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Research Article

**EVALUATION OF LOW BACK PAIN MANAGEMENT IN
PRIMARY HEALTH CARE CENTERS**

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Abstract

Background: Low back pain is located between the gluteal folds and inferior border of the ribs, and it is considered as one of the common complains that physicians in primary health care centers face. Recently, a lot of literatures have been done in order to evaluate low back pain management and how to provide a better out comes for the patients. **Objective:** In our study we aims to assess the recent updates regarding low back pain evaluation and management and assess the role of primary health care centers in providing a better outcomes for the patients.

Methods: PubMed database were used for articles selection. All relevant articles related to our review were chosen to cover the following topics: "Low Back Pain", "Management", "Diagnosis", "Evaluation and Primary Health Care Centers". We excluded other articles, which are not related to our objectives.

Conclusion: The initial evaluation of patients with chronic low back pain should attempt to place patients into one of the following categories: nonspecific low back pain, back pain potentially associated with radiculopathy or spinal stenosis, or back pain potentially associated with another specific spinal cause. Red flags must be excluded (table 2). NSAIDs have shown good effect on pain relief of LBP more than Acetaminophen but they were associated with a large worsening in LBP complaints during a wash-out period. Opioids could not be recommended as a first-line treatment for LBP in view of their side effect profile, potential for tolerance with long-term use, and in the absence of any evidence of superior efficacy compared with NSAIDs. Treating LBP should not be focused on pharmacological therapy. Physical therapy has a primary preventive effect on LBP. It was associated with greater pain relief and better function. In addition, psychological therapy in some studies resulted in lower post-treatment pain intensity.

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INTRODUCTION:

Low back pain (LBP) is defined as pain that is located between the gluteal folds and inferior border of the ribs, it can be associated with radiation to the leg. Another distinct presentation of LBP is sciatica, or spinal nerve root pain, which is characterized by pain radiating to the leg and numbness¹.

Low back pain is considered as a major public health problem for countries due to its prevalence in the population and its cost. (Walker BF et al.) [2], mentioned that more than 50% of the adults in the US are complaining of LBP each year and about 80% had suffer LBP pain in their lives. (Luo X et al.) [3], discussed that US medical cost due to LBP symptoms is about 26 billion dollar and the loss cost due patient's absence as a result of LBP is near to 20 billion dollars. Therefore, health care system should provide a contribution that can help in reduction in the prevalence as well as the cost of LBP.

Currently, a lot of literatures have discussed the variant risk factors that can lead to LBP and preventive measures. In addition, many guidelines discussed different management plan of LBP. In our study we aim to review the literatures to assess the variant preventive measures of LBP development, new updates about the management's guidelines, and

the role of primary health center in providing a better outcome for the patients.

METHODOLOGY:

We performed comprehensive search using biomedical databases; Medline, and Pubmed, for studies concerned with assessment of stress ulcer prophylaxis published in English language between 2013 and 2018. Keywords used in our search through the databases were as "Low Back Pain", "Management", "Diagnosis", "Evaluation and Primary Health Care Centers". More relevant articles were recruited from references lists scanning of each included study.

Analysis

No software was used, the data were extracted based on specific form that contain (Title of the study, name of the author, Objective, Summary, Results, and Outcomes). Double revision of each member's outcomes was applied to ensure the validity and minimize the errors.

RESULTS:

A total of 4 studies were enrolled in our review according to our inclusion criteria. The studies characteristics are presented in **Table 1**.

Table 1: The included studies.

Study (year)	Study Design	Country	Participants (n)	Objective	Duration	Outcome and Conclusion
Becker et al. ⁴	RCT	Germany	1322	To study the cost-effectiveness of 2 low back pain guideline implementation (GI) strategies.	1 year	Trends in cost-effectiveness are visible but need to be confirmed in future studies. Researchers performing cost evaluation studies should test for baseline imbalances of health care utilization data instead of judging on the randomization success by reviewing non-cost parameters like clinical data alone.

Foster et al. ⁵	Prospective Population-Based Sequential Comparison	UK	922	To determine the effects of implementing risk-stratified care for low back pain in family practice on physician's clinical behavior, patient outcomes, and costs.	2 years	Stratified care for back pain implemented in family practice leads to significant improvements in patient disability outcomes and a halving in time off work, without increasing health care costs. Wider implementation is recommended.
Ali M. Alshami. ⁶	case-control study	Saudi Arabia	62	To investigate physical and psychological factors in Saudi population with LBP.	3 months	Stress was present in this group of Saudi patients with LBP. Targeting psychological factors associated with LBP, not only physical factors may help improve the management of patients with LBP.
Ashworth et al. ⁷	secondary analysis nested in a prospective cohort study	UK	715	to explore the relationship between prescribed opioids and disability among patients consulting in primary care with back pain.	2 years	Opioids were associated with slightly worse functioning in back pain patients at 6-month follow-up.

DISCUSSION:

Low back pain (LBP) is a common problem affecting both genders and most age groups such that about one in four adults seeks care in a six-month period. LBP has substantial direct and indirect costs to the person, workplace and society [8]. The economic impact of chronic low back pain stems from prolonged loss of function, resulting in loss of work productivity, treatment costs, and disability payments. Estimates of these costs range from \$12.2 to \$90.6 billion annually [9].

(Al-Arfaj et al.) [10] surveyed households in the towns and villages of Al-Qaseem province in Kingdom of Saudi Arabia. They found that LBP was reported by 1081 (18.8%) of 5743 respondents, of whom 499 (8.8%) were male and 574 (10%) were female. Another study was conducted in Saudi Arabia to detect the potential risk factors implicated in BP among adolescents in Hail territory [11]. They

found that back pain was associated with older age, female gender, increase in physical activity, uncomfortable furniture, and time spent watching television. (Awaji) [12] published a review about the epidemiology of LBP in Saudi Arabia using 12 local studies. Seven of the included studies were cross-sectional and found a prevalence and pattern ranging from 53.2% to 79.17%. The common risk factors were previous history of low back pain, spine problems since birth, vitamin d deficiency, being obese or overweight, increased muscular sprain and strains due to intense work activity associated with stretching and bending and vice versa; poor routine exercise.

The initial evaluation, including a history and physical examination, of patients with chronic low back pain should attempt to place patients into one of the following categories: nonspecific low back pain, back pain potentially associated with radiculopathy

or spinal stenosis, or back pain potentially associated with another specific spinal cause. This is according to the American College of Physicians and the American Pain Society guidelines. The history should include assessment of psychosocial risk factors, which predict risk for chronic disabling back pain. The latter category includes the small proportion of patients with serious or progressive neurologic deficits or underlying conditions requiring prompt evaluation (such as tumor, infection, or the cauda equina syndrome), as well as patients with other conditions that may respond to specific treatments (such as ankylosing spondylitis or vertebral compression fracture). Diagnostic triage into 1 of these 3 categories helps guide subsequent decision making. Clinicians should inquire about the location of pain, frequency of symptoms, and duration of pain, as well as any history of previous symptoms, treatment, and response to treatment. The possibility of low back pain due to problems outside the back, such as pancreatitis, nephrolithiasis, or aortic aneurysm, or systemic illnesses, such as endocarditis or viral syndromes, should be considered [13].

The physical examination should include the straight leg raise and a focused neuromuscular examination. A positive straight leg raise test (pain with the leg fully extended at the knee and flexed at the hip between 30 and 70 degrees) can suggest lumbar disc herniation, with ipsilateral pain being more sensitive (i.e. better at ruling out disc herniation if negative) and contralateral pain being more specific (i.e. better at ruling in herniation if positive). Testing deep tendon reflexes, strength, and sensation can help identify which nerve roots are involved [14].

Laboratory assessment, including erythrocyte sedimentation rate (ESR), complete blood count, and C-reactive protein level, should be considered when red flags indicating the possibility of a serious underlying condition are present. Urinalysis may be useful when urinary tract infections are suspected, and alkaline phosphatase and calcium levels can help identify conditions, such as Paget disease of bone, that affect bone metabolism. However, these tests are not needed in all patients with chronic low back pain [15].

Overuse of imaging persists, despite the availability of practice guidelines for more than 20 years. Best practice guidelines for diagnostic imaging for LBP have been published by the American College of Physicians. It states that imaging should not be delayed in risky patients, patients who have severe or progressive neurologic deficits or are suspected of having a serious underlying condition because delayed diagnosis and treatment are associated with poorer outcomes. For example, cancer or spinal infection. If major risk factors for cancer were found, immediate radiograph with CT or MRI and ESR test should be done. If spinal infection was suspected or severe neurological deficits or signs of cauda equina syndrome were found, MRI must be urgently done. However, if the patient has weaker risk factors for cancer, risk factors for inflammatory arthritis, or risk factors for vertebral compression fracture, radiograph and/or ESR should be done but can be delayed until after initial treatment. This is also applicable on MRI for patients with signs of radiculopathy or spinal stenosis. Nonetheless, if the pain improved or resolved within 1 month of treatment, no imaging is needed [16].

Table 2: red flags findings (adapted Kinkade¹⁴ and Last¹⁵)

Finding	Diagnosis of concern
Age older than 50 years	Fracture or Cancer
Fever; chills; recent urinary tract or skin infection; penetrating wound near spine	Infection
Significant trauma	Fracture
Unrelenting night pain or pain at rest	Cancer or Infection
Progressive motor or sensory deficit	Cauda equina syndrome or Cancer
Saddle anaesthesia; bilateral sciatica or leg weakness; difficulty urinating; faecal incontinence	Cauda equina syndrome

Unexplained weight loss	Cancer
History of cancer or strong suspicion for current cancer	Cancer
History of osteoporosis	Fracture
Immunosuppression	Infection
Chronic oral steroid use	Fracture or Infection
Intravenous drug use	Fracture or Infection
Substance abuse	Fracture or Infection
Failure to improve after six weeks of conservative therapy	Cancer or Infection

Many studies have been conducted to evaluate physical modalities in treating LBP. It was found that exercise therapy was associated with greater pain relief than no exercise. Also, it was associated with less pain intensity and better function. Moreover, there are more types physical modalities that were found to be helpful in decreasing pain intensity among patients with LBP such as Tai Chi and Yoga [17].

(Alshami) [6] published a paper investigated physical and psychological factors in Saudi population with LBP. He found that stress was significantly present in the group of Saudi patients with LBP. He suggested targeting psychological factors in treating LBP. Targeting psychological factors associated with LBP, not only physical factors will help improve the management of patients with LBP. (Henschke et al.) [18] review found that psychological therapy, progressive relaxation, and cognitive behavioral therapy resulted in lower post-treatment pain intensity. Moreover, progressive relaxation was significantly associated with also beneficial effects on function. These non-pharmacologic therapies for low back pain were associated with small to moderate, primarily short-term effects on pain. Effects on function generally were smaller than those on pain, and most evidence was for chronic low back pain [6 -18].

NSAIDs either COX-2 selective or non-selective have shown good effect on pain relief of LBP more than Acetaminophen but they were associated with a large worsening in LBP complaints during a wash-out period. Also, they have gastrointestinal risks on the long-term use as known [19]. In patients with acute or chronic low back pain who have severe, disabling pain that is not controlled (or is unlikely to be controlled) with acetaminophen and NSAIDs,

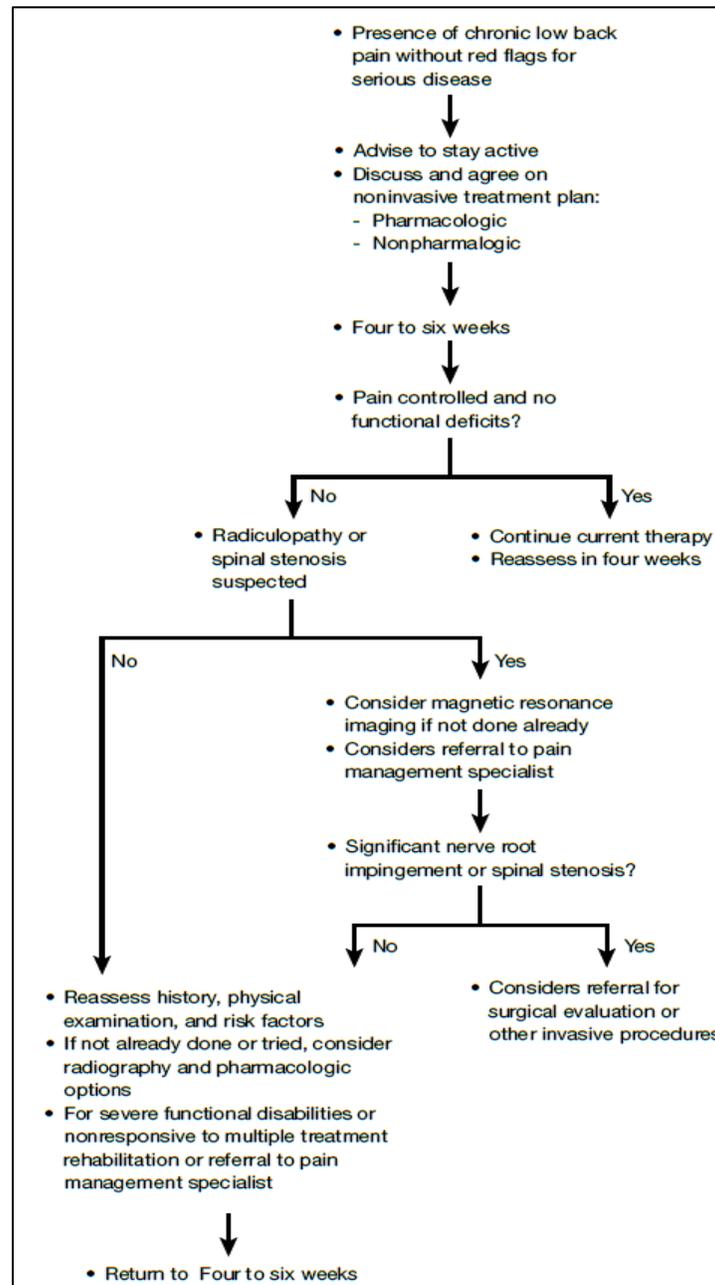
opioid analgesics or tramadol are an option when used judiciously and carefully. Potential benefits and harms of opioid analgesics should be carefully weighed before starting therapy because of substantial risks, including aberrant drug-related behaviors with long-term use in patients vulnerable or potentially vulnerable to abuse or addiction. Failure to respond to a time-limited course of opioids should lead to reassessment and consideration of alternative therapies or referral for further evaluation. Opioid prescribing for chronic non-cancer pain has increased in recent years, and chronic LBP is among the most common non-malignant disorders associated with prescribed opioid use in primary care. Although opioids are an accepted treatment for LBP, there is limited evidence of their efficacy. Some individual RCTs demonstrated evidence of short-term pain relief and modest functional improvement in highly selected subjects with LBP. However, (White et al.) [20] group in their review concluded that in terms of efficacy in LBP, opioids could not be recommended as a first-line treatment for LBP in view of their side effect profile, potential for tolerance with long-term use, and in the absence of any evidence of superior efficacy compared with NSAIDs. Moreover, in (Ashworth et al.) [7] paper, patients who used opioids reported higher pain intensity, including leg pain, and greater disability, and were also more likely to receive medication for comorbid conditions and to report higher distress, greater fear of movement, a greater tendency to catastrophize, and lower self-efficacy.

Physical exercise has a primary preventive effect on LBP as it was shown in some evidence such as (F.G. Schaafsma et al.) [21] paper. For secondary prevention, it seems that there are more opportunities to cost-effectively intervene in reducing the risk of long-term sickness absence due to LBP. Although

there are many studies evaluating various types of exercises to increase physical capacity, so far no particular type of exercise seems superior. Moreover, there is evidence of a positive effect in reducing sickness absence due to LBP by exercises using a cognitive behavioral approach. This approach is done by using graded activity to help the patient gradually return to the normal level of work activities.

Referral to a pain management specialist is appropriate for patients who continue to experience severe functional impairment or unremitting pain, or when patients or physicians feel that progress has stopped or want a second opinion. In the absence of evidence to define the indications and timing of referral, a decision to refer should be left to the discretion of the physician and patient [13-15].

Table 3: An algorithm organizing the approach to LBP (adapted from Chou et al. [13] and Last [15])



Primary health care was defined by the World Health Organisation (WHO) as “the first level of contact of individuals, the family and the community with the national health system and constitutes the first element of a continuing health care process” [22]. The community burden of musculoskeletal conditions in high-income economies is high and rising, placing increasing burden primary care. Most commonly, these conditions include arthritis and low back pain. The prevalence of inflammatory arthritis, while about 2%, incurs huge economic costs to the system and patient, requiring early diagnosis in primary care and management with disease-modifying drugs to maximize outcomes. It is the rising burden of disabling low back pain, osteoarthritis (OA) and falls (especially in those with osteoporosis and skeletal fragility) that will, given that they are highly prevalent and currently managed in primary care, principally affect the primary care workload [23]. Many studies such as (Foster et al.) [5] undertook the Implementation to improve Patient Care through Targeted treatment (IMPACT Back) study to address the unanswered questions of whether stratified care implemented within a primary care family physician setting is clinically effective, leads to more targeted use of health care resources by changing physician referral behavior, and reduces health care costs. They have shown that stratified care for LBP, in which prognostic screening is combined with matched treatment, is effective when implemented among physicians in primary care. It is associated with improved patient outcomes and reductions in work absence, without an increase in health care resource use. These results address guideline recommendations for further research on stratified care and have implications for future family physician practice. Also, Stratified care was associated with benefits for patients and more targeted use of health care resource without increasing health care costs and should be implemented more widely [4-5].

CONCLUSION:

The initial evaluation of patients with chronic low back pain should attempt to place patients into one of the following categories: nonspecific low back pain, back pain potentially associated with radiculopathy or spinal stenosis, or back pain potentially associated with another specific spinal cause. Red flags must be excluded (table 2). NSAIDs have shown good effect on pain relief of LBP more than Acetaminophen but they were associated with a large worsening in LBP complaints during a wash-out period. Opioids could not be recommended as a first-line treatment for LBP

in view of their side effect profile, potential for tolerance with long-term use, and in the absence of any evidence of superior efficacy compared with NSAIDs. Treating LBP should not be focused on pharmacological therapy. Physical therapy has a primary preventive effect on LBP. It was associated with greater pain relief and better function. In addition, psychological therapy in some studies resulted in lower post-treatment pain intensity.

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