



INTERNATIONAL JOURNAL OF PHARMACEUTICAL RESEARCH AND BIO-SCIENCE

NATION-WIDE TREND OF NON-PHARMACOLOGICAL MEASURES TO RELIEVE HEADACHE

AAMIR MUSHTAQ¹, QAISER JABEEN¹, ALAMGEER², MUHAMMAD IMRAN KHAN¹,
ANUM SAQIB¹

1. Department of Pharmacy, Faculty of Pharmacy and Alternative Medicine, the Islamia University of Bahawalpur, Bahawalpur-63100, Pakistan.

2. Faculty of Pharmacy, University of Sargodha, Sargodha, Pakistan.

Accepted Date: 11/12/2013; Published Date: 27/12/2013

Abstract: Conventional approaches for headache control and management are in common practice all over the world and their effective use is increased indefinitely day by day. These methods are becoming so famous that in some countries like Africa and Indopak they are going to be the topic of interest in their National health care system. The purpose of study was to explore the general awareness and uses of traditional and conventional approaches of headache management in rural and urban civilizations of the Punjab Province of Pakistan. In this survey based study, the questionnaires containing all the basic descriptions related to conventional modes of headache management were distributed randomly among the people, aged 20 to 30 years of either gender in selected areas of the Punjab province. SPSS was used for analysis of data and levels of significance were found as well. Results indicated that rural people use prayers (34.9%), herbal remedies (9.9%), hydrotherapy (3.5%), massage (2.3%), relaxation (6%), rest (11.9%), self medication (19.5%) and yoga (0.9%). However, urban people mostly use self medication (32.2%), prayers (22.8%), teas (14.3%), relaxation (9.6%) and yoga (3%). Use of acupuncture, aromatherapy, ayurveda, chelation therapy, chiropractic care, homeopathy and naturopathy was observed rarely in all the groups. There is need to promote the worth and benefits of these approaches to enjoy disease free healthy life.

Keywords: Aromatherapy, Massage, Yoga, Homeopathy, Acupuncture.



PAPER-QR CODE

Corresponding Author: MR. AAMIR MUSHTAQ

Access Online On:

www.ijprbs.com

How to Cite This Article:

Aamir Mushtaq, IJPRBS, 2013; Volume 2(6): 452-464

INTRODUCTION

Headache is a universal problem and having several bad impacts on quality of life of general population ¹. General principles applied for the management and control of headache include acute and episodic medications, prophylactic treatment and non pharmacological approaches ². Non-Pharmacological approaches which are commonly employed in relieving headache disorders include, use of nutraceuticals, supplementary diets, herbal preparations, homeopathic remedies, recreational drugs, behavioral therapy, physical therapy, cognitive behavioral therapy, relaxation training and other techniques like acupuncture, yoga, massage, aromatherapy, brisk walk, bath, exercise, change in sleep pattern, hydrotherapy and rest etc ³.

Rural populations generally ignore and suppress the signs and symptoms of headache up to certain extent and mostly rely on traditional mode of treatment due to their cultural acceptability and ease of accessibility. On the other hand several modern societies (living in US, UK and China) are diverging towards the safe and efficacious use of CAM (complementary and alternative medicines) from last few years ^{4,5}.

Majority of people in Austria and Germany (81.7%) rely on conventional therapies and alternative approaches of headache management i.e. massage, acupuncture, nutraceuticals and herbal ⁶. There is strong evidence for safe and efficacious use of non-pharmacological headache relieving measures, which are in common practice either alone or in conjunction with pharmacological therapies ⁷. In industrialized states, the use of acupuncture is very famous either as a single modality or a part of complex headache treatment plan. Acupuncture is a part of TCM (Traditional Chinese medicine) which involves the insertion of needles into the skin at certain points which results into stimulation of certain acupuncture points ⁸⁻¹⁰. Aromatherapy (use of essential oils from flowers and herbs for treatment of different diseases) has been known by Egyptian and Indian people from centuries and has been the part of their tradition. To treat headache, aromatherapy is done by smelling and massaging of volatile oils into the head skin ¹¹. This is also practiced in UK by some qualified practitioners under the umbrella of AOC (The Aromatherapy Organizations Council) ¹². However, ayurveda is a poorly analyzed disease management system in which combination of different things (minerals, herbs, and diet) is prescribed along with lifestyle modification to cope a particular illness like headache. Research has proved the efficacy of ayurveda in management of isolated patients suffering from chronic migraine headache ¹³.

Chiropractic is also employed in treatment of headache disorders in different European, American and Asian countries. It involves the manual therapy techniques like joint adjustment and vertebral column manipulation to combat the physical illness ¹⁴. Another non-pharmacological approach which is going to be very popular in developed countries is

naturopathy that involves the implementation of valuable principles of life to improve immunity and prevent a particular disease. Diet modification, behavioral stability, mood freshness, relaxation, peace, security, attention diversion, simple medicines and minor surgeries are some techniques which are practiced in naturopathic therapy ¹⁵.

A well familiar conventional method, Yoga involves the physical and mental exercise along with spiritual, divine, delightful and heavenly thoughts to overcome any illness. This was very famous in ancient Indians but its popularity has been spread in modern civilizations as well, where, it is in practice now a days. It relieves headache by providing relaxation both to body and mind ¹⁶. Tension headache can be overcome by structured massage therapy which deals with handling of surface and deeper layers of muscles and connective tissues by applying pressure, moving and vibrating either manually or mechanically. This has been very famous in Chinese, Indian, Korean, Japanese, Egyptian, Roman and Greece civilizations since very long ago ¹⁷. Treatment of diseases by prayer has been commonly practiced in the people of US and Indo-Pak. Different survey based studies proved that people often use prayers respective to their religions at some stage even in common disease conditions ¹⁸.

METHODOLOGY

For the purpose of study four thousand people of either gender in between the ages of 20 to 30 years were selected at random from different rural and urban areas of the Punjab Province of Pakistan. Four big cities Lahore, Sahiwal, Sargodha and Bahawalpur along with their rural areas were selected for the survey. Before the collection of data, the people were informed and briefed about the purpose and outcomes of the study. The specifically designed questionnaires were circulated among the people and they were asked first to read and understand the questionnaire with full attention and then to add up of necessity information. They were requested specifically to add just true information with full responsibility and quite honestly on the questionnaires. The illiterate people, especially the residential of rural areas, were briefed about questionnaire in their local language and necessarily information was collected orally and noted down in questionnaire by our team members. At the end of the survey, all the participants were appreciated and thanked specially for being the part of our study.

Questionnaire Designing

The questionnaire was designed specifically in such a way that it enclosed all the aspects of the study and was pretested rigorously. The questionnaire contained conventional and non-pharmacological methods of headache treatment which are in common practice in different societies i.e. acupuncture, application of balm on forehead, aromatherapy, ayurveda, chelation therapy, chiropractic care, energy diet, herbal remedies, homeopathy, hydrotherapy, hypnosis, massage, naturopathy, prayers for health, pharmacotherapy, relaxation, rest, self medication,

use of tea/ coffee and yoga. At initial stage, the first draft of questionnaire was analyzed and reviewed by the specialists and questions were modified accordingly. Finally selected specimen was printed out and copies were made for distribution among the people. The study was approved by the research Ethics Committee of the institution.

Statistical Analysis of the Data

After completion of survey, all the questionnaires were observed carefully and categorized into sets of urban and rural population, separately. More specifically, data was also divided on the basis of gender to find variation of trend of conventional approaches between both of genders. Four thousand (n= 4000) sample size was selected from all the four cities and villages of the Punjab. After successful data collection, the data was correctly entered in SPSS and statistics was applied to find the percentages of different approaches, which were commonly used by the people. P values were found by the application of statistical t-test to find level of significance. P value less than 0.05 was considered as significant.

RESULTS

The results indicated that mostly the rural people rely on prayers (34.9%), self medication (19.5%), rest (11.9%), herbal treatment (9.9%) relaxation (6%) and teas (3.7%) to treat headache disorders. Similarly, the residential of urban areas mostly employ self medication (32.2%), prayers (22.8%), teas (14.3%) relaxation (9.6%), rest (6.1%), yoga (3%), and pharmacotherapy (2%) to manage their headache. Use of acupuncture, ayurveda, chelation therapy, chiropractic care, homeopathy, energy diet, massage, and aromatherapy is less frequently employed in both rural and urban areas. Moreover, greater no of female population are focusing towards the use of prayers (30.3%), rest (11.4%), relaxation (9.8%) balm application (2.9%), massage (2.2%) and pharmacotherapy 2.1% as compared to male population who mostly use self medication (29.7%), prayers (27%), rest (6.3%) relaxation (5.8%), hydrotherapy (3.6%), energy diet (2.1%) and massage (1.5%). Herbal remedies are equally utilized (5.4%) in both genders. Table 1 indicates the relative percentages and P values of conventionally employed approaches among male and female population and similarly, table 2 elaborates the relative percentages and P values among the rural and urban population. Table 3 represents the uses of different non-pharmacological approaches among US people¹⁹.

Table 1: General trend of non-pharmacological approaches in male and female population

Techniques	Gender		Total	P Value
	Male N (%)	Female N (%)		
Acupuncture	5 (0.3%)	2 (0.1%)	7 (0.2%) ^{ns}	0.208
Application of balm on forehead	15 (0.8%)	59 (2.9%)	74 (1.9%) ^{***}	<0.001
Aromatherapy	-	5 (0.2%)	5 (0.1%) [*]	0.035
Ayurveda	-	-	-	-
Chelation therapy	-	-	-	-
Chiropractic care	4 (0.2%)	1 (0%)	5 (0.1%) ^{ns}	0.173
Energy diet	41 (2.1%)	27 (1.3%)	68 (1.7%) [*]	0.037
Herbal remedies	106 (5.4%)	110 (5.4%)	116 (5.4%) ^{ns}	0.498
Homeopathy	15 (0.8%)	3 (0.1%)	18 (0.5%) ^{**}	0.003
Hydrotherapy	70 (3.6)	22 (1.1%)	92 (2.3%) ^{***}	<0.001
Hypnosis	22 (1.1%)	33 (1.6%)	55 (1.4%) ^{ns}	0.118
Massage	30 (1.5%)	46 (2.2%)	76 (1.9%) ^{ns}	0.062
Naturopathy	6 (0.3%)	12 (0.6%)	18 (0.5%) ^{ns}	0.140
Prayers for health	528 (27%)	620 (30.3%)	1148 (28.7%) [*]	0.013
Pharmacotherapy	20 (1%)	42 (2.1%)	62 (1.6%) ^{**}	0.006
Relaxation	114 (5.8%)	200 (9.8%)	314 (7.9%) ^{***}	<0.001
Rest	124 (6.3%)	234 (11.4%)	358 (9%) ^{***}	<0.001
Self medication	581 (29.7%)	459 (22.4%)	1040 (26%) ^{***}	<0.001
Use of tea/ coffee	258 (13.2%)	108 (5.3%)	366 (9.2%) ^{***}	<0.001
Yoga	14 (0.7%)	64 (3.1%)	78 (2%) ^{***}	<0.001

Levels of significance ($P > 0.05 =$ ^{ns} *Non significant*, $P < 0.05 =$ ^{*} *Significant*, $P < 0.01 =$ ^{**} *Significant*, $P < 0.001 =$ ^{***} *Significant*)

Table 2: General trend of non-pharmacological approaches in rural and urban population

Techniques	Living Status		Total	P Value
	Rural N (%)	Urban N (%)		
Acupuncture	-	7 (0.3%)	7 (0.2%)**	0.009
Application of balm on forehead	27 (1.4%)	47 (2.3%)	74 (1.9%)*	0.021
Aromatherapy	2 (0.1%)	3 (0.1%)	5 (0.1%) ^{ns}	0.522
Ayurveda	-	-	-	-
Chelation therapy	-	-	-	-
Chiropractic care	-	5 (0.2%)	5 (0.1%)*	0.035
Energy diet	31 (1.6%)	37 (1.8%)	68 (1.7%) ^{ns}	0.339
Herbal remedies	193 (9.9%)	23 (1.1%)	216 (5.4%)***	0.000
Homeopathy	7 (0.4%)	11 (0.5%)	18 (0.5%) ^{ns}	0.272
Hydrotherapy	69 (3.5%)	23 (1.1%)	92 (2.3%)***	<0.001
Hypnosis	51 (2.6%)	4 (0.2%)	55 (1.4%)***	<0.001
Massage	45 (2.3%)	31 (1.5%)	76 (1.9%)*	0.043
Naturopathy	5 (0.25%)	13 (0.65%)	18 (0.45%) ^{ns}	0.059
Prayers for health	681 (34.9%)	467 (22.8%)	1148 (28.7%)***	<0.001
Pharmacotherapy	21 (1.1%)	41 (2.0%)	62 (1.6%)*	0.012
Relaxation	117 (6.0%)	197 (9.6%)	314 (7.9%)***	<0.001
Rest	233 (11.9%)	125 (6.1%)	358 (9.0%)***	<0.001
Self medication	381 (19.5%)	659 (32.2%)	1040 (26.0%)***	<0.001
Use of tea/ coffee	73 (3.7%)	293 (14.3%)	366 (9.2%)***	<0.001
Yoga	17 (0.9%)	61 (3.0%)	78 (2.0%)***	<0.001

Levels of significance ($P > 0.05 =$ ^{ns} Non significant, $P < 0.05 =$ * Significant, $P < 0.01 =$ ** Significant, $P < 0.001 =$ *** Significant)

Table 3: Prevalence of non-pharmacological approaches in US

Techniques	Prevalence (%)
Ayurvedic Medicine	6% (N = 15)
Herbal Supplements/Therapies	67% (N = 168)
Naturopathy	10% (N = 25)
Lifestyle Diet	59% (N = 148)
Massage Therapy	49% (N = 123)
Yoga	59% (N = 148)
Vitamin Consumption	53% (N = 133)
Acupuncture Therapy	7% (N = 18)
Chiropractic Care	31% (N = 78)
Meditation	56% (N = 140)
Hypnosis	9% (N = 23)
Homeopathy	17% (N = 43)
Progressive Relaxation	29% (N = 73)

DISCUSSIONS

It is quite clear that most of the rural people rely on prayers for their headache management. The main reason behind this is ignoring attitude of the people towards the severity of disease and false belief in concept that disease is by God. This is also observed and studied by many scientists that about 70% of people pray at least once during their illness and this behavior is more in women and geriatric patients²⁰. Old people usually rely on prayers to get rid of their illness, stress and troubles because they are more diverted towards religion terms, ethics and spirituality. Ethics and spirituality strongly improves the quality of life by providing stress relief and social support²¹⁻²³. Results indicated the greater influence of females towards the prayers as compare to male which might be due to fact that women are closer to old experienced

persons who are well familiar with the outcomes of moral religion values. Some authors and experts suggested that the patients must participate in spiritual discussions along with other treatments²⁴⁻²⁶. They also suggest that if somebody is not religious and does not take interests in prays and other spiritual trainings, remains fail to improve as quickly as a strong believer²⁷.

Thus, this favors the traditional use of prayers for headache management by female as well as rural population of the Punjab province. However, self medication is observed mostly by urban citizens as well as gents, as compared to rural population with significance level of $p < 0.001$. The reason behind this fact is that urban people are well familiar with the use of OTC medicines to relieve headache. People living in rural areas are also aware about use of aspirin and paracetamol for treatment of headache. Use of OTC medication in men was observed to be very high due to high literacy rate as well as ease of access and availability of medication.

The use of acupuncture was observed to be very disappointing in our study due to lack of awareness as compared to US population where 7% people are aware about its benefits. There is urgent need to develop strategies to provide general awareness about acupuncture in these areas. The techniques used in acupuncture to provide headache relief are beneficial, if performed by experts. Although this is not free from risks, yet expertise can minimize all the possible dangers. Different acupuncturists apply different techniques to treat a specific disease²⁸⁻²⁹. Similarly, aromatherapy is also not well-known among the people of the Punjab, Pakistan as compared to developed countries where this is in common practice. This mode of therapy is quite pleasant, time saving, economic and free from adverse events. There is no known exact mechanism of how the essential oils resolve anxiety and headache when applied by massage or smelled. The physiological basis involved in this phenomenon is still debatable but there are strong evidences present which suggest that pleasant smells are sufficient to recall pleasant memories³⁰⁻³¹.

The disappointing fact of our study is that nobody was familiar with the use of ayurveda and chelation therapy for headache management in contrary to US population where 6% people are aware of ayurveda. Ayurveda is one of the oldest health care traditional techniques employed by incorporating drugs and diets along with environmental and behavioral modification to treat illness. This method of treatment is considered to be patient friendly being free of adverse effects³². Results indicated that just 0.2% male urban were familiar with the use of chiropractic care in comparison of US population where 31% people get health care benefits by using this approach.

Although this is quite safer technique yet it may produce some complications in children if performed unintentionally. It is believed that joint dysfunction in the upper vertebral column and in cervical region results into hyper tonicity of neck muscles attached to head which results

into headache. Autonomic nervous activity is also impaired by joint dysfunction leading to headache and trigeminal nerve disorder by altering the rate of blood flow to brain. Chiropractic care finds its useful application in headache relieving by joint adjustments and vertebral column manipulation³³⁻³⁴.

In our study the use of yoga was encouraged only by 3% of urban population as compared to US population where 59% of people are getting benefits from this therapy. Scientists believe that yoga is one of the best mind relaxation procedures which provide relief by controlling muscular and autonomic activity in body³⁵. There is a major role of two components (mind and Body) in reducing body stress and yoga is considered a best procedure to achieve this goal especially in those countries where illiteracy, poverty and socioeconomic traditions prevent the application of long term and expensive therapy. Thus, there is an urgent need to develop ancient yogic techniques to get benefits¹⁶.

Our study indicated that the use of massage therapy is observed only by 2.3% of rural and female population in contrast to 49% of US population. Research has proved that sustained contraction of head and neck muscles deprive the brain from nutrient supply. Deficiency of nutrients produce trigger points which remain contracted for prolonged period of time along with contracted muscles. This results into headache. Massage therapy is beneficial in reducing headache in that it improves the blood flow to head muscles and so activity of trigger points is reduced³⁶⁻³⁸. The use of naturopathy is beneficial in sense that it optimizes wellness by modification in dietary intake and everyday life. The increase in popularity in modern societies (US, 10%) is due to long term benefits without involvement of risks. Similarly, use of nutritional diet and multivitamins promote health. Naturopathic and nutritional institutes take much interest in promoting health³⁹⁻⁴⁰.

Use of homeopathy and herbal remedies (17% & 67%, respectively in US) is not much common in our study. However, rural people find some application of herbal therapy in treatment of headache disorders. But still there is need to upgrade the evaluation process along with ethno pharmacological studies for effective use of herbs. The use of teas and coffees is common in urban population (14.3%) as compared to rural people (3.7%) which is based on the concept that caffeine providing stimulant effects to CNS. The application of balm on fore head and hydrotherapy are not so frequently observed by people in routine and are considered less beneficial. Hydrotherapy, hypnosis, relaxation and rest are used by people just for short term relief of headache.

CONCLUSION

On the basis of facts and general discussion it can be concluded that these non-pharmacological approaches are quite beneficial to relieve headache without exerting any bad impact on quality

of life. There is an urgent need to aware the people about the usefulness of these techniques to promote health.

ACKNOWLEDGEMENT

The authors are grateful to all those people who positively took part in this study and made it valuable.

REFERENCES

1. Molarius A and Tegelberg A. Recurrent haedache and migraine as a public health problem-A population-based study in Sweden. *Headache*, 2006; 46(1): 73-81.
2. Lewis D, Ashwal S, Hershey A, Hirtz D, Yonker M and Silberstein S. Practice Parameter: Pharmacological treatment of migraine headache in children and adolescents. *Neurology*, 2004; 63(12): 2215-2224.
3. Sun-Edelstein C and Mauskop A. Alternative Headache Treatments: Nutraceuticals, Behavioral and Physical Treatments. *American Headache Society*, 2011; 51(3): 469-483.
4. Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997: Results of a follow-up national survey. *JAMA*, 1998; 280(18): 1569-1575.
5. Haussermann D. Increased confidence in natural therapies. *Deutsch Arztebl.* 1997; 94: 1857-1858.
6. Gaul C, Eismann R, Schmidt T, et al. Use of complementary and alternative medicine in patients suffering from primary headache disorders. *Cephalalgia*, 2009; 29(10): 1069-1078.
7. Lawler SP and Cameron LD. A randomized, controlled trial of massage therapy as a treatment for migraine. *Ann Behav Med.* 2006; 32(1):50-59.
8. Richardson PH and Vincent CA. Acupuncture for the treatment of pain: a review of evaluative research. *Pain*, 1986; 24(1):15-40.
9. Millman BS. Acupuncture: context and critique. *Ann Rev Med*, 1977; 28(1): 223-34.
10. Woolan CHM and Jackson AO. Acupuncture in the management of chronic pain. *Anaesthesia*, 1977; 53(6): 593-595.
11. Vickers A and Zollman C. ABC of complementary medicine massage therapies. *BMJ*, 1999; 319(7219): 1254-1257.

12. Miller W. Public confidence, professional competence. Conference held by the Foundation for Integrated Medicine on 14 May 1999 at the Commonwealth Institute. *Holistic Health*, 1999; 61: 30-32.
13. Rastogi S, Rastogi R and Singh RH. What are we losing by ignoring Ayurveda? *NAMAHA*, 2006; 14(1):26-29.
14. Hewitt E G. Chiropractic care of a 13-year-old with headache and neck pain: a case report, 1994; 38(3): 160-162.
15. Fleming SA and Gutknecht NC. Naturopathy and the Primary Care Practice, *Prim Prim care*, 2010; 37(1): 119-136.
16. Sethi BB, Trivedi JK and Anand R. A Comparative Study of Relative Effectiveness of Biofeedback And Shavasana (Yoga) In Tension Headache, *Indian j. of psychiat*, 1981; 23 (2): 109-114.
17. Quinn C, Chandler C and Moraska A. Massage Therapy and Frequency of Chronic Tension Headaches. *Am J Public Health*, 2002; 92 (10): 1657-1661.
18. McCaffrey AM, Eisenberg DM, Legedza ATR, Davis RB and Phillips RS. Prayer for Health Concerns Results of a National Survey on Prevalence and Patterns of Use. *Arch Intern Med*, 2004; 164(8): 858-862.
19. Wilson KM, Klein JD, Sesselberg TS, Yussman M, Markow DB, Green AE, West JC, and Gray NJ. Use of complementary medicine and dietary supplements among U.S. adolescents. *Journal of Adolescent Health*, 2006; 38(4): 385-394.
20. Dunn KS and Horgas AL. The prevalence of prayer as a spiritual self-care modality in elders. *J Holist Nurs*. 2000; 18(4): 337- 351.
21. Koenig HG, George LK and Siegler IC. The use of religion and other emotion-regulating coping strategies among older adults. *Gerontologist*. 1988; 28(3): 303-310.
22. Bearon LB and Koenig HG. Religious cognitions and the use of prayer in health and illness. *Gerontologist*, 1990; 30(2): 249-253.
23. Daaleman TP and VandeCreek L. Placing religion and spirituality in end-of-life care. *JAMA*. 2000; 284(19): 2514-2517.
24. Lo B, Ruston D and Kates LW, et al. Discussing religious and spiritual issues at the end of life: a practical guide for physicians. *JAMA*. 2002; 287(6): 749-754.

25. Maugans TA. The spiritual history. Arch Fam Med. 1996; 5(1): 11-16.
26. Lo B, Quill T and Tulsky J. Discussing palliative care with patients. Ann Intern Med, 1999; 130(9): 744-749.
27. Post SG, Puchalski CM and Larson DB. Physicians and patient spirituality: professional boundaries, competency and ethics. Ann Intern Med. 2000; 132(7): 578-583.
28. Norheim AJ and Fonnebo V. Acupuncture adverse effects are more than occasional case reports: results from questionnaires among 1135 randomly selected doctors, and 197 acupuncturists. Complement Ther Med, 1996; 4(1): 8-13.
29. Ernst E. The risks of acupuncture. Int J Risk Safety Med, 1995; 6(1995):179-86.
30. Wilkinson S. Aromatherapy and massage in palliative care. Int J Palliative Nursing, 1995; 1(1): 21-30.
31. Wilkinson S, Aldridge J, Salmon I, et al. An evaluation of aromatherapy massage in palliative care. Palliat Med, 1999; 13(5): 409-417.
32. Rastogi S, Rastogi R, Singh RH. What are we losing by ignoring Ayurveda? NAMAHA. 2006; 14(1): 26-29.
33. Vernon H. Vertebrogenic headache in Vernon H, ed. Upper cervical syndrome: chiropractic diagnosis and treatment. Baltimore: William & Wilkins, 1988: 170-174.
34. Korr IM, ed. The neurobiologic mechanisms in manipulative therapy. New York: Plenum Press, 1978; 229-268.
35. Bhatia R, Dureja GP, Tripathi M, Bhattacharjee M, Bijlani RL and Mathur R. Role of temporalis muscle over activity in chronic Tension type headache : effect of Yoga based management. Indian J Physiol Pharmacol, 2007; 51(4): 333-344.
36. Mennell J. Myofascial trigger points as a cause of headaches. J Manipulative Physiol Ther. 1989; 12(4): 308-313.
37. Schoenen J. Guidelines for trials of drug treatments in tension-type headache. First edition: International Headache Society Committee on Clinical Trials. Cephalalgia. 1995; 15(3):165-179.
38. Watson DH and Trott PH. Cervical headache: an investigation of natural head posture and upper cervical flexor muscle performance. Cephalalgia, 1993; 13(4): 272-284.

39. Lam J and Szmitko PE. Naturopathy: Complementary or rudimentary medicine? Univ of Toronto Med J, 2002; 80(1): 63-65.

40. Bendich A, Mallick R and Leader S. Potential health economic benefits of vitamin supplementation. West J Med 1997; 166(5):306-312.