

ORIGINAL ARTICLE

The Awareness, Practice and Perception of Instrument-Assisted Soft Tissue Mobilization (IASTM) among Malaysian Physiotherapists

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ABSTRACT

Introduction: Instrument-assisted soft tissue mobilization (IASTM) is a relatively recent method that has been shown to help reduce muscular tension, increase flexibility and prevent tissue adhesion. Nevertheless, there is a paucity of awareness and knowledge about the benefits of IASTM, especially following injury rehabilitation, despite its many advantages. The study aimed to investigate the awareness, practice and perception of instrument-assisted soft tissue mobilization (IASTM) among Malaysian physiotherapists (PTs). **Methods:** The cross-sectional study included 133 PTs who answered an online questionnaire via a google link on their awareness and perception of IASTM in their practice. The Google link was given to the participants through email and the official Malaysian Physiotherapy (MPA) social media group. **Results:** Majority of the respondents (73.7%) are aware of IASTM technique. Despite being aware on IASTM, 74.4% of respondents reported not practicing the technique. Furthermore, 73.7% of respondents stated that the main reason they don't practice is because fingers have better force adjustment than IASTM. Over 80% of respondents revealed that practicing IASTM can save energy and convenient during myofascial release. Moreover, 82.7 % of respondents stated that one of the benefits of IASTM for PTs is that it helps alleviate stress on fingers and wrists during soft tissue mobilization. Beyond 55% of respondents stated that they will incorporate IASTM in practice in near future. **Conclusion:** According to the findings, the majority of Malaysian physiotherapists are aware of the IASTM. However, fewer than half of respondents declined to incorporate it into their future practice due to the PTs preference for feeling the patient's muscle texture. More emphasis can be given to the IASTM techniques among the PTs as the participants have mentioned that IASTM has better force exertion and saves energy when applying soft tissue massage.

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INTRODUCTION

Musculoskeletal injuries are one of the most popular health problems among physiotherapists (PTs) due to the significant risk of discomfort associated with the work that they do (1). The application of manual treatment and soft tissue mobilization by PTs contributes for 68.6% of work-related injuries since PTs had to apply pressure and force constantly and repetitively, depending on the number of patients they were treating (1,2). Thus, there were a need for a tool or device to alleviate this pressure and reduce the risk of musculoskeletal injuries among PTs. Consequently, a tool or device was required to ease this pressure and lower the incidence of musculoskeletal

injuries among PTs.

Instrument-assisted soft tissue mobilization (IASTM) is an emerging rehabilitation technique for myofascial limitation established by James Cyriax (3). The mobilization is also an excellent treatment and rehabilitation strategy for athletes and non-athletes who suffer from repetitive and cumulative injuries, as it alters the form and nature of the existing tissue to alleviate tissue adhesion and fascia movement restrictions (4). The use of tools rather than a therapist's hands is thought to provide a mechanical advantage to the practitioner by permitting deeper penetration into the skin and maybe enhancing treatment specificity, mobility, and precision (5) while simultaneously decreasing the treatment's imposed stress on the clinician's hands (6). The levels of discomfort and tiredness experienced by PTs who used IASTM to treat their patients were much lower than those experienced by therapists who used

the metal end of a reflex hammer to treat their patients (4). IASTM used by the PTs is commonly long and flat shaped stainless steel. Different sizes and shapes are suitable for different body areas such as smaller size tools are used to target the smaller joints like phalangeal joint and a long-shaped tool is for large area muscle such as quadriceps. IASTM is also known as a potential treatment for reducing pain and refining function of the soft tissues (7). IASTM includes several techniques such as sound-assisted soft tissue mobilization, Graston technique, augmented soft tissue mobilization, fascial abrasion technique, etc. However, these techniques are using dynamic compressive load and static ischemic compression to deliver force to the deeper layer around the injured tissue (8).

All the IASTM techniques are believed to be able to improve soft tissue function and reduce pain in acute and chronic musculoskeletal conditions such as tendinosis, fasciitis, and muscle spasm with significant treatment outcomes (10–12). Further, previous studies reported that IASTM was beneficial in improving range of motion, reduction of pain and reducing hypertonia (4,12,13). Despite, several benefits of IASTM, there is lack of awareness and knowledge on the benefits of IASTM especially following injury rehabilitation. Thus, the current study aimed to examine the awareness, practice and factors that affects the usage of IASTM among Malaysian physiotherapists in their regular practice.

MATERIALS AND METHODS

The study is a cross-sectional descriptive design study and convenient sampling was employed to recruit the PTs in this study. The participants of the study are full-time and part-time Malaysian PTs working in both private and public sectors. Clinical placement students are excluded from the study as the outcome of the study would update on advancements in post-professional education. Ethical approval was granted by research ethical committee of INTI International University with ethical registration number FHLS/RAC/JAN/11/2020.

The survey questionnaire was developed in English by the researcher and validated by two experts in the research field as the feedback was incorporated and amended in the questionnaire. The questionnaire consists of sociodemographic details, awareness and perception of IASTM, as well as practice and usage of IASTM during treatment. The answer formats of the questions are multiple choice, three-point Likert scale, and opened-ended questions. The objective of study was clearly explained to the participants prior to commencement of the study. An informed consent form was signed by the participants before answering the questionnaires. Participants filled out the questionnaire online via Google link that was sent to them by email and posted in the official Malaysian Physiotherapy (MPA) social media

group. Confidentiality will be ensured whereby all data will not be disclosed to the third party. The data was collected through online using a survey questionnaire designed in the google form.

The sample size in the current study was using the OpenEpi software. Estimated population of registered Malaysian PTs were two thousand and based on the assumptions that 50% (+ or - 5) of Malaysian PTs have sufficient knowledge of IASTM with 95% confidence interval and 80% power of the study, the calculated sample size was 152 participants. However, only 133 respondents completed the survey.

All data are analyzed by using SPSS® IBM® software, ver. 26 (IBM, Armonk, NY, USA). Descriptive statistics were used to interpret the sociodemographic, awareness, application and perception data in terms of percentage and frequencies.

RESULTS

Total of 133 respondents participated in the study, with a mean age group of 31.29 ± 7.83 with majority of female respondents, completed bachelor degree and working experience of 3 to 7 years. Table I represents the detail characteristics of the participants. In total 73.7% of the participants were aware of IASTM, but unfortunately, only 25.6% were applying in their practice (Table II).

Table I: Demographic profile of the participants

Variables	Mean ± SD	Frequency (n)	Percentage (%)
Age	31.29 ± 7.83		
Gender			
Male		55	41.35%
Female		78	58.65%
Highest educational level			
Diploma		53	39.85%
Bachelor’s Degree		75	56.39%
Master’s Degree		4	3.01%
Doctoral Degree		1	0.75%
Physiotherapy working experience			
Below 3 years		38	28.57%
3 to 7 years		53	39.85%
Above 7 years		42	31.58%
Sector of practice			
Private hospital		20	15.04%
Private clinic		89	66.92%
Government hospital		14	10.53%
Education field (University/college)		4	3.01%
Freelance / Locum		6	4.51%

SD, standard deviation

Table II: Awareness, application and future of IASTM among Malaysian physiotherapist

Variables	Frequency (n)	Percentage
Are you aware of IASTM?		
Yes	98	73.7%
Are you applying IASTM in physiotherapist's practice		
Yes	34	25.6%
Future applications of IASTM in practice		
Yes	76	57.1%
No	21	15.8%
Maybe	36	27.1%

IASTM, Instrument Assisted Soft Tissue Mobilization

Whereas, 57.1 percent of participants said they would consider using IASTM in their own practice in the future. Most of the Malaysian PTs who participated in the study feels that IASTM has better force exertion and save energy when applying soft tissue massage (Table III). Contrarily, 49.6% and 73.7% of participants mentioned the need to attend a course to enhance their skills and the usage of fingers would be better to adjust the amount of pressure during treatment, respectively, as their reason not to consider IASTM (Table IV).

Table III: Reasons for practicing IASTM

Variables	Frequency (n)	Percentage
IASTM has better force exertion during STM		
Agree	118	88.7%
Neutral	14	10.5%
Disagree	1	0.8%
Save energy when applying STM		
Agree	115	86.5%
Neutral	17	12.8%
Disagree	1	0.8%
Convenient in giving MFR* / pressure point		
Agree	121	91.0%
Neutral	11	8.3%
Disagree	1	0.8%

IASTM, Instrument Assisted Soft Tissue Mobilization; STM, Soft Tissue Mobilization; MFR, Myofascial Release; ROM, Range of Motion

When analyzing the impression on the benefit towards the clients, most of the PTs agree the instrument reduces pain (65.4%), muscle spasm (78.9%) and improve joint ROM (63.9%) and PTs agree that IASTM can benefit the practice by saving energy (70.7%), easier to perform technique (66.9%) and reduces stress on the fingers and wrist during practice (82.7%) (Table V).

DISCUSSION

IASTM has been proven to offer benefits such as releasing fascial restrictions, breaking down collagen cross-linkages, increasing blood flow, and possibly increasing regenerative cellular activity (14–16). Medial

Table IV: Reasons for not practicing IASTM

Variables	Frequency (n)	Percentage
Need to attend course and get certified		
Agree	66	49.6%
Neutral	60	45.1%
Disagree	7	5.3%
Course offered often in foreign country		
Agree	22	16.5%
Neutral	91	68.4%
Disagree	20	15.0%
IASTM tools are expensive		
Agree	32	24.1%
Neutral	33	24.8%
Disagree	68	51.1%
Finger can better adjust the amount pressure given to the patient		
Agree	98	73.7%
Neutral	29	21.8%
Disagree	6	4.5%

IASTM, Instrument Assisted Soft Tissue Mobilization

Table V: Physiotherapist impression on benefit of IASTM towards clients and their practice

Variables	Frequency (n)	Percentage
Reduce pain		
Agree	87	65.4%
Neutral	42	31.6%
Disagree	4	3.0%
Reduce muscle spasm		
Agree	105	78.9%
Neutral	25	18.8%
Disagree	3	2.3%
Improve joint range of motion		
Agree	85	63.9%
Neutral	42	31.6%
Disagree	6	4.5%
Improve healing process		
Agree	51	38.3%
Neutral	74	55.6%
Disagree	8	6.0%
Save energy during STM		
Agree	94	70.7%
Neutral	35	26.3%
Disagree	4	3.0%
Easier to perform STM on bulky patient		
Agree	89	66.9%
Neutral	40	30.1%
Disagree	4	3.0%
Accurate point of force exertion on pressure point		
Agree	59	44.4%
Neutral	66	49.6%
Disagree	8	6%
Reduce stress on fingers and wrist during STM		
Agree	110	82.7%
Neutral	20	15.0%
Disagree	3	2.3%

IASTM, Instrument Assisted Soft Tissue Mobilization

and lateral epicondylitis, carpal tunnel syndrome, neck and back pain, plantar fasciitis, rotator cuff tendinosis, tibialis posterior tendinosis, De-Quervain's syndrome, post-surgical scars, traumatic scars, and other pertinent injuries are all feasible indications for IASTM (17).

In current study, 73.7% are aware of IASTM, however, only 25.6% are applying in the clinical practice. The results were similar with previous study that reported that only 31.3% of participants used IASTM multiple times per day and 11.8% used it once per day (18). The study suggest the lack of IASMT usage in clinical practice could be possibly because of inconsistent research methodologies and findings, knowledge gaps, and the varying or dubious quality of official and informal sources of information make it difficult to distribute correct information or give best-practice suggestions to the clinicians (18). Besides, the lower number of IASTM usage could also be because the therapist is concerned about creating microtrauma to the patient's skin, which may result in discomfort (7). The participants in the current study agrees that IASTM is able to exert better force, save energy as well as more flexible in giving myofascial release or pressure point relief. The application of the instrument is presumed to give the clinician a mechanical advantage by permitting deeper penetration and more targeted therapy while also lowering imposed hand stress of the therapist (12,15). In addition, the use of tools for soft tissue mobilization is thought to augment the clinician's and patient's vibration sensation (19). The clinician's capacity to detect changing tissue properties (e.g., identify tissue adhesions) may be aided by the heightened perception of vibration, as well as the patient's awareness of altered sensations within the treated tissues (19,20). Similarly, a previous study indicated that respondents felt that employing instruments shortened treatment time, decreased clinician tiredness and stress, enhanced treatment accuracy, and resulted in improved patient outcomes (18). With more knowledge about IASTM, PTs who use manual therapy on patients may be able to lessen the stress they put on themselves and, as a result, avoid getting hurt at work in the near future.

On the contrary, participants cited the necessity of taking courses and the use of fingers as a more realistic and precise way to assess the amount of applied force as their rationale for not using IASTM. Furthermore, the absence of unanimity on best-practice guidelines and differences in practical techniques among IASTM manufacturers may result in a wide variety of applications among those who have received formal training, resulting in a lack of IASTM utilization in their practice (18,21). Perhaps a future study on the clinical guidelines on the appropriate technique and methods can be developed in consensus with the recent evidence-based literature for the clinicians to overcome this issue.

Participants in the current study agree that IASTM

helps to offer several benefits to their clients including reducing pain, muscle spasm, improve healing process, increase range of motion and others. This was supported by a previous study, which concluded that IASTM may be an effective treatment intervention for reducing pain and improving function in less than three months for a variety of conditions affecting the spine, upper extremity, and lower extremity, as well as for providing myofascial release, interrupting nociception, and improving underlying tissue mobility (7). Physiologically, IASTM therapy may also stimulate connective tissue remodeling by resorbing excess fibrosis and encouraging collagen repair and regeneration as a result of fibroblast recruitment (19,21). As a result, scar tissue, adhesions, and fascial limitations may be released and broken down (19,21). With the given positive effects of IASTM, the instruments can be useful in physiotherapy rehabilitation, especially in the musculoskeletal and sports areas, as well as in athletic training.

The limitation of this study is inadequate participants in this study. Despite the attempt to connect with the physiotherapy in Malaysia through social media, the response rate was low. Alternate methods of survey distribution, such as mailings or face to face, may have yielded in a greater response rate. Additionally, the questionnaire included more targeted closed-ended questions regarding IASTM. Different open-ended questions may have shown varying perspectives on how PTs utilize IASTM in their practice.

CONCLUSION

The majority of Malaysian PTs are aware of IASTM and have a good knowledge of its principles. Nevertheless, only minority of them employ IASTM into their regular practices, preferring instead to feel the aberrant muscle texture on the patient's body. PTs are also concerned about creating microtrauma to the patient's skin, which may result in discomfort. However, the practice of IASTM may offer larger benefits to the clients as well to the PTs in the long run. Qualitative research with a larger population is recommended in the future.

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