

# Epidemiological Study Of The Awareness, Acceptance And Appliance Of Cam Therapies With Reference To Migraine Management Through Technological Intervention

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**Abstract – Technological intervention like Artificial Intelligence, augmented and virtual reality etc., and collaborative research with neurological, pharmacological, genetic likewise research arena will pave way to unveil the hidden secrets of barely researched Complementary and Alternative Medicine (CAM) therapies. This epidemiological study among the youngsters and in particular with reference to migraine management, aims to project the importance of intervention of these technologies and scientific research in the revival of CAM therapies. As these technologies like Telemedicine, could also be instrumental in taking the ultimate benefits of CAM therapies like precision medicine to public.**

**Key words: Complementary and Alternative Medicine, Neuroscience, Migraine.**

## I. INTRODUCTION

Technological progression has always been instrumental for overarching trends to unprecedented levels in medicine. Augmented and virtual reality, Artificial Intelligence, etc are technological platforms employed in monitoring and diagnosing one's health condition leading to the current scenario of Precision Medicine which is in vogue. But the same Precision Medicine had been the process of treating and treatment with CAM therapies from age old times. The Scientific basis of CAM therapies are something that is in par to unveil the hidden algorithm in any nature's action. The semantic barriers and poor scientific rooting eventually has removed it from the status of conventional medicine in their respective regions to complementary and Alternative therapy. As had been done in case of conventional medicine, revival of the CAM therapies can be achieved through collaborative research with Biomedical, Biotechnical, neuroscience and related areas along with technological intervention and thus reach the unreached.

Complementary and Alternative medicine (CAM) refers to a group of diverse medical and health care systems, practices and products, that are not presently considered to be part of conventional medicine (Allopathy) [1,2]. According to National Centre for Complementary and Alternative Medicine, some of them are mind and body practices like yoga and meditation, massage therapy, acupuncture, acupressure, relaxation techniques etc., and other alternative medical practices to name a few are like Ayurveda, Siddha, Homeopathy, etc. A few of these could well be an alternative for conventional medicine whereas others could be combined with conventional medicine to give better results.

For example, one of challenges faced by the neurologists and neurosurgeons is management of headache. Among the different types of headache, migraines are a form of neurological disorder which is severe and debilitating yet has no cause or cure. This is a ubiquitous familial disorder characterized by periodic, commonly unilateral, often pulsatile headaches which begin even probably in childhood, adolescence or early adult life and recur with diminishing frequency during advancing years [3].

Migraine Research Foundation states that the world's population suffers from migraine making it the 3<sup>rd</sup> most prevalent illness in the world which leads to enormous financial burden because of the loss of productivity. To overcome this, the pharmacological intervention along with non-pharmacological approaches is recommended in preventive migraine therapy [4].

This has led to conduct an epidemiological study to assess the extent of acceptance and awareness on CAM therapies in a group of youngsters and subsequently in a group of migraineurs. Also, assessment was done with reference to the migraineurs eagerness in subjecting themselves for CAM therapy and for scientific study with respect to migraine management. The objective of the study is to project the importance of involving the researchers in pharmacological, neuroscience, etc in revival of CAM therapies and taking its ultimate benefits to the public.

## II. MATERIAL AND METHODS

A Cohort of youngsters of age between 18 – 20 years was considered with varying educational as well as personal backgrounds. A semi-structured questionnaire was circulated through a Google form or hard copy depending on the individual's requirement to know about their backgrounds as well as their extent of awareness about CAM therapies. Their willingness to practice them was also assessed.

These results prompted to test the ground reality of the situation where another cohort of 20 volunteers of various age groups who had migraine was also involved in the study. They were also questioned about their knowledge on CAM therapies and the role of CAM therapies in migraine management. They were also requested for their willingness to subject themselves for CAM therapy as well as for genetic studies. The answers rendered were analysed to know about their knowledge on CAM therapies.

The questionnaire had the following components. The first component elucidated their details of schoolings and place where they dwell, to decide on the educational as well as personal background. The second part consists of evaluating their familiarity with the name of different CAM therapies. This not only tests them but also exposes them to different CAM therapies available. If they are familiar with the names then the expertise on the origin, method of treatment, efficacy, etc., were tested along with whether they would use it for Short term or Long term ailments.

## III. RESULTS AND DISCUSSION

The study on assessing the awareness of CAM therapies was conducted in order to initiate a process to guard the arcane of knowledge that would otherwise be lost in the midst of monomaniacal focus on Allopathy treatments. The questionnaire was designed not only to elucidate the influence of individual's personal background, their educational background and the environment, on their knowledge on the CAM therapy, but also to dissipate information and trigger the interest of people in acquiring the knowledge related to CAM therapy. This also would bring to light the necessity of CAM therapy to be made as an integral part of Health care system.

The answers rendered by the cohort consisting of youngsters of age 18 – 20 indicated the following observations. Considering the gender, the females were more knowledgeable about few CAM therapies that are generally practised in their respective region and also were inclined in experimenting them. Comparing the youngster's opinion from urban and rural backgrounds, the urban youngsters were familiar with names of the CAM therapies without any knowledge of what it really deals with. But the rural youngsters especially the counterparts who had their education from rural schools had an edge over others on the knowledge of certain CAM therapies which also was one of the factors to help them assess and express their opinion more clearly on the efficacy of the Therapies.

The rural school bred youngsters knowledge on the home remedies prescribed in Ayurveda, Siddha, Acupressure therapies etc., and their observations on the use of CAM therapies by their ancestors, villagers and in some cases by them due to the compulsion from parents, influenced them to be inclined to experiment with CAM therapies but believed that clinical authentication was only available but without any scientific rooting. Only 5% of the cohort

believed that the concepts and treatments should have had a scientific basis which was not put forth with recent scientific Jargons.

The reason that rural students are more inclined to use CAM is because of lack of the high end health care systems in their area. The need to travel a long distance even to get the basic health care and even the first aid measures has led their ancestors to adopt for the home remedies and few CAM therapies which are prevalent in their area rather than for the Allopathy. This exposure to see and in few cases self experience with the CAM therapies has made them to incline towards usage of CAM therapy. The city bred youngsters, as well as city school bred youngsters both were not inclined because of the societal impact and also of the access to high ended health care system which though costs a lot and in some cases with side effects inherent to the drug. Their expectations extended for an immediate solution and relief, without any restrictions in their dietary habits and life style.

Inspite of all their apprehensions 80% of the youngsters were of opinion that they probably would give a try for long term ailments and especially where the chances of recovery through Allopathy is less than 20%.

This prompted to study with individuals who have an ailment that is more prevalent and something which is debilitating but yet has no cause or cure. So people with migraine were considered for the study.

When the 20 volunteers with migraine were questioned about their knowledge on CAM therapies and their role in migraine management, their answers revealed that 70% of them knew about existing CAM therapies. Other 30% were not aware of most of the CAM therapies apart from Yoga, Ayurveda and in some cases acupuncture. In these twenty only one person was using as a combinatorial therapy in conjunction with conventional Allopathy.

It was also found that when enquired about their awareness on different CAM therapies the volunteers answered that they had researched to find a treatment for migraine which will relieve them from pain spontaneously or in a very short duration. Their research had found that a instantaneous remedy wasn't available. This suggests that though they were aware of different therapies they were able to get an overview of information and not the exact remedies. The term Yoga was familiar with all the youngsters but with a view as only a physical exercise to keep oneself physically fit. The real intricacy of Yoga and their application extending to be a therapy was beyond their comprehension let alone about not knowing about the scientific studies conducted through neuroimaging.

The answers also revealed that they weren't willing to subject themselves for CAM therapy but were very eager to subject themselves for scientific study which could present a scientific fact for their problem and might lead a remedy more thro Allopathy. The lack of their willingness to subject themselves for CAM therapy was found to be due to lack of time for a longer period and lack of inclination towards restricting themselves to dietary habits and change of lifestyle.

The lack of belief was found to be because of the lack of standardised approach by every therapist and proper scientific evidence relating to the mechanism of action of each CAM therapy, whereas, conventional medicine provides the proof through research on pharmacological intervention on its action.

For example, the medications prescribed by Allopathic doctors for migraine are Acetaminophens, Triptans, Ergotamine derivatives, etc. The mechanism of action of these drugs in treating migraine are known and proven scientifically. Sumatriptan and Zolmitriptan – 5-HT<sub>1B/1D</sub> serotonin agonists are used for the treating migraine. They contrast the NMDA-induced synthesis of NO, which is one of the facts that triggers headache [5]. According to Cirrhana, at least a part of triptan - serotonin agonist action for migraine treatment is based on blockage of glutamate effects [6].

Similarly, several neuroscientific researches on migraine have been carried out in order to elucidate the cause as well as the mechanism to support the drug efficacy. The extent of research has been to the point that migraine is reported to be genetically transferrable and that the genetics of common and classical migraine are not the same and each has their own hereditary characteristics. The studies are conducted even to pinpoint the SNPs which might be the cause for the different types of migraine [7 - 9].

Scientific proofs like these that relate the medicine/therapy to the disease mechanism make people feel safe about the treatment even though they are prone to side effects and are expensive, than facing the unknown. In the past decade or two, research has been initiated and carried out to validate the effectiveness of various CAM therapies for many diseases. Kisan et.al., proved the efficacy of using yoga as an adjuvant therapy along with conventional medicine in patients with migraine. The results of the autonomic function test and clinical assessments which include intensity of headache, frequency of headache and headache impact, showed significant improvement

in clinical variables and vagal tone along with reduced sympathetic activity for those with adjuvant yoga therapy [10]. Vaidya et.al., studies using Ayurvedic Treatment Protocol comprising five Ayurvedic medicines along with good sleep and regular diet in migraineurs, have shown effectiveness of this protocol in pain management in migraine [11]. Zhao et al., studied on acupuncture treatment to migraine, with reference to the effectiveness of long term acupuncture treatment on active and inactive acupoints through randomised controlled trials and resting state functional magnetic resonance imaging (fMRI). It was noted that long-term active acupoint therapy elicited a remarkable cerebral response than inactive acupoints [12]. These studies establish that acupuncture, yoga and Ayurveda are effective in migraine treatment. Similarly other mind-body interventions like biofeedback therapy, relaxation therapy etc., could as well be used to treat migraine [13, 14].

Even though studies are being carried out to confirm the effectiveness of a CAM therapy on a particular disease, there are a very limited number of research articles which states the mechanism of action of a CAM therapy. Though many CAM therapies are available to cure diseases as well people choose to take conventional medicines because of the availability and accessibility for scientific proofs in addition to the non-insistence in lifestyle change.

#### IV. CONCLUSION

This century though has marked the beginning of a new era, and the study indicates that though people are receptive to CAM therapies through positive attitudes, amalgamating CAM therapies with Science and Technologies like PET-CT Scan, fMRI, MRA, etc., is well perceived to be a necessity. Steady urge for scientific rooting of CAM therapeutic principles emphasize the importance of establishing stronger evidence with systematic approach. Also dissemination of knowledge through presentation in global scientific arena, along-with minimising its semantic barriers that helps to comprehend the facts by the people exogenous to it, is inevitable.

These would necessitate collaboration with the researchers in the scientific world similar to neuroscientists as in the case of migraine, and involve Artificial Intelligence, Augmented Reality and Virtual Reality platforms to propose and to correlate CAM therapies action with the inherent body action and disease mechanism. This when accomplished, i.e., when the correlation is established through scientific facts, the significance of CAM therapy will come to light.

The recent epidemic (dengue Fever) and pandemic deaths could well have been averted if the scientific rooting had been ensured for the few CAM therapeutic drugs, which despite the lack of standardised scientifically accepted procedure, were consumed by the South Indian population to increase the immunity which made them to emerge comparatively unscathed. So the pressing question now is, "Is helping the community for living longer and sidestepping crippling conditions through collaborative research is worth a small investment of one's time?" This needs to be decided by the CAM therapist as well as researchers and various funding agencies. Of course, optimisation of technological intervention always needs to be ensured.

Thus, if through Technological intervention the hidden algorithm of CAM therapy is unveiled, the resurgence of CAM would be inevitable leading to a health care system, which is patient friendly, extremely cost effective as well as easily accessible.

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