

Original Research Article**Epidemiology of Low Back Pain in Saudi Arabia****Abstract**

Low Back Pain (LBP) is a common disorder involving the muscles and bones of the back. The patients ranged in age from 15 to 52 years. The condition may be further categorized by the underlying etiology as either mechanical, non-mechanical, or referred pain. Little is known about the epidemiology of this condition in the Saudi Arabia. A computer-based literature search was conducted using relevant keywords to retrieve studies conducted in Saudi Arabia Relating to LBP. Fifteen articles were identified initially. After screening for exclusion criteria and retrieving full texts, a total of Twelve articles was used for this study . Seven studies were cross-sectional and found a prevalence and pattern ranging from 53.2% to 79.17% . Studies about risk factors/prognostic markers were conducted in clinical-settings; using a case-control design mostly (n=4) and Cohort study (n=1).Vitamin D deficiency, to determine the correlation between the vitamin deficiency and pain. Evidence extracted from these studies shows a possible link in Low Back Pain. However, rarity of population-based studies limits generalizability of such evidence. Future studies in the Saudi Arabia should focus upon surveying the extent of LBP , identifying various cultural risk factors and utilization of LBP markers in diagnostic and prognostic enforcement.

Keywords

Low Back Pain, Saudi Arabia, epidemiology, prevalence,Factor,Incidence,Odds,Pattern,Rate,Risk.

Introduction:

Health ailments are cosmopolitan. They affect almost every individual in some form at a given stage of life and alter their quality of life (QOL). By doing so, they also induce a severe financial and psychological disturbance to the patient and the family members. Understanding such disorders in terms of their occurrence

or incidence, etiology and management is important for the modern day health care system. The present description deals with highlighting a topic entitled, Epidemiology of low back pain in Saudi Arabia.

Briefly, low back pain constitutes a pain that an individual experiences in the lower back portion (Jasmin, 2013). It could be acute or chronic. The affected individual could encounter stiffness in the back, reduced lower back movement and problems in maintaining a straight-stand position. This form of pain could refer to the acute low back pain. This form of low back pain could remain for some weeks (Ma, 2014).

On the other hand, a low back pain that remains for a prolonged period refers to chronic back pain (Jasmin, 2013).

Etiology:

Low back pain was believed to possess various risk or etiologic factors that are associated with habits, physical factors, psychosocial factors and social demographic characteristics.

Some of these include Spinal stenosis, spine curvatures, sciatica, spasms in muscles, cancer of spine, herniated to the rupture disk (Jasmin, 2013). Other causes include age above 30 years, being overweight, pregnant, lack of exercises, depression, activities that involve regular lifting of heavy objects, twisting, bending or that involve vibration of the body such as driving the truck (Jasmin, 2013 & Ma, 2014).

Further, the deficiency of vitamin – D was considered as a potential etiologic factor in the development of Low back pain in Arab population. A team of researchers has assessed 365 Arab patients who had regular visits to the internal and spinal medicine for a period of six years (Al Faraj & Al Mutairi, 2003). These individuals were experiencing lower back pain without any reason since the period above six months.

Vitamin D deficiency was due to poor exposure to sunlight. So, inappropriate sunlight exposure could also be involved in causing low back pain in Arabs.

The other etiologic factor believed to play role were nationality, culture, occupation and gender among the Saudi females especially when they work in health care departments (Behisi et al., 2013).

Likewise, strains and sprains and strains appear to cause acute back pain. Sprains result due to ligament's tearing and strain results due to tears in muscle or tendon. These pains occur when an individual attempts to lift a heavy object or lifts inappropriately.

Radiculopathy is another etiologic agent of low back pain. It could result due to spinal nerve root's injury or inflammation (*Low Back Pain Fact Sheet*, 2015).

Epidemiology:

It nations like the United States, its prevalence is between 8% and 57 %. According to the estimate provided by the experts, nearly 29% of individuals encounter a low back pain that could disable the individual at a certain stage of his or her life (Manchikanti, 2000).

Likewise, a 15% encounter the pain that stays for two weeks, affects 9% of the complete working people with disability. The total prevalence varies between 66% and 80%.

It was thought that many low back pain episodes stay for shorter duration and 85% of the events become managed in nearly 7 weeks regardless of the treatment type.

But many previous reports have demonstrated that a chronic or recurrent low back pain, had received an evaluation at third, sixth and twelfth month that varies between 36% and 78% (Manchikanti, 2000).

A recent report had mentioned that the estimate specific to the one year incidence of first attack could range from 6.3 to 15.5% (Hoy et al., 2010).

Whereas, the estimate specific to the one year episode of any attack of the disease ranges from 1.5% to the 37%.

At the same moment, many individuals experience recurrent episodes due to restricted activity. The recurrence estimates of low back pain vary between 23%

and 80%. Low back pain has the potential to influence communities, individuals, whole family members, governments and trade, globally (Hoy et al., 2010).

There is a growing research attention on the epidemiology of low back pain in Saudi Arabia.

Al-Arfaj et al (2003) have determined the back pain prevalence in the adult individuals of Al-Qaseem Central Province, Saudi Arabia with the goal of identifying the relevant factors and characteristics.

They have carried out a survey that involved a coverage of nearly 1,000 houses in the villages and towns of Al-Qaseem province for a total duration of 18 months.

The study team administered questionnaire to 5,900 individuals whose age was 16 years and higher. The questionnaire was about the demographic data, back pain, social, medical and general history (Al-Arfaj et al., 2003). As a result, the study team observed reports of back pain provided by 1085 subjects. Here, back pain appeared to be highly prevalent in the married people compared to the unmarried.

Additionally, back pain was found to possess strong correlation with age (Al-Arfaj et al., 2003). It was also significantly linked with height and weight, change in the ability of the work, depression, history of back pain in the family, poor level of education, frequent consultation visits at the local physician, and use of drugs. Likewise, occupational factors such as professional workers, farmers, house wives and unemployed were also linked with the back pain.

So, back pain in Arab population representing unindustrialized locations appears to be frequent even though the prevalence was found to be present at a much reduced level compared to some western nations (Al-Arfaj et al., 2003).

Treatment:

Vitamin- D could serve as the reliable treatment option. Especially, a vitamin-D2 oral dose of 50,000IU per week or ergocalciferol for nearly eight weeks was considered ideal (Qari, 2013).

The next treatment option is adhering to the policies or norms set by the institutions or authentic bodies and input from the multidisciplinary professionals (Al-Eissa & Al-abbad, 2013)

Likewise a recognition of certain syndromes associated with LBP and their remedy is another treatment idea. However, the treatment of low back pain necessitates

a) Recognition of risk factors b) Reassessment if there is pain, c) MRI for verifying the presence of herniated disk or for determining neoplasm infection, and lumbar spinal stenosis.

d) Myelogram-CT scans in few chosen patients in order to verify lumbar stenosis.

e) Electromyography in few chosen patients in order to distinguish lumbar radiculopathy from different contributors of radicular leg pain (Nasser, 2005).

On the other hand, therapy with drugs involves the use of Acetaminophen, Tramadol, and opioids that are short-acting, Tricyclic Antidepressants such as Amitriptyline (Nasser, 2005).

Similarly, treatment could involve therapeutic injections such as steroid combined epidural injections, selective joint injections and trigger-point injections.

Other methods are use of ultrasound for a ten minute period, use of cold packs, referred to as Cryotherapy, TENS (transcutaneous nerve stimulators) acupuncture and lumbosacral orthosis;

Rehabilitation through exercise, operative interventions such as microdiscectomy, laminectomy or inclusion of extra instruments in the operation (Nasser, 2005); Kinesio taping that makes the patients to perform stretch exercises, abdominal muscle strengthening exercises, stretching of iliopsoas and hamstring muscles (AlBahel et al., 2013); Schober's test, physical therapy approach that includes exercises specific to the strengthening of key musculature of back, especially (AlBahel et al., 2013).

Results:

Prevalence studies:

Further, the prevalence studies on low back pain in Arab population appear to be addressed with several questionnaires that furnish important information. In a recent study, Bener et al (2013) has studied the low back pain prevalence by emphasizing on the link between the psychological factors such as somatization, depression and anxiety, and low back pain's socio-demographic characteristics in a Qatar cohort.

The study team has recruited nearly 2190 patients who were attending the primary health care centers. Here, a patient health questionnaire-12 was employed to recognize the cases; questionnaire 15 was employed to determine the somatization, questionnaire-9 to assess depression and generalized anxiety disorder-7 to evaluate anxiety (Bener et al., 2013)

The findings revealed the presence of Low back pain prevalence in 60% of subjects that involved 54% women and 46% men. Most importantly, low back pain was present in increased proportion (58%) in Qataris (Bener et al., 2013). Somatization was found to be higher in patients with low back pain, and than in patients experiencing depression and anxiety. In addition, low back pain suffering patients had pain in the joints, arms and legs at 39% and headaches at 42% as the most common symptoms worth reporting.

Likewise, these patients had the presence of hopelessness, depression, or feeling down, suicide and thinking or a wish for hurting themselves. Anxiety feelings that appeared as the most frequent and significant ones were afraid feeling by imagining the occurrence of an awful situation, worrying increasingly about various things and unable to overcome being in the state of worrying (Bener et al., 2013).

This implied that psychological factors occupy a significant portion in the niche of risk contributors that appear to be significantly associated with low back pain. This had also indicated that low back pain could present or get aggravated in individuals who possess other conditions. This study appears to strengthen an earlier study where low back pain was present as co-occurring disorders in the Arab population in whom neuropathic pain was reported (Hassan et al., 2004).

These researchers have assessed the neuropathic pain prevalence in patients who have encountered chronic low back pain. In this regard, the study team had recruited 110 patients experiencing low back pain. Then, the pain scale, LANSS (Leeds assessment of neuropathic symptoms and signs) was employed for evaluating the neuropathic pain's presence. Patients who score above or equal to 12 were found to possess neuropathic pain while those who score below 12 were regarded to possess a nociceptive pain (Hassan et al., 2004).

It was observed that nearly 42% of patients with chronic low back pain experienced neuropathic pain and 60% encountered nociceptive pain.

So, the potential to recognize the mechanisms specific to neuropathic pain serve as the important strategy in enabling a personalized therapy. Such practice in turn was expected to enhance pain control in those with low back pain (Hassan et al., 2004). This could indicate that low back pain had a potential etiologic link with neuropathic pain that is undoubtedly adding to certain prevalence.

It is also important to consider the fact almost every condition associated with pain possess the involvement of the nervous system. So, neurologic complications do need a thorough evaluation while assessing the prevalence of low back pain in a given population.

Some authors have carried out investigations to check that the proportion of low back pain, MRI referrals don't associate with disc disease (Lingawi, 2004).

To accomplish this, the study team had recruited nearly 635 patients, representing the Kingdom of Saudi Arabia, who received a lumbar spine MRI in the previous 6-months. The test involved proton density, T-1 weighted sagittal images and T-2 weighted axial and sagittal images accompanied with the collection of contrast improved images (Lingawi, 2004).

Later, it was observed that eleven patients had a novel metastatic disease diagnosis with reference to the bony spine, eight had a primary malignant condition and five were without any such malignancy. Likewise, only two patients were found with spinal tumors such as schwannoma and cons ependymoma. Whereas, five patients were found to possess non-neoplastic conditions that

appeared to contribute to low back pain. These are osteoporotic compression fracture, spondylolisthesis, discitis, and syringomyelia.

On the whole, only a small proportion (3%) of patients were found to possess a novel diagnosis of low back pain that could be treatable apart from the disc disease (Lingawi, 2004). So, a low back pain could emerge from other conditions. This study implied that low back pain in the Saudi region had certain associations with pathologies that need a detailed investigation and laboratory confirmation.

Risk factors studies:

It is important to note that certain etiologic agents could also serve to increase the risk of low back pain and hence play as risk factors. In this regard, some sources have already highlighted the following as the risk factors of low back pain. These include possessing spine problems since birth. Previous back surgery, spine related, compression fractures, pregnancy when the back of a woman experiences stress while carrying the baby, previous back injury, family history of back pain, being male, either middle age or elderly (*Back Pain Health Center*, 2015). Likewise, some life style associated risk factors are poor routine exercise, performing a job that involves repetitive twisting, motions, bending, lifting heavy objects, continuous sitting, smoking, being under stress, poor posture, and overweight; use of corticosteroids that weaken bones, having depression and chronic coughing (*Back Pain Health Center*, 2015). Therefore, negative beliefs, vitamin d deficiency, increased muscular sprain and strains due to intense work activity associated with stretching and bending and other factors mentioned could serve as risk factors of low back pain (*Back Pain Health Center*, 2015).

However, further studies are largely needed to identify these risk factors at a good proportion in the Arab population, as the studies appear limited.

Discussion:

The majority of studies implied that females in the Saudi region appear to be more susceptible to lower back pain. Multiple risk factors in this region make the

disease diagnosis a challenging task. This added to the poor awareness of the low back pain and cultural norms is turning the health care a more complicated one.

This could be due to working conditions or other stressful events that regularly interfere with the body moments and comfort. The inclusion of questionnaires in many investigations had furnished insights on the involvement of several risk factors that could be managed with better therapeutic interventions and practices. So, data on low back pain in the region of Saudi Arabia had provided some convincing information that could be considered in the light of the low back pain prevalence in the KSA. However, it was of the opinion that the interpretation of the results must involve a careful interpretation. It is also noteworthy that there are certain literature gaps or the inconsistencies with regard to the resolution of low back pain problem. This trend requires a rectification through a good number of studies.

Conclusion:

Thus, the epidemiology of low back pain in Saudi Arabia is a complex area that needs a thorough understanding with regard to the multiple risk factors. 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 low back pain, spine problems since birth, etc. So, an efficient evidence based treatment is the only resolution to further screen and identify the risk factors of low back pain in this region at a good proportion. Health care professional across multiple disciplines must play a significant role in lessening the impact of low back pain among the population in the Arab region. Thus, the literature suggests that the problem of low back pain in Saudi Arabia is alarming and the need for further research investigations.

3World Health Organization

Appendix 1- keywords used

Keywords used in Pub-Med's developed search and secondary research to identify articles. Keywords covered three categories: Disease of interest,

Epidemiological terms and geographical locations. Logical phrase (AND) was used to link all three categories of key words. The search in all other databases used essentially the disease of interest, epidemiological terms & the Saudi Arabia*.

Low Back Pain

Diagnosis, OR	Riyadh, OR
Distribution, OR	Jeddah, OR
Epidemiology, OR	Dammam,OR
Factor, OR	Abha,OR
Incidence, OR	Al-Qaseem,OR
Odds	Taif,OR
Pattern, OR	Saudi Arabia, OR
Prevalence, OR	
Prognosis, OR	
Rate, OR	
Risk, OR	
Trend, OR	

Databases searched
Pub Med - www.pubmed.gov
Digital Library – http://www.ac-knowledge.net/ngha/en.wikipedia.org/wiki/Low back pain
Evidence Based medicine - www.ebm.bmjournals.com
Clinical Evidence - www.clinicalevidence.com

Table 1. Summery table of studies

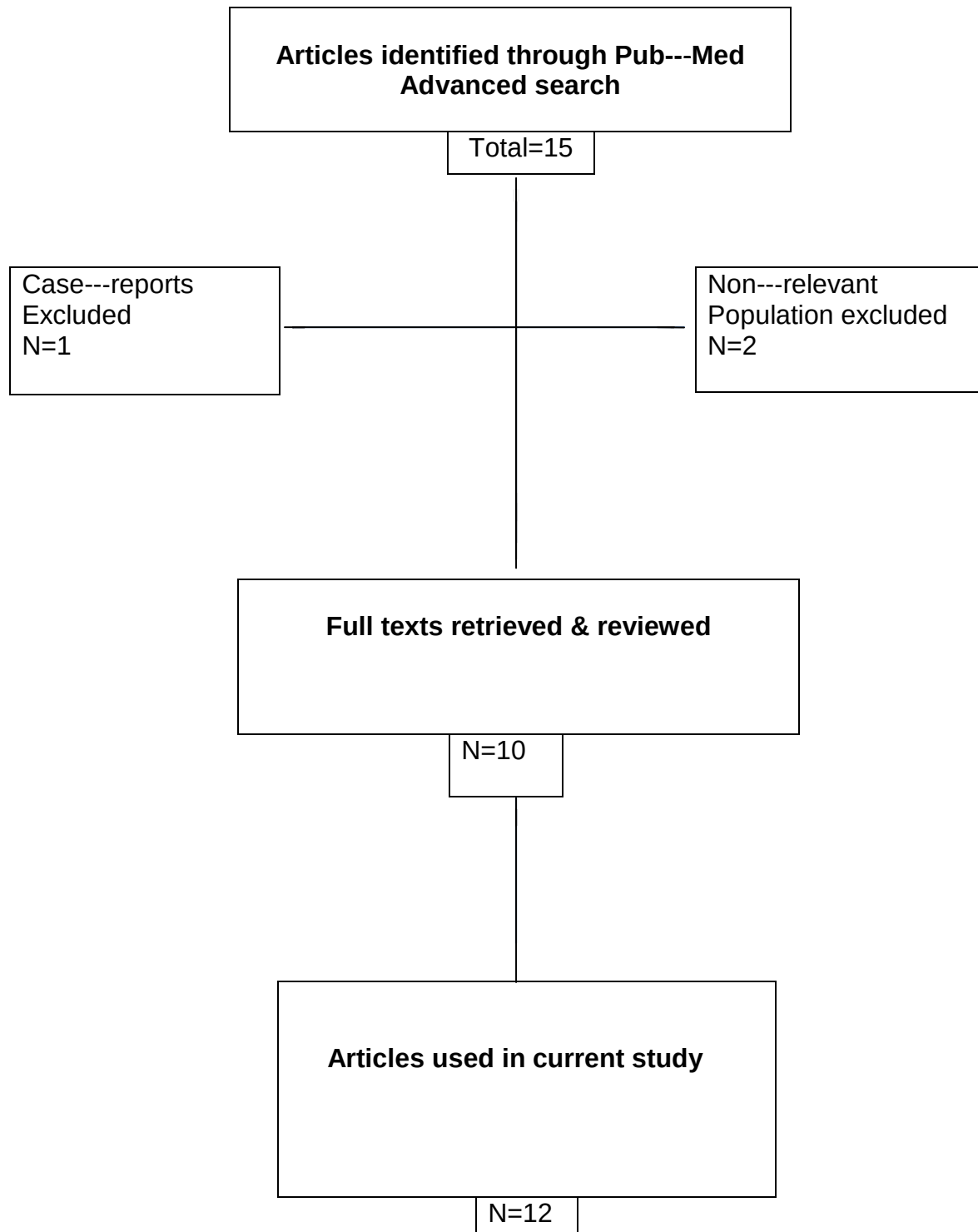
Study	Place(year)	Study design Sample size	Histopathologic Verification	Main Results
Prevalence studies				
Attar SM	Saudi Arabia 2014 Jan	Cross-sectional 200	Yes	Point prevalence=65.7%

DarwishMA ¹	Saudi Arabia 2013	Cross-sectional A total of 240 secondary school female teachers	Yes	Point prevalence=79.17%.
BehisiMA ¹	Saudi Arabia 2013	Cross-sectional from 964 of 3,295 workers	No	(OR = 3.9, 95% CI = 1.8-8.5).
HassanAE ¹	Saudi Arabia 2004 Dec	Cross-sectional 100 Patients	Yes	Point prevalence=41% with LBP & 59% had nociceptive pain.
BehairyYM ¹	Saudi Arabia 2003 Jun	Case-control 70 Patients	No	Prevalence co- morbidity 24 (34)%
Hasan M. Keriri	Saudi Arabia 2013	Cross-sectional 126 (HCWs) in operating room	Yes	Females 78.6% Almost three quarters of them were nurses(74.6%) 25.4% were technicians.
<i>Salameh Al Dajah and Abdalhamed Al Daghdhi</i>	Saudi Arabia 2013 Nov	Cross-sectional 300 Nurses	Yes	The prevalence of work-related LBP was 53.2%.
Risk Factor studies				
AL-Eisa	Saudi Arabia 2013 Sep	Case-control	Yes	A total of 155 nurses

Con't

Prognostic Markers studies				
AL-Faraj AS	Saudi Arabia 2003 Feb	Case – control 1,000	Yes	A response was 5,743 (97.4%).
Lingawi_SS	Saudi Arabia 2004 Apr	Cohort (retrospective study) 625 patients	Yes	all, 17 of 625 patients (2.7%) had a new diagnosis
AL-Faraj S	Saudi Arabia 2003 Jan	Case – control 360 patients 90%	Yes	83% patients (n = 299) with low vitamin D
Abdulbari Bener and Mohamud Verjee	Saudi Arabia 2013 Feb	Cross-sectional 2742 patients approached, 2180 agreed (79.5% response rate).	Yes	prevalence of LBP was 59.2% .52.9% males and 47.1% females

Figure 1. Flowchart for Research results in Pub---Med.



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