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A Survey of Physiotherapist's attitudes and beliefs about the use of TENS for pain management in India

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ABSTRACT:

Worldwide, pain is a significant burden to healthcare and economy. Given India's inadequate and inconsistent healthcare services, the burden is likely to be amplified. Pharmacotherapy is the mainstay of treatment; however is associated with considerable adverse effects and cost. TENS is a safe, inexpensive, non-invasive electro-analgesic technique used in managing variety of painful conditions. The survey was carried in Jabalpur, India using a 12-item self-administered paper based questionnaire aimed at gathering information from practicing physiotherapists about their attitudes and beliefs regarding the use of TENS for pain management. Results indicate that all respondents used TENS in their clinical practices for managing pain. 96% of respondents reported that their patients benefitted from TENS and that 68% of their patients had 'requested' TENS treatment. 92% of respondent's referring physicians 'advised' TENS for pain relief to their patients. 76% respondents however do not or occasionally recommend TENS to their patients at home. TENS was predominantly ("very often" or "often") used for managing pain of neurological (76%) and musculoskeletal (68%) origin, and less commonly for post surgical (52%) and cancer pain (28%). TENS "very often" or "often" was used by 60% of respondents for acute, 60% for sub-acute and 48% for chronic pain. The use of TENS was reported more in severe and moderate to severe types of pain (avg 64%), and less in mild and mild to moderate types of pain (avg 44%). In conclusion, TENS seems to be clinically underutilised for pain management in the surveyed Indian city.

KEYWORDS: Transcutaneous Electric Nerve Stimulation (TENS), Physiotherapists (PTs), India, Pain Management, Analgesia

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INTRODUCTION:

Pain and its direct and indirect afflictions pose significant healthcare and financial burden worldwide – especially on a developing country like India where public healthcare infrastructure is crumbling and inadequate[1,2,3]. Pharmacotherapy is the mainstay treatment for managing most pain types and conditions; however it is associated with considerable adverse effects and cost. Transcutaneous Electrical Nerve Stimulation (TENS) is a simple, inexpensive, non-invasive technique that delivers non painful pulsed electric currents across the intact surface of the skin via self-adhering electrodes or electrodes smeared with conducting gel and secured using Velcro straps or medical adhesive tapes[4, 5]. During TENS, the biphasic pulsed electrical currents generated by a portable device are used to selectively excite low threshold afferents within peripheral nerves lying underneath the electrodes. TENS can be self-administered with dosage titrated according to the individual's need and pain perception. The electrical characteristics of TENS can be adjusted including amplitude (intensity), frequency, pattern, and duration (width) [4, 6]. A strong non-painful TENS sensation at the site of pain is a pre-requisite for pain relief in most instances.

TENS can be used as a stand-alone treatment for symptomatic relief of mild to moderate pain and as an adjunct to pharmacotherapy for moderate to severe pain[4, 6, 7]. Systematic reviews with meta-analysis have found that TENS is efficacious for chronic and acute painful conditions including musculoskeletal pain and post-surgical pain[8, 9]. Some systematic reviewers have claimed that TENS is not effective[10] but these have been criticised because of methodological shortcomings[11]. TENS can also be used in the treatment of non painful conditions such as dementia[12], post-operative nausea and vomiting[13], and wound healing[14]. TENS is a popular choice in managing pain in resource limited and resource rich countries because its effects are rapid in onset and is associated with few adverse effects or drug interactions and there is no potential for toxicity[15]. It is available without prescription and can be bought over the counter at pharmacies or over the internet. In India, simple TENS devices could be purchased at a price ranging from ☐1,800 - ☐2,550. The excellent safety profile coupled with good efficacy and low cost compared with long-term drug therapy implies that TENS should be offered to patients in pain[15].

In India, there have been few studies conducted on TENS for pain relief; most published studies are positive and consistent with the findings of similar studies conducted in other countries. Mittal et al[16] and Padma et al[17] found that TENS was effective in the management of neuralgia and low back pain during childbirth respectively. In a randomised comparative study, Thakur and Patidar[18] found that TENS was as effective as Tramadol in relieving labour pain and was associated

with very few adverse effects. Rajpurohit et al[19] compared TENS and microcurrent electrical stimulation and found both to be useful for masticatory bruxism associated muscle pain. Chandra et al[20] found that TENS alleviated post-operative pain following thoracic surgery with no adverse events and good hemodynamic stability. Singla et al[21] found that TENS was efficacious, safe and acceptable to patients for managing trigeminal neuralgia. Prabhakar and Ramteke[22] found that TENS was as effective as cervical mobilisation in relieving radicular pain and improving upper limb function. Devan and Sharma[23] conducted a randomised comparative study and found that interferential therapy was more effective than TENS in managing frozen shoulder pain and restoring function.

TENS and TENS-like devices form important part of physiotherapy undergraduate degree curriculum in most Indian universities. It is therefore suspected that physiotherapists (PTs) amongst all health practitioners are the most likely to be aware of the potential benefits of TENS; however it is not known whether they clinically offer TENS to their patients. The aim of this survey was to gather information about the attitudes and beliefs of Indian PTs' on the use of TENS for pain management in an urban setting.

METHODOLOGY:

The survey was conducted during the month of June 2012, in major government and private hospital's physiotherapy department and/or privately-owned physiotherapy clinics in the city of Jabalpur, India.

Study Population: Thirty physiotherapists (PTs) were identified and invited. Using postal services and electronic mails, each PT was sent a survey questionnaire with a letter explaining the objectives of the research. The invited PTs at sampled clinics and departments (outpatients and inpatients) saw mixed cases of patients, mostly management and rehabilitation of neuro-musculoskeletal, neuro-paediatric and cardiothoracic conditions. With the assistance of principle investigator's colleagues (see acknowledgment); the questionnaires were collected within seven days.

Survey Tool: No relevant validated questionnaire on the usage of TENS for pain could be identified at the time of survey. The investigators designed a 12-item self-administered paper based questionnaire to gather information about the practitioner's clinical use, attitudes and beliefs about TENS for managing pain (see appendix). Participants were requested to 'tick' the most appropriate

answer to questions that aimed at eliciting information regarding the use of TENS in different pain types, conditions and others.

Data Analysis: A descriptive analysis was performed using a Quantum, version 4.0.

RESULTS:

Twenty five questionnaires were completed and returned (83.3% response rate). No attempt was made to persuade the remaining five PTs to complete and return the questionnaire.

18 of 25 respondents were registered PTs (72%), with 5/25 PTs having their registration under renewal or pending (20%) and the remaining two were unregistered. Bar one (4%) who reported "seldom" treatment of pain, rest other respondents (24/25) confirmed that they either "very often" (64%) or "often" (32%) treat pain; the use of TENS for pain relief though was reported unanimously by all respondents. Twenty of 25 respondents (80%) reported that they used TENS "often" or "very often", and 5/25 respondents (20%) used TENS occasionally. Twenty one of 25 respondents (84%) reported that they also used TENS-like devices including interferential therapy to manage pain.

Fifteen respondents (60%) used TENS "often" or "very often" for acute and sub-acute pain and 12/25 respondents (48%) used TENS "often" or "very often" for chronic pain. On average, 36% respondents used TENS "occasionally" or "seldom" for acute and sub-acute, and 40% for chronic pain. Few (4% for acute pain and 8% for chronic pain) reported that they do "not at all" use TENS.

For mild pain, 36% (9/25) respondents "very often" or "often" used TENS whereas 52% (13/25) preferred using it "occasionally" or "seldom". A solitary respondent (4%) does "not at all" use TENS while two others (8%) did not answer. The percentage of responses for the use of TENS "often" or "very often" for mild to moderate, moderate, moderate to severe and severe pain was reported as 52% (13/25), 66% (16/25), 68% (17/25) and 60% (15/25) respectively. TENS' use "occasionally" or "seldom" on the other hand for mild to moderate pain was reported to be 40% (10/25). For moderate, moderate to severe and severe pain, it was found to be 24% (6/25) each. On average for above cited pain tyes, about 8% of respondents did not answer; approximately 6.6% do "not at all" use TENS.

For different pain conditions, respondents confirmed that TENS "often" or "very often" is used by 68% (17/25) for musculoskeletal/orthopaedic, 76% (19/25) for neuralgias/neuropathies, 52% (13/25) for post surgical, and 28% (7/25) for cancer and other pain conditions (eg. Dysmenorrhoea).

Its “occasionally” or “seldom” use is reported to be 20% (5/25) for neuralgias, 40% (10/25) each for post surgical and cancer pain, and 28% (7/25) each for musculoskeletal and other pain conditions. 1/25 (4%) does “not at all” use TENS for musculoskeletal and post surgical pain while for cancer and other pain conditions, the percentages calculated are 28% (7/25) and 12% (3/25) respectively. The use of TENS remained unanswered for other pain conditions by 32% (8/25) of the respondents; one respondent did not answer for each of the following: neuropathies, post surgical and cancer pain.

Table 1. Percentage of use of TENS in different pain types and conditions

Pain types / conditions	Response in percentage (%)					
	Very often	Often	Occasionally	Seldom	Not at all	No answer
Acute	32	28	32		4	4
Sub-acute	16	44	36	4		
Chronic	24	24	28	12	8	4
Mild	20	16	40	12	4	8
Mild to moderate	16	36	36	4		8
Moderate	12	52	20	4	8	4
Moderate to severe	36	32	20		4	8
Severe	32	28	16	8	8	8
Musculoskeletal/ orthopaedic	36	32	28		4	
Neuropathy/ neuralgia	40	36	12	8		4
Post-surgical	16	36	20	20	4	4
Cancer pain	12	16	20	20	28	4
Others Eg: Dysmenrrhoea	24	4	20	8	12	32

Eighteen of 25 respondents (72%) reported that their patients benefitted “considerably” from TENS (Figure 1) and 17/25 (68%) of respondents reported that they believed that TENS was a cost-effective treatment option (Figure 2).

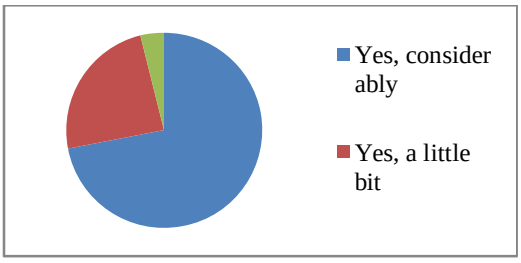

Figure 1. Do your patients benefit from TENS?

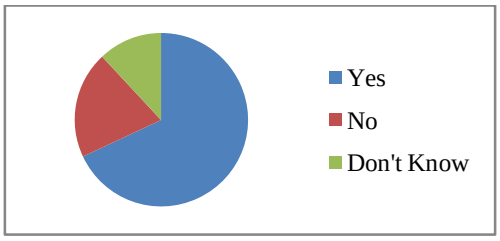

Figure 2. Do you think TENS is cost-effective than other treatment options?

Seventeen of 25 respondents (68%) reported that their patients had requested TENS treatment from them. Interestingly, 14/25 of respondents (56%) did not recommend/prescribe TENS to patients in pain at home suggesting that respondents required patients to visit them at their clinics to receive TENS treatment (Figure 3). Nineteen out of 25 respondents (76%) reported that their patients had received TENS treatment previously. Twenty three of 25 respondents (92%) reported that their referring physicians advised them to use TENS for pain relief either “very often” or “not very often” (Figure 4).

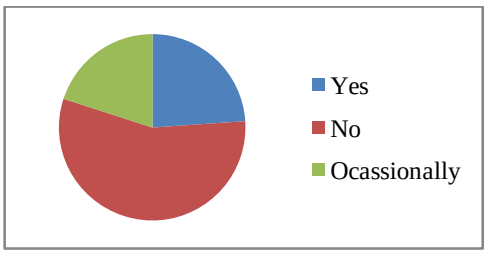

Figure 3. Do you recommend TENS at home?

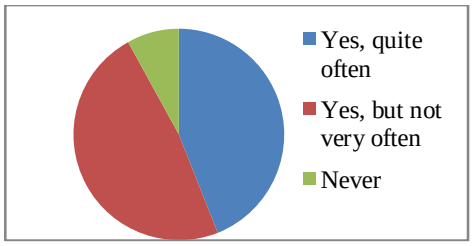

Figure 4. Does your referring Physician advice you to use TENS for pain relief?

DISCUSSION:

The prevalence of chronic pain worldwide in developed and developing countries is high[24]. Surveys in India suggest that prevalence is 19% in the general population[2] and 25.9% for musculoskeletal pain[25]. In India, the financial and societal burden of pain and disability will be large because of challenges associated with resourcing specialist health care services for the large population[2, 3, 26, 27]. Pain management may be given low priority and when managed, analgesic medication is the method of choice.

This survey of PTs working in physiotherapy departments of hospitals and clinics in an Indian city found that most PTs considered TENS to be a cost-effective option to manage pain and reported that they used TENS and TENS-like devices in their practice. This is a positive finding because TENS is a safe, inexpensive treatment when compared with analgesic medication its use is supported by international recommendations[28]. However, to our surprise, PTs they do not recommend TENS for home use. This approach is inconsistent with good practice guidelines that suggest that TENS should be self-administered and made available to patients at home if they are managing persistent chronic pain.

Pain relief from TENS occurs when the patient experiences a strong non painful electric shock-like sensation at the site of pain; pain relief is often short-lived when the TENS device is switched off[29]. Therefore, patients need to intermittently (15 to 30 minutes) or regularly use TENS throughout the day to manage pain. Providing patients with their own TENS device is a financial challenge in India where clinics and/or patients are unable to afford the purchase of TENS devices. One potential solution is for patients to rent a TENS device initially and if they find it useful to purchase the device outright, offsetting the cost with payment made during the rental payment during the rental period.

The use of TENS “very often” or “often” was limited to less than 50% of respondents for mild, mild to moderate and chronic pain. Further, except for musculoskeletal and neurological painful conditions, more than 50% of physiotherapists do not prefer the use of TENS (“very often” or “often”) for managing other conditions such as post-operative, cancer, dysmenorrhoea pain. We though suspect that the profile of indications for TENS in this survey reflected the profile of painful conditions presenting in the clinics rather than PTs choosing TENS for specific conditions. A further study would be necessary to confirm. Evidence suggests that patients should not be excluded from TENS treatment based on the pathology of their pain[30].

It was interesting that patients request TENS as a treatment option. This suggests that patients attending city clinics have an awareness of TENS possibly through previous interactions with health care services. It would be interesting to survey awareness of TENS from individuals living in less affluent communities or from rural settings. It is not known whether these individuals would find TENS an acceptable method of treatment.

This was a small survey and therefore caution is needed when generalising the findings to the wider physiotherapy population in India.. We are planning to conduct similar in-depth large surveys in other Indian cities and smaller towns and rural settings involving all professionals engaged in pain management to elucidate potential barriers to the use of TENS in pain management. Barriers are likely to include financing running costs of battery and electrode replacement, socio-cultural acceptance of electricity as a medical treatment, difficulties of applying TENS when wearing saris and dust gathering on electrode pads, especially in rural settings.

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APPENDIX:

Survey Questionnaire (Please tick the appropriate option)

1) How often do you treat pain in your clinical practice? [very often] [often] [seldom]

2) How often do you use TENS to treat these patients who have pain?
[very often] [often] [occasionally] [seldom] [not at all]

3) For which types of pain do you use TENS?

a. Acute:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Sub-acute:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Chronic:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
b. Mild:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Mild to Moderate:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Moderate:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Moderate to Severe:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Severe:	[very often]	[often]	[occasionally]	[seldom]	[not at all]

4) For which conditions do you commonly use TENS?

Musculoskeletal/Orthopaedics:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Neuropathies/Neuralgias:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Post surgical:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Cancer Pain:	[very often]	[often]	[occasionally]	[seldom]	[not at all]
Others (Please name below):	[very often]	[often]	[occasionally]	[seldom]	[not at all]

eg. dysmenorrhoea

5) In general, do your patients benefit from TENS during or after TENS treatment (eg. VAS scores)?
[yes, considerably] [yes, a little bit] [no improvement noticed]

6) Do you recommend/prescribe TENS to patients in pain at home (eg. chronic pain)? [yes] [no] [occasionally]

7) Does your referring physician (eg orthopaedician) advise you to use TENS for pain relief?
[yes, quite often] [yes, but not very often] [never]

8) Have any of your patients ever requested TENS treatment from you? [yes] [never]

9) Have any of your patients said that they used TENS before they came to receive pain treatment from you?
[yes] [no]

10) Do you think TENS treatment is cost effective compared with other treatments (eg physical medicine, drug therapy)?
[yes] [no] [do not know]

11) Do you offer any other types of TENS-like devices such as interferential therapy to treat pain for your patients?
[yes] [occasionally] [no]

12) Are you registered with any state council? [yes] [no] [pending/renewal]
Name:
Hospital / Clinic (with address):
Contact Number:
Email:
Signature: