



KNOWLEDGE OF PHYSIOTHERAPY MANAGEMENT FOR HYPERHIDROSIS AMONG PHYSIOTHERAPY STUDENTS

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ABSTRACT

- **Introduction:** Hyperhidrosis refers to a generalized or localized excess function of the eccrine glands, leading to inappropriate amounts of sweating, that is more than required for thermoregulation. Iontophoresis is a therapeutic technique in which the ions are introduced into the body tissues through the patient’s skin. Being a Physiotherapy student it is important to have knowledge about hyperhidrosis and iontophoresis as a Physiotherapy management for the same. The aim of this study was to study the knowledge of Physiotherapy management for hyperhidrosis among Physiotherapy students. The objectives of the study were to evaluate the knowledge of iontophoresis as a management option for hyperhidrosis and parameters of the treatment. **Methodology:** This was a survey type of study in which convenient sampling method was used. This study was conducted in Satara district with duration of 6 months. A total of 460 Physiotherapy students were included in the study, who filled in the questionnaire. The questionnaire comprised of 8 questions. Data was analyzed using Instat software. The questionnaire was sent to the students and responses were taken and analysed. **Results:** Response rate was 100%. Among all the participants, 66% of undergraduate Physiotherapy students are aware of Physiotherapy management for hyperhidrosis. **Conclusion:** This study concludes that there is a moderate level of awareness among Physiotherapy students about Physiotherapy management for hyperhidrosis.

Keywords Hyperhidrosis, Physiotherapy, Iontophoresis, Knowledge

INTRODUCTION

Hyperhidrosis refers to a generalized or localized excess function of the eccrine glands, leading to inappropriate amounts of sweating, that is more than required for thermoregulation [1]. According to studies, there is prevalence of 2.8% in the United States of America (USA), 9.3% in Germany (for focal hyperhidrosis), and 2.79-5.75% in Japan [2]. In clinical studies,

resting palmar secretion of $>50 \text{ mg/min/m}^2$, resting plantar secretion of $>50 \text{ mg/min/m}^2$ and resting axillary secretion of $>150 \text{ mg/min/m}^2$ are defined as abnormal [3]. Females (**56.25%**) are the dominant gender affected as compared with the males (**43.75%**). Hyperhidrosis can lead to a major inconvenience and embarrassment to the sufferers [3]. It is extremely debilitating. It leads to moist hands and feet, even dripping of sweat from the hands. It makes any physical contact like holding hands, shaking hands or hugging, humiliating for the patient [2]. The condition can predispose to or worsen diseases like fungal infections, contact dermatitis, pompholyx and pitted keratolysis. Maceration of the skin, particularly in the toe clefts is a common co-morbidity [3].

It can be divided into two types – Primary hyperhidrosis and Secondary hyperhidrosis. Primary hyperhidrosis is the most common type. It is characterized by excessive sweating localized to palms, soles and/or axillae that is not associated with a systemic disorder. A family history can be elicited in **60-80%** of patients with primary hyperhidrosis [4]. Secondary hyperhidrosis is associated with or caused by another systemic disorder. The causes of secondary hyperhidrosis can be subdivided into categories based on the source of neural impulse driving the response: cortical, hypothalamic, medullary, spinal and local [4].

A large number of therapeutic options have been used for the treatment of hyperhidrosis. Iontophoresis is a therapeutic technique in which the ions are introduced into the body tissues through the patient's skin [7]. A constant DC is used for driving the ions into the patient's body tissues. The positively charged chamber (cathode) will repel a positively charged chemical while the negatively charged chamber (anode) will repel a negatively charged chemical into the skin [5]. This is one of the satisfactory methods for controlling hyperhidrosis of hands and feet. It acts by temporarily blocking the sweat duct in the stratum corneum. Either only tap water or glycopyrronium bromide along with tap water can be used. Although the exact mechanism by which iontophoresis reduces sweating remains unclear, some hypotheses have been proposed, including sweat gland pore obstruction secondary to hyperkeratinisation, impairment of the electrochemical gradient of sweat and increased stimulus threshold of the sympathetic nervous system [6].

Iontophoresis permits the use of a drug with a short biological half-life, this is because the drug is delivered directly to the target organ without the need to circulate and re-circulate in the blood [5]. It is painless, sterile and a non-invasive method. Less medication needs to be handled by the liver, and there is a much lower chance of overdose. There is a rapid termination of administration of the medication, if needed, by simply turning off the iontophoretic delivery system. One common disadvantage of iontophoresis is chemical burn that usually occurs due to DC and not because of the ion being used in the treatment [7]. It has been used productively to treat hyperhidrosis, tendinitis, bursitis, and arthritis, even gout and Peyronie's disease. The modality used for the procedure of iontophoresis is Electrical Nerve Stimulator (ENS). Galvanic current (GC)/Direct Current (DC) is also known as Interrupted Direct Current (IDC). Galvanic current has no reverse pulse and the pulse duration is about 100ms, while faradic current has biphasic waveform and pulse duration is

about 0.3ms [5]. For standard application, the high voltage stimulators deliver peak output of around 150 V while the low voltage ones deliver 100 V or less [5]. The output values for the pulses are expressed in miliamperes (mA) or volts (V) and this depends on if the stimulator produces a constant current or constant voltage output [5].

Hence, it is important that knowledge and awareness of the Physiotherapy students about the procedure should be ascertained. The objective of the study was to determine the knowledge and awareness of hyperhidrosis and iontophoresis as Physiotherapy management among Physiotherapy students.

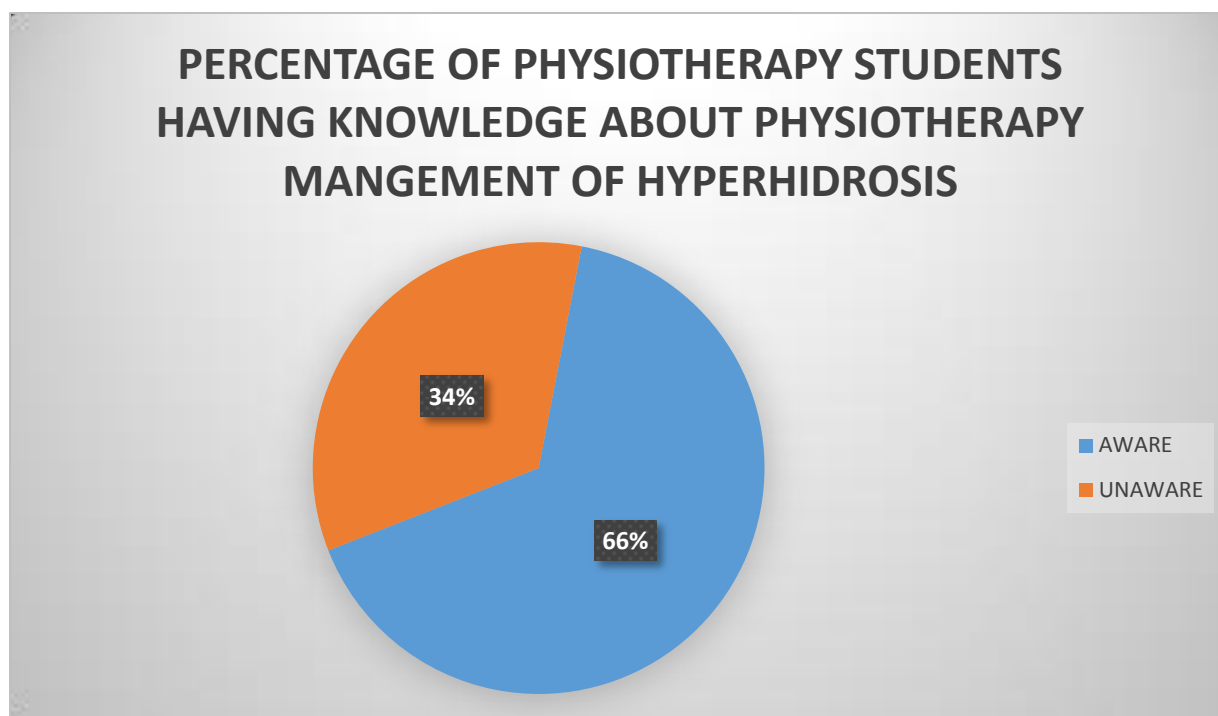
MATERIALS AND METHODOLOGY

An approval for this study was given by by Ethical Committee of Krishna Institute of Medical Sciences, “Deemed To Be University” Karad, Maharashtra . This is a study of assessment of knowledge of Physiotherapy management for hyperhidrosis among Physiotherapy students. This study was conducted in Physiotherapy colleges in Satara district. Sample size was calculated and the subjects were selected by using convenient sampling method. Sample size was 460. The inclusion criteria and exclusion criteria was applied. The inclusion criteria was undergraduate Physiotherapy students. Exclusion criteria was post-graduate Physiotherapy students and non-Physiotherapy students. The questionnaire comprised of 8 questions and demographic data was circulated among the samples. The questions were regarding their knowledge about iontophoresis as a Physiotherapy management for hyperhidrosis.

RESULTS

	FREQUENCY	AVERAGE
Aware	303	66%
Unaware	157	34%

Table no. 1- FREQUENCY AND PERCENTAGE OF PHYSIOTHERAPY STUDENTS HAVING KNOWLEDGE ABOUT PHYSIOTHERAPY MANAGEMENT FOR HYPERHIDROSIS.



Graph no. 1- PERCENTAGE OF PHYSIOTHERAPY STUDENTS HAVING KNOWLEDGE ABOUT PHYSIOTHERAPY MANAGEMENT FOR HYPERHIDROSIS.

The above graph clearly indicates that 66% of undergraduate Physiotherapy students are aware of Physiotherapy management for hyperhidrosis.

DISCUSSION

This study was designed primarily to determine the knowledge, opinion and use of iontophoresis in the management of hyperhidrosis among Physiotherapy students.

Hyperhidrosis refers to a generalized or localized excess function of the eccrine glands, leading to inappropriate amounts of sweating, that is more than required for thermoregulation.

Hyperhidrosis can lead to a major inconvenience and embarrassment to the sufferers. It is extremely debilitating. It leads to moist hands and feet, even dripping of sweat from the hands. It makes any physical contact like holding hands, shaking hands or hugging, humiliating for the patient.

The condition can predispose to or worsen diseases like fungal infections, contact dermatitis, pompholyx and pitted keratolysis. Maceration of the skin, particularly in the toe clefts is a common co-morbidity.

A large number of therapeutic options have been used for the treatment of hyperhidrosis. Iontophoresis is a therapeutic technique in which the ions are introduced into the body tissues through the patient's skin.

Ichihanshi demonstrated that sweating of the palms could be decreased by Iontophoresis. His work went largely unnoticed until Bouman and Grunewald Lentzer demonstrated that the

addition of an ionizable material to the water was not necessary to obtain a therapeutic effect [8].

A previous study reported that individuals with hyperhidrosis spend 15 to 60 min in managing symptoms of the condition and that 50 to 70% change their clothes more than twice a day. One in every five patients relies on some form of accessory to manage their daily life normally [9]. Mandleco reported that the pH changes that occur with direct currents (DC) have long been considered as causing skin burns [10].

Hence, it is important that knowledge and awareness of the Physiotherapy students about the procedure should be ascertained. The objective of the study was to determine the knowledge and awareness of hyperhidrosis and iontophoresis as Physiotherapy management among Physiotherapy students.

A survey was done using a questionnaire sent through Google forms.

A percentage of students having knowledge about Physiotherapy management for hyperhidrosis was calculated. The result of this study revealed that only 66% of undergraduate Physiotherapy students are aware of Physiotherapy management for hyperhidrosis.

CONCLUSION

This study concludes that there is a moderate level of awareness among Physiotherapy students about Physiotherapy management for hyperhidrosis. It is utmost important to spread awareness about iontophoresis as an option for managing hyperhidrosis.

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