident led to disruption of the the spine. y Full explanation of the research project was given to potential participants and who were satisfied to enter into the study were provided with written consent form to be signed. Two questionnaires were used for this study. The first questionnaire was a researcher- made which was available to all participants and the second one was Roland-Morris Disability Questionnaire (RDQ) which was only available to participants who expressed a report of LBP over the past two weeks. The questionnaires were completed by the researcher through interview if the participants were illiterate. The items measured in the demographic questioner contained as general information of the participants such as age, height, weight, body mass index, education level, smoking, hours of physical activity per week. The height of participants was measured by using wall-mounted studio meter and without shoes in the standing position. The weight was measured in kilograms without shoes. Body mass index was measured by the ratio of the weight in kilograms on the height in Square meters. The participants were asked whether over the past two weeks had back pain or not If their answer was positive, intensity of pain were characterized by using the Visual Analogue Scale (VAS) that was between zero and 100.It should be mentioned that using of VAS is a common method for measuring and quantifying pain and many articles documented to this scale (Hertogh et al., 2007). In this way the participants were asked to rate their pain intensity on a horizontal ten-centimeter line marked from zero to ten. Zero indicates a state where there is no pain at all and ten indicating maximum pain as possible. VAS is the most widely assessment tool in the world. In addition to its' validity and reliability, the most important feature of this tool is its comfortable use. Score of 1-3 represents mild pain, 4-7 moderate pain and 8 to 10 indicates severe pain (Mendelson et al., 1981).

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Roland-Morris Disability Questionnaire contains 24 words associated with physical function and is affected by back pain. It is a measure of health status and designed to be completed by the participants. Patients were asked to complete the questionnaire by marking phrases that reporting the same day status of them. These statements include cases where people used to describe their pain feeling in the back area. RDQ scale is calculated through the total number of marked statements. So the score of this scale will be considered from zero (no disability) to 24 (severe disability). Translate of this scale is available in different languages and reliability / validity is done (Roland & Fairbank, 2000). The Iranian version of RDQ was used in this study and reliability / validity of this version was done by Mousavi and fellow (Mousavi et al., 2006). The higher score of this instrument indicates more physical functional impairment. Zero score shows that LBP has no effect on disability. Those with scores equal to or greater than 14 indicates low physical function (Nusbaum et al., 2001).

Collected data were analyzed using the software SPSS version $_{22}$. Descriptive statistical methods were usedto evaluate the prevalence, mean and standard deviation of variables. at first, Kolmogorov-Smirnov test was used to analyze the relationship between quantitative variables that did not confirm data distribution thus the Spearman correlation coefficient was used to analyze the correlation of quantitative and ordinal variables with pain intensity. Chi-square test and Fisher's exact test were usedfor the correlation between qualitative variables with low back pain.

Results

In this study, 100 women participated with range of age from 20 to 68 years and a mean age of 43. 6 ± 13.1. LBP lasting more than two weeks was reported by about 52% (N = 52) of participants and mean score of pain intensity was 5.84 ± 2.72 with range of at least 0.7 and maximum of 10.The highest percentage of women (N = 26-26%) suffered from moderate LBP. The mean disability score of RDQ was 13.27 ± 7.1. More than 48 percent of people (N = 48) with LBP disability score of 14 or higher were considered as the lower physical function. The mean height of the samples was 159 ± 63cm. Table 1 shows characteristics of the study population. A positive and significant linear correlation was seen between age, weight and BMI with LBP severity such that when the age, weight and BMI increased, the intensity of pain also increased respectively ($P < 0.001$, $r = 0.23$, $P = 0.017$ and $r = 0.41$ $r = 0.25$, $P = 0.012$). There was a significant negative linear relationship between the hours of physical activity and level of education with LBP ($r = -0.35$ $P < 0.01$, $r = -0.19$ $P = 0.05$) but no significant relationship between LBP and height was found. The number of pregnancy and parity were significantly associated with LBP so that when the number of pregnancy and parity increased, the pain also increased ($r = 0.41$, $P < 0.001$ and $r = 0.23$, $P = 0.017$). Pain intensity had also positive line a correlation with the degree of disability ($r = 0.656$, $P < 0.0001$). This study showed no significant relationship between smoking and employment status with LBP.

Table 1. The characteristics of study population.

	Number	Max	Min	Mean ± SD
Age (year)	100	68	20	43.6 ± 13.1
Weight (kilograms)	100	103	50	68.14 ± 11.35
Height (centimeters)	100	1.78	1.45	1. 59 ± 0.63
BMI (M2/Kg)	100	41.26	18.78	26.74 ± 4.59
Number of pregnancy	100	9	0	2.67 ± 1.87
Parity	100	8	0	2.40 ± 1.87
Physical activity (Hour/week)	73	28	2	7.68 ± 6
LBP	52	10	0.7	5.84 ± 2.72
Disability	52	24	0	13. 27 ± 7.17

Discussion

The aim of the present study was to determine the prevalence of LBP and its relationship with the risk factors and disability among women attending Qudsclinic in East Tehran, Iran. The results of the present study showed the high prevalence of LBP among the studied population that were consistent with previous study that showed the prevalence of LBP in women was 53.9 percent, (Bener et al., 2014).

Moreover, the positive linear correlation between age and LBP was observed in this study. In previous studies, researchers showed that age is a predisposing factor for LBP intensity (Bener et al., 2014, Biglarian et al., 2012). In the line of this study, age has been verified as a strong predictor of LBP in existed evidences (Andersson, 1999, Ovedlaogo et al., 2010). which might be due to age-related degeneration of the tendons. Biglarian and

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colleagues in their study estimated the relative risk of LBP in presence the age factor at 1. 03. The researchers in this study concluded that for every one year of increased age the risk of LBP increased as 3% (Biglarian et al., 2012).

In this study, significant negative linear relationship was observed between educational level and intensity of LBP. Banner et al in their study showed that people with high school education level rather than college graduates were more likely to develop LBP (Bener et al., 2014). Furthermore, Kwon and his research colleagues showed that lower educational level was associated with an increased incidence of LBP (Kwon et al., 2006).

In the case of weight, studies indicated the effect of obesity on the rise of LBP. (Strineand Hootman, 2007 Heuch et al., 2010, Shiri et al., 2010). These findings were consistent with the results of the present study. Milk and colleagues reported that obesity is a risk factor for LBP in both cross-sectional and cohort studies (Shiri et al., 2010). because metabolic and biomechanical factors played their roleson LBP in obese people, Obesity through metabolic syndrome can cause LBP. Furthermore obesity and LBP are linked together more directly through inflammatory mechanisms (Tilg & Moschen, 2006). Obesity is also a risk factor leading to the degeneration of the disc (Liuke et al., 2005). and thereby increase the incidence of LBP. Due to the increasing prevalence of obesity in the world, it is logical that increased prevalence of LBP will continue (Seidell, 2005).

The results of this study showed a significant negative correlation between the hours of physical activity and LBP. Regular physical activity has a positive effect on the prevention of LBP Aswomen devote more time to physical activity they felt less pain in the waist area. These results were consistent with previous studies (Fanucchi et al., 2009, Panahi et al., 2016).

In the present study there was significantly positive correlation between the number of pregnancy / parity and LBP intensity but there was no significant relationship between the height of participants and LBP These results were consistent with previous study (Sadighi et al., 2009). Inour study, most women who had LBP were housewives but correlation between LBP and job was not statistically significant, while Siddiqui and colleagues showed meaningful relationship between employment status and LBP. However, the cause of this mismatch between the results may be due to smaller size of sample in present study. Furthermore, the relationship between smoking and incidence of LBP was not significant, while Siddiqui and colleagues found a significant association between smoking and LBP that its reason may be low proportion of smokers in our study (Sadighi et al., 2009).

By using disability scale, individual function wass specified. Moreover, the severity of pain during daily tasks such as walking, lifting, sitting, standing, sleeping and traveling was determined. A disabled person who dose daily tasks, experience more pain in the lumbar, so disability can cause back pain during daily activities also disability can be caused by pain. Our results showed a positive relationship between LBP and functional disability in patients referred to the clinic. This result is supported by the results of other studies (Tavafian et al., 2011, Tavafian et al., 2014, Panahi et al., 2016). which showed aconsistent positive correlation between LBP and disability. According to results of this study, severe disability was reported by most participants in the study, which is supported by study conducted by Panahi and colleagues. Despite some strengths of this study, there were some limitations. The first limitation is that women referred to a this clinic lived in East Tehran and the majority of them were housewives, also only 3% of participants were smokers, so confirmation of the results regarding the association between employment status / cigarette smoking and LBP pain needs to be assessed in larger sample size.

Conclusions

This study showed the high prevalence of LBP among patients referred to Quds clinic. In addition, the women with LBP suffered frommore functional disability. Therefore, more studies to confirm these resultsand to design proper interventional program to prevent the problem is recommended.

Conflict of Interest

There is no conflict of interest for this article.

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Author contribution

MA: Study design, Study implementation, Data collection and analysis, writing the first draft of Paper, editing and confirming the final draft of the paper.

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References

Altinel, L., Kose, K. C., Ergan, V., Isik, C., Aksoy, Y., Ozdemir, A., et al. (2008) The prevalence of low back pain and risk factors among adult population in Afyon region, Turkey. *ActaOrthopTraumatol Turc*. 42 (5), 328-33.

Andersson, G. B. (1999) Epidemiological features of chronic low-back pain. *The lancet*. 354 (9178), 581-585.

Ansari, N. N., Hasson, S., Naghdi, S., Keyhani, S. & Jalaie, S. (2010) Low back pain during pregnancy in Iranian women: Prevalence and risk factors. *Physiotherapy theory and practice*. 26 (1), 40-48.

Azizpour, Y., Hemmati, F. & Sayehmiri, K. (2014) Prevalence of one-year back pain in Iran: a systematic review and metaanalysis. *Iran Occupational Health. 11* (1). Pe102-Pe112.

Azizpour Y., Hemmati F. & Sayehmiri K. (2014) Prevalence of back pain during life in Iran: a systematic review and metaanalysis. *Iran Occupational Health*. 11 (1). 12.

Bener A, El-Rufaie OF, Siyam A, Abuzeid MSO, Toth F & Lovasz G. (2004) Epidemiology of low back pain in the United Arab Emirates. *APLAR Journal of Rheumatol*ogy. 7: 189-195.

Bener, A., Dafeeah, E. E. & Alnaqbi, K. (2014) Prevalence and correlates of low back pain in primary care: what are the contributing factors in a rapidly developing country. *Asian spine journal*. 8 (3), 227-236.

Biglarian, A., Seifi, B., Bakhshi, E., Mohammad, K., Rahgozar, M., Karimlou, M. et al. (2012) Low back pain prevalence and associated factors in Iranian population: findings from the national health survey. *Pain Research and Treatment*, 2012, ID 653060.

Available from: http://dx. doi. org/10.1155/2012/653060 [Accessed on 4th July, 2017].

De Hertogh, W. J., Vaes, P. H., Vijverman, V., De Cordt, A. & Duquet, W. (2007) The clinical examination of neck pain patients: the validity of a group of tests. *Manual Therapy*. 12 (1), 50-55.

Fanucchi, G. L., Stewart, A., Jordaan, R. and Becker, P. (2009) Exercise reduces the intensity and prevalence of low back pain in 12–13 year old children: a randomised trial. *Australian Journal of Physiotherapy*. 55 (2), 97-104.

Foster, N. E. (2011) Barriers and progress in the treatment of low back pain. *BMC Medicine*. 27; 9: 108. doi: 10.1186/1741-7015-9-108. Available from: https://www. ncbi. nlm. nih. gov/pubmed/21943396, [Accessed on 4th July, 2017].

Hart, L. G., Deyo, R. A. & Cherkin, D. C. (1995) Physician office visits for low back pain: frequency, clinical evaluation, and treatment patterns from a US national survey. *Spine*. 20 (1), 11-19.

Heuch, I., Hagen, K., Heuch, I., Nygaard, Ø. & Zwart, J. A. (2010) The impact of body mass index on the prevalence of low back pain: the HUNT study. *Spine*. 35 (7), 764-768.

Kwon, M. A., Shim, W. S., Kim, M. H., Gwak, M. S., Hahm, T. S., Kim, G. S., et al. (2006) A correlation between low back pain and associated factors: a study involving 772 patients who had undergone general physical examination. *Journal of Korean medical science*. *21* (6), 1086-1091.

Latza, U., Kohlmann, T., Deck, R. & Raspe, H. (2004) Can health care utilization explain the association between socioeconomic status and back pain? *Spine*. 29 (14), 1561-1566.

Lemeunier, N., Leboeuf-Yde, C. and Gagey, O. (2012) The natural course of low back pain: a systematic critical literature review. *Chiropractic & Manual Therapies*. 2012; 20: 33. Avalable from: 10.1186/2045-709X-20-33**.** [Accessed on 4th July, 2017].

Liuke, M., Solovieva, S., Lamminen, A., Luoma, K., Leino-Arjas, P., Luukkonen, R. et al. (2005) Disc degeneration of the lumbar spine in relation to overweight. *International journal of Obesity*. 29 (8), 903-908.

Mâaroufi, H., Benbouazza, K., Faïk, A., Bahiri, R., Lazrak, N., Abouqal, R., et al. (2007) Translation, adaptation, and validation of the Moroccan version of the Roland Morris Disability Questionnaire. *Spine*. *32* (13), 1461-1465.

Maniadakis, N. & Gray, A. (2000) The economic burden of back pain in the UK. *Pain*. 84 (1), 95-103.

May, C., Doyle, H. & Chew-Graham, C. (1999) Medical knowledge and the intractable patient: the case of chronic low back pain. *Social Sscience & Medicine*. 48 (4), 523-534.

Meerding, W. J., IJzelenberg, W., Koopmanschap, M. A., Severens, J. L. and Burdorf, A. (2005) Health problems lead to considerable productivity loss at work among workers with high physical load jobs. *Journal of Clinical Epidemiology*. 58 (5), 517-523.

Mendelson, G. & Selwood, T. S. (1981) Measurement of chronic pain: a correlation study of verbal and nonverbal scales. *Journal of behavioral assessment*. 3 (4), 263-269.

Mousavi, S. J., Parnianpour, M., Mehdian, H., Montazeri, A. & Mobini, B. (2006) The Oswestry disability index, the Roland-Morris disability questionnaire, and the Quebec back

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pain disability scale: translation and validation studies of the Iranian versions. *Spine*. 31 (14), 454-459.

Nusbaum, L., Natour, J., Ferraz, M. B. & Goldenberg, J. (2001) Translation, adaptation and validation of the Roland-Morris questionnaire-Brazil Roland-Morris. *Brazilian Journal of Medical and Biological Research*. 34 (2), 203-210.

Rapoport, J., Jacobs, P., Bell, N. R. & Klarenbach, S. (2004) Refining the measurement of the economic burden of chronic diseases in Canada. *Chronic Diseases and Injuries in Canada*, *25* (1), Available from: http://www. phac-aspc. gc. ca/publicat/hpcdp-pspmc/25-1/c-eng. php [Accessed on 4th July 2017].

Roland, M. & Fairbank, J. (20 00) The Roland–Morris disability questionnaire and the Oswestry disability questionnaire. *Spine*. 25 (24), 3115-3124.

Seidell J. C. (2005) Epidemiology of obesity, *Seminars in Vascular Medicine*. 5 (1), 3-14.

Shiri, R., Karppinen, J., Leino-Arjas, P., Solovieva, S. & Viikari-Juntura, E. (2010) The association between obesity and low back pain: a meta-analysis. *American Journal of Epidemiology*, 171 (2), 135-154.

Shiri, R., Solovieva, S., Husgafvel-Pursiainen, K., Taimela, S., Saarikoski, L. A., Huupponen, R., et al. (2008) The Association between Obesity and the Prevalence of Low Back Pain in Young Adults The Cardiovascular Risk in Young Finns Study. *American Journal of Epidemiology*. 167 (9), 1110-1119.

Strine, T. W. & Hootman, J. M. (2007) US national prevalence and correlates of low back and neck pain among adults. *Arthritis Care & Research*. 57 (4), 656-665.

Tavafian, S. S., Jamshidi, A. R. & Mohammad, K. (2011) Treatment of chronic low back pain: a randomized clinical trial comparing multidisciplinary group-based rehabilitation program and oral drug treatment with oral drug treatment alone. *The Clinical Journal of Pain*. 27 (9), 811-818.

Tavafian, S. S., Jamshidi, A. R. & Mohammad, K. (2014) Treatment of low back pain: randomized clinical trial comparing a multidisciplinary group-based rehabilitation program with oral drug treatment up to 12 months. *International Journal of Rheumatic Diseases*. 17 (2), 159-164.

Tilg, H. & Moschen, A. R. (2006) Adipocytokines: mediators linking adipose tissue, inflammation and immunity. *Nature Reviews Immunology*. 6 (10), 772-783.

Walker, B. F. (2000) The prevalence of low back pain: a systematic review of the literature from 1966 to 1998. *Journal of Spinal Disorders & Techniques*, 13 (3), 205-217.

Webb R., Brammah T., Lunt M., Urwin M., Allison T., & Symmons D. (2003) Prevalence and predictors of intense, chronic, and disabling neck and back pain in the UK general population, *Spine*. 28 (11). 1195-1202.

Wijnhoven, H. A., de Vet, H. C. & Picavet, H. S. J. (2006) Explaining sex differences in chronic musculoskeletal pain in a general population. *Pain*. 124 (1), 158-166.

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