

The Role of Physical Therapy in low back pain

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Abstract— Background : About 80% of people will experience low back pain (LBP) at some stages in their lives.^[1] Back pain constitutes a significant epidemiologic and economic problem, LBP are commonly reported to have decreases in spinal mobility and changes in the loading patterns of the spine.¹There are various physiotherapy interventions for treatment of prolapsed inter vertebral disc re available such as intermittent lumbar traction, interferential therapy, short wave diathermy, transcutaneous electrical nerve stimulation and manual therapy intervention.²**Aim :**Is to review the literature about the use and effect physical therapy, in order to assess their roles in treating various types of LBP, and the indication of use for relive of pain .**Methods:** This study was done in Benghazi- Libya at department of physiotherapy and rehabilitation centers for three months in those centers in 2023 , history of each patients was taken of back pain due different reasons ,all the patients were examined before treatment sessions ,severity of pain personal care, lifting, walking, standing, sleeping, social life, and travel was measured for each patients at the beginning of treatments by using pre and post measurements , time of sessions attended was also recorded .The Wilcoxon test was used to test

the hypothesis "Are there significant differences between the mean percentage of disability before and after treatment. The mean percentage and standard deviation of the total number of times an intervention was used pre and post sessions. A p value of 0.05 was considered statistically significant. **Results:** Significant result in pain sensation after different activity before and after sessions of physiotherapy $P < 0.005$), as noted improvement in time of treatment post sessions $P < 0.004$, and decrease in the average disability percentage $P 0.000$. **Conclusions:** Much additional work is required to define the role of physical therapy .in conclusion, despite the technologically impressive appearance of many Electrotherapies, a standard Electrotherapy device probably remains the best type of stimulator for pain relief. Clinical evidence does suggest that a standard Electrotherapy device, if used appropriately, can provide pain relief. The findings of systematic reviews suggesting that Electrotherapy is not effective for postoperative and labor pain have recently been challenged. Health care professionals often turn to Electrotherapy devices when patients fail to respond to treatment with a standard TENS device.

Keywords: Physiotherapy; Electrotherapy; back pain; Lumbar Disc; Herniation; TENS.

1.INTRODUCTION

The spine in the human being is the central axis of the body, it consists of a number of irregular in shape and size that are linked to each other and separated by fibrous cartilage in various plates that give the spine flexibility in movement so that the person can make movement easily, as it is one of the most important factors in absorption. Trauma is located in the center of the body and maintains the balance of the body and connects it to the lower extremity.^[1] All parts of the body are directly or indirectly connected to the spine, and the dorsal muscles responsible for the erection of stature and when the spine is exposed to injury, either directly or indirectly, the pain affects movement. Consequently, the cervical and lumbar regions are the most exposed to the parts of the body and from there are most exposed to injury and stress. The phenomenon of lumbar pain has spread to a large segment of society and this is attributed to many reasons, including simple lack of movement and lack of exercise, and thus weak back muscles or the nature of some professions such as sitting at the desk for long periods, working on the computer and driving for a long time, and therefore ignoring this injury may lead to bigger problems.^[2] That the lumbar vertebrae are the largest sectors of the spine, the intervertebral discs are located between the vertebral bodies, the height of the disc is one-third of the vertebral body and the main task is to transfer the forces from body weight and muscle activity through the spine, another important function is to provide flexibility.^[3] Lumbar Disc Herniation (LDH) is a common lower back disorder and is one of the most common injuries that produce lower back pain or leg pain in adults.^[4] Low back pain is a major health problem due to its high prevalence all over the world. Almost every adult affects at least once in their lifetime, and low back pain is a multidimensional medical problem with multiple risks.^{[5],[6]} The most common type of low back pain is the indeterminate type that lacks a specific pathogen. This type accounts for about 85% of the world's population.^[7]

Low back pain has gained much attention within the medical community due to its significant socio-economic impact and is a major reason for seeking medical assistance, deterioration of functional ability, restrictions in professional activities and work absence.^[8] The peripheral nerve roots that exit at the level below the protrusion of the herniated disc are affected because the nerve root at the level of the herniated disc has already exited from the transverse holes, on the other hand the protrusion of the herniated disc affects the nerve root located at the same level and there are four types of herniated disc slippage described in the science of Clinical anatomy and treatment of back pain.

Bulge: the extension of the disc margin bulge behind the end margins of the adjacent intervertebral plate.

Protrusion: Protrusion of the posterior longitudinal ligament is still intact but the nucleus pulposus affects the annulus.

Extrusion: Prolapse the nuclear material appears through the annular fibers but the posterior longitudinal ligament is still intact. **Sequestration:** nuclear material appears through the annular fibers, disrupts the posterior longitudinal ligament, and affects dura mater. Disc herniation most often occurs as a result of age-related dissolution of annular fibers. However, trauma, tension, sprains, and injuries lifting heavy objects from the ground are also common.

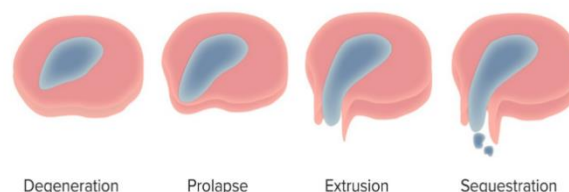


Fig 1. Degrees of herniated disc.

Herniated disc herniation is asymmetric most of the time and 75% of intervertebral disc herniation spontaneous lyre covers within 6 months and can occur in any disc in the spine, but cervical and lumbar herniated disc are the most common forms.^{[9],[10]} Lumbar herniated disc occurs 15 times more often than a cervical herniated disc, and is an important cause of lower back pain. The prevalence of a lumbar herniated disc herniation is about 1% to 3%, with the highest prevalence among people between the ages of 30 and 50 years. The male to female ratio is 2:1.

In individuals between the ages of 25 and 55, about 95% of herniated discs occur in the lumbar spine at a level. (L4 - L5,

L5-S1). Of those over the age of 55, this leads to low back pain (LBP) and possibly leg pain as well, and in this case, it is commonly referred to as sciatica. ^[11] The recurrence of a lumbar herniated disc has a lot to do with its risk factors (rLDH) Rrpitation lumbar Disc Herniation Smoking and diabetes (95%). Gender, BMI, occupational work, and side herniation were not significantly associated with recurrence of a lumbar herniated disc. ^{[12],[13]} A herniated disc occurs as a result of fracturing the fibrous annulus, which comes out through the posterior fissure and these contents put pressure on the posterior longitudinal ligament and the condition is called herniated disc.

There is no evidence to suggest the superiority of a specific treatment for back pain. Most of the available treatments used in clinical practice have little and short-term effect. Whereas, manual therapy is a common treatment approach used in treating back problems. ^[14]

The aim of this study is to review the literature about the use and effect physical therapy, in order to assess their roles in treating various types of LBP, and the indication of use for relive of pain.

1. Pain:

Pain is a distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive and social components. Millions of sensory neurons continuously transmit information to the central nervous system. Millions of motor neurons activate the body to respond in different ways. Sensory and motor neurons travel by different tracts within the spinal cord Ascending tracts are sensory (Deliver information to the brain), Descending tracts are motor (Deliver information to the periphery). ^[15]

- First-order neuron: Delivers sensations to the CNS and sensations from nociceptors to the cell body is in the dorsal or cranial root ganglion.
- Second-order neuron: An inter neuron with the cell body in the spinal cord to thalamus.
- Third-order neuron: Transmits information from the thalamus to the cerebral cortex.
 - Nociceptors.
 - Primary afferent fibers.
 - Dorsal horn of the spinal cord.

- Ascending tracts in the spinal cord.
- Pain processing in the brain. ^[16]

3.Physical therapy Modalities:

Heat therapy: Is a non-pharmacological approach that involves the application of a heat source to the body to raise tissue temperature. Heat therapy acts on pain and muscle spasm in multiple ways. The application of heat activates temperature-sensitive nerve endings (the more captors) which in turn initiate signals that block the processing of pain signals (nociception) in the lumbar dorsal fascia and spinal cord ^[17].

Electrotherapy: The exact mechanism of electrical stimulation's beneficial effect remains controversial.

Electrical stimulation would directly block pain signals from reaching the brain, so the patient never feels them. In addition, electrical stimulation has been shown to promote the release of endorphins, natural painkillers produced by the body. Pain reduction occurs because the applied electrical fields act to close the body's "pain gate mechanism" TENS (Transcutaneous Electrical Nerve Stimulation), Dia dynamic current, interferential current is the widely used electrical modality for chronic pain. ^[18]

Therapeutic Exercises: Modern sports medicine in all different disciplines is heading to natural means whenever possible away from pharmacological and chemical treatments that may harm health, in other areas with negative effects and complications, and in the field of sports medicine and sports rehabilitation, some rehabilitation programs contribute through various physical exercises and movement activity, as it has been proven. It has an effective role in the treatment in restoring. ^[19]

4.Methodology:

• Ethical clearance:

Approval was taken from university of Qurina-physiotherapy department and patients whose attend department of physiotherapy and rehabilitation centers of Benghazi.is cited.

• Research sample:

A total of (40) patients was enrolled in the study from both genders, were identified as attend department

of physiotherapy and rehabilitation centers of Benghazi.

• Methods:

This study was done in Benghazi- Libya at department of physiotherapy and rehabilitation centers for three months in those centers in 2023 , history of each patients was taken of back pain due different reasons ,all the patients were examined before treatment sessions ,severity of pain personal care, lifting, walking, standing, sleeping, social life, and travel was measured for each patients at the beginning of treatments by using pre and post measurements , time of sessions attended was also recorded.

• Statistical analysis:

All statistical analysis were performed using SPSS ver. 20 (SPSS Inc., Chicago, IL, USA. The Wilcoxon test was used to test the hypothesis "Are there significant differences between the mean percentage of disability before and after treatment. The data were describing the frequency at which an intervention was used, the mean percentage and standard deviation of the total number of times an intervention was used pre and post sessions. A p value of 0.05 was considered statistically significant.

5. Results:

A total OF (40) patients was enrolled in the study from both GENDERS, were identified as attend department of physiotherapy and rehabilitation centers of Benghazi to study the Role of Physical Therapy in low back PAIN. AS SEEN FIGURE (2) WAS showing the period in which the sessions of physiotherapy were ATTENDED, AS more than HALF OF the participants attend SESSIONS FOR two WEEKS, WHILE 27.50% OF them came only FOR a week.

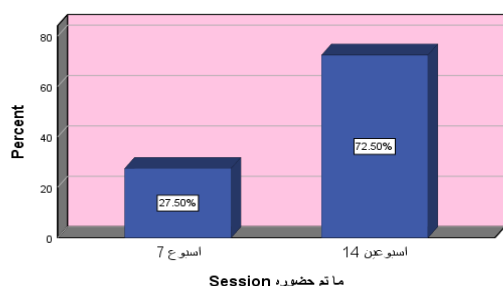


Fig 2. What was attended from sessions.

As seen in the Figure (3) pain score before physiotherapy sessions, 12.50 % of participant record a score 0 %-20 %

(minimal disability), 20% of them record 21-40% (moderate disability), while most of participant 37.50% of them record 41-60 % (severe disability),10 % record 61%-80% (crippled) and last 20 % of participants record 81%-100%.

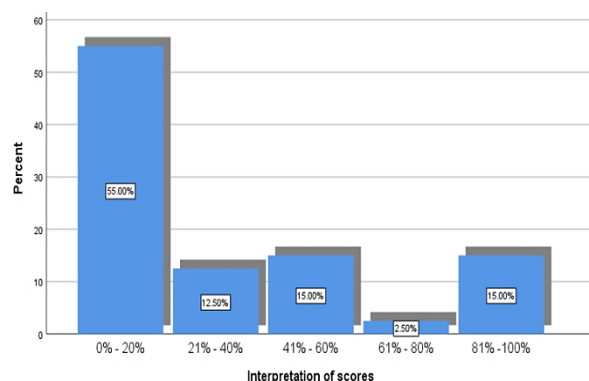


Fig 3 . Interpretation of score prior physiotherapy sessions

As seen in the figure (4) a clear change in pain score records post physiotherapy sessions ,as 55% of patients was showing improvement and record score of (0%-20%) ,while it's was the same for other scores, showing decrease in pain sensation comparing to the previous records post sessions as score (21%-40%) record 12.50% of patients, score (41%-80%) record ,score (61%-80%) record only 2.50% of patients and score (81%-100%) record 15% of patients.

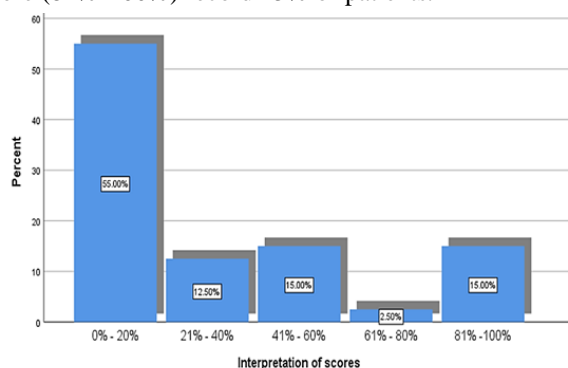


Fig.4.Interpretation of score post physiotherapy sessions.

Pain sensation was find very mild in more than half the patients with 67.50% ,painless in 2.50%,moderate pain and the pain is the worst taking the same percent in 10% of them ,same thing for painless and somewhat sever pain in 2,50% of patients and lastly very sever in 7.50% of them.as seen in figure (5).

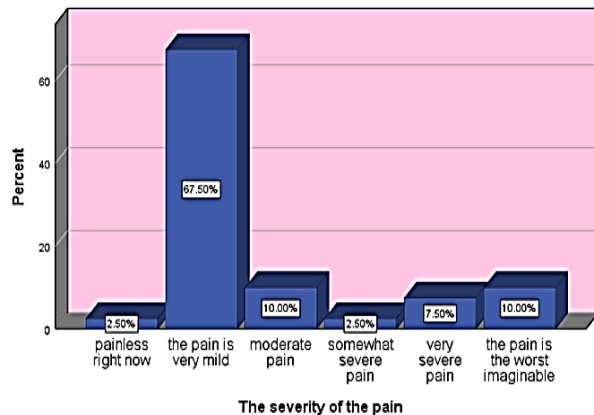


Fig 5. The severity of pain prior sessions.

In comparing to the previous figure this one (6) showing enhancement in pain severity as in 52.50% of the patients found feeling painless, 35% of them just have mild pain, very severe pain found only in 5% of patients while moderate, somewhat sever and worst pain taking the same percent in just 2.50 % of them.

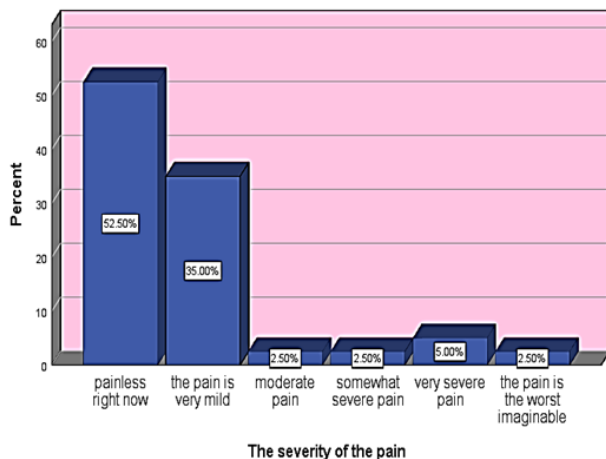


Fig 6. The severity of pain post sessions.

As noted in figure (7) majority of the patients found need help to take care of them as 32.50 % need complete type of care,12.50% need daily help with aspects of self-care,10% need some help but still depend on themselves for personal care ,12.50% feeling hurt while they take care of themselves ,22.50% can take care of themselves with extra pain and only 10% of patients can take care of themselves completely.

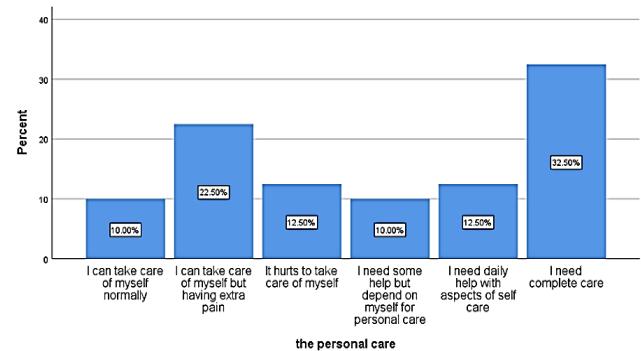


Fig 7. Personal care prior physiotherapy.

A notable improvement in personal care of patients post sessions of physiotherapy as 57.50 % of them found can take care of themselves normally ,12.50 % can take care of themselves with extra pain,2.50 % feeling hurt while take care of themselves ,5% need some help but depend on themselves in personal care ,7.50% need help for self-care, and only 15% of them need complete care as seen in figure (8).

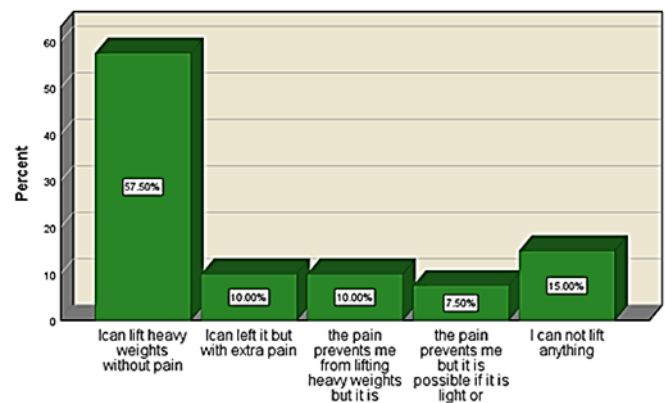


Fig 8. Personal care post physiotherapy.

As seen in figure (9) just 17.50 % of patients can lift heavy weights without pain, while 20% of them can lift things with extra pain ,30% feeling pain prevent them from lifting heavy things ,12.50% of patients pain prevent them but can be lifted if its light weight, and 20 % of them can't lift anything.

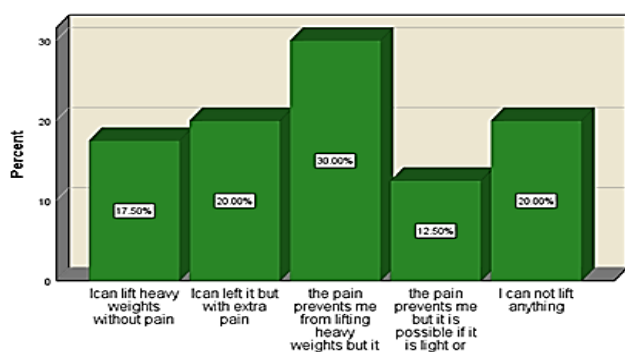


Fig 9. Pain sensation while lifting things prior sessions .

Sessions of physiotherapy showing enhancement in movement for lifting things up in comparing to the previous figure ,as 57.50% of patients found lifting heavy weights without pain, while 10% of patients found pain prevent them from lifting heavy weight and with the same percent of patients also found pain prevent them from lift things but it can be if it is light and only 1 5% of the cant lift any things as seen in figure (10).

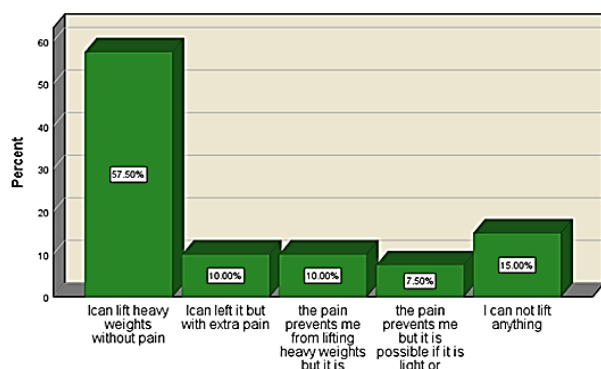


Fig 10 . Pain sensation while lifting things post sessions.

As seen in figure (11) 17.50% of patients the pain doesn't prevent them from walking , while 22.50% of them the pain prevent them from walking more than a mile , in the other hand sharing the same percent 7.50% two category first the people whose pain prevent them from walking more than 1.5 mile and others pain prevent them from walking more than 100 yards , also 17.50% of patients can't walk without can or crutch and last with highest percent people whose in bed most of the time.

Fig 11. Pain sensation during walking prior sessions.

As noted in the previous figure (12) theirs a notable improvement in movement post sessions of physiotherapy, as more than half the patients the pain does not prevent them from walking, while 10% of them the pain prevents from walking more than a mile, also 7.50% of them the pain prevents them from walking more than 1.5 mile, just 5 % of the patients can't walk without a can or crutch.

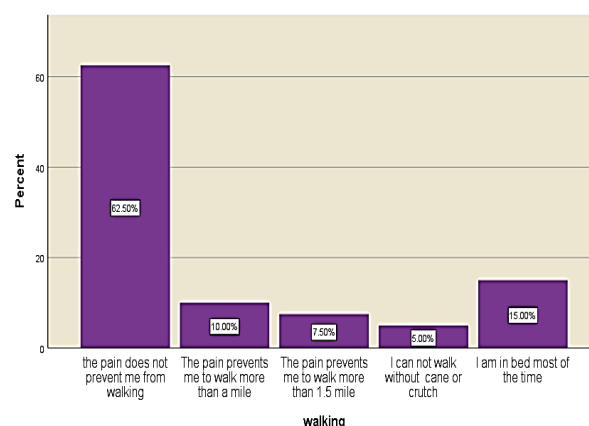


Fig 12. Pain sensation during walking post sessions.

As the figure noted, 7.50% of the patients can sit on any chair, in other hand 27.50% can only sit in their favorite chair, while 12.50% of them the pain prevent from sitting more than one hour , also 10% of them the pain prevent them from sitting more than 30 minutes ,same like previous percent people category whose pain prevent them from sitting more than 10 minutes, and with highest percent 32.50 % and the worst patients the pain prevent them from sitting at all.as seen in figure (13).

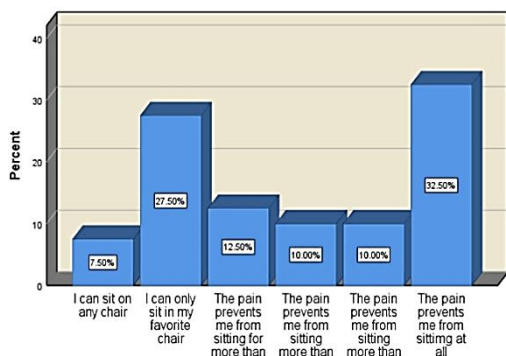


Fig 13. Sitting prior sessions.

It was clear as seen in the figure (14) ,post sessions of physiotherapy 55% of patients can sit in any chair they wants, while 12.50% can only sit in their favorite chair, also 5% of them found the pain prevent them from sitting more than one hour , same like the previous percent patients the pain prevent them from sitting more than 30 minutes ,also 5% of them the pain prevent them from sitting more than 10 minutes, and 12.50% of them the pain prevent them from sitting at all .

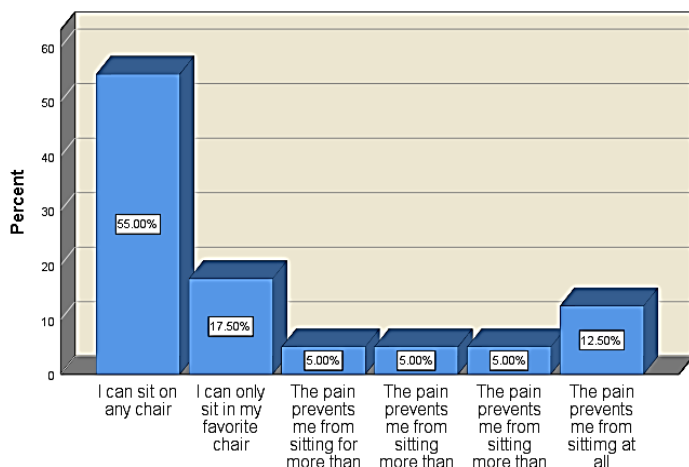


Fig 14. Sitting post sessions.

As seen in the figure (15) 7.50% of the patients can stand without pain, while 5 % of them can stand but with pain, in other hand 25% of them the pain prevents them from standing more than hour, also 12.50% of the patients the pain prevents them from standing more than 30 minutes, while 17.50% of them the pain prevents them from standing more than 10 minutes and 32.50 % of the patients can't stand at all.

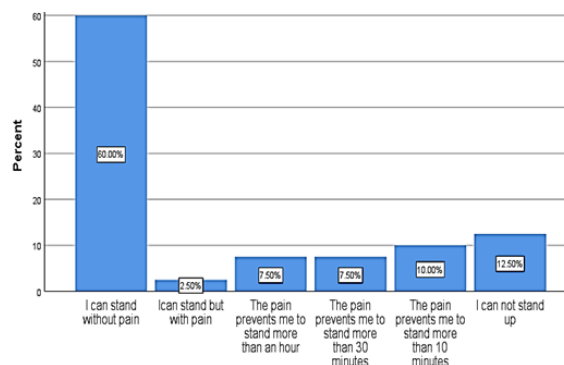


Fig 15. Standing up prior sessions.

As seen in the figure (16) an improvement in cases post sessions as 60% of them can stand without any pain, while 2.50% of them can stand but with pain, while 7.50% of them the pain prevents them from standing more than one hour, also as the previous percent was found patients the pain prevents them from standing more than 30 minutes, also 10% of the pain prevent them from standing more than 10 minutes.

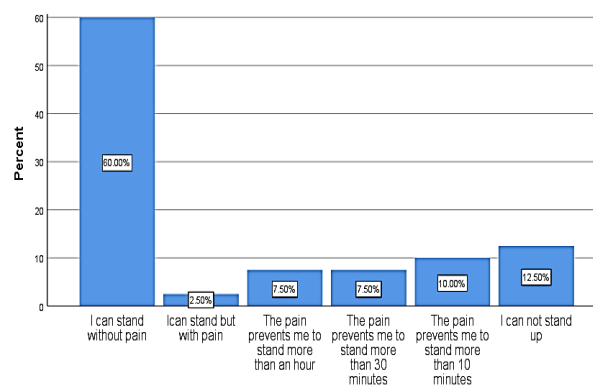


Fig 16. Standing up post sessions.

From the previous figure (17) we noted sleep pattern for patients prior to physiotherapy sessions, as 20 % of patients found sleep without pain, at the same time 20% of them sometimes have disturbed sleep pattern, while only 5% of them sleep less than 6 hours because of pain, also 20% of the patients found sleep less than 4 hours because of pain, also 2.50% of them found sleep less than 2hrs, and 32.50% of them cannot sleep at all.

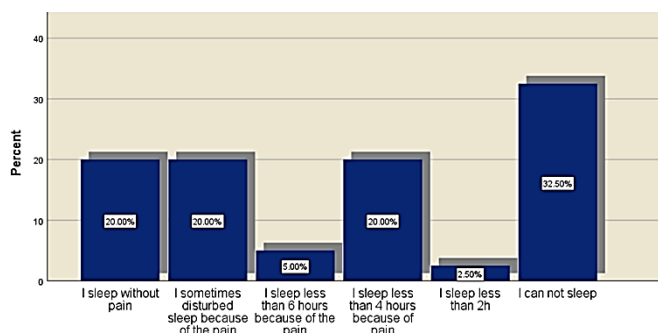


Fig 17. Sleeping pattern prior physiotherapy sessions

As seen in figure (18) post sessions of physiotherapy, an improvement in sleep pattern of patients as seen, as found more than half the patients 62.50% have sleep without pain, while 5 % of them have disturbed sleep because of the pain, with same percent found patients sleep less than 6hours because of the pain, on the other hand 12.50% of them sleep less than 4 hours because of pain, also only 2.50% of patients sleep less than 2hrs, and only 12.50% of patients cannot sleep.

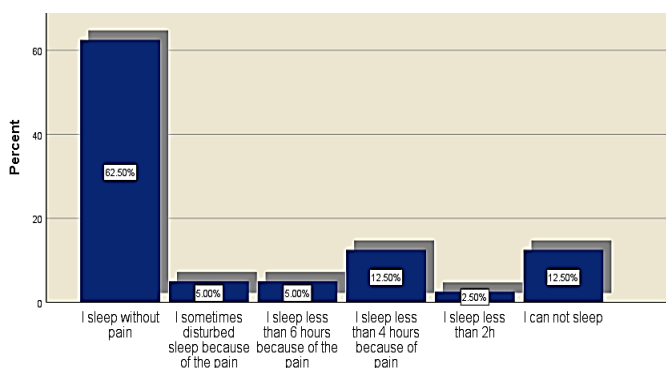


Fig 18. Sleeping pattern post physiotherapy sessions.

As seen in the figure (19) 10 %of the patients their sex life was normal, while for 15 % of them was normal but with some pain, also 12.50% of them found their sex life almost normal but painful, with the same percent patients sex life was absent due to pain, and 37.50% their sex life not available at all.

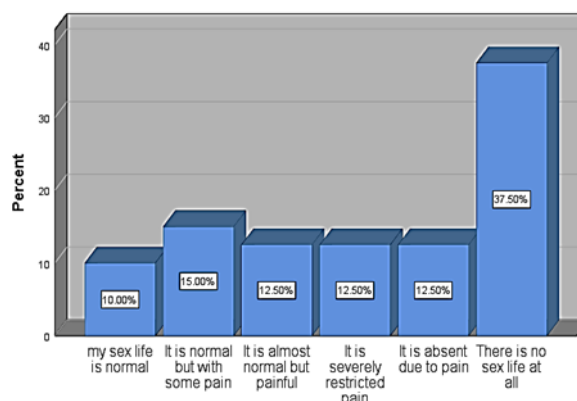


Fig 19. Sex prior physiotherapy sessions.

As seen in figure (20) an improvement post physiotherapy session was noted as 55% of patients their sex life was normal, but with some pain in 7.50% of them, almost normal but painful in 5 % of them, with severely restricted pain in 5% of them, absent due to pain in 7.50% of them, and not available at all in 20% of them.

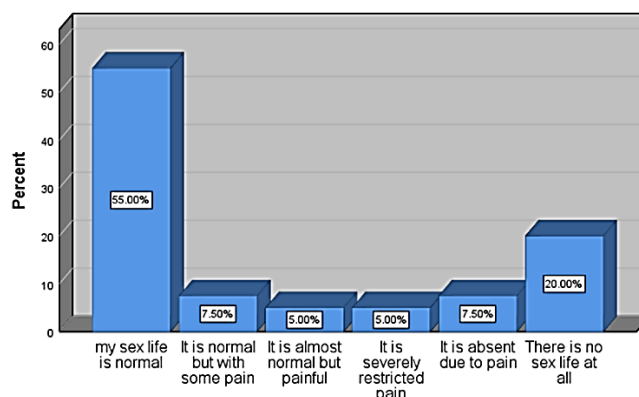


Fig 20. Sex life post physiotherapy sessions.

As seen in figure (21) 5% of the patients' prior sessions their social live was normal, while normal but with pain in 30 % of them, the pain does not have much effect on their social life in 12.50%, the pain has limited the social life in 15% of them, also the pain confined on their social life of their home in 7.50%, and 30 % of patients doesn't have any social life.

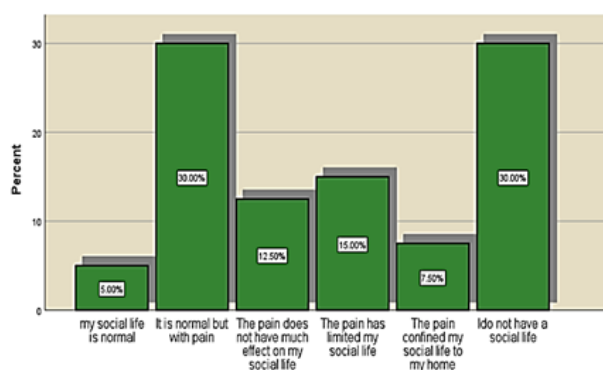


Fig .21 Social life prior to physiotherapy sessions.

An improvement in social life post sessions as seen in figure (22), as found 52.50 % of patients with normal social life, while normal but with pain in 15%, also pain does not have much effect on their social life in 2.50 % of patients, at the same time pain limited their social life in 10% of them, even confined the social life to their home in 2.50 %, and don't have social life at all in 17.50 % of them.

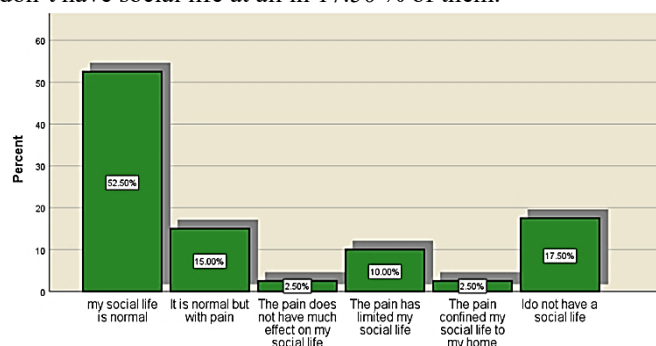


Fig 22. Social life post physiotherapy sessions.

As seen in the previous figure (23), only 10 % of the patients traveling without pain ,15% of them was traveling but feeling pain, while 27.50% of them found traveling with pain more than two hours, also found 10% of them feeling pain which restrict them from traveling to trips of less than an hour, in other hand 5 % of them the pain restricted them from trips of less than 30 minutes and 32.50% of them can't travel from pain.

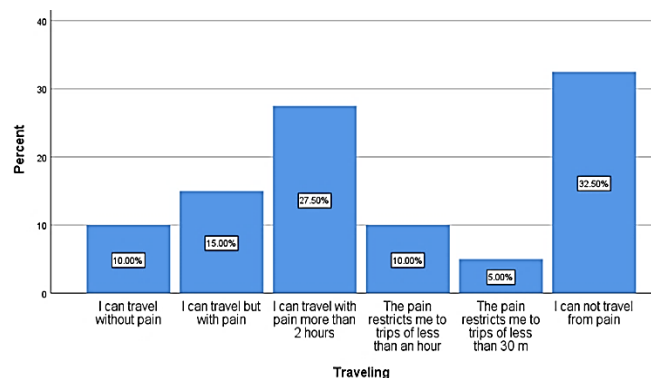


Fig 23. Traveling prior sessions.

As seen in figure (24), an improvement in patient health post sessions as 55% of them found traveling without pain, while 7.50% of them found travel with pain, like the previous percent found them travel with pain more than two hours, also 10% of them where the pain restricts them from trips less than an hour, also 2.50% of patients pain restricted them from trips less than 30 minutes, and 17.50% cannot travel from pain.

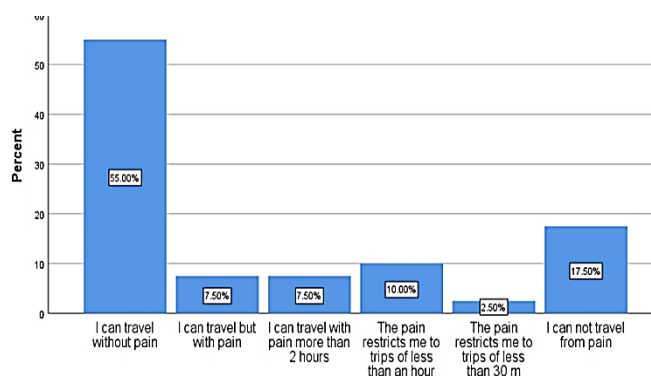


Fig 24. Traveling post sessions.

6. Study hypotheses:

H0: There are no significant differences between the mean pain before and after treatment.

H1: There are significant differences between the mean pain before and after treatment?"

From the Following table, we can note that the probability value of the time of treatment, interpretation of the degree and severity of pain, personal care, lifting, walking, standing, sleeping, social life, and travel were 0.000, respectively, that is, it was less than the probability value $\alpha = 0.05$. That is, there is a significant relationship between the averages of the variables before and after treatment.

Table 1 .Test statistics.

Test Statistics ^a												
Traveling - Traveling	Social life - Social life	sexuality - sexuality	Sleeping - Sleeping	stand up - stand up	Sitting - Sitting	walking - walking	lift - lift	the personal care - the personal care	The severity of the pain - The severity of the pain	Interpretation of scores - Interpretation of scores	Session ما - Session زمن العلاج	
-3.867 ^b	-3.958 ^b	-3.854 ^b	-3.787 ^b	-4.230 ^b	-3.960 ^b	-3.846 ^b	-3.669 ^b	-3.953 ^b	-4.162 ^b	-3.983 ^b	-2.887 ^b	Z
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	Asymp. Sig. (2-tailed)

The following table shows the differences in this value:
From the averages table, it can be seen that the values of the averages after treatment decreased from their values before treatment. Results can also be written for each separate variable.as study hypothesis said:

H0: There are no significant differences between the average interpretation of pain scores (disability ratio) before and after treatment

H1: There are significant differences between the average interpretation of pain scores "disability percentage" before and after treatment.

Where the probability value was 0.000, which is smaller than the value of $\alpha = 0.05$, which indicates the existence of a significant relationship between the average disability percentage before treatment and the average disability percentage after treatment.H0: There are no significant differences between the average treatment time before and after treatment.

H1: There are significant differences between the average treatment time before and after treatment.

Where the probability value was 0.004, which is smaller than the value of $\alpha = 0.05$, which indicates the existence of a significant relationship between the mean treatment time before treatment and after treatment.

Table 2. Descriptive statistics.

Descriptive Statistics			
	N	Mean	Std. Deviation
Session Time of treatment	40	2.00	0.000
Interpretation of scores	40	3.05	1.280
The severity of the pain	40	2.75	1.410
the personal care	40	3.90	1.851
lift	40	3.18	1.693
walking	40	3.68	1.953
Sitting	40	3.85	1.833
stand up	40	4.25	1.613
Sleeping	40	3.63	1.983
sexuality	40	4.15	1.819
Social life	40	3.80	1.757
Traveling	40	3.83	1.781
After			
Session. What was attended	40	1.75	0.494
Interpretation of scores	40	2.10	1.482
The severity of the pain	40	1.80	1.224
the personal care	40	2.38	1.957
lift	40	2.28	1.840
walking	40	2.20	1.897
Sitting	40	2.25	1.808
stand up	40	2.43	1.947
Sleeping	40	2.25	1.850
Sexuality	40	2.63	2.096
Social life	40	2.48	1.961
Traveling	40	2.50	1.974
Sexuality	40	4.15	1.819
Social life	40	3.80	1.757
Traveling	40	3.83	1.781

Table 3 .Variables interpretation score.

Variables	N	Mean	Statistical test value	Asymp. Sig. (2-tailed)	Moral
Interpretation of scores	40	3.05	-3.983-b	0.000	DAL
Interpretation of scores		2.1			

Table 4. .Variables of sessions.

Variables	N	Mean	Statistical test value	Asymp. Sig. (2-tailed)	Moral
Interpretation of scores	40	2.00	-2.887-b	0.004	DAL
Interpretation of scores		1.75			

7. Discussions:

It is hardly surprising that confusion exists about the effectiveness of Electrotherapy currents devices with such an array of available stimulators and claims of efficacious treatment protocols. The theoretical principles underpinning many of the Electrotherapy devices have their traditional roots in physiotherapy and rehabilitation medicine.

Until recently, treatment with many Electrotherapy devices could be obtained only under the supervision of a trained therapist in a clinic setting and working under the constraints of the clinical rota. Advances in electronic technology have reduced the cost, size and dangers of Electrotherapy and companies now market to a broader section of health care professionals. Increasing numbers of cheap handheld devices have placed greater emphasis on self-treatment and the general public can purchase many Electrotherapies directly from manufacturers.

The findings of systematic reviews and meta-analyses on the effectiveness of TENS for pain relief revealed that TENS will relieve pain associated with knee osteoarthritis, and primary dysmenorrhea, but will not relieve postoperative pain, or labor pain.^[20] Evidence is inconclusive for post-stroke shoulder pain, and chronic pain in general. Evidence for the efficacy of TENS in chronic low back pain has preduced.^[20] Conflicting results.^[21] These clinical bottom lines are particularly attractive to practitioners when making decisions about treatment interventions.

A more appropriate way to differentiate devices would be according to the physiological intention of the currents. When used to generate pain relief, two main intentions dominate the literature: first, the use of currents to assist physiological processes associated with tissue healing; and secondly, the use of currents to stimulate nerve fibers in order to activate pain modulatory circuits.

Activation of large diameter cutaneous afferents (i.e. A β) is related to segmental analgesia. Activation of small diameter muscle afferents (i.e. Group III) through aphasic muscle twitch is related to extra segmental analgesia. Activation of small 1 diameter cutaneous afferents (i.e.A δ) is related to counter-irritant effects and blockade of transmission in peripheral nociceptive nerves.

TENS, is usually administered through hand held probes positioned so that current flows between them, through the painful area, for ten seconds. The vast majority of pain problems can be treated with less than 10 applications of 10 second probe treatments. Many patients are pain-free in less than two minutes and there is usually a significant residual effect, often lasting at least 8 hours to 3 weeks or more.

8. Summary And Conclusion:

Clearly, much additional work is required to define the role of physical therapy. The results of researchers published to date strongly suggest that it will have a much more prominent role in the future of health care. In its current form, it can easily and safely control pain and accelerate healing. Because of its ready availability, cost-effectiveness, and safety, it is time for doctors to offer it as an option. The patients who seek alternative medical techniques would be especially appreciative.

In conclusion, despite the technologically impressive appearance of many Electrotherapies, a standard Electrotherapy device probably remains the best type of stimulator for pain relief.

Standard Electrotherapy devices are predominantly used to stimulate different populations of nerve fibers, with the potential to produce different analgesic outcomes. Clinical evidence does suggest that a standard Electrotherapy device, if used appropriately, can provide pain relief.

The findings of systematic reviews suggesting that Electrotherapy is not effective for postoperative and labor pain have recently been challenged. Health care professionals often turn to Electrotherapy devices when patients fail to respond to treatment with a standard TENS device.

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References

1. Shum GL, Crosbie J, Lee RY. **Effect to flow back pain on the kinematics and joint coordination of the lumbar spine and hip during sit-to stand and stand-to-sit.** *Spine* 2005; 30:1998-2004.
2. Wong TK, Lee RY. **Effects of low back pain on the relationship between the movements of the lumbar spine and hip.** *Hum Mov Sci*, 2004;23:21-34.
3. Raj, P. Prithvi. (2008) " **Inter-vertebral Disc: Anatomy Physiology Pathophysiology Treatment.**" *Pain Practice*;1844. (Level of evidence: 2B).
4. Kerr, Dana, Wenyan Zhao, and Jon D. Lurie. (2015) " **What are long-term predictors of outcomes for lumbar disc herniation? A randomized and observational study.**" *Clinical Orthopaedics and Related Research* 473.61920-1930. Level of evidence: 2B Richard L. Drake A. Wayne Vogl Adam W. M. Mitchell.
5. Airaksinen O, Brox JI, Cedraschi C, Hildebrandt J, Klaber-Moffett J, *et al.* (2006). **Chapter 4 European guidelines for the management of chronic nonspecific low back pain.** *Eur, Spine J*. 15: S192-S300.
6. Luomajoki H, and Saner J (2012). **Movement control impairment as a subgroup of non-specific low back pain.** *Man Med*. 50(5):387.
7. Wand BM, and O'Connell NE (2008). **Chronic non-specific low back pain—sub-groups or a single mechanism?** *BMC Musculo skelet Disord*. 9(1):11.
8. Brosseau L, *et al* (2001). **Philadelphia Panel evidence-based clinical practice guidelines on selected rehabilitation interventions for low back pain,** *Physical Therapy* 2001, 81(10):1641-74.
9. Jegede KA, *et al* .(2010). **Contemporary management of symptomatic lumbar disc herniations.** *Orthop. Clin North Am*.41:217-24. PMID:20399360. Level of evidence:2A.
10. Giles L.G.F., and Singer K.P. (2006). **The Clinical Anatomy and Management of Back Pain.** Butterworth-Heinemann.
11. McGill, S. (2007). **Low Back Disorders: Evidence Based Prevention and Rehabilitation, Second Edition.** USA: Human Kinetics. Level of evidence: 1A, 3B.
12. Nikolai B. and Stephen (2005) **Enders clinical anatomy the lumbar spine and sacrum,** London.
13. Huang W *et al* (2016). **Risk Factors for Recurrent Lumbar Disc Herniation: A Systematic Review and Meta-Analysis.** *Medicine*. doi:10.1097/MD. 02378. Level of evidence: 1A.
14. Hidalgo B, Pitance L, Hall T, Detrembleur C, and Nielens H (2015). **Short-term effects of Mulligan mobilization with movement on pain, disability, and kinematic spinal movements in patients with nonspecific low back pain: a random placebo controlled trial.** *J Manipulative Physio-Therapy*.38(6):365-374.
15. Gross W, T. M. Kayz, C. Kennedyz, D. Gasner FckLR, L. Hurleyz, K. Yardley, L. Hendryww, L. McLaughlin: **Clinical practice guideline on the use of manipulation or mobilization in the treatment of adults with mechanical neck disorders:** *Manual Therapy* (2002) 7(4), 193–205.
16. Rubinstein SM1, Terwee CB, Assendelft WJ, de Boer MR, van Tulder MW. **Spinal manipulative therapy for acute low-back pain.** *Cochrane Database Syst Rev*. 2012 Sep 12;9.
17. Johnson MI, Paley CA, Howe TE, Sluka KA. **Transcutaneous electrical nerve stimulation for acute pain.** *Cochrane Database of Systematic Reviews* 2015, Issue 6. Art. No.: CD006142.
18. Green, B.G. **Temperature perception and nociception.** *J. Neurobiol.* 2004, 61, 13–29.
19. Herman PM, Szezurko O, Cooley K, and Seely D. (2014). **A naturopathic approach to the prevention of cardiovascular disease: cost-effectiveness analysis of a pragmatic multi-worksite randomized clinical trial.** *J. Occup Environ. Med.* 56.
20. Carroll D., Moore R., McQuay H., Fairman F., Tramier M. and Leijon G. (2001): **Transcutaneous electrical nerve stimulation (TENS) for chronic pain. The Cochrane Review.** In: The Cochrane Library, Issue 1, Oxford: Update software.
21. Khadilkar A., Milne S., Brosseau L., Wells G., Tugwell P. and Robinson V. (2005): **Transcutaneous electrical nerve stimulation for the treatment of chronic low back pain: a systematic review.** *Spine*. Dec 1;30(23):2657-66.