

Awareness and Knowledge of Matrix Rhythm Therapy for Neurological Conditions among Physiotherapists

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ABSTRACT

Aim: To Assess the awareness and knowledge of matrix rhythm therapy in neurological conditions.

Objective: To Assess the awareness of matrix rhythm therapy in neurological conditions by using self-made questionnaire.

To Assess the knowledge of matrix rhythm therapy in neurological conditions by using self-made questionnaire.

Methodology: 325 Physiotherapists were recruited based on the Inclusion and Exclusion criteria. Information about the study was given to the participants. The procedure of the study was explained to the participants. The validated questionnaire was distributed to various Physiotherapists around Pune through an online platform. i.e. through Google forms. The data was collected and was statistically analysed.

Statistics & Results: 325 participants were assessed by using 12 questions out of which 5 were of awareness based and 7 were of knowledge based. Mean and Mean percentage were calculated, which states that 87 % Physiotherapist were aware of Matrix rhythm therapy in neurological conditions and 87% had knowledge for same.

Conclusion: The study concluded that 87% Physiotherapist were aware of Matrix rhythm therapy in neurological conditions and 87% had knowledge of MRT in neurological conditions.

Clinical Implication: This study can be used to spread awareness and knowledge of Matrix rhythm therapy in neurological conditions among physiotherapist. And implementing it as adjunct with other neurological treatments to enhance recovery. Physiotherapists who are knowledgeable about MRT can contribute to evidence-based practice by staying updated on the latest research findings and clinical guidelines related to MRT in neurological rehabilitation,

Keywords: Matrix rhythm therapy, neurological conditions, Stroke, Cerebral palsy

INTRODUCTION

MRT (Matrix Rhythmic Therapy) is a new therapeutic modality developed in Germany in the 21st century, originating from vibro

massage. It is used to treat pain and limited mobility, and has been proven effective in disorders related to microcirculation. MRT works on dynamic biological frequencies,

which are necessary for healing dynamic biological bodies. It is used for perioperative domains, trauma surgery, pain management, and chronic diseases of the nervous system, skeletal, and locomotor systems. The main purpose of MRT is to transform pathology into physiology, which is necessary for tissue healing. The vibrating massage tool (matrix mobile) used in MRT creates asymmetric pressure distribution in the tissue, stimulates pumping/suction effect, and stimulates nerve receptors. Previous studies have focused on orthopaedic problems and musculoskeletal pain.

Matrix rhythm therapy (MRT) has been shown to increase the extensibility of spastic muscles, particularly in young females. A study found that MRT significantly increased peripheral blood flow in the hamstring and triceps surae muscles of the left lower extremity, compared to massage. It also promoted normal physiologic logistics by maintaining tissue pH and improving microcirculation. MRT also had a positive effect on sensory function, possibly due to rebalancing cellular micro-processes. It also improved tissue extensibility and circulation, reducing the variability in motion patterns due to hypoxia or energy deficits. This therapy increased ROM, induced relaxation, modulated pain, and reduced soft tissue swelling and inflammation. Following MRT, active stretching and other conventional exercises were applied to maintain muscle length and strength. These therapies, including Adductor stretching and strengthening protocol, passive neuromuscular facilitatory techniques, and standing on a standing frame with knee spacing, also helped maintain muscle length, strength, and improved joint range.

A study was conducted to investigate the effectiveness of Matrix rhythm therapy (MRT) on muscle tone, balance, and gait parameters in stroke survivors. Thirty stroke individuals with spastic hemiparesis aged between 20-65 years were included in the study group, which received a combination

of BT and MRT on the trunk and affected lower limb. The control group received only BT. The study found significant improvements in spasticity intensity, ROM of knee and ankle joints, static/dynamic balance, gait velocity, cadence, and pelvic movement symmetries in the study group.

Another study evaluated the effect of Matrix Rhythm Therapy combined with neuromuscular stimulation in Sub-acute Bell's Palsy. The treatment showed improvement in the in-closure of eyelids, raising of eyebrows, and deviation of mouth. A similar study found that the improvement in facial muscle functions was faster in patients with acute Bell's palsy when combined with conventional physiotherapy. Matrix Rhythm Therapy was found to be effective in the treatment of FHP, frozen shoulder, plantar fasciitis, and increased blood circulation by 35%. This therapy helps eliminate metabolic waste products and biochemical, normalize pH, and restore cell metabolism, resulting in the creation of ATP, necessary for actin-myosin separation.

Matrix rhythm therapy is a treatment for faulty posture and back pain (FHP) that strengthens the cellular exchange of metabolites and nutrients. It creates an uneven pressure distribution and activates the ECM, correcting faulty posture and reducing associated complaints. Both deep exercise programs and Matrix rhythm therapy when combined with conventional physiotherapy are effective in treating FHP. However, Matrix rhythm therapy with conventional physiotherapy is superior in reducing pain, improving ROM, strength, and QoL.

NEED OF STUDY: Matrix Rhythm Therapy has been used in various neurological conditions. One of the mechanism in improving the prognosis of disease and various condition is that Matrix Rhythm Therapy restores the good tissue resonance. The lifting action produced by the oscillator as a horizontal micro extension movement is transferred to the

deeper, tissues and bones. Though there is use of matrix rhythm therapy in musculoskeletal conditions and studies has shown better prognosis. Some recent researches suggest that Matrix Rhythm Therapy is useful in reducing spasticity as it vibrates the cells at the frequency of 8-12Hz. Due to this principal, the penetration of oscillation is deeper. Some research suggests that due to the continuous oscillations of cell it helps in reducing spasticity. Though, many physiotherapists have knowledge & awareness of use of Matrix Rhythm Therapy in different muscular conditions such as spasm, postoperative conditions, breaking adhesions, etc. As the Knowledge & awareness of using Matrix Rhythm Therapy in different musculoskeletal condition is known. According to recent studies it can be used in different neurological conditions. So, to assess the Knowledge and awareness among physiotherapist for the prognosis of neurological conditions is necessary. So, the need of study arises.

AIM AND OBJECTIVES

AIM: Awareness and knowledge of matrix rhythm therapy for neurological conditions among physiotherapists.

OBJECTIVES: To assess the awareness of matrix rhythm therapy for neurological conditions among physiotherapists by using self-made questionnaire.

To assess the knowledge of matrix rhythm therapy for neurological conditions among

physiotherapists by using self-made questionnaire

MATERIALS & METHODS

STUDY DESIGN

Type of study: Observational study

Study period: 6 months

Place of study: Pune

• SAMPLING DESIGN

Sample size: 325

Sample population: Physiotherapist

Sampling: Convenient Sampling

• SELECTION CRITERIA

INCLUSION CRITERIA- Physiotherapy clinical practitioners with experience of 2 years.

EXCLUSION CRITERIA-

Physiotherapist who already practice Matrix Rhythm therapy.

-Academician.

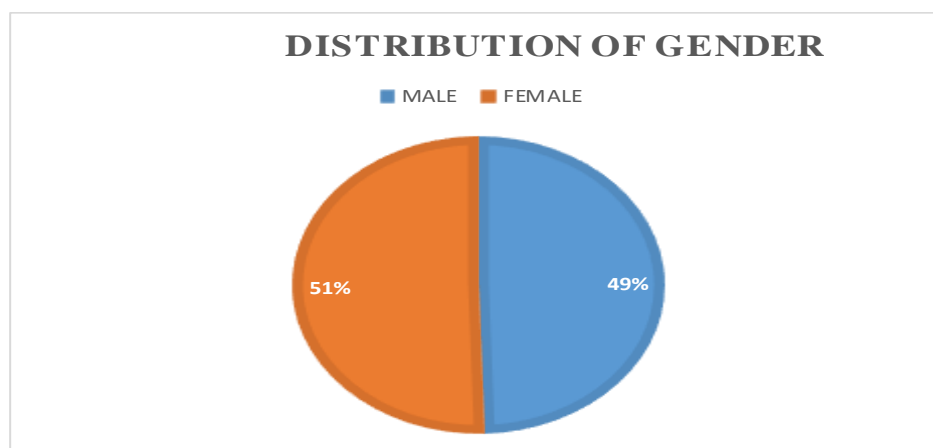
RESULT

SURVEY RESPONSE

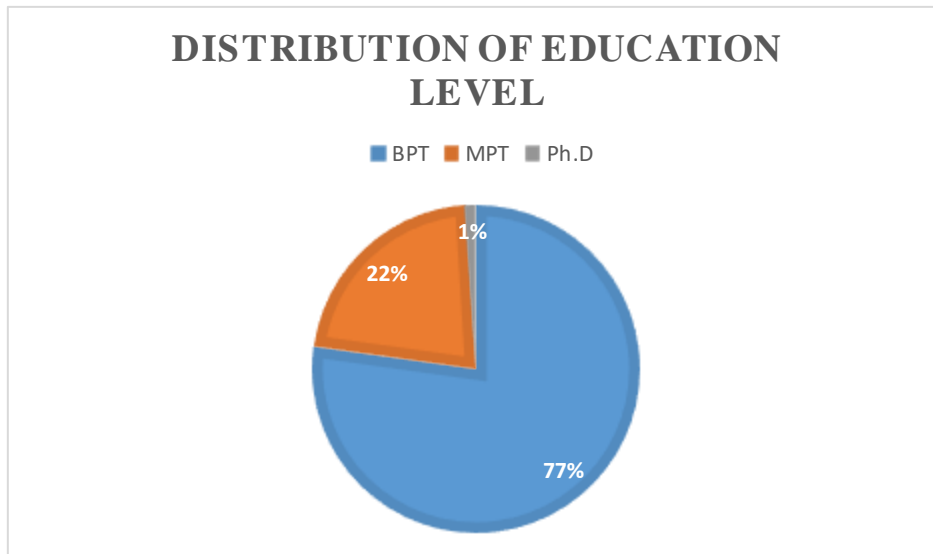
The study was conducted where Google forms were sent to 325 Physiotherapists across Pune. In total, 325 Physiotherapists participated in this study. The response rate received was 100%

DEMOGRAPHICS AND CHARACTERISTICS

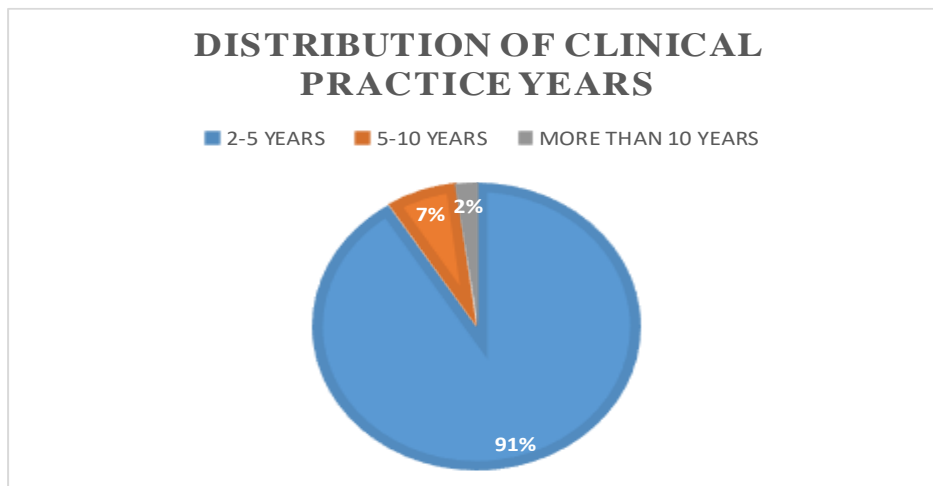
A group of 325 Physiotherapists were included in this study with maximum experience of more than 10 years and minimum of 2 years.



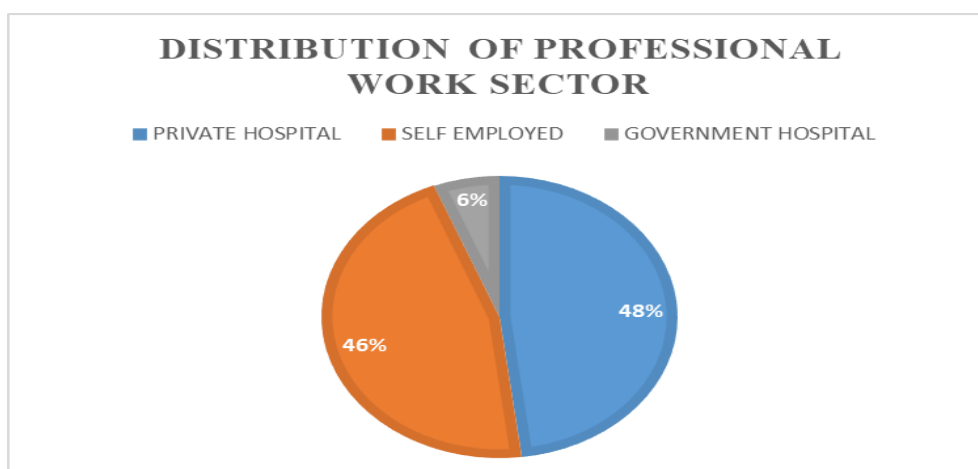
GRAPH 1: This graph shows that 51% are female participants and other 49 % are male.



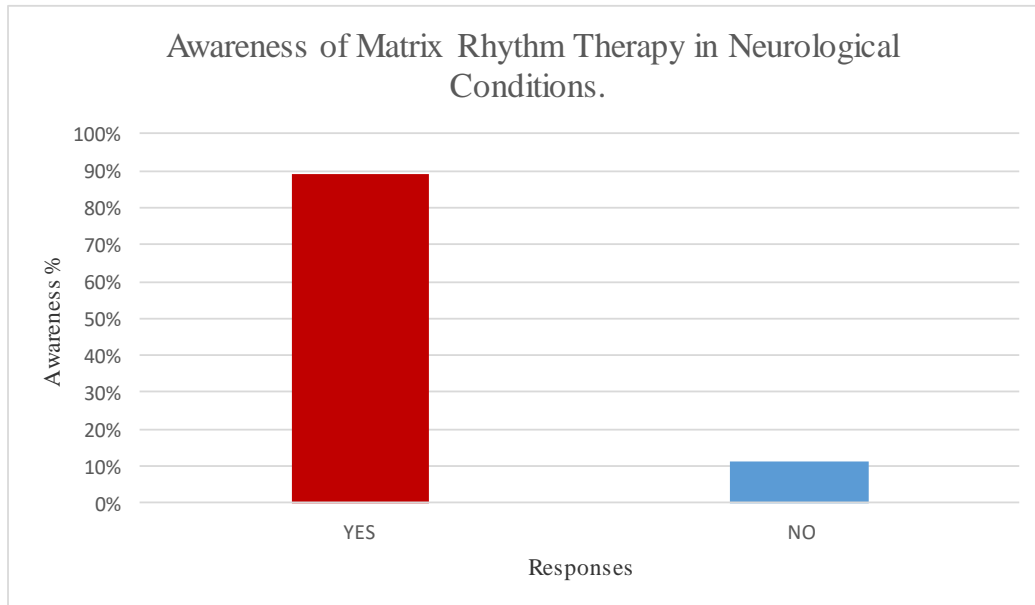
GRAPH 2: This graph shows that level of education the participants obtained were mainly Bachelor's in Physiotherapy with 77%, 22% obtained Master's degree and only 1% obtained Ph.D.



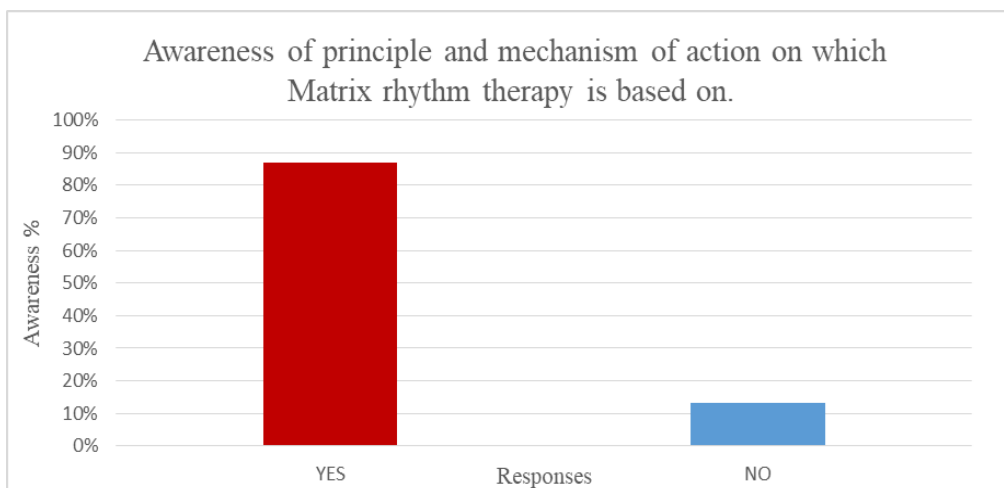
GRAPH 3: This graph shows Years of experience in Clinical practice were mainly between 2-5 years with 91% participants. 7% had experience of 5-10 years and only 2% had experience of more than 10 years.



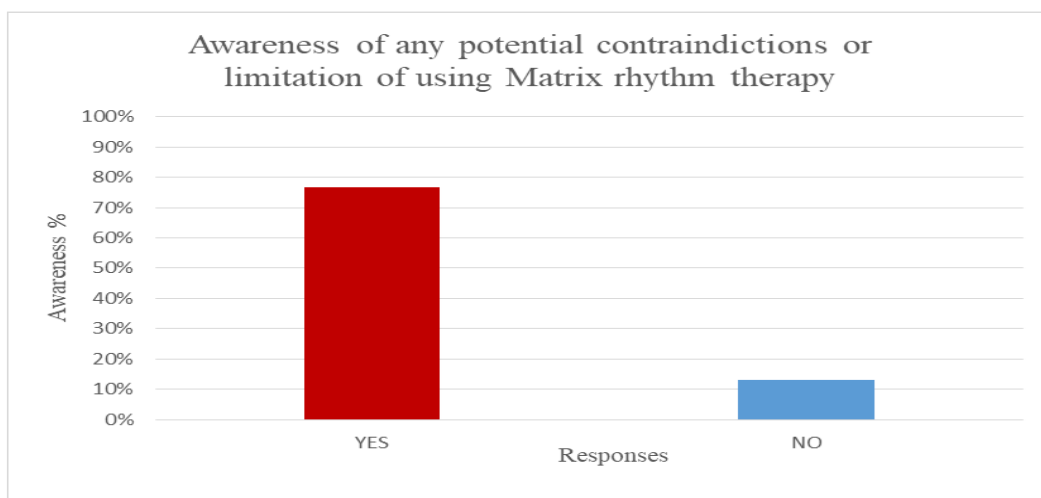
GRAPH 4: This graph shows that participants professional practice work sector were mainly from private hospitals and clinics and self-employed 48% and 46% respectively and only 6% were at Government hospitals.



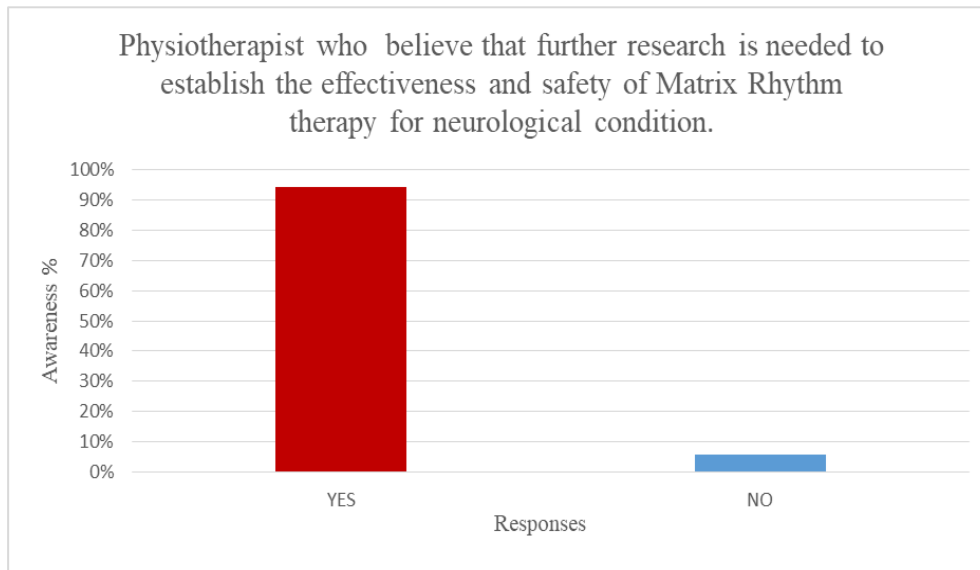
Graph 5: This graph concludes that 88.9 % Physiotherapist are aware of Matrix Rhythm Therapy in Neurological Conditions.



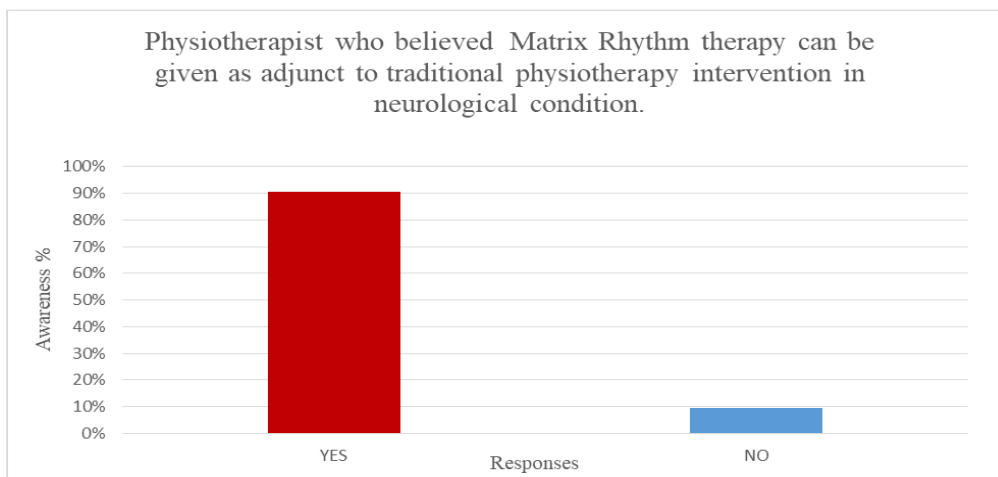
Graph 6: This graph concludes that 86.8% Physiotherapist know the principle and mechanism of action on which Matrix Rhythm Therapy is based on.



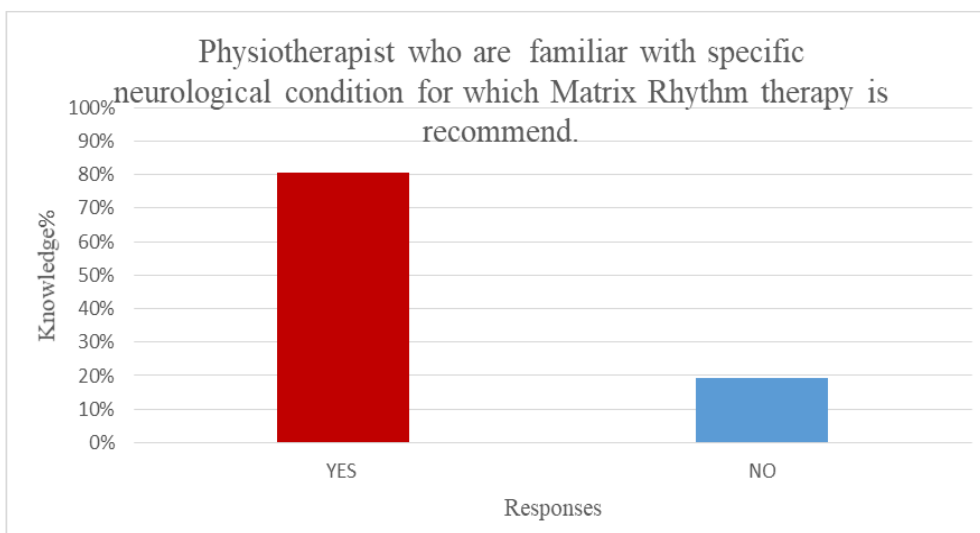
Graph 7: This graph concludes that 76.8% Physiotherapist know about potential contraindications or limitations of Matrix Rhythm Therapy in Neurological Conditions.



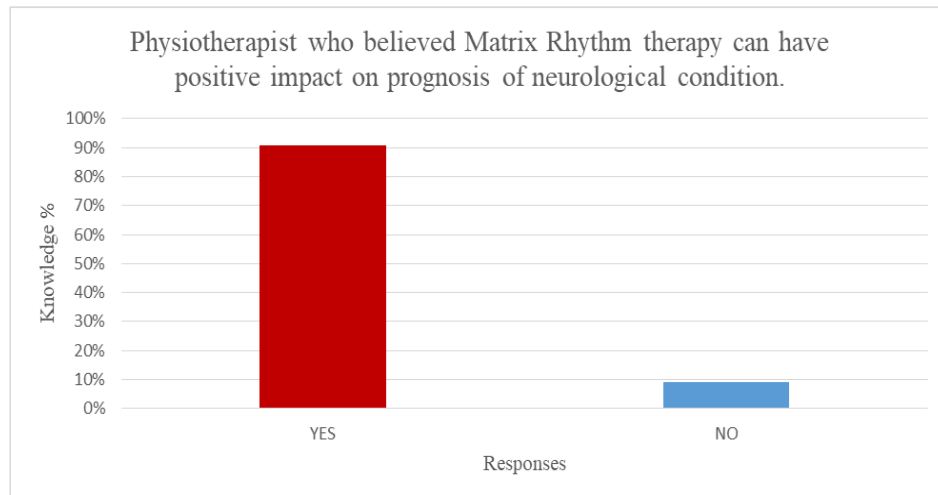
Graph 8: This Graph concludes that 94.2% Physiotherapist believe further research on Matrix Rhythm Therapy is necessary.



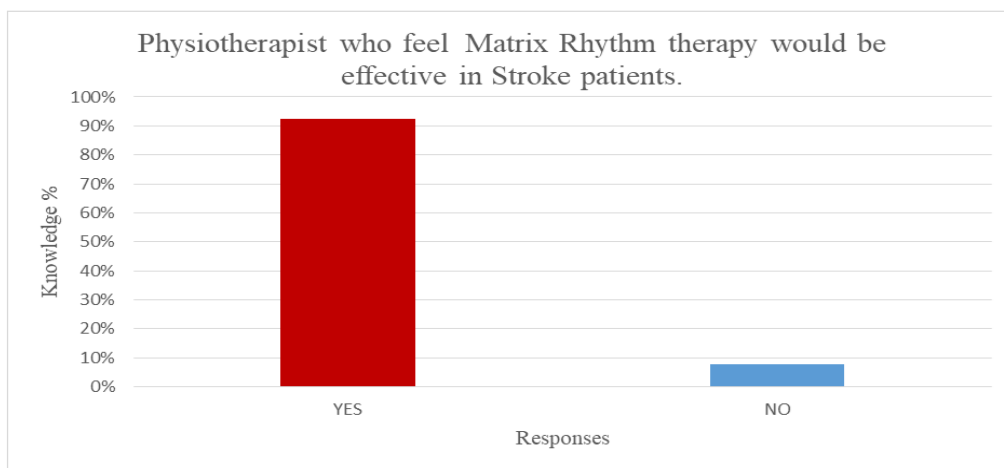
Graph 9: This Graph concludes that 90.5% Physiotherapist are willing to implement it with other traditional treatment methods.



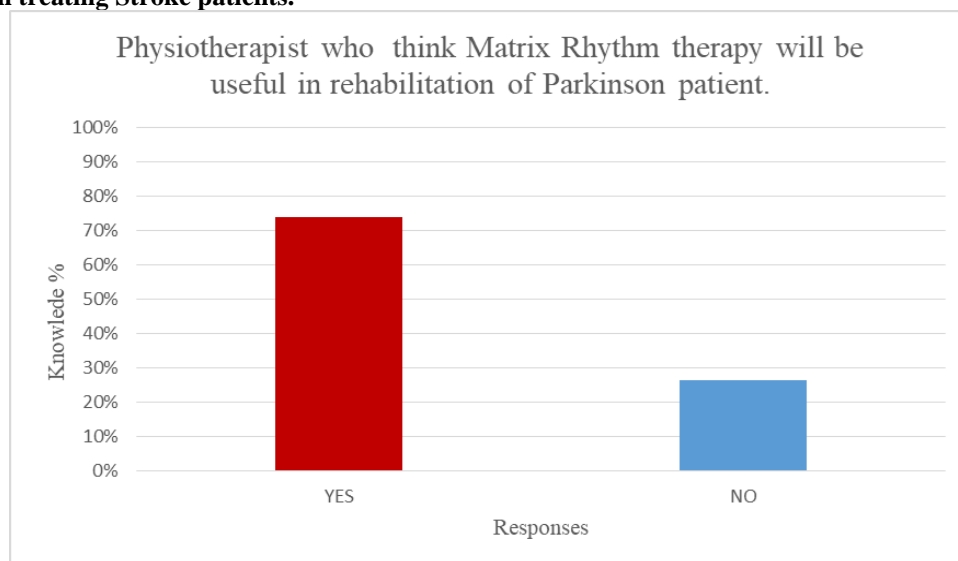
Graph 10: This Graph Concludes 80.6% Physiotherapist participants are familiar with specific neurological condition for which Matrix Rhythm therapy is recommended.



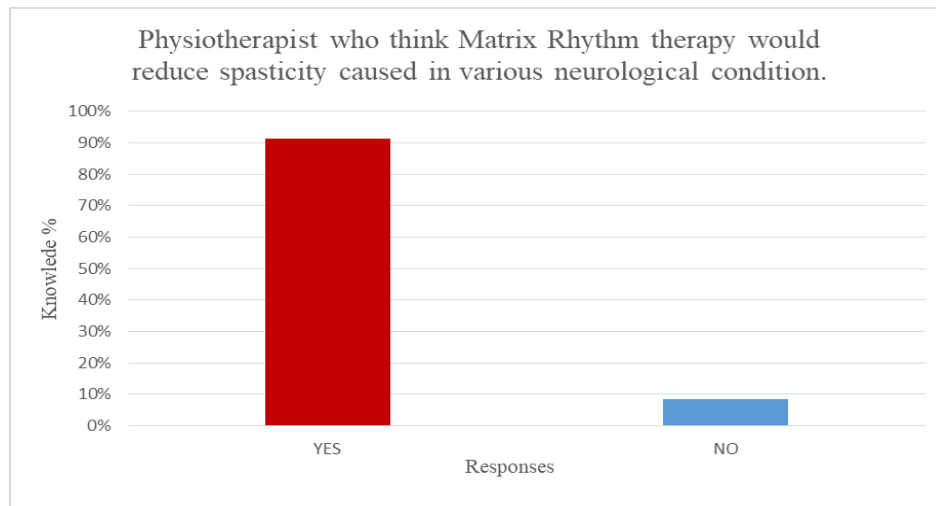
Graph 11: This Graph Concludes 90.8% Physiotherapist believed that Matrix Rhythm Therapy can provide positive impact on prognosis of neurological conditions.



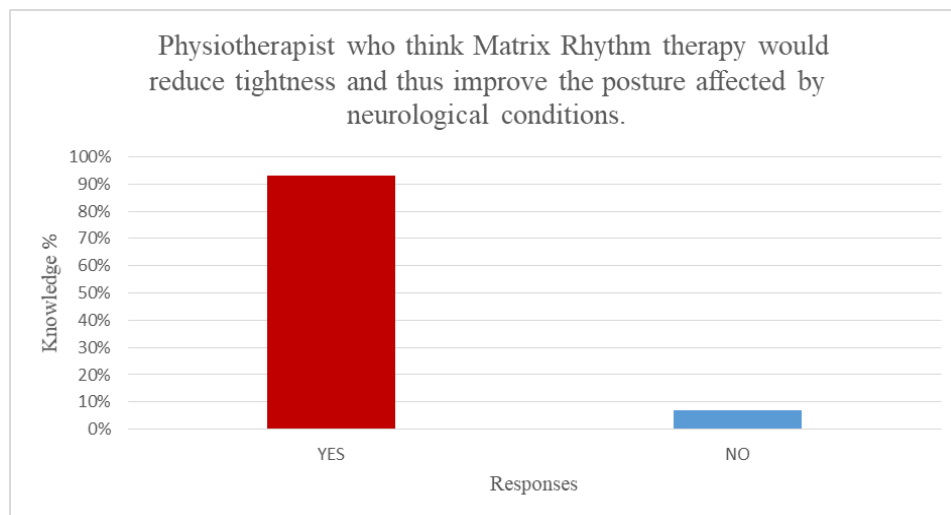
Graph 12: This Graph concludes that 92.3% Physiotherapist believe that Matrix Therapy would be effective in treating Stroke patients.



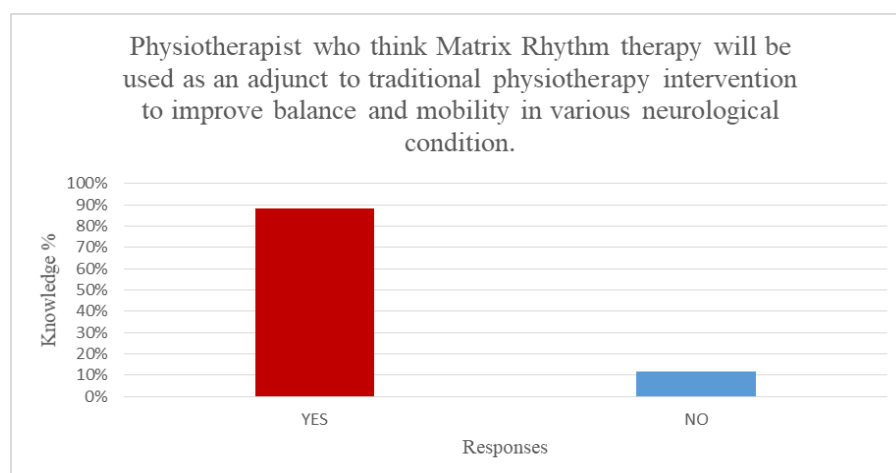
Graph 13: This Graph Concludes that 73.8% Physiotherapist believed it could be effective in Parkinson patients.



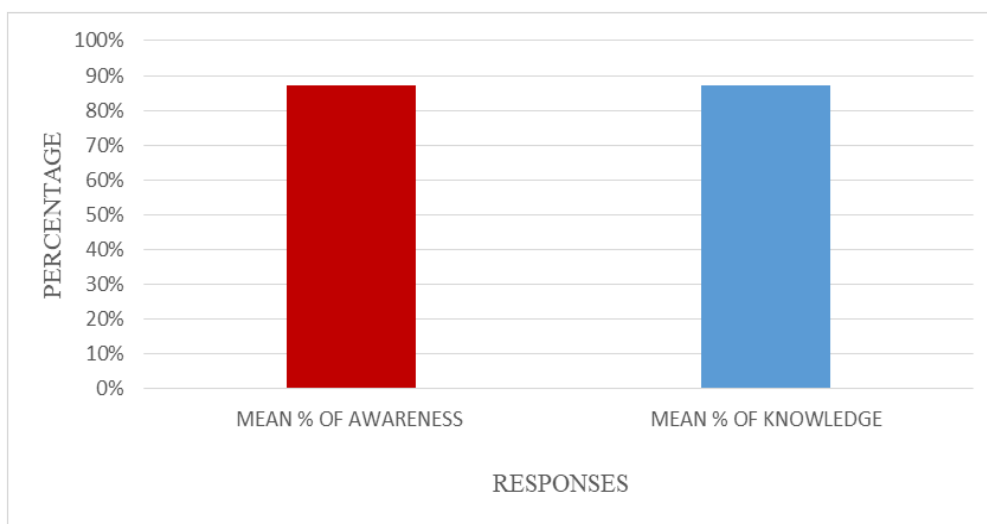
Graph 14: This Graph Concludes that 91.4%Physiotherapist thought Matrix Rhythm therapy would reduce spasticity caused in various neurological condition.



Graph 15: This Graph Concludes that 93.2% Physiotherapist believed Matrix Therapy to be effective to correct postural issues in neurological conditions.



Graph 16: This Graph Concludes 88.3% Physiotherapist believed it to have effectiveness on balance and mobility and are going to use it with other treatment methods to improve balance and mobility.



Graph 17: This Graph Concludes that 87% Physiotherapist have Mean awareness of matrix rhythm therapy in neurological conditions and 87% have Mean knowledge of same.

DISCUSSION

Physical therapists are highly skilled in the assessment, diagnosis, and treatment of illnesses that limit a person's capacity for movement and day-to-day functioning tasks. The primary goals of physiotherapists should be health maintenance, rehabilitation, and prevention. They should also aim to improve the quality of life for individuals, particularly those with neurological conditions.

Additionally, physical therapists have a significant influence on the development of physical therapy practice standards. For this reason, being knowledgeable about current therapeutic and technological advancements as a physiotherapist not only enhances their ability to diagnose patients but also speeds up their recovery. Thus, the purpose of this study was to gather information about awards and physiotherapists' understanding of Matrix Rhythm Therapy for neurological diseases.

This study evaluated the correlations between a number of variables, such as gender, educational background, professional work sector, and work experience. The study's findings may contribute to our understanding of the reasons why it's critical to raise awareness of the fastest-growing fields and the applications of robotic technology to neurological conditions in clinical practice.

This will enable physiotherapists to better meet the needs of their patients while also enabling them to adjust to the rapidly evolving healthcare environment.

Graph 5 shows that 89% Physiotherapist said that they are aware of MRT in neurological conditions. Which shows a lot of physiotherapists were aware and mostly belonged to younger population of 25-30 as they have exposure to various hospitals in clinical postings during their undergraduates and postgraduate courses, secondly through advertisement of various hospitals showcasing newer modalities, online platforms.^[14]

Graph 6 shows that 86.8 % says YES they know the principle and mechanism of action on which Matrix Rhythm therapy is based on. MRT is an external, dynamic approach that enables the movement of tissues at the cellular level, and it does this by stimulating the matrix fluid with 8-12 Hz vibrations (the same frequency as the brain's alpha rhythm).MRT which maintains the normal physiological function of the body, is used in clinics today as a method for treating dysfunctions occurring at the cellular level, using a cell- based, goal-oriented approach.^[7] The vibrating massage tool (matrix mobile) used in MRT creates asymmetric pressure distribution in the tissue, stimulates pumping/suction effect and also stimulates nerve receptors.^[7] This

information is available on online platforms, and through hospital during clinical postings.

Graph 7 shows that 76.8% Physiotherapists are aware about potential contraindications or limitations of MRT in neurological conditions. Though the MRT is not a part of curriculum neither for Undergraduates nor for Postgraduates. But having knowledge about the MRT & its implications for several conditions could be due to exposure to the various hospitals during Clinical Postings. Few contra-indications are mentioned in Hospitals in the form of Flyers & Charts. This could be one of the reasons that Young Physiotherapist are aware of MRT though it is not a part of curriculum. Some of contraindications are Open, inflamed or infected skin surfaces, Fresh fractures, Tendency for bleeding, hematoma formation, Tendency towards embolism, Pace maker, Mucous membranes, Direct contact to bones.^[9]

Graph 8 shows that 94.2% Physiotherapists believe further research is needed to establish effectiveness and safety of MRT as there are lack of studies. This could be due to the cost effectiveness of the machine & not every Physiotherapist can afford it. This could be one of the reasons why there aren't enough researches out there to be confident enough to practice MRT in neurological conditions. And it is still not being used to its full potential may be because of above mentioned reasons. More randomised control trials and long-term studies need to take place to establish effectiveness and safety of MRT in neurological conditions.

Graph 9 shows that 90.5% Physiotherapists are willing to implement MRT with other traditional treatment methods. As Unal A. et al found in her research that MRT when combined with bobath treatment were more effective on ROM, QOL, and gait as compared to Bobath treatment alone. Bhatikar also found out MRT when combined with passive stretching was effective on reducing tightness and ROM. So when combined with traditional treatment methods it can enhance and give

faster recovery, improve motor function, reduce disability and also it can act as facilitator to contribute to neuroplasticity.^[3, 4]

Graph 10 shows that 80% Physiotherapists are well familiar with specific neurological conditions as MRT is recommended as Researches are mainly done on Stroke, Cerebral palsy, Bells palsy, Parkinson disease which are most common as neurological disorder so they are aware of MRT in these conditions. Also therapist to ensure recovery of his patients will always keep track on newer modalities to enhance his treatment protocols.^[3,4,5,11]

Graph 11 shows that 90% Physiotherapists believed MRT can have positive prognosis on neurological conditions MRT through gentle tissue manipulation and rhythmic stimulation, can promote tissue remodelling, reduce fibrosis, and enhance neuromuscular activation in neurological conditions. MRT also improves motor control in individuals with neurological impairments. It reduces neuropathic pain, spasticity, muscle tightness and joint stiffness which are key factor to be reduced in neurological conditions.^[4,9]

Graph 12 shows that 92% Physiotherapists believed that MRT is effective on stroke patients as there are quite a few researches available that have shown to be beneficial in it Unal A. et al found MRT to be effective on improving Gait, ROM, QOL. And mechanism of action of MRT also acts on muscle tone especially spasticity.^[4] It could promote synaptic reorganization, cortical re-mapping, and sensorimotor integration in the post-stroke brain, facilitating motor learning and recovery thus enhancing neuroplasticity. It also helps to reduce secondary complication such as contracture, pressure ulcers, pain and improve QOL.^[1,4,9]

Graph 13 shows that 73% Physiotherapists believed that MRT can be useful in Rehabilitation of Parkinson Disease, as it can act on muscle tone it reduces rigidity and facilitates smother movements, it can enhance gait parameters as it can reduce

tightness and reduce risk of fall by improving balance by improving mobility. Graph 14 shows that 91% Physiotherapists believed that MRT could be effective on reducing spasticity as mechanism of action that is when applied for spasticity, it especially allows the spastic muscle to relax, acting on speed sensitive muscle spindle and the Golgi tendon organ. So it is believed to be effective especially in Spasticity for both Stroke and cerebral palsy it has shown results.^[1,4]

Graph 15 shows that 93% Physiotherapists believed that MRT could be effective to reduce tightness and improve posture that maybe due as various research showed it to reduce tightness. Bhatikar et al suggested to have significant improvement on forward head posture when combined with Neck Muscle Exercises.^[12] As MRT improves blood circulation of the area and relaxes the muscle beneath, this in turn reduces tightness and promotes tissue remodelling and improves flexibility.^[8,9] MRT may also improve proprioceptive feedback and kinaesthetic awareness, facilitating better postural alignment and movement coordination.

Graph 16 shows that 88% Physiotherapists believed that MRT could be used as adjunct to traditional treatment to improve Balance and mobility. As it can improve muscle flexibility by reducing tightness and improving joint ROM, it improves mobility of patient. As MRT enhances sensory processing and integration and neuromuscular coordination which in turn improves balance and reduces risk of falls.^[1,4]

CONCLUSION

Based on the data analytics of participants they were highly 87% have Mean awareness and 87% have Mean knowledge of Matrix RHYTHM therapy in neurological conditions.

Generating awareness about this advanced field is essential to improve access, enhance recovery outcomes, ensure a safe, effective, and personalized approach and supervision,

so as more Physiotherapist get formal education and get certified and practice Matrix Rhythm therapy in neurological conditions.

As we can see in many researches the Matrix rhythm therapy was used as adjunct with other neurological treatment such as with bobath treatment in stroke, with passive stretching in cerebral palsy, with electrical muscle stimulator in Bell's palsy. So Matrix therapy can be integrated with other treatments so as to improve and enhance patient recovery.

Declaration by Authors

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Conflict of Interest: The authors declare no conflict of interest.

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