**Journal of Neonatal Surgery**
***ISSN(Online): 2226-0439***
***Vol. 14, Issue 23s (2025)***
*https://www.jneonatalsurg.com*

OPEN ACCESS

# Non-Pharmacological Pain Management: The Role of Nurse Guided Back Massage for Low Back Ache

**Archana M. Badhe[1], Nema Ram Gurjar[2], Dhiraj V. Sonawane[3], Dr. Dhirajkumar Mane*[4]**

[1]PhD scholar, Department of Nursing, National Institute of Medical Sciences University, Jaipur, Rajasthan, India,

[2]Professor, Department of Nursing, National Institute of Medical Sciences University, Jaipur, Rajasthan, India,

[3]Professor, Department of Orthopaedics and Spine Unit, Grand Medical college &Sir J.J. Hospital, Mumbai, Maharashtra, India

[4*]Statistician, Directorate of Research, Krishna Vishwa Vidyapeeth, Karad, Maharashtra, India.

***Correspondence Author:**

Dr. Dhirajkumar Mane

Statistician, Directorate of Research, Krishna Vishwa Vidyapeeth, Karad, Maharashtra, India.

Email ID: dhirajmane123@gmail.com

Cite this paper as: Archana M. Badhe, Nema Ram Gurjar, Dhiraj V. Sonawane, Dr. Dhirajkumar Mane, (2025) Non-Pharmacological Pain Management: The Role of Nurse Guided Back Massage for Low Back Ache. *Journal of Neonatal Surgery*, 14 (23s), 329-335

**ABSTRACT**

**Background:** Men and women are equally affected by low back pain (LBP), which can range in intensity from a dull, constant ache to a sudden, sharp sensation that hinders the person. Intrusive procedures are more likely to cause adverse outcomes in older adults, which emphasizes the value of non-pharmacologic and non-invasive therapy for individual requirements. In light of concerns about the overuse of medications and the potential for opioid dependence, there is growing interest in non-pharmacological approaches to pain management. Nurses play a vital role in giving different interventions to treat back pain effectively. This study aims to study the role of nurse guided back massages on LBP among patients attending the outpatient department (OPD) in selected hospitals.

**Materials and Methods**: A quasi-experimental, one-group pretest–posttest time series research design was used to conduct a study among the patients attending OPD in selected hospitals. A total of 160 respondents were studied from October 2021 to February 2022. A numerical pain scale and a semi-structured self- administered questionnaire were used to collect data. Only respondents who gave informed consent were issued the questionnaire to complete at their convenience. Back massages were given for 6 weeks, thrice a day in a week for 20 min regularly. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 24.0. Descriptive data were presented in the form of bar graphs and frequency tables.

**Results:** The study showed that 56.25% of the respondents had severe LBP in the pretest. After doing selected physical exercises, the severe pain level reduced to 50% in Post-test 1, 21.88% in Post-test 2, and 8.75%in post-test-3. The t value of the difference in mean reduction of LBP was tabulated, and the calculated t values were (1.15, 6.94, 10.12) statistically significant at 0.05 level of significance ($P < 0.05$).

**Conclusion:** LBP is seen as an issue for all ages and all sectors of society. One common component of pain treatment programs focuses on increased physical exercise reconditioning, and exercise would increase strength and concomitantly decrease pain as a long-term effect. The investigator found that physical activities were very effective and beneficial in reducing back pain among patients with LBP.

**Keyword:** *Low back pain, patients attending OPD, back massage, nurse*

## 1. INTRODUCTION

Pain: It's just a fact of life. According to some estimates, most of us—about four in five—sometimes feel back pain. According to the International Association for the Study of Pain, pain is defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage"[1] Low back pain

(LBP) is the fifth most common reason for physician visits, which affects nearly 60%–80% of people throughout their lifetime.[2] LBP that has been present for over 3 months is considered chronic. However, there is still no consensus about the definition of chronic LBP (CLBP). Specific causes of LBP are uncommon, and in approximately 10% of patients, a particular generator cannot

be identified with certainty,[3] 5%–10% of all LBP patients will develop CLBP. Prevalence rates of CLBP are more deficient in individuals aged 20–30 years, increasing from the third decade of life and reaching the highest prevalence between 50 and 60 years.[4] However, the prevalence rates stabilize in the seventh decade of life. There's no difference in LBP prevalence at different periods of the year or in other places.[5]

Globally, LBP is the leading cause of disability, affecting all age groups, from children to the elderly, and is associated with high economic costs.[5] The healthcare costs and disability associated with chronic LBP are projected to increase in the next decade, particularly in low-and-middle- income countries, where the health systems are insubstantial to deal with the increasing burden. LBP is nearly a universal human experience, accounting for one-third of all daily outpatient visits, second to the common cold, an upper respiratory tract infection. The development of CLBP from acute episodes of LBP occurs only in a limited proportion of individuals, approximately 10%–20%.[5] CLBP is among the most common clinical, social, economic, and public health problems of all chronic pain disorders worldwide.[6] In addition to its high prevalence, CLBP is the most common cause of work-related disability, and it causes the highest number of years lived with disability.[7] Bang *et al.* study found that the prevalence of pain in the back and extremities in the participants

>50 years was 94%, while that in the age group 20–50 years was 79% ($P < 0.05$). The highest prevalence of pain was low back (women 80%, men 59%). [8]

Study done by Kumar *et al.*[9], found that non-pharmacological methods like back massages and other non- invasive interventions are some of the effective methods to reduce pain intensity and improve functional limitation parameters in LBP. Back massage is one of the many non-pharmacological methods that are utilized in many contexts to alleviate low back pain. Back massage is easy to use, uncomplicated, non-invasive, and economical method that don't require any additional work from practitioners or cause any negative side effects. People who suffer from chronic LBP, particularly those who are older, are more likely to fall into poverty, leave the working too soon, and have less money saved for retirement. However, intrusive procedures are more likely to cause adverse outcomes in older adults, which emphasizes the value of non-pharmacologic and non- invasive therapy for individual requirements. In the research context, there are very few studies done on their relation to LBP and back massage. Hence the Investigator was interested in finding the relationship between back massage and LBP

## 2. MATERIALS AND METHODS

A quasi-experimental, one-group pretest–posttest time series research design was used to conduct a study among the patients attending outpatient departments (OPDs) in selected hospitals in Mumbai, Maharashtra, India. The nonprobability purposive sampling technique was chosen for a total of 160 patients. The numerical pain scale was used to assess LBP, and a semi structured questionnaire was used to evaluate the back pain symptoms. Data were collected three times from each participant on the 7th, 21st, and 42nd days from the pretest. Back massages were given on 7th, 21st, and 42nd days from the pretest and was also demonstrated to the patients' companions to do the massages at home, back massages were introduced and established, including petrissage, effleurage, kneading and friction rubs to help relieve back pain. Ethical approval was taken from the Institutional Ethics Committee, and permission was taken from the selected government hospital in Mumbai, Maharashtra, India. Only participants willing to give informed consent were included in the study. Data was analyzed using IBM Statistical Package for the Social Sciences (SPSS), Version 24, Chicago, IL, USA.

## 3. RESULTS

The data were processed and analyzed based on the objective of the study. Among the 160 enrolled patients attending OPD in selected hospitals, the age-wise distribution showed that 33% belonged to the 41–60 age group, 30% belonged to 61 years and above, and 37% belonged to the 18–40 years of age group. Overall, 57% of the participants were female, and 43% of the participants were male. Overall, 7% of the participants had underweight body mass index (BMI), 59% had normal BMI, 28% were pre obese BMI, 4% were class 1 BMI, 2% were class 2 BMI, and none were class 3 BMI. The majority, 58% of respondents, were doing clerical jobs, followed by 13% in labor, and 13% in government jobs [Table 1].

Based on the visual pain scale, Table 2 shows that 56.25% (90) participants had severe preintervention pain, and only 9.37% had mild pain. Table 3 result shows pain characteristics 52.5 % (84) experienced aching pain, 36.87% (59) experienced long-duration pain, and 36.87% (59) reported night pain.

After doing back massages, the level of pain was reduced to 50% in post-test-1 [Figure 1], 21.88% in post- test-2 [Figure 2], and 8.75% in post-test-3 [Figure 3]. Similarly, only 9.37% of participants reported mild pain levels in the pretest, while others reported moderate and severe pain. After underdoing back massage in post- test-1, the mild pain level was 12.5%, 33.12% in post-test-2, and 41.25% in post-test-3, indicating the effectiveness of back massage in reducing the moderate and severe pain levels in the lower back [Figures 1– 3]. The pain score was significantly reduced while comparing the mean and SD of the pretest, the post-test-1, post-test-2, and post-test-3 at $P < 0.00001$. The existing mean pain score in the present study was 7.4; The postintervention means pain score on post-test-1 (7.03), post-test-2 (5.18), and post-test-3 (4.41) showed an improvement in the pain scores of the group and calculated $t$ values were (1.15, 6.94, and 10.12) statistically significant at 0.05 level of significance. Hence, the null hypothesis ($H0$) was rejected, and $H1$ was accepted. Therefore,

nurse led back massage effectively decreased lower back pain among patients attending OPD in selected hospitals [Table 4].

**Table 1: Distribution of patients as per demographic data n = 160**

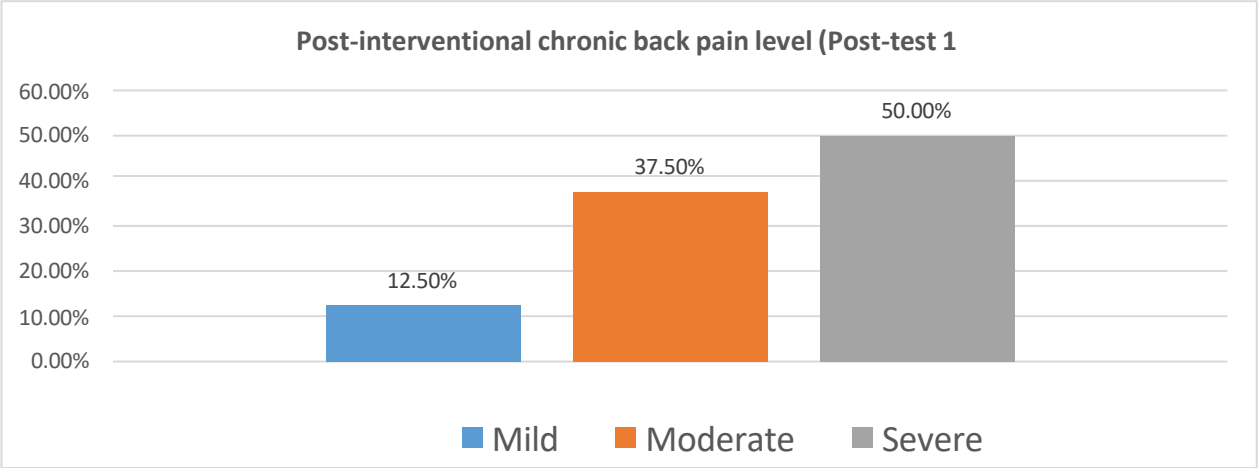
| SR NO | DEMOGRAPHIC DATA | FREQUENCY | PERCENTAGE |
|---|---|---|---|
| | AGE ( YEARS ) | | |
| 1 | 18-40 years | 59 | 37 |
| 2 | 41-60 years | 53 | 33 |
| 3 | 61 years and above | 48 | 30 |
| | | | |
| | GENDER | | |
| 1 | Male | 69 | 43 |
| 2 | Female | 91 | 57 |
| | BMI | | |
| 1 | Under weight < 18.5 | 11 | 7 |
| 2 | Normal weight 18.5 – 24.5 | 94 | 59 |
| 3 | Pre obese ≥ 25 -29.9 | 45 | 28 |
| 4 | Obesity and above≥ 30 | 10 | 6 |
| | | | |
| | TYPE OF JOB | | |
| 1 | Clerical | 93 | 58 |
| 2 | Labour | 25 | 16 |
| 3 | Private job | 21 | 13 |
| 4 | Government job | 21 | 13 |

**Table No.2: Finding of pre-intervention low back pain n = 160**

| Sr. No | Pre-intervention low back pain | Study participants | |
|---|---|---|---|
| | | Frequency | Percentage (%) |
| 1 | Mild | 15 | 9.37% |
| 2 | Moderate | 55 | 34.37% |
| 3 | Severe | 90 | 56.25% |
| | Total | 160 | 100% |

**Table No.3: Findings of pre-intervention low back pain according to semi-structured questionnaire n = 160**

| Sr. No | Rate your current level of pain | Study participants | |
|---|---|---|---|
| | | Frequency | Percentage (%) |
| 1 | 0 | 0 | 0.00 |
| 2 | 1-2 | 3 | 1.87 |
| 3 | 3-4 | 6 | 3.75 |
| 4 | 5-6 | 84 | 52.5 |
| 5 | 7-8 | 52 | 32.5 |
| 6 | 9-10 | 15 | 9.37 |
| | Total | 160 | 100 |



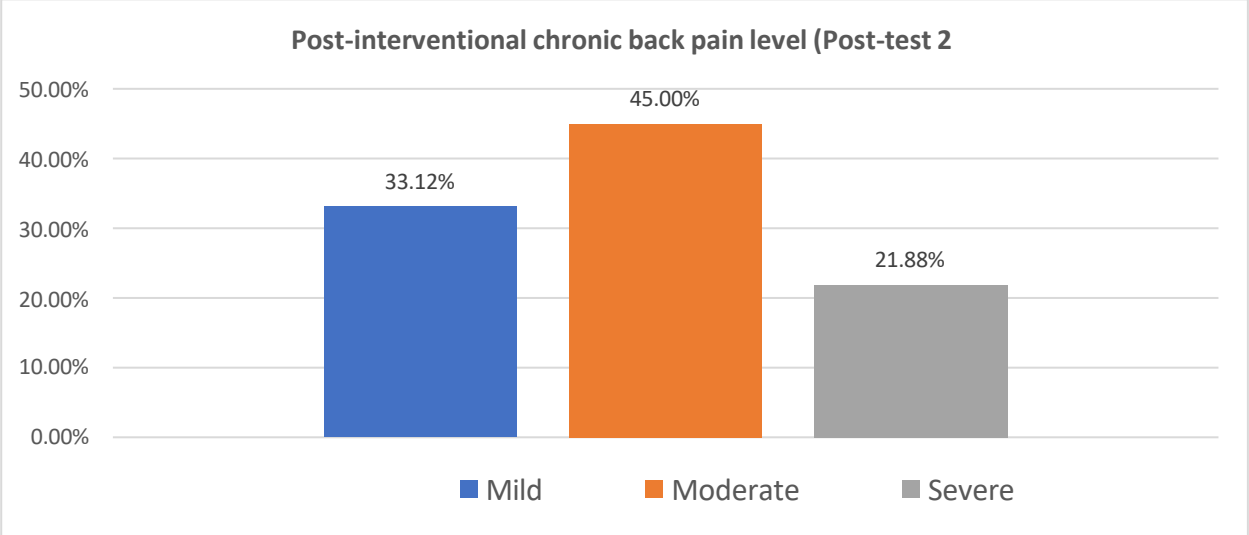




**Figure No.1: Findings of post-intervention low back pain. (Post-test 1)**

**Figure No.2: Findings of post-intervention low back pain. (Post-test 2)**

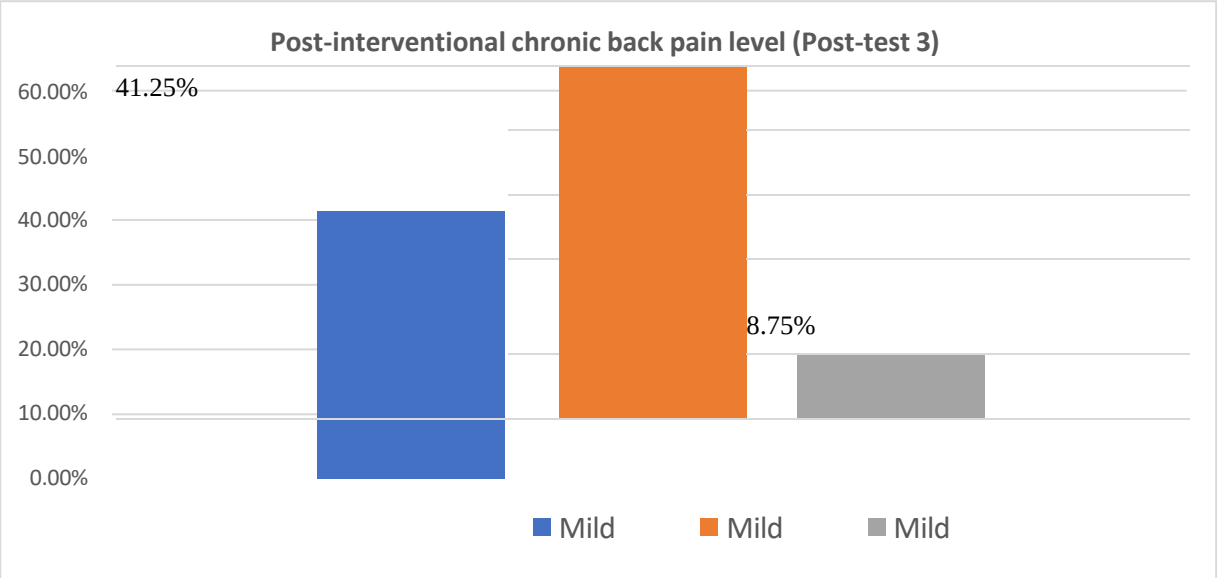



**Figure No.3: Findings of post-intervention low back pain. (Post-test 3**

**Table: 4 Significance of difference between existing pain score and after implementation of back massage n = 160**

| **Duration of study** | **Back massage** | | | | |
|---|---|---|---|---|---|
| | **n** | **Mean** | **SD** | **Mean Change** | **t-value** |
| **Pre-test pain score** | n=160 | 7.4 | 2.786 | 0.37 | 1.15855 P=0.123756 NS |
| **Post-test 1 Pain score** | | 7.03 | 2.90 | | |
| **Pre-test pain score** | n=160 | 7.4 | 2.786 | 2.22 | **6.94921 P= <0.00001 S** |
| **Post-test 2 Pain score** | | 5.18 | 2.90 | | |
| **Pre-test pain score** | n=160 | 7.4 | 2.786 | 2.99 | **10.12881 P= <0.00001 S** |
| **Post-test 3 Pain score** | | 4.41 | 2.48 | | |

***S-Significant, *NS - Not Significant**

## 4. DISCUSSION

LBP is nearly a universal human experience, accounting for one-third of all daily patient visits. .[2] The healthcare costs and disability associated with low back pain will increase in the next decade. The present study aimed to assess the effect of selected physical exercises on patients attending OPD in assigned hospital. 5-10% of all low back pain patients will develop chronic low back pain (CLBP). CLBP prevalence rates increase from the third decade of life, reaching the highest prevalence between 50-60 years.[8] According to Manchikanti, L. *et al.*, LBP is also a significant condition leading to a disability affecting the work performance and the overall well-being of the individual.[10] Individuals with LBP experience persistent pain and disability at some stage and report severe impairment in their Quality of life (QOL).[11] Joseph, L. H., *et al.*; found that exercise helps individuals to have improved pain and functional limitations outcomes (moderate-certainty evidence) compared to other conservative treatments.[12] Bansal D *et al.* study identified the prevalence of LBP affects both males and females, with the females (55%) having a slighter higher prevalence than the males[13]

A more significant proportion of females reported back pain compared to males. This study also found that women over 50

were more likely than men to report back pain (26% and 17%, respectively), as reported by Nagi *et al*.[14] These data raise awareness among clinicians and health policymakers on the necessity of prevention, early diagnosis, proper management, and rehabilitation policies to minimize the burden associated with lower back pain, especially for women. Our study also found that most moderate and severe pain levels were prevalent at 41 years and above. Mattiuzzi C also described that the burden of all LBP cases peaks between 40–60 years of age.[15]

The study results also showed that most of the Moderate and severe-level pain sufferers were obese and had a BMI of more than 25. Ezemagu, U.K, in their study, also reported that body mass index is a relevant factor in low back pain.[16] An increase in body mass index leading to overweight or obesity might serve as both a predictor and an aggravator of low back pain. This study also found that most patients did clerical jobs (93). These findings co-relate to P Shahul Hameed, where it was found that LBP is the major work-related musculoskeletal disorder among IT Professionals and clerks working in offices located in Coimbatore.[17] Crawford, C described that use of massage therapy is a workable alternative for pain management.[18] Shu J, *et al*.[19] conducted a study which showed the role of physical exercises having positive impact on low back pain.

The manual mobilization of various structures from muscle and subcutaneous tissue is encouraged by massage therapy. By exerting mechanical force on the tissue, this mobilization enhances lymphatic flow and venous return, lowers swelling, and mobilizes muscle fibers, tendons, and skin. Pain, tension, and anxiety can all be decreased with massage therapy, which also encourages muscular relaxation.

## 5. CONCLUSION

Low back pain affects the daily activities of most individuals attending OPD in selected hospital. The study concluded that the nurse led physical massages effectively reduced patients' chronic low back pain attending OPD in assigned hospital and it was proven statistically at the p value less than 0.05.

Massage therapy is a form of physical care that utilizes scientific techniques to manipulate soft tissues, promoting healing and wellness, while also fostering nonverbal communication and connection. It is simple, safe, cost-free, easy to learn, effective, and non-pharmacological measures to reduce chronic low back pain and functional disability, thus reducing the overall burden on health care systems and proving to be a benefit also for the families of the affected patients.

### Limitation

1. The study was limited to patients attending OPD in selected hospital.
2. Physical exercises done only six weeks.
3. The sample size consisted of only 160 patients attending OPD in assigned hospital.

### Ethical consideration

The Institutional Ethics Committee of the National Institute of Medical Sciences, Jaipur, Rajasthan, India, had reviewed the research project and approved undertaking the study protocol vide their letter no. NIMSUNI/IEC/2019/ Ph.D./108 dated 29th July 2019.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest

## REFERENCES

[1] Ferchak D. What hurts? 3 types of back pain. Spineuniverse. November 9, 2020. Available from: https://www.spineuniverse.com/conditions/back-pain/what-hurts-types-back-pain. [Last accessed on January 20, 2023].

[2] Aure OF, Nilsen JH, Vasseljen O. Manual therapy and exercise therapy in patients with chronic low back pain: a randomized, controlled trial with 1-year follow-up. Spine (Phila Pa 1976). 2003 Mar 15. 28(6); 525-31

[3] Khan I, Hargunani R, Saifuddin A. The lumbar high-intensity zone: 20 years on. Clinical radiology. 2014. 69; pp. 551-8.

[4] Chou R. Pharmacological management of low back pain. Drugs. 2010; 70:387-402.

[5] Meucci RD, Fassa AG, Faria NM. Prevalence of chronic low back pain: a systematic review. Rev Saude Publica 2015. 49; pp.1. doi: 10.1590/S0034-8910.2015049005874.

[6] Global burden of low back pain – a consequence of medical negligence and misinformation. Medicine,

Nursing, and Health Sciences. 2022 . cited on 28 July 2022. Available from: https://www.monash.edu/medicine/news/latest/2018-articles/global-burden-of-low-back-pain- a-consequence-of-medical-negligence-and-misinformation

[7] Exercise and Chronic Low Back Pain. International Association for the Study of Pain (IASP). 2022. cited on 28 July 2022. Available from: https://www.iasp-pain.org/resources/fact- sheets/exercise-and-chronic-low-back-pain/

[8] Bang AA, Bhojraj SY, Deshmukh M, Joshi VR, Yermal T, Kalkotwar S, et al. Epidemiology of pain in back and extremities in rural population: A community-based estimation of age- and sex-specific prevalence, distribution, duration, and intensity of pain, number of painful sites and seasonality of pain during twelve months in rural Gadchiroli, India. J Glob Health. 2021. 11; 12002. doi: 10.7189/jogh.11.12002.

[9] Kumar S, Beaton K, Hughes T. The effectiveness of massage therapy for the treatment of nonspecific low back pain: a systematic review of systematic reviews. International journal of general medicine. 2013;6:733.

[10] Manchikanti L, Singh V, Falco FJ, Benyamin RM, Hirsch JA. Epidemiology of low back pain in adults. Neuromodulation. 2014. 17; pp. 3-10.

[11] Hoy D, March L, Brooks P, Blyth F, Woolf A, Bain C, et al. The global burden of low back pain: estimates from the Global Burden of Disease 2010 study. Ann Rheum Dis. 2014. 73; pp. 968-74.

[12] Joseph LH, Hancharoenkul B, Sitilertpisan P, Pirunsan U, Paungmali A. Effects of massage as a combination therapy with lumbopelvic stability exercises as compared to standard massage therapy in low back pain: a randomized cross-over study. International Journal of Therapeutic Massage & Bodywork. 2018 Dec;11(4):16.

[13] Bansal D, Asrar MM, Ghai B, Pushpendra D. Prevalence and Impact of Low Back Pain in a Community-Based Population in Northern India. Pain Physician. 2020. 23; E389-E398.

[14] Nagi SZ, Riley LE, Newby LG. Social epidemiology of back pain in a general population. J Chronic Dis. 1973. 26; pp. 769-79.

[15] Mattiuzzi C, Lippi G, Bovo C. Current epidemiology of low back pain. J Hosp Manag Health Policy. 2020. 4; pp. 15. http://dx.doi.org/10.21037/jhm

[16] Ezemagu UK, Anibeze CIP, Ani CO, Ossi GC. Correlation of Body Mass Index with Low Back Pain amongst Patients without Injury in a Nigeria Population. Int J Curr Microbiol App Sci. 2016. 5; pp.371-378.

[17] Hameed PS. Prevalance Of Work Related Low Back Pain Among The Information Technology Professionals In India – A Cross Sectional Study. Int J Sci Technol Res. 2013. 2; pp. 80-85.

[18] Crawford C, Boyd C, Paat CF, Price A, Xenakis L, Yang E, Zhang W, Evidence for Massage Therapy (EMT) Working Group Buckenmaier Chester III MD, COL (ret) Buckenmaier Pamela RN, LMT Cambron Jerrilyn DC, PhD Deery Christopher LMT Schwartz Jan MA, BCTMB Werner Ruth BCTMB Whitridge Pete BA, LMT. The impact of massage therapy on function in pain populations—A systematic review and meta-analysis of randomized controlled trials: Part I, patients experiencing pain in the general population. Pain Medicine. 2016 Jul 1;17(7):1353-75.

[19] Shu J, Li D, Tao W, Chen S. Observation on the curative effect of massage manipulation combined with core strength training in patients with chronic nonspecific low back pain. Evidence-Based Complementary and Alternative Medicine. 2021 Oct 22;2021:7534577