

Prevalence of lower back pain and associated risk factors among middle age females in Najran province

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Abstract – The global burden of disease study estimated that lower back pain (LBP) is among the top ten diseases and injuries that account for the highest number of worldwide. Occurrence rises and heights concerning the ages of 35 and 55. Although the causes of onset of LBP are remaining obscured, there are many risk factors identified such as age, gender, and obesity. This study was hence conducted to evaluate the prevalence of LBP and associated risk factors among middle age female at Najran province. Demographic data was taken from all the participants. Middle age female self-reported risk factors and history of LBP. Roland-Morris LBP and disability Questionnaire (RMQ) used to determine the grade of LBP. The most common age affected by moderate LBP was at age between fifty to fifty-five years old. More than two third of middle age female was suffered from any type of back pain at Najran province. Meanwhile less than half of them reported were had abortion episode from three to four times allied with moderate LBP. More than one third of middle age female with moderate LBP stated do not do any exercise. The prevalence of LBP was moderate among half of middle age females who were normal weight and overweight at Najran province. Govern the risk factors of LBP aiding for early identification and outwit the progression.

Keywords: Lower back pain, Prevalence, Risk factors, middle-age, female.

1. Introduction

Lower back pain (LBP) (is one of the most common problems that are affecting human in all ages globally. This problem may lead to disability and affect the social and economic aspects of female life. As it associated with less work productivity, and additional sick leaves [1]. LBP can be defined as a pain or muscle tension from the lower margin of the ribs to the lower gluteal fold. It can occur at any age from childhood to older population [2]. LBP is the chief cause of sickness in the world. Mainly it affects countries with lower- income and middle- income. These countries have low social system and wide range of infection diseases [3].

There are two types of LBP; specific and non-specific. The specific is the pain, which caused by a disease or an injury, non-specific is the pain, which is not associated with any disease or injury. The later (non-specific) is the most common form of LBP. Therefore, the LBP is one of the issues that be dealt with particularly in professions related to health [4].

Many factors cause LBP such as higher body mass index (BMI), gender, work nature and life style. Several studies have shown that there is a relationship between the LBP and BMI. For instance, a study which has been conducted on workers revealed that overweight employees are more threaten to symptoms of LBP and less likely to recover compared to normal weight employees [5]. Regarding the gender factor, the female is more capable to LBP than male, this phenomenon is related to the female's sex hormones, which play a major role in the etiologic and pathophysiology of variety of musculoskeletal degenerative disorders. Also, certainty that the women do more work than men particularly worker women [6]. Worker women spend between 5 to 9 hours every day at work beside the domestic work at home [7]. They frequently bending, twisting and do non-natural posture, this increasing the chance of developing LBP [6]. Furthermore, there is a correlation between the effect of LBP and previous history of chronic diseases; for example, patients with chronic

headache, asthma are at risk of developing LBP [8].

The prevention incidences of LBP are controversial, changing life style and including of regular exercise would prevent LBP. Several studies have been carried out to investigate the advantage of exercise on the avoidance of LBP. In general, there are limited evidence showed that hydrotherapy (exercise on water) or yoga are helpful in the prevention of chronic LBP [9], [10].

2. Problem statements

The global prevalence of LBP in adult population reached the peak at the middle- age from 15 to 52 [11]. Regarding the prevalence of LBP between workers and non- workers in Malaysia, Shariat et al 2016, revealed that workers Malaysian participants have a high score of LBP compared with non- workers [12]. The epidemiology of LBP in Saudi Arabia is a complex issue that needs further studies for multiple risk factors. However, rarity of population-based studies limits generalizability of such evidence. Some of the risk factors that appear worth noting are increased muscular sprain and strains due to intense work activity associated with stretching and bending, vitamin D deficiency, being obese or overweight, previous history of LBP and spine problems since birth [11]. Despite the fact that there are few studies on LBP and its disability in the Kingdom of Saudi Arabia, a survey conducted by Alshami showed that problems at the lumbar spine is one of the most common spinal disorders in Saudi Arabia, with a prevalence of 53.1% [13]. Also, a research observed that the prevalence of LBP is higher in Saudi females as compared as to males [14], [15].

In Saudi Arabia society, particularly in Najran, women are more vulnerable to this phenomenon, because of the nature of their lifestyle, which tends to be a sedentary. Since females are more susceptible to this problem, this research aims to identify the causative risk factors that lead to LBP among Najran females either worker or non-worker at the (middle-age) between 40 to 65 years. The documentation of risk factors would facilitate a successful implementation of prevention strategies of LBP. Furthermore, it contributes to increase the community awareness toward the causes of LBP and the applications of prevention strategies.

3. Aim of the study

- To determine the prevalence of LBP in middle-age female in Najran.
- To investigate the risk factors associated with LBP, such as lifestyle, number of births they gave and BMI.
- To find out the correlation between the LBP and the mentioned risk factors.
- To assess the frequency of the LBP between worker and non-worker female.

4. Research questions

Q1: What is the prevalence of LBP in middle age females in Najran province?

Q2: Is there association between the LBP with the lifestyle, number of birth female gave and BMI?

Q3: What is the major risk factor of LBP in Najran?

Q4: Compare the frequency of the LBP among the worker women and non-worker?

5. Methodology

Two hundred and thirty-one participants were recruited in a quantitative research design with a descriptive approach used to collect the data that allow the researcher to consider the phenomenon of attention from

diverse outlooks and to develop a more whole method. A simple random sampling method used to select participant of middle-age female at Najran Province.

The data collected from February to May 2019 through electronic questionnaire consisting of close- and open-ended questions distributed to the participants. The tools of data collection divided into first tool (part one): socio-demographic data from middle age female as age, marital status, and working. Part two: self-reported from of all participant related history of any type of back pain, various risk factors as suffering from any disease, work nature, number of abortions, number of births, BMI, and exercise frequency. The electronic questionnaire distributed to the participants. Second tool (part two): modified Roland-Morris LBP and disability Questionnaire (RMQ) is self- administered disability measure in which greater levels of disability are reflected by higher number on a 24-point scale. The RMQ has been shown to profit dependable dimensions.

5.1 Scoring system

The participant put a mark next to each appropriate statements and analysis through Likert scale five point as strongly agree take 5 degree, agree take 4 degree, sometimes take 3 degree, disagree take 2 degree, strongly disagree take 1 degree. The total marks were 120 score. Response of each participant lastly translated to sever LBP from (20-90) score, Moderate LBP from (90-60) score, mild LBP from (60-30) score, non-LBP from (30-0) score.

5.2 Data analysis

Microsoft excel were used for data management, data were also entered and analyzed by SPSS version 20. Frequency and percentage were calculated for all variables. Chi square test were carried out to obtain the relationship between the LBP prevalence and all risk factors and demographic data.

5.3 Ethical approval

The study was approved by the Scientific research Deanship of Najran University, Najran, Saudi Arabia. Voluntary Permission was taken from the participant to conduct the study and stringent confidentiality of data was maintained at all levels of the research project.

6. Results

Socio-demographic factors related to the degree of pain of the population of this study including age group marital status are described in the Table1. The number of participate who are between 50 to 55 years old were 31.2%, whilst 5.6% were 65 and above years old. Regarding the marital status of overall the participants, there were 83% of them were married (Table 1).

The result of the study showed that most of the population was suffering from moderate degree of LBP as they account for 61% of all participants (Figure 1). In addition, 81% of females were suffering from any type of LBP (Figure2).

Figure 3 revealed the prevalence of LBP between worker and non- worker females at middle age. Generally, the percentage of worker females with moderate degree of LBP is less than non-workers, as they are 74% and 67% respectively (Figure 3).

Table 2 in this study revealed the association between the LBP and its risk factors including suffering from any disease, nature of work, number of abortions, number of birth they gave, BMI and exercise. Regarding the nature of work, females who required moving or standing most of the time were affected by moderate

degree of LBP about 23.5% and 21% respectively. Furthermore, 50% of the participants who are suffering from any type of disease have moderate LBP, whilst 1.4% who were chronic diseases are suffering from severe LBP. Regarding females who had 3-4 abortion incidences, 49% of them are suffering from moderate LBP, while 1.1% of female who had 7-8 abortion have no pain (chi square 10).

Regarding the correlation between LBP in female and number of birth that they gave, females who had 1-3 children 26.4% of them have moderate LBP, whilst 5% of them have sever LBP. Only 2.2 of females who gave 7-9 births have sever LBP (chi square 7) (Table 2). Although the BMI is a risk factor would be related to the LBP, 21.6% normal weight females however, 1% of obese females have moderate LBP. According to the inclusion of exercise to the life style, 26%og females who are exercised have moderated LBP compared with 35% with same degree of pain were no exercised (Table 2).

Table 1: The relation between prevalence of LBP with age and marital status of middle age females at Najran province (N= 231).

Variables	Prevalence of LBP								X ²	P
	Sever		Moderate		Mild		Non			
	N	%	N	%	N	%	N	%		
Age										
45-40	26	11.3	11	4.8	8	3.5	0	0	17.42	(.68)
50-45	2	0.9	38	16.5	13	5.6	1	0.4		
55-50	0	0	45	19.5	24	10.4	3	1.3		
55-60	0	0	37	16.0	10	4.3	0	0		
65≤	0	0	10	4.3	3	1.3	0	0		
Married										
Yes	23	10	119	51.5	46	19.9	3	1.3	0.92	(.82)
No	5	2.2	22	9.5	12	5.2	1	0.4		

Figure 1: The general prevalence of LBP between middle-age females in Najran province (N= 231).

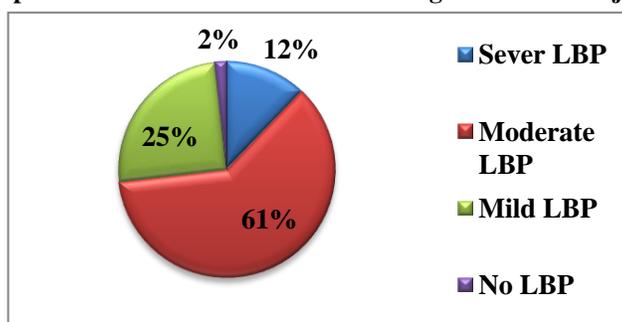


Figure 2: The frequency of middle age females who are suffering from any type of back pain in Najran province (N=231).

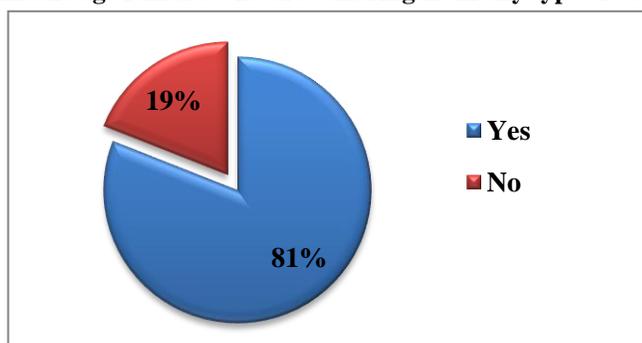
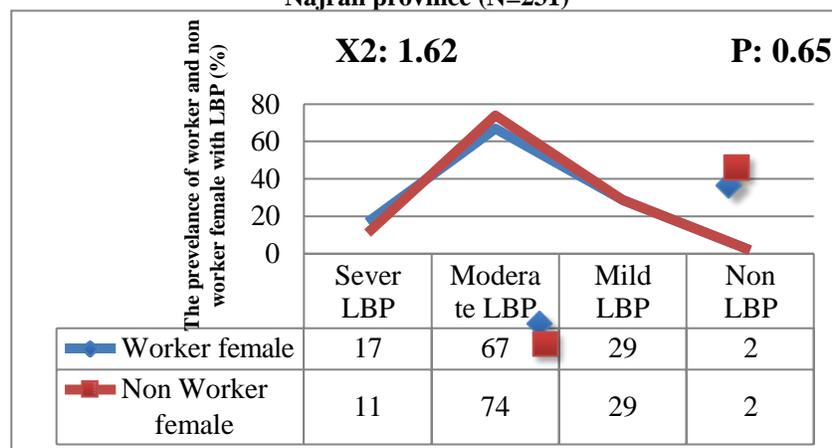


Table 2: The relation between prevalence of LBP with associated risk factor among middle age females in Najran province (N= 231)

Variables	Prevalence of Low back pain								X ²	P
	Sever		Moderate		Mild		Non			
	N	%	N	%	N	%	N	%		
Suffering from any disease										
Yes	3	1.4	25	10.8	7	3	1	0.4	1.81	0.61
No	25	10.8	116	50.2	51	22	3	1.4		
Work nature (N=115)										
Standing up most of the time	7	6	24	20.9	14	12.2	1	0.9	3.46	0.74
Sit-down most of the time	4	3.5	16	13.9	4	3.5	1	0.9		
Moving most of the time	6	5.2	27	23.5	11	9.6	0	0		
Abortion										
Yes	9	3.9	56	24.3	21	9	2	0.9	1.0	0.79
No	14	6	63	27.3	25	10.8	1	0.4		
Number of abortion (N=88)										
1-2	0	0	0	0	2	2.3	1	1.1	10.60	0.78
3-4	8	9	43	48.9	16	18.2	0	0		
5-6	1	1.1	9	3.9	4	4.5	0	0		
7-8	0	0	1	1.1	1	1.1	0	0		
>8	0	0	1	1.1	1	1.1	0	0		
Number of birth										
Non	6	2.6	30	13	14	6	1	0.4	7.22	0.84
1-3	11	4.8	61	26.4	30	13	2	0.9		
4-6	6	2.6	33	14.3	10	4.3	1	0.4		
7-9	5	2.2	13	5.6	4	1.7	0	0		
≥10	0	0	4	1.7	0	0	0	0		
BMI										
< 18.5 Under weight	0	0	3	1.3	0	0	1	0.4	3.43	0.99
18.5-24.9 normal weight	10	4.3	50	21.6	23	10	1	0.4		
25-29.9 Over weight	9	3.9	45	19.5	17	7.4	2	0.9		
> 30 Obesity	9	3.9	2	0.9	1	0.4	0	0		
Exercise frequency										
Yes	12	5.2	60	26	33	14.3	4	1.7	8.09	0.04
No	16	6.9	81	35	25	10.8	0	0		

Figure 3: The association between prevalence of LBP with the worker and non-worker middle age females in Najran province (N=231)


7. Discussion

LBP considered as a common public health problem in the worldwide [16]. It is affecting nearly one in every ten persons in the world each year and leads to significant discomfort as well as economical loss. Recent survey also indicated that LBP results in restrictions of social and other activities and has substantial impact on productivity of daily activity resulting in reducing life quality [17].

In this study, the majority of women at the middle-age between 40 and 65 in Najran province had moderate LBP. This result aligned with study which has been conducted at median one-year period prevalence of global population which showed that the 37% LBP reach the peak at mid-life between 30 and 69 compared with other groups of age [16]. Furthermore, a study was carried out on the prevalence of LBP on elderly population demonstrated that LBP among participants was 25.6% and it was the highest at age between 60 and 65 years which was about 28.4% [18]. There was a study reported that people at age ≥ 35 years are vulnerable to have LBP by nine times more compared with <35 years [19].

As back pain is more common in females than in males and it rises with age and peaks at 55–64 years [20], we conducted our study of female gender only. Also, there was a study on a prevalence of LBP on female revealed that LBP is most common on women from 41 to 50 years old [21]. In this study more than half of a middle-age female's participants was married and complaining from moderate LBP 61%, this result consistent with study performed by [22] who found that females were more affected by LBP they were about 79% compared with 61% of males. Regarding the association between prevalence of LBP of middle-age females in Najran and the risk factors including work nature, abortion, number of births BMI and frequent of exercise, we found that all of these risk factors are affecting non-significantly with p value of $p > 0.05$.

Regarding the LBP among workers and non-workers population, a study that was carried out on pooled results of 40 publications on LBP from 28 countries including Africa, Asia and Middle East on both males and females showed that the chronic LBP was more prevalent in working population which is accounted for 60% compared with non-workers [23]. This result is opposed to our finding, which showed that non-worker females are suffering more than workers from different degree of LBP. Possibly this reverse result occurs because we did the study on female gender only. The frequency of LBP in relation to participants work nature, women who were standing/ moving at the work most of the time have higher proportion of severe LBP compared with women who were sitting down most of the time by about 10%. This finding is opposed to the study that conducted on computer user employees as they sitting down most of time and they recorded high proportion of the symptoms of LBP compared with any other musculoskeletal symptoms [24]. The prevalence of obesity is increasing all over the world, particularly at middle-age population. The BMI is considered as an indicator of weight status of the body. There is an associated between abdominal obesity and the risk factor of LBP [14]. Our study demonstrated that normal weight and overweight females have moderate LBP by 21.6% and 20% respectively, compared with 1.3 underweight females.

In relation to abortion episode less than half of middle age females in Najran province self-reported that they were had abortion episode from three to four times and had from one to three number of births coupled allied with moderate LBP. In study by Svensson et al reported that a higher number of abortions was found to be directly associated to LBP in 38- to 49-year-old women. In 50- to 64-year-old women, a higher number of live births directly associated to LBP [25].

The present study represented that more than two third of middle age females was suffered from any type of back pain at Najran province. In study by [20] stated that lifetime prevalence of back pain was 89%, 12-month

prevalence was 81%, 3-month prevalence was 68% and point prevalence was 49%. The lifetime prevalence was significantly lower in the physically active group.

8. Conclusion

This study concluded that the prevalence of LBP was moderate among half of middle age females who are normal weight and overweight at Najran province. Govern the risk factors of LBP aiding for early identification and outwit the progression.

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