

Awareness and Knowledge of TECAR Therapy Among Physiotherapy Practitioners in Jalgaon District - A Cross-Sectional Study

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ABSTRACT

Background: TECAR (Transfer of Energy Capacitive and Resistive) therapy is an advanced electro-thermal modality increasingly incorporated into physiotherapy practice for musculoskeletal and sports rehabilitation. Effective clinical utilization of this modality depends on adequate awareness and knowledge among physiotherapy practitioners.

Aim: To assess the awareness and knowledge of TECAR therapy among physiotherapy practitioners in Jalgaon district.

Materials and Methods: A cross-sectional observational study was conducted among 64 registered physiotherapy practitioners in Jalgaon district using purposive sampling. Data were collected using a self-structured and validated questionnaire consisting of demographic details, awareness-related questions, and knowledge-based items on TECAR therapy. The reliability of the questionnaire was established using the split-half method ($r = 0.84$). Descriptive statistical analysis was performed using Minitab version 17.

Results: The mean age of participants was 26.01 ± 5.36 years, with female practitioners constituting 79.69% of the sample. Awareness regarding TECAR therapy was reported by 92.19% of respondents.

Knowledge assessment revealed that 89.06% of participants demonstrated good knowledge, while 10.94% had average knowledge. The mean knowledge score was 7.07 ± 1.19 .

Conclusion: Physiotherapy practitioners in Jalgaon district exhibited high awareness and good theoretical knowledge of TECAR therapy. Incorporation of structured hands-on training programs may further enhance clinical application of this modality.

Keywords: TECAR therapy, awareness, knowledge, physiotherapy, electrotherapy, cross-sectional study

INTRODUCTION

Physiotherapy is a vital component of healthcare that focuses on restoring and maintaining physical function, mobility, and overall well-being. It plays an essential role in the prevention and rehabilitation of musculoskeletal, neurological, and sports-related injuries. Over the years, physiotherapy has evolved with the integration of modern technologies and advanced therapeutic modalities that aim to enhance treatment effectiveness and improve patient outcomes. One such innovative approach is TECAR therapy (Transfer of Energy Capacitive and Resistive).

TECAR therapy is regarded as a unique type of energy that operates within the frequency

range of 300 KHz to 1 MHz. It is defined as a non-invasive high-frequency energy that stimulates the body's inherent capacity for self-regeneration. Consequently, it enhances the natural physiological processes of tissues at a metabolic level by transferring energy without exposing the body to external radiation. The TECAR device operates in two treatment modes: capacitive (CAP) and resistive (RES), each using different probes made from medical stainless steel.

TECAR therapy differs from the other deep thermal modalities, such as SWD and US. Ultrasound devices have a 1- to 3-MHz frequency, causing slight circular motion in molecules through ultrasonic waves. The SWD machines have an 8- to 14-MHz frequency, which is significantly higher than the TECAR's frequency, and produce external heat.⁸ According to the TECAR manufacturer's statement, there is no limitation on the use of the capacitive mode in areas with metal prostheses.

Despite its growing use globally, the awareness and understanding of TECAR therapy among physiotherapists in developing regions remain limited. Many practitioners continue to rely primarily on traditional electrotherapy modalities like ultrasound, TENS, and interferential therapy, due to either lack of exposure, insufficient training, or limited availability of advanced devices. The integration of modern therapeutic technologies like TECAR into physiotherapy practice requires adequate knowledge of its principles, indications, contraindications, and clinical efficacy.

The Jalgaon District in Maharashtra represents a growing hub for physiotherapy services, with practitioners engaged in diverse settings such as hospitals, clinics, and rehabilitation centers. However, there is limited data regarding their familiarity and application of advanced modalities like TECAR therapy. Exploring this dimension will provide valuable insights into the readiness of physiotherapists to adopt evidence-based innovations for improved patient outcomes.

NEED OF STUDY

In the realm of physical therapy and rehabilitation, we are always seeking innovative methods and treatments to offer our patients the highest quality care. One such revolutionary approach that has gained our interest in recent years is TECAR (Transfer of Energy Capacitive and Resistive) Therapy, a form of radiofrequency therapy that enhances tissue repair, reduces pain, and accelerates rehabilitation. It is widely used in sports medicine and musculoskeletal physiotherapy due to its ability to promote deep tissue healing through endogenous heat stimulation. As physical therapists, we are eager to share our thoughts on this impressive therapy and its impact on patient recovery.

Various studies claim to have high benefits of TECAR in the field of electrotherapy and numerous studies indicate that TECAR therapy is efficacious in the management of several conditions. However, the level of awareness and knowledge of this modality among registered physiotherapy practitioners remains uncertain. This study aims to assess the current knowledge and awareness of TECAR THERAPY among these professionals.

Assessing the level of awareness and knowledge regarding TECAR therapy is essential because, it helps identify the existing gap between current physiotherapy education and modern clinical practice as well as it supports evidence-based practice by encouraging the adoption of scientifically validated and effective treatment modalities.

MATERIALS & METHODS

Research Design: An Observational cross-sectional research design was followed in this study.

Study Setting: The study was conducted in Jalgaon district

Study Population: Physiotherapy Practitioners in Jalgaon

Sampling Procedure; purposive Sampling was used in this study.

Sample size: A total of 64 postpartum women were included in this study.

SELECTION CRITERIA

Inclusion criteria

- All male and female
- physiotherapy practitioners
- Qualification BPTTh complete

Exclusion criteria

- Not willing to participate
- Undergraduate students

OUTCOME MEASURE

Self-made questionnaire on awareness and knowledge of TECAR therapy-

Self-made questionnaire on awareness and knowledge of TECAR therapy designed to assess awareness and knowledge of TECAR therapy among physiotherapist. Tried to frame relevant question of TECAR therapy. This questionnaire contains demographic data and 10 questions based on awareness and knowledge.

Then questionnaire was validated from professors of Dr. Ulhas Patil College of physiotherapy and reliability is done by Split Half Method of reliability. Reliability of questionnaire is 0.84 and self-made questionnaire of awareness and knowledge of TECAR therapy was made.

The questionnaire consisted of **three sections:**

1. **Demographic details:** age, gender, qualification, years of experience, workplace setting.
2. **Awareness domain:** awareness about TECAR, source of awareness
3. **Knowledge domain:** questions related to TECAR principles, therapeutic effects, modes, etc.

4. The questionnaire includes the 2 questions of awareness and 8 questions of knowledge of TECAR therapy

Each correct answer was given **1 point** and wrong answer was given 0. Then total knowledge scores were classified as:

- **Good knowledge:** 6 - 8
- **Moderate knowledge:** 3 - 5
- **Poor knowledge:** 0 - 2

Procedure

Ethical clearance was taken from the ethical committee of Dr. Ulhas Patil College of Physiotherapy, Jalgaon prior to the commencement of the study. A cross – sectional study was administered and subjects was screened on the basis of inclusion criteria - A brief demographic data was obtained; the nature and purpose of the study was explained to them. Relevant question was framed of Awareness and knowledge of TECAR therapy. The questionnaire was validated from professors of Dr. Ulhas Patil college of Physiotherapy. The reliability of questionnaire was done by split half method reliability which is 0.84. Consent will be taken and procedure were explained to all the Participant. TECAR THERAPY questionnaire score recorded in Google form will be forwarded to all Participants. After data collection, data entry was done in MS Excel. Statistical analysis was done using Minitab 17 software

DATA ANALYSIS: Statistical evaluation of the data for the current study was implemented by using Ms Excel and minitab17 so as to validate the result found.

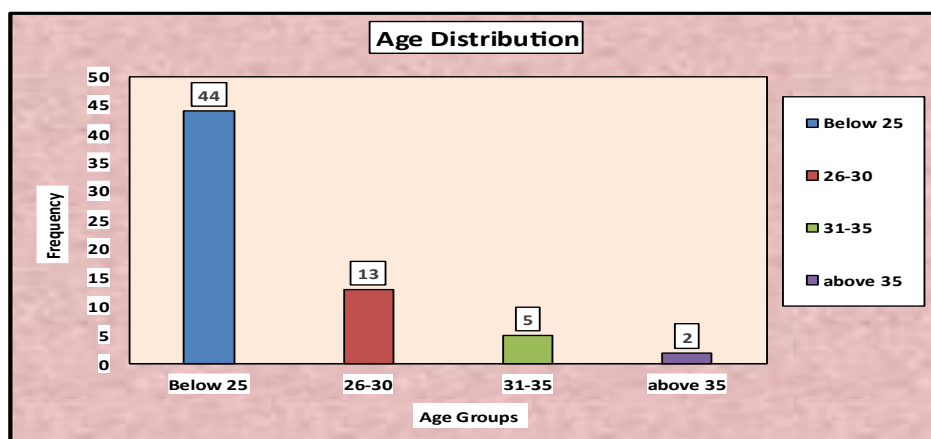
RESULT

Total 64 samples were collected for the study and analysis was carried out.

Other variables such as age, gender and awareness and knowledge of TECAR therapy distribute into frequency and percentage are shown below:

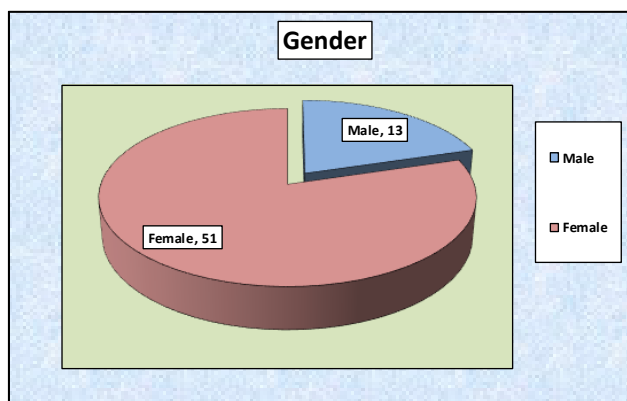
Table 1. Frequency Distribution Table				
Sr. No.	Variable	Groups	Frequency	Percentage
1	Age (in years)	Below 25	44	68.75
		26-30	13	20.31
		31-35	5	7.81
		above 35	2	3.13

Age	Mean	SD
	26.01	5.36



Dig1. frequency distribution according to age

Sr. No.	Variable	Groups	Frequency	Percentage
2	Gender	Male	13	20.31
		Female	51	79.69



Dig 2. frequency distribution according to gender

Sr. No.	Variable	Groups	Frequency	Percentage
3	Years of experience as a Physiotherapist (in years)	< 1	32	50.00
		2-5.	23	35.94
		5-10.	6	9.38
		10-30.	2	3.13
		> 30	1	1.56

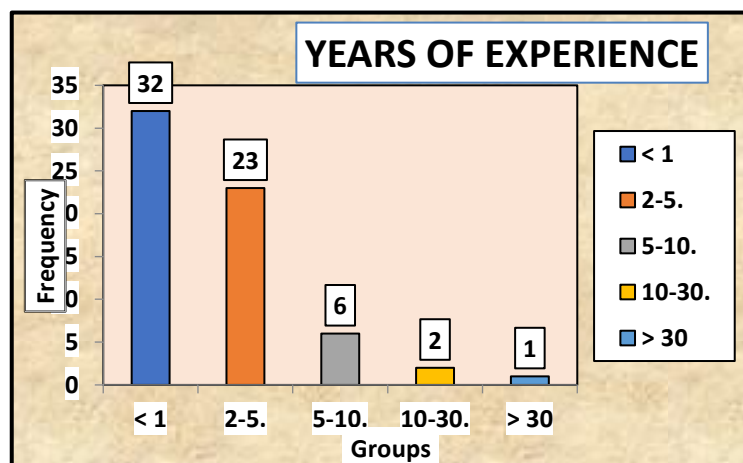
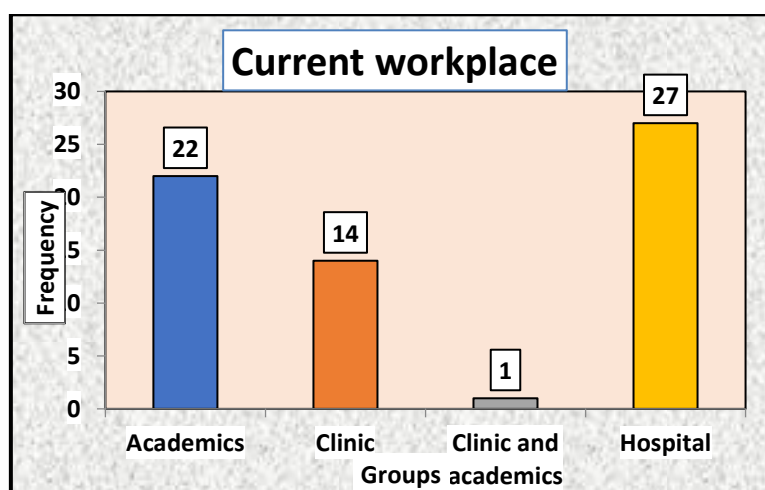


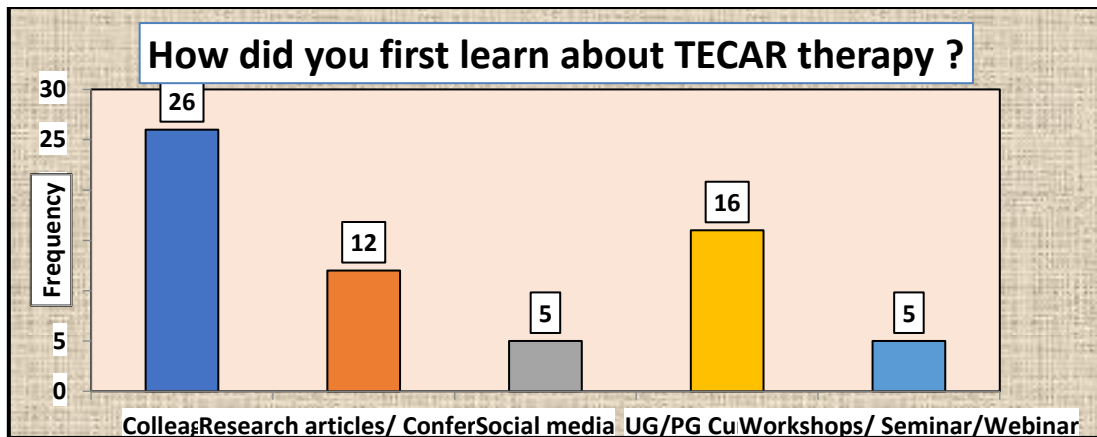
Fig. Years of experience as a physiotherapist

Sr. No.	Variable	Groups	Frequency	Percentage
4	Current workplace	Academics	22	34.38
		Clinic	14	21.88
		Clinic and academics	1	1.56
		Hospital	27	42.19

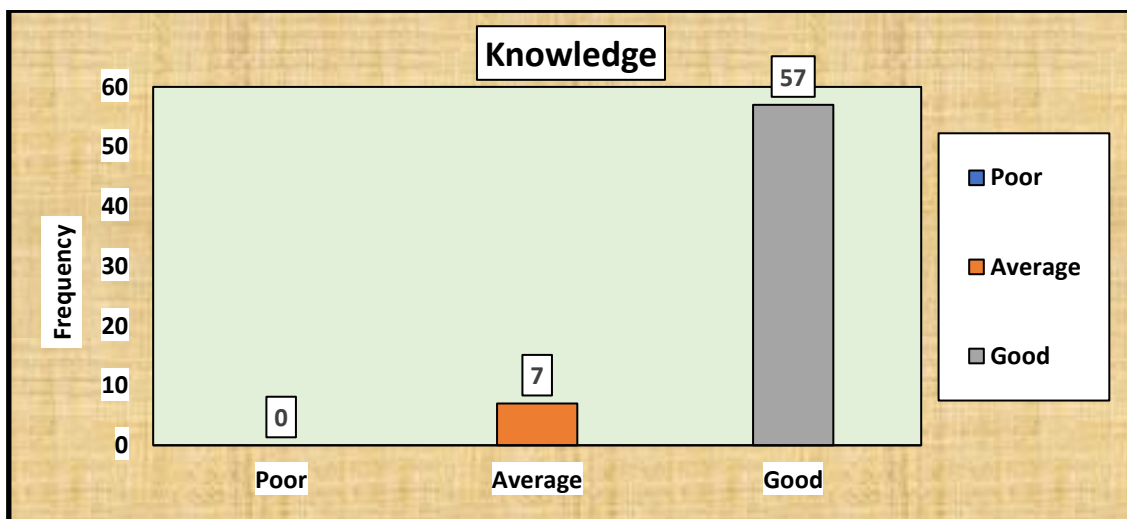


Awareness	Variable	Groups	Frequency	Percentage
	Have you heard about TECAR therapy?	Yes	59	92.19
		No	0	0
		May be	5	7.81

Awareness	Variable	Groups	Frequency	Percentage	
	How did you first learn about TECAR therapy?	Colleagues		26	40.63
		Research articles/Conference		12	18.75
		Social media		5	7.81
		UG/PG Curriculum		16	25.00
		Workshops/Seminar/Webinar		5	7.81



Variable	Groups	Score	Frequency	Percentage
Knowledge	Poor	0-2	0	0.00
	Average	3-5	7	10.94
	Good	6-8	57	89.06



Knowledge	Mean	SD	Mean %
	7.07	1.19	88.38

DISCUSSION

The present study was undertaken to assess the awareness and knowledge of TECAR therapy among physiotherapy practitioners in Jalgaon district. The findings provide valuable insight into the extent to which this emerging modality is recognized and understood by professionals in various practice settings. TECAR (Transfer of Energy Capacitive and Resistive) therapy is an emerging electro-thermal modality increasingly used in physiotherapy for musculoskeletal and sports injury management. Despite its clinical benefits - such as pain reduction, tissue repair

acceleration, and improved mobility—its use depends largely on the clinician’s understanding and confidence in the technique. I tried to frame relevant question of TECAR therapy. The questionnaire includes the 2 questions of awareness and 8 questions of knowledge of TECAR therapy. Then I have validated questionnaire from professors of Dr. Ulhas Patil College of physiotherapy and reliability is done by Split Half Method of reliability. Reliability of questionnaire is 0.84 and self-made questionnaire of awareness and knowledge of TECAR therapy was made.

The demographic profile of the respondents indicates that the majority (68.75%) of physiotherapists were below 25 years of age, followed by 20.31% in the 26–30 years age group. The mean age was 26.01 ± 5.36 years, which suggests that the study population primarily comprised younger physiotherapists, possibly recent graduates or those in the early stages of their professional careers. This pattern reflects the growing interest of younger physiotherapists in adopting newer technologies and modalities within their practice. A greater proportion of participants were females (79.69%) compared to males (20.31%). This observation is consistent with the general gender trend in the physiotherapy profession in India, female participation is comparatively higher in both clinical and academic sectors.

When considering professional experience, half of the respondents (50%) had less than one year of experience, and 35.94% had between two to five years of experience. Only a few participants had over ten years of experience (4.69%). This finding emphasizes that TECAR therapy awareness is mainly being assessed among early-career physiotherapists who are more likely to engage with newer modalities through formal education and professional interactions. In terms of workplace distribution, 42.19% of the respondents were employed in hospitals, 34.38% in academic institutions, and 21.88% in private clinics. A small proportion (1.56%) were involved in both academic and clinical practice. This diversity in workplace setting is important because access to advanced therapeutic technologies such as TECAR therapy can vary significantly depending on institutional infrastructure.

The results revealed a remarkably high level of awareness regarding TECAR therapy among physiotherapists in Jalgaon district. A total of 92.19% of the respondents reported that they had heard about TECAR therapy, while only 7.81% were uncertain. This high percentage indicates that TECAR therapy is well recognized among physiotherapy

practitioners, which may be attributed to the growing inclusion of advanced electrotherapy topics in undergraduate and postgraduate curricula, as well as the influence of professional networking and continuing education.

When participants were asked about how they first learned about TECAR therapy, the most common source was colleagues (40.63%), followed by the UG/PG curriculum (25%) and research conferences or scientific articles (18.75%). Social media (7.81%) and professional workshops or webinars (7.81%) were less frequently cited. The knowledge assessment revealed that a large majority of physiotherapists possessed good knowledge about TECAR therapy. Specifically, 89.06% of respondents scored in the *good* category (scores 6–8), while 10.94% scored in the *average* range (3–5). None of the participants demonstrated poor knowledge. The mean knowledge score was 7.07 ± 1.19 , corresponding to a mean percentage score of 88.38%. These results reflect a strong theoretical understanding of TECAR therapy among physiotherapists in Jalgaon district. This high level of knowledge could be attributed to the increasing integration of modern electrotherapy modalities in academic syllabi and the growing accessibility of information through research literature, social media, and digital platforms. It also suggests that physiotherapists are aware of the principles, indications, contraindications, and potential benefits of TECAR therapy in clinical practice. Nevertheless, while theoretical knowledge appears strong, it remains uncertain whether all respondents have practical exposure to the modality, particularly given that TECAR devices may not be readily available in all clinical settings.

CONCLUSION

The findings of the present study conclude that physiotherapy practitioners in Jalgaon district possess high awareness and good knowledge regarding TECAR therapy. The results highlight that TECAR therapy is well-

recognized among the physiotherapy community, particularly among those working in hospital settings.

Limitation

Lack of Practical Assessment:

The study focuses only on theoretical awareness and knowledge without assessing the actual practical application or skill in using TECAR therapy.

Future Scope

Future research can include a larger geographical area beyond Jalgaon district to compare awareness levels across different regions of Maharashtra or India. Further studies can focus on evaluating the clinical outcomes of TECAR therapy in various musculoskeletal, neurological, and sports-related conditions to establish strong evidence-based practice. Comparative research between TECAR therapy and other electrotherapy modalities can be conducted to determine its relative efficacy, safety, and cost-effectiveness.

Declaration by Authors

Ethical Approval: Ethical clearance for this study was obtained from the Institutional Ethics Committee.

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