EFFECTIVENESS OF AURICULOTHERAPY UPON LOW BACK PAIN

BY

MS. D. CHITRA

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

MARCH 2011
EFFECTIVENESS OF AURICULOTHERAPY UPON LOW BACK PAIN

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DECLARATION

I hereby declare that the present dissertation entitled “Effectiveness of Auriculotherapy upon low back pain” is the outcome of original research work undertaken and carried out by me, under the guidance of Dr. Latha Venkatesan, M.Sc., (N), M.Phil, Ph.D., Principal and Professor, Head of the Department in Maternity Nursing, Apollo College of Nursing, Chennai and Mrs. Jasлина David, M.Sc., (N), Reader, Medical Surgical Nursing, Apollo College of Nursing, Chennai. I also declare that the material of this has not formed in any way, the basis for the award of any degree or diploma in this university or any other universities.
ACKNOWLEDGEMENT

The Investigator would like to acknowledge the contributions of all the well wishers for the success of the study.

My most sincere and loving gratitude to God Almighty! for bestowing his blessings upon me and guiding me throughout my endeavor and showing his profuse blessings in each and every step to complete the study.

I proudly express my sincere gratitude to Dr. Latha Venkatesan, M.Sc. (N)., M.Phil., Ph.D., Principal and Professor, Apollo College of Nursing for her brainstorming ideas, creative suggestions, elegant directions, excellent guidance and unwavering support throughout the study.

My heartfelt gratitude to Prof. Lizy Sonia, M.Sc. (N)., Vice-Principal, Apollo College of Nursing for her valuable suggestions, invaluable caring spirit and profound support throughout the study.

I have much pleasure in expressing my heartfelt gratitude to my research guide, Mrs. Jasлина David, M.Sc. (N)., Reader, Apollo College of Nursing who always has a smile to brighten the road and always has a hand to lighten the load. I thank her for the perfect direction, valuable guidance, suggestions, timely help, brainstorming ideas and willingness to help at all times.

I owe my profound gratitude to Dr. Madhan Mohan Reddy, M, MS (Ortho), MD., FRCS (UK), Consultant Orthopaedic Surgeon, Apollo Hospitals, Chennai for his valuable suggestions and excellent guidance.
With special reference, I thank the Directors of **St. Thomas Home for Senior Citizens**, Vyasarpadi and **S.V. Home for the Aged**, Arumbakkam for granting permission to conduct the study in their esteemed old age homes and my sincere thanks to all the **Staff Members** working in these old age homes.

I thank **Prof. K. Vijayalakshmi**, M.Sc. (N)., Research Cell Coordinator for her valuable suggestions and guidance to complete my research work in time. I express my sincere thanks to **Prof. Helen. M. Perdita**, M.Sc. (N)., Paediatric Nursing for her valuable suggestions.

I am grateful to the **experts** for validating the tools used in this study and also I would like to extend my thankfulness to all the **Faculty** of Apollo College of Nursing for their suggestions and encouragement throughout the study.

I express my gratitude to the **Librarians** of Apollo College of Nursing and the Tamil Nadu Dr. M.G.R. Medical University, for their timely help throughout the study.

Last but not the least I extend my deep sense of gratitude to my beloved parents **Mr. T. Devendran**, and **Mrs. M. Vasanthakumari**, and my sister **Ms. D. Chandiya**, and all my family members for their sacrifices and unwavering support throughout the study.

A note of thanks to all the **study participants** for their cooperation and willingness to participate in this study. An ovation of thanks to **all persons** who have sailed with me and were instrumental in the successful completion of this dissertation.
SYNOPSIS

An experimental study was conducted to assess the effectiveness of auriculotherapy upon low back pain among the elderly at selected old age homes, Chennai.

Objectives of the study

1. To assess the prevalence of low back pain among the elderly.
2. To assess the level of low back pain before and after auriculotherapy among the elderly in the control and experimental groups.
3. To assess the effectiveness of auriculotherapy among the elderly through comparison of low back pain before and after auriculotherapy.
4. To find out the association between the selected demographic and clinical variables and the level of low back pain before and after auriculotherapy among elderly in the control and experimental groups.
5. To assess the level of satisfaction of auriculotherapy among the elderly in the experimental group.

The conceptual framework for this study was developed on the basis of King’s Goal Attainment Theory. The study variables were low back pain and auriculotherapy. Null Hypotheses were formulated. The level of significance was selected at p<0.05. An extensive review of literature and the guidance by experts laid the foundation to the development of the study instruments.

An experimental research approach with true experimental design was used to achieve the objectives of the study. The present study was conducted in St. Thomas
Home for Senior Citizens, Vyasarpadi and S.V. Home for the Aged, Arumbakkam. The sample size was 60 elderly with low back pain and they were selected randomly through lottery method of which 30 were assigned to the control group and 30 to the experimental group.

The investigator used a demographic variable proforma, clinical variable proforma, Oswestry low back pain scale and rating scale on the level of satisfaction of auriculotherapy to collect the data from the study participants. The data collection tools were validated and reliability was established. After the pilot study, the data for the main study was collected for a period of one month. The collected data was tabulated and analyzed using descriptive and inferential statistics.

**Major findings of the study**

- The prevalence of low back pain revealed that a significant percentage of the elderly had low back pain (42.105%), which presented as mild, moderate, severe and completely severe (3.68%, 10.53%, 14.21% & 13.68%) respectively.
- A significant percentage of the participants in both the control and experimental groups were in the age group of above 75 years (43.3%, 43.3%) and educated up to primary level (33.3%, 40%).
- Majority of the elderly with low back pain belonged to Hindu religion in both the control and experimental groups (93.3%, 63.3%), did not have the habit of smoking (90%, 76.4%), not alcoholics (83.3%, 90%) and were widows/widowers (76.7%, 80%) respectively.
Most of the elderly in both the control and experimental groups were females (60%, 53.3%). Among them, a significant percentage have delivered twice (22.2%, 18.75%), vaginally (85.7%, 100%) and attained menopause at the age of 30-40 years (38.9%, 50%) respectively.

A majority of the participants in the control and experimental groups had dull pain (86.7%, 83.3%), none took complementary and alternative therapy, had straight spine (86.7%, 56.7%) with no spinal tenderness (76.7%, 56.7%) respectively.

Most of them had history of trauma (50.0%, 73.3%), no urinary incontinence (63.3%, 83.3%), had aggravating factors such as standing/ walking (56.7%, 50%), the relieving factor was lying down (76.7%, 50%), with radiation of pain to legs (66.7%, 63.3%) and took other type of allopathic drugs as per their disease (63.3%, 50%) respectively.

A significant percentage of the participants had the duration of pain for more than 5 years (33.3%, 50%), no numbness (53.3%, 50%) with no history of illness (40%, 46.7%), had tingling sensation (33.3%, 53.3%) and used no coping strategies for pain (46.7%, 46.7%) respectively.

A significant percentage of the participants in the control group had severe pain both before and after therapy (33.3%, 33.3%). On the other hand, a significant percentage of the participants in the experimental group had completely severe pain before therapy whereas none had completely severe pain after therapy (43.3%, 0%).
The mean and standard deviation of low back pain score of the control group of the elderly was same before therapy (M= 27.1, S.D=8.25) in comparison with the level of low back pain score after therapy (M=26.9, S.D=8.07). In the experimental group, the low back pain score before therapy was low (M= 23.73, S.D=6.84) in comparison with the level of low back pain score after therapy (M=30.33, S.D=7.53). The difference was found statistically significant at p<0.05 and can be attributed to the effectiveness of auriculotherapy. Thus the null hypothesis hereby Ho1 was rejected.

Majority of the participants expressed high level of satisfaction with auriculotherapy for low back pain (83.3%).

There was significant association between the demographic variables such as age in years, ($\chi^2=9.7$, df=3) at p<0.05, type of deliveries ($\chi^2=14$, df=6) at p<0.05, number of deliveries ($\chi^2=8.9$, df=3) at p<0.05 and age of menopause ($\chi^2=7.93$, df=3) at p<0.05 and the level of low back pain among the elderly. Hence the null hypothesis Ho2 was rejected.

There was significant association between clinical variables such as aggravating factors ($\chi^2=9.7402$, df=3) at p<0.05, spinal curvature ($\chi^2=15.3$, df=3) at p<0.01 and radiation of pain ($\chi^2=10.83$, df=3) at p<0.05 and the level of low back pain among the elderly. Hence the null hypothesis Ho2 was rejected.
Recommendations

- The same study can be conducted in a larger sample to generalize the results.
- A comparative study can be conducted between various alternative and complementary methods to reduce low back pain among the elderly.
- A comparative study can be conducted between various alternative and complementary methods to reduce low back pain among the people of other age groups.
- A similar study can be conducted among the people of other age groups.
- A similar study can be conducted in different settings with similar facilities.
- A study can be conducted to assess the knowledge and attitudes of nurses on complementary and alternative therapy for low back pain management.
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CHAPTER - I

INTRODUCTION

“No man was ever born who could conquer old age”

-Ramayana

Background of the study

Advances in science and technology as well as improvements in health services available have played an important role in the increasing number of elderly in the world. The 20th century saw an increase in both anticipated and actual life expectancy figures.

The world population, now totalling over 6 billion people, is getting older. In most of the countries of the world, the population of 65 years and older rose from 8% in 1950 to 14% of the total population in 2000. It is expected to rise to 29% by 2050. The aged dependency to support ratio is 4 to 1 in many countries.

Old age has been divided into different groups as biological, physiological, emotional and functional aging. Biological aging is concerned with changes occurring in the structure and functions of the human body; physiological aging is concerned with individual and behavioural changes; emotional aging describes changes in one’s attitude and lifestyle dependent on one’s self-perception of being old and functional aging is the comparison of individuals of the same age group in terms of those within the group being unable to maintain their functions in society. The most obvious manifestations of the old age are changes in physical appearance, restriction of movement and sense organs and proneness to chronic illnesses.
Elderly low back pain is a common experience as we age. It is typical for age to create or worsen many of the back pain conditions which can range from bearable to debilitating pain. In 2000, 40% women, 38% men and in 2005, 52% women, 56% men had back pain (ICMR 2005). The common causes of low back pain in the elderly include lumbar strain, nerve irritation, lumbar radiculopathy, bony encroachment, kidney problems, ovary problems, tumours, etc.

There are various traditional, safe treatments for low back pain relief such as cognitive and behavioral therapy, biofeedback, hypnosis, physiatry, transcutaneous electrical nerve stimulation, acupuncture, acupressure, low level laser therapy, back strengthening exercise, yoga exercise, heating pads, ice packs, spa therapy, etc. which increases release of endorphins. In the year 2007, an experimental study was conducted by Morone on mind body interventions for chronic pain in older adults with chronic non malignant back pain. The eight mind body interventions were reviewed and found to be feasible in older population. They concluded that these eight mind body interventions are safe and reduce chronic pain in older adults.

Auriculotherapy also called as auricular therapy or ear acupuncture or auriculo acupuncture is a form of alternative medicine based on the idea that the ear is a micro system with the entire body represented on the auricle, the outer portion of the ear. It is also believed that the ear develops along with each stage of the development of the brain and that there is a direct connection of the skin surface of the external ear with the brain map that corresponds to the different parts of the body.
The ear is frequently likened to a computer keyboard with peripheral access to the body’s central microprocessor unit, the brain. By typing in a command on the keyboard (the ear) a signal is sent to the main computer (the brain), the computer then sends a signal to the device (organ, or any other body part) that is governed by the computer. By sending signals to the brain, it is thought to stimulate healthy signal patterns from the brain to the corresponding area in the body that relates to the area stimulated in the ear and these signals are neuro-chemical in nature and involve endorphins which are natural pain killers and relaxers.

Auriculotherapy can be safe and effective for many conditions such as back pain, headache, bursitis, shoulder pain, arthritis, fibromyalgia, carpal tunnel syndrome, tennis elbow, dizziness, vertigo, hypertension, asthma, insomnia, shingles, tinnitus, neuro-sensory deafness, macular degeneration, xerostomia, burns, psoriasis, addictions for nicotine, drugs, appetite control and it is very effective for many other difficult patient complaints.

Suen (2008) conducted a study on “Longitudinal changes in the disability level of the elders with low back pain after auriculotherapy.” Assessment data were collected at five points of time: (i) baseline, (ii) about 1.5 weeks of treatment, (iii) 3 weeks of treatment, (iv) 2 weeks post-treatment, and (v) 4 weeks post-treatment. When the rate of change was compared between the two groups at each point of time starting from the baseline, those in the experimental group demonstrated significant improvement in the overall disability level, pain/sensation and physical and functional abilities at 1.5 weeks of treatment (p < 0.001), 3 weeks of treatment (p < 0.001), 2 weeks post-treatment (p < 0.001) and 4 weeks post-treatment (p < 0.001). Auriculotherapy not only achieves
just relief of discomfort or pain in specific parts of the body but also facilitates the natural healing processes of the body.

The burden of chronic low back pain on society is enormous in terms of both patient suffering and cost. Numerous treatments for low back pain have been proven to be effective but as they are costly many of the elderly cannot afford to take it. Auriculotherapy is not costly and it can be practiced effectively and easily. So I want to find the effectiveness of auriculotherapy upon low back pain among the elderly.

Need for the study

The number of old and very old is increasing dramatically worldwide and there are startling predictions for the future. In 2050, it is expected that the population of India will be over 1.5 billion and the population of China will be over 1.4 billion and the U.S. will have third largest population at nearly 400 million people. In the industrialized countries of the west, the elderly population in the 1990s was 7-15% of the total population, and is expected to reach 25% by the year 2020. In India also the trend is the same, 7.5% of the total population is above 60 years and the life expectancy is increasing gradually. There are currently 580 million elderly people aged 60 and above in the world, and of these 355 million live in the developing countries. In the year 2020, life expectancy at birth is predicted to reach 70.

Old age is viewed as an unavoidable, undesirable, problem-ridden phase of life that we all are compelled to live, marking time until our final exit from life itself. The aging of the community brings with it new and serious problems both nationally and
internationally, with WHO describing it as an important developmental element requiring emergency actions.

Health of the spine is the key to good health both physical and mental, or else, man is called spineless. Pain is the body’s message that something is wrong. There is no individual who has not suffered from pain, in head, neck, shoulder, elbows, wrists, ankles, hips, knees and back or any other part of the body.

Backache and headache are very common in 90% of people with as many as 8 out of 10 adults experiencing low back pain in their life time. Back pain can be acute, appearing quickly after an accident or injury and lasting for a short period or chronic. Chronic, severe back pain interferes with almost every activity and this pain causes more loss of work than all other ailments combined.

Non-pharmacological measures are often simple, safe and relatively inexpensive for low back pain such as heat therapy, cold compression therapy, massage therapy, acupressure or pressure point massage, posture training physical exercises and use of medications (muscle relaxants, opioids, non-steroidal anti-inflammatory drugs or paracetamol), cognitive therapy and progressive relaxation therapy that might relieve the pain. Physical therapy, Alexander technique, acupuncture has proven benefit for low back pain.

Currently there is no complete cure to administer to a person who experiences back pain. The problem with use of pain relief medication is that it doesn’t help the cause of the problem, just merely makes it a little more bearable and it is mostly
associated with side effects. So our direction of treatment may be upon non-pharmacological interventions. One among this is auriculotherapy.

Although auriculotherapy is an age old Chinese Medical practice that has been used for thousands of years, it is only recently that the Western world has accepted it as an alternative form of back pain relief. It is believed that every person has an inner energy force (chi) that reflects our state of health, mental and physical. There are large number of people who use acupuncture on a regular basis and claim it works well for them providing pain relief especially in a chronic condition.

In the year 2010, Zaringhalam has conducted a study to test the efficacy of acupuncture, baclofen or combined treatment for non-specific chronic low back pain in men. Eighty-four men aged 50-60 years with non-specific chronic low back pain were randomly assigned to four groups: the baclofen group received only baclofen (30mg/day); the acupuncture group received only acupuncture at selected acupoints; the acupuncture + baclofen group received combined treatment with acupuncture and baclofen treatments; and the control group received no pain reduction treatment. Significantly higher reduction and improvement in visual analogue scale scores were found in the acupuncture and acupuncture + baclofen groups compared to the control group and baclofen group. The present study indicates that the combined treatment of acupuncture and baclofen is more effective in reducing the pain.

According to Sakalauskiene (2009) low back pain is a global worldwide problem. A great attention is given to correction of this health status by a wide range of rehabilitation specialists. The study analyzed the evidence-based data in order to
identify which non-pharmacological means are effective in pain correction and compared their effectiveness. Therefore, the greater attention of researchers and administrative structures of health care should be directed to develop the evidence-based guidelines for an effective correction of low back pain.

With technological advances and the ever growing challenges of health care trends, the nurses have a responsibility to provide cost effective care to the elderly. The auriculotherapy findings serve as a guide to evidence based practice and hence the nurses and the student nurses should be informed about the auriculotherapy findings. Auriculotherapy techniques can be demonstrated to the students in the clinical settings to enhance professionalism and to give care effectively. So the investigator felt the need for the study.

Statement of the problem

An experimental study to assess the effectiveness of auriculotherapy upon low back pain among the elderly at selected old age homes, Chennai

Objectives of the study

6. To assess the prevalence of low back pain among the elderly.
7. To assess the level of low back pain before and after auriculotherapy among the elderly in the control and experimental groups.
8. To assess the effectiveness of auriculotherapy among the elderly through comparison of low back pain before and after auriculotherapy.
9. To find out the association between the selected demographic and clinical variables and the level of low back pain before and after auriculotherapy among the elderly in the control and experimental groups.

10. To assess the level of satisfaction of auriculotherapy among the elderly in the experimental group.

**Operational definitions**

**Effectiveness**

In this study it is the outcome of auriculotherapy as measured in terms of reduction in low back pain by Oswestry back pain scale before and after auriculotherapy as determined by the difference between pre test and post test scores.

**Auriculotherapy**

It is the technique which involves the stimulation by placing firm, gentle pressure over the inner upper aspect of pinna (specified low back pain ear points) for 10 minutes using a probe and then applying gentle pressure over the fenugreek seed attached over the specified low back pain ear points which causes release of endorphins which are the natural pain killers and relaxers to relieve low back pain for three times a day as 09 am, 12 pm and 3 pm for a period of 1 week among the elderly.

**Low back pain**

It refers to the pain perceived by the elderly in their lower back as measured by Oswestry low back pain scale.
**Elderly**

In this study, elderly refers to people both males and females who are older than 60 years of age with low back pain residing in the old age homes.

**Old age home**

Here old age home refers to a place where elderly people, both male and female of at least 60 years of age resides.

**Assumptions**

The study assumed that,

- Low back pain is experienced by most of the elderly.
- The level of low back pain varies from person to person.
- It is possible to accept and manage low back pain with non-pharmacological interventions.
- Auriculotherapy stimulates the production of natural endorphins and thus helps in controlling the low back pain.

**Null Hypotheses**

**Ho1:** There will be no significant difference in the level of low back pain between the elderly in the control and experimental groups after auriculotherapy.

**Ho2:** There will be no significant association between the demographic and clinical variables and the level of low back pain of the elderly before and after auriculotherapy in the control and experimental groups.
Delimitations

The study was limited to

- four weeks duration
- the elderly with low back pain.
- the elderly who are willing to participate in the study.
- the elderly whose ages are more than 60 years.
- the elderly who are residing in the selected old age homes.
- the elderly who knows Tamil or English

Conceptual Framework of the study

The conceptual framework deals with the interrelated concepts that are assessable together in some rational scheme by virtue of their relevance to a common theme (Polit and Beck, 2007).

Conceptual framework of present study is based on “King’s Goal Attainment Theory”. According to Imogene King, Nursing is defined as the process of action, reaction, interaction, whereby nurses and client share the information about their perception. Through perception and communication they identify the problems through which they set goals and take necessary actions.

King’s Goal Attainment Theory is based on the concepts of personal, interpersonal and social systems including perception, judgment, action, reaction, interaction, transaction and perception.
Perception

A person imports energy from the environment and transforms, processes and stores it. The study assumes that there is a need to reduce the symptoms of low back pain. The researcher perceives that there is a need for reducing symptoms of low back pain with easy accessibility. This imposes the need for auriculotherapy.

Judgement

Analyzes the areas of action to be carried out. Thus the researcher analyzes the need for auriculotherapy for the elderly with low back pain. The elderly are also analyzed about the needs of auriculotherapy to get relief from the symptoms of low back pain.

Action

Individual experts perceived energy to demonstrate observable behaviours by taking physical activity. In this study the researcher takes steps to perform auriculotherapy. The elderly in the control group have no symptom reduction strategy, whereas in the experimental group they undergo auriculotherapy to reduce low back pain.

Reaction

Reaction means developing action and acting on perceived choices for goal attainment. Auriculotherapy makes to feel better by the experimental group participants. The same level of experience can be present in the control group participants. This makes the investigator and participants to make necessary arrangements to perform auriculotherapy in the duration of 15 minutes for a period of 1 week in three times a day (as 09 am, 12 pm and 3 pm) among the elderly.
Interaction

It refers to verbal and nonverbal behaviours between the individual and the environment or among two or more individuals. In this study, for the experimental group, auriculotherapy stimulates healthy signal patterns from the brain to the corresponding area in the body that relates to the area stimulated in the ear and that these signals are neuro-chemical in nature and involve endorphins which are natural pain killers and relaxers. There is no interaction in the control group and they carry out routine activities.

Transaction

Transaction is the mutually defined goals of two or more individuals and the means to achieve them. They reach an arrangement about how to attain their goals and then set about to realize them. Thus, the researcher and participants mutually set the goals. In this study subjects from the experimental group show either relief from pain or no relief from low back pain, which helps both the investigator and client to set goal to alleviate the future pain. The same level of low back pain was maintained in the control group. Results are measured through Oswestry low back pain scale.

Feedback

Outcome may either be satisfactory or unsatisfactory. If satisfactory it shows the effect of auriculotherapy. If the participants feel unsatisfactory, researcher again plans the activity. In this study investigator appraise the level of satisfaction on auriculotherapy through rating scale. If the participants show satisfactory, the techniques of auriculotherapy can be disseminated and taught to the control group too. If participants show unsatisfactory, plan again or try out the improved method to relieve low back pain.
Fig.1 Conceptual framework on auriculotherapy upon low back pain based on Modified King’s Goal Attainment Theory
Projected outcome

The projected outcome of the study is the reduction in the level of low back pain among the elderly after administration of auriculotherapy.

Summary

This chapter has dealt with the background of the study, need for the study, statement of the problem, objectives of the study, operational definitions, assumptions, null hypotheses, delimitations, conceptual framework and organization of the report.

Organization of the report

Further aspects of the study are presented in the following chapters:

- Chapter- II : Review of literature
- Chapter- III : Research methodology- which includes research approach, research design, research settings, population, samples, sampling technique, eligibility criteria, selection and development of study instrument, validation and reliability of the tool, pilot study, plan for data collection and plan of data analysis.
- Chapter- IV : Analysis and interpretation of data
- Chapter- V : Discussion
- Chapter- VI : Summary, conclusion, implications, and recommendations
CHAPTER - II

REVIEW OF LITERATURE

A review of literature involves the systematic identification, location, scrutiny and summary and written material that contain information on the research problem.

(Polit and Beck 2004)

This chapter deals with a review of published and unpublished research studies from related material for the present study. The review helped the investigator to develop an insight into the problem area. This helped the investigator in building the foundations of the study.

The review of literature in this chapter is presented under the following headings

- Literature related to low back pain and the elderly
- Literature related to alternative therapies used in low back pain
- Literature related to auriculotherapy
- Literature related to auriculotherapy and low back pain

Literature related to low back pain and the elderly

Peter (2005) has done a descriptive review on the epidemiology of low back pain in primary care. The review concludes that low back pain is a common problem affecting both genders and most ages, for which about one in four adults seeks care in a six-month period. It results in considerable direct and indirect costs, and these costs are financial, workforce and social. Most recent-onset low back pain episodes settle but only
about one in three resolves completely over a 12-month period. About three in five will recur in an on-going relapsing pattern and about one in 10 do not resolve at all.

A cross-sectional, internet-based survey was conducted in a nationally representative sample of United States adults to estimate the point prevalence of chronic pain and characteristics of chronic pain. The weighted point-prevalence of chronic pain was found to be 30.7%. Prevalence was higher for females (34.3%) than males (26.7%) and increased with age. The weighted prevalence of primary chronic lower back pain was 8.1% and primary osteoarthritis pain was 3.9%. Half of respondents with chronic pain experienced daily pain, and average (past 3 months) pain intensity was severe for 32%. (Johannes, 2010)

In the study by Cecil Centre for Health Services Research at the University of North Carolina at Chapel Hill in 2009 found that the prevalence of chronic, impairing low back pain in the state increased from 3.9 percent in 1992 to 10.2 percent in 2006. Increases were seen in both men and women and across all ages and races.

In the year 2005, Keating has done a descriptive review on the prevalence of low back pain in the developed world. In the studies deemed by Looney and Stratford, the low back pain point prevalence was estimated to be 6.8% in North America, 12% in Sweden, 13.7% in Denmark, 14% in the United Kingdom, 28.4% in Canada, and 33% in Belgium. In a review of world prevalence data, Volinn suggested that there were lower rates of prevalence in developing countries than in developed countries, but did not determine whether differences reflect demographic, cultural or research method factors.
In Australia, Walker (2010) has conducted a systematic review of the LBP prevalence literature 1966–1998. He subsequently surveyed 3000 Australian adults using contemporary epidemiological methods, and estimated the point prevalence of LBP at 25.5%, six-month period prevalence at 64.6% and lifetime prevalence at 79.2%. The retrospective one-year first incidence of low back pain in the sample was 8.0%. These data suggest that LBP is common in the Australian population, with four out of five adults experiencing LBP in their life and approximately one in 12 experiencing a new episode of LBP over a 12-month period.

Knauer (2010) has done a population-based perspective to determine the prevalence of chronic low back pain among the elderly. Chronic Low Back Pain prevalence in older adults was significantly higher than the 21-to-44-year age group (12.3% vs. 6.5%, p < .001). Older adults were more disabled, had longer symptom duration, and were less depressed. Chronic low back pain care seeked by older adults was significantly lower than the 45-to-64-year age group (80.6% vs. 88.6%). Older adults were less likely to receive bed rest, spinal manipulation, heat/cold treatments, electrical stimulation, and massage therapy. Use of non steroidal anti-inflammatory drugs, muscle relaxants, strong narcotics, and antidepressants was significantly lower in the older age group.

In a population-based study, 4486 Danish twins aged 70–102 was assessed for back pain. The overall 1-month prevalence of back pain was found to be 25% and differed significantly between men and women. The variations in prevalence between the age groups and over time were negligible. It was concluded that back pain is a
common symptom in old age; however, the prevalence does not change with increasing age. (Hartvigsen, 2010)

In Japan, an epidemiologic study was carried out to determine the prevalence of low back pain in elderly Japanese and to examine the correlation with lumbar lordosis in sagittal plane radiographs. Four hundred and eighty nine subjects, aged 50–85 years, were examined. Forty-eight percent of the subjects had experienced low back pain within the previous 3 months. Women had low back pain more frequently. There was a significant difference in lumbar lordosis between the groups with and without low back pain. The body mass index of the low back pain group was higher in women, but the difference was not significant. (J. Pan, 2010)

**Literature related to alternative therapies used in low back pain**

A study was conducted by Sherman (2010) on comparison of yoga versus stretching for chronic low back pain. A total of 210 participants with low back pain, lasting at least 3 months, were recruited from primary care clinics. They were randomized in a 2:2:1 ratio to receive 12 weekly yoga classes, 12 weekly conventional therapeutic exercise classes of comparable physical exertion, or a self-care book. He concluded that yoga plays an important therapeutic option for treating chronic back pain. A significant session-to-session improvements were noted on pain ratings and mood states after hypnosis treatment to the people with chronic low back pain. In this study, a brief 4-session standardized self-hypnosis protocol, combined with psycho-education was used which showed significantly and substantially reduced pain intensity and pain interference. (Tan, 2002)
Adamczy (2009) studied about the effectiveness of holistic physiotherapy for low back pain. The study compared the outcomes of two different physiotherapeutic approaches to the treatment of low back pain in group of 60 female patients. In the experimental group, a customised programme of treatment was based on postisometric relaxation of muscles and ligaments, active mobilisation of the spine, Kibler Fold Mobilisation, Kinesiology Taping and Maigne's Relaxing Exercises. The control group underwent electrotherapy procedures and performed a set of exercises usually recommended for low back pain. As a result of the treatment, low back pain was reduced in about 90% of patients in the experimental group. In the control group, radiating pain decreased and ligaments in 25% of participants, while the other parameters did not change significantly.

A study conducted at Sheffield University in the United Kingdom (2010) looked at the long-term symptom reduction and economic benefits of acupuncture for persistent low back pain. An average of 8 acupuncture treatments was given to 159 people, while 80 people received usual care. After one year, people receiving acupuncture had reduced pain and reported a significant reduction in worry about their pain compared to the usual care group. After two years, the acupuncture group was significantly more likely to report that the past year had been pain-free. They were less likely to use medication for pain relief.

Visual analogue scale was used in meta-analysis to assess the effectiveness of spa therapy and balneotherapy upon low back pain. The data for spa therapy, assessed on a 100mm visual analogue scale, suggest significant beneficial effects compared with waiting list control groups (weighted mean difference 26.6mm, 95% confidence interval
20.4–32.8, n=442) for patients with chronic low back pain. For balneotherapy the data, assessed on a 100mm visual analogue scale, also suggest beneficial effects compared with control groups (weighted mean difference 18.8mm, 95% confidence interval 10.3–27.3, n=138). (Pittler, 2005)

A randomised controlled trial on different frequencies of acupuncture treatment for chronic low back pain was done by Yuan in 2009 to examine the effectiveness of two frequencies of acupuncture treatment for chronic low back pain. Participants with chronic low back pain were randomised into two groups to receive 10 acupuncture treatments: Low Frequency Group, 2 times/week for five weeks (n=15); High Frequency Group, 5 times/week for two weeks (n=15). The outcomes were measured at baseline, 2 weeks, 5 weeks, 3 months and 1 year: It showed that the compliance rate was 100% for each group. There were no significant differences between the groups in terms of any of the outcomes, at each follow-up time point.

McDonough (2008) has done a systematic review on treatment regimens of acupuncture for low back pain to investigate the difference in acupuncture treatment regimens for low back pain among textbooks, clinical studies and clinical practice, and explore reasons for such differences. Data on detailed acupuncture treatment regimens were extracted. For chronic non-specific low back pain, the outstanding differences in regimens found were: (i) clinical studies and surveys (9-11 points) reported the use of many more points per session than Chinese experts (5 points); (ii) two extreme frequencies of treatments were used across all sources (1-2 times/week vs. 5-6 times/week).
Literature related to auriculotherapy

Allais (2010) conducted a study to identify the most important auricular zones for pain control by applying the needle contact test in a group of 15 women during a unilateral attack of migraine without aura. The insertion of a semi-permanent needle in these zones allowed stable control of the migraine pain, which occurred within 30 minutes and persisted at the same levels 24 hour later. Pain was tested by using a visual analogue scale; the values recorded were the following: 7.6 +/- 1.6 at baseline and 4.3 +/- 1.7; 4.1 +/- 1.9; 3.9 +/- 1.8; 3.4 +/- 1.8; 2.3 +/- 1.6 after, respectively, 15, 30, 60, 120 minutes and 24 hour. Thus, the study concludes that pain decreases after needle contact test at various timings.

In the year 2010 Usichenko conducted a systematic review of randomised clinical trials to determine the effect of auricular acupuncture for postoperative pain control. All randomised clinical trials on the treatment of postoperative pain with auricular acupuncture were considered and their quality was evaluated using the Jadad scale. Of 23 articles, nine fulfilled the inclusion criteria. In eight of the trials, auricular acupuncture was superior to control conditions. He concludes that the auricular acupuncture reduces postoperative pain.

A randomized controlled trial was conducted on pregnant women who had lower back pain and posterior pelvic pain. They were randomly assigned into an acupuncture group, a sham acupuncture group, or a waiting list control group. All participants were monitored for 2 weeks. It has been concluded that continuous auricular acupuncture for
one week decreases the pain and disability experienced by women with pregnancy-related low back and posterior pelvic pain. (Wang, 2009)

A study was conducted by Lang (2007) to determine auricular acupressure as a treatment for anxiety before extracorporeal shock wave lithotripsy in the elderly. Elderly patients who received auricular acupressure at specific relaxation points while being transported to the hospital were less anxious, anticipated less pain and were more optimistic about the outcome of treatment that they will receive than the sham treated group. These data prove that this is an effective treatment for anxiety that improves the patient’s overall perception of extracorporeal shock wave lithotripsy.

**Literature related to auriculotherapy and low back pain**

Thomas (2006) conducted a study to examine the effectiveness of auriculotherapy using magnetic pellets for the elderly suffering from low back pain. The experimental group experienced a significant improvement in pain relief when compared with the control group; and the therapeutic effects were sustained at 2 and 4-week follow-up periods after the therapy. Findings of this study demonstrated that auriculotherapy using magnetic pellets significantly reduce the pain intensity level of the elderly suffering from non-specific low back pain.

A systematic review was done by Rubinstein (2010) on the effectiveness of complementary and alternative medicine for chronic non-specific low-back pain to assess the effects of spinal manipulative therapy (SMT), acupuncture and herbal medicine for chronic non-specific low back pain. In total, 35 RCTs (8 SMT, 20 acupuncture, 7 herbal medicine), fulfilled the inclusion criteria. They concluded that
acupuncture provides a short-term clinically relevant effect when compared with a waiting list control or when acupuncture is added to another intervention.

In 2010 a study was conducted by Zaringhalam to test the efficacy of acupuncture, baclofen, or combined treatment for non-specific chronic low back pain in men. Eighty-four men aged 50-60 years with non-specific chronic LBP were randomly assigned to four groups: the baclofen group received only baclofen (30mg/day); the acupuncture group received only acupuncture at selected acupoints; the acupuncture + baclofen group received combined treatment with acupuncture and baclofen treatments; and the control group received no pain reduction treatment. Significantly higher reduction and improvement in visual analogue scale scores were found in the acupuncture and acupuncture + baclofen groups compared to the control group and baclofen group. The present study indicates that the combined treatment of acupuncture and baclofen is more effective in reducing the low back pain.

Suen (2008) conducted a study on “Longitudinal changes in the disability level of the elders with low back pain after auriculotherapy”. Assessment data were collected at five points of time: (i) baseline, (ii) about 1.5 weeks of treatment, (iii) 3 weeks of treatment, (iv) 2 weeks post-treatment, and (v) 4 weeks post-treatment. When the rate of change was compared between the two groups at each point of time starting from the baseline, those in the experimental group demonstrated significant improvement in the overall disability level, pain/sensation, and physical and functional abilities at 1.5 weeks of treatment (p < 0.001), 3 weeks of treatment (p < 0.001), 2 weeks post-treatment (p < 0.001), and 4 weeks post-treatment (p < 0.001).
Summary

This chapter has dealt with the literature related to low back pain, literature related to low back pain and the elderly, literature related to auriculotherapy and literature related to auriculotherapy and low back pain. The literature presented here was extracted from 10 primary sources and 14 secondary sources. It has helped the researcher to understand the prevalence and the impact of the problem under the study. It has also enabled the investigator to design the study, develop the tool, plan the data collection procedure and to analyse the data.
CHAPTER – III

RESEARCH METHODOLOGY

Research Methodology is a scientific and systematic way to solve problems. The methodology may differ from problem to problem. Research methodology deals with the research methods and takes into consideration the logic behind the method, we use. It is a significant part of the research under which researcher is able to project a blue print of the research undertaken.

The study was conducted to assess the effectiveness of auriculotherapy upon low back pain. This chapter deals with the selection of research approach, research design, setting, population, sample, sampling technique, sampling criteria, selection and development of the instruments, validity and reliability of the instruments, pilot study, data collection procedure and plan for data analysis.

Research Approach

According to Polit and Beck (2008) experimental research is an extremely applied form of research and involves in finding out how well a programme, product, practice or policy is working. Its goal is to assess or evaluate the success of the program. An experimental research is generally applied where the primary objective is to determine the extent to which a given treatment meets the desired results.

To accomplish the objective of this study, an experimental approach was considered most appropriate, since the researcher wanted to assess the effectiveness of auriculotherapy upon the level of low back pain among the elderly.
Research Design

According to Polit and Beck (2008), a research design is the overall plan for addressing a research question, including specifications for enhancing the study’s integrity.

True experimental design was used for the study. A true experimental design has the characteristic features as manipulation, control and randomization. Randomization was carried out to select 60 samples and to assign the control and experimental groups. Auriculotherapy was given as manipulation in the experimental group.

In this study pre test- post test design was adopted. The researcher has assessed the level of low back pain for selected elderly using Oswestry Low Back Pain Scale for both the control and experimental groups before therapy and then manipulated the independent variable i.e. by the application of auriculotherapy only to the experimental group of the elderly. The effectiveness of auriculotherapy on dependent variable i.e. the level of low back pain was assessed after the therapy. Then the level of satisfaction on auriculotherapy was assessed using rating scale among the experimental group.

The research design is represented diagrammatically as follows

\[
\begin{align*}
\text{R} & \quad - \quad \text{O1} \quad X \quad \text{O2} \\
\text{R} & \quad - \quad \text{O1} \quad - \quad \text{O2} \\
\text{R} & \quad - \quad \text{Randomization} \\
\text{O1} & \quad - \quad \text{Pre-test for assessing low back pain} \\
\text{O2} & \quad - \quad \text{Post-test for assessing low back pain after seven days of Auriculotherapy}
\end{align*}
\]

The schematic design of the study is given in figure 2.
**Target population**
Elderly above 60 years with low back pain

**Accessible population**
Elderly above 60 years with low back pain staying in St. Thomas Home for Senior Citizens, Vyasarpadi and S.V. Home for Aged, Arumbakkam, Chennai

Screening the elderly for low back pain

Simple Random Sampling – lottery method

**Control group**
30 elderly with low back pain

**Experimental group**
30 elderly with low back pain

**Pre test**
Demographic variable proforma  
Clinical variable proforma  
Oswestry low back pain scale

**Post test**
Oswestry low back pain scale

**Auriculotherapy**
15 minutes, three times a day for seven days

**Post test**
Oswestry low back pain scale  
Rating scale on level of satisfaction

Analysis and interpretation by descriptive and inferential statistics

**Effectiveness of auriculotherapy**

Fig. 2 Schematic Design of the Study
Research Setting

Research setting is the physical location and conditions in which a data collection takes place in a study.

Polit and Beck (2008)

The study was conducted at selected old homes in Chennai. The researcher has selected two old age homes. St. Thomas Home for Senior Citizens, Vyasarpadi, was selected for experimental group in which 80 people were residing. S.V. Home for Aged, Arumbakkam was selected for control group which has more than 100 people. Both the head of the institutions were interested in finding out the low back pain of the elderly and showed interest to alleviate low back pain of the elderly.

Population

Population is the entire set of individuals or objects having some common characteristics.

Polit & Beck (2008)

The Target population is the aggregate of cases about which the researcher would like to generalize. In this study the target population comprises of all the elderly with symptoms of low back pain.

The Accessible population is the aggregate of cases that conform to designated criteria and that are accessible as subjects for a study. The accessible population in this study was the elderly with symptoms of low back pain in St. Thomas Home for Senior Citizens, Vyasarpadi and S.V. Home for Aged, Arumbakkam.
Sample

The sample is the subset of population, selected to participate in a study.

Polit and Beck (2008)

A sample of 60 elderly with low back pain in St. Thomas Home Senior Citizens, Vyasarpadi and S.V. Home for Aged, Arumbakkam were selected for the study. 30 elderly were randomly assigned to the control group and 30 elderly to the experimental group.

Sampling Technique

It is the process of selecting a portion of the population to represent the entire population.

Polit and Beck (2008)

In the present study, simple random sampling was adopted in which lottery method was used to select the samples.

Sampling Criteria

Inclusion criteria

The study include the elderly

- with low back pain
- aged more than 60 years
- who are willing to participate in the study
- who are in the selected old age homes
- who know Tamil or English
- with no mental illness.
Exclusion criteria

The study will exclude the elderly

- who are not willing to participate in the study
- who are critically ill
- with severe mental illness
- with no low back pain
- who do not know Tamil or English
- who underwent treatment with any type of complementary and alternative therapy
- who takes pain medication

Selection and Development of study instruments

As the study aimed to evaluate the effectiveness of auriculotherapy upon low back pain among the elderly, the data collection instruments were developed through an extensive review of literature, consultation with experts and opinion of faculty members.

The instruments used in this study were demographic variable proforma, clinical variable proforma, Oswestry low back pain scale and rating scale on the level of satisfaction of auriculotherapy.

Demographic variable proforma

Demographic variable proforma consists of age in years, gender, marital status, religion, educational status, habit of smoking, habit of alcoholism and type of diet. In case of females, it includes age of menopause, number of deliveries, type of delivery, type of anesthesia used. The researcher collected data by interviewing the participants and by seeing the records of the elderly.

Clinical variable proforma
The clinical variable proforma includes duration of pain, nature of pain, radiation of pain, any history of trauma, aggravating factors, relieving factors, method of coping with back pain, numbness in limbs, tingling sensation, urinary incontinence, history of illness, history of allopathic treatment, treatment with Complementary and Alternative therapies, presence of spinal curvature and spinal tenderness. The researcher collected the data by interviewing the participants and by seeing the records of the elderly.

**Oswestry low back pain scale**

This proforma is used to assess the low back pain variable such as pain intensity, personal care (washing, dressing, etc), lifting, walking, sitting, standing, sleeping, social life, travelling, changing the degree of pain. The researcher collected the data by interviewing the participants.

The scoring procedure is

<table>
<thead>
<tr>
<th>Category</th>
<th>Scores</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No back pain</td>
<td>0-4</td>
<td>≤ 20%</td>
</tr>
<tr>
<td>Mild back pain</td>
<td>5-14</td>
<td>21-40%</td>
</tr>
<tr>
<td>Moderate back pain</td>
<td>15-24</td>
<td>41-60%</td>
</tr>
<tr>
<td>Severe back pain</td>
<td>25-34</td>
<td>61-80%</td>
</tr>
<tr>
<td>Completely severe back pain</td>
<td>above 34</td>
<td>≥ 81 %</td>
</tr>
</tbody>
</table>

**Rating scale on the level of satisfaction of auriculotherapy**

This rating scale is designed to assess the level of satisfaction of the elderly regarding auriculotherapy and this is recorded by the researcher after auriculotherapy.

<table>
<thead>
<tr>
<th>Scores</th>
<th>Percentage</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10</td>
<td>≤ 34 %</td>
<td>Highly dissatisfied</td>
</tr>
</tbody>
</table>
Validity of the Study instruments

Content validity refers to the adequacy of the sampling of the domain being studied. Content validity of the tool was obtained by getting opinion from various experts in the field of medical surgical nursing. The validations have suggested some specific modification in the objectives and rating scale. The modification and suggestions of experts were incorporated in the final preparation of the rating scale to assess the level of satisfaction of auriculotherapy among the elderly.

Reliability of the Study instruments

Reliability refers to the accuracy and consistency of measuring tool. The reliability of the tool was elicited by using split half technique; Karl Pearson’s ‘r’ was computed for finding out the reliability. In Oswestry Low Back Pain Scale, questionnaire ‘r’ was found to be 0.86. For rating scale on the level of satisfaction after auriculotherapy ‘r’ was found to be 0.86 which shows positive correlation and which indicates that the tools were highly reliable.

Pilot Study

Polit and Beck (2004) states that pilot study is a miniature version of actual study in which the instruments were administered to the subjects drawn from the same population.
It is a small scale version or trial run done in preparation for the major study. The purpose is to find out the feasibility and practicability of the study design. The pilot study was conducted among 10 of the elderly with low back pain. The subjects were chosen by Simple Random Sampling (lottery method). Five of the elderly in Little Drops Old Age Home was selected as control group and five elderly in Vaelicham Old Age Home was selected for experimental group. Before therapy, the assessment of low back pain with Oswestry low back pain scale for both the control and experimental groups was done. The experimental group received auriculotherapy for 15 minutes, three times a day for seven days. The control group was not given any treatment. After seven days of therapy, the level of low back pain was assessed for both the control and experimental groups. They were cooperative in the collection of data. On the whole auriculotherapy was found to be feasible and acceptable and easy to be understood by the elderly.

Intervention Protocol

Each participant in the experimental group received auriculotherapy for a period of 15 minutes three times a day at 9am, 12pm and 3pm for seven days. The elderly were asked to sit on a flat chair with slippers removed. Auriculotherapy was given by the technique which involves the stimulation by placing firm, gentle pressure over the specified low back pain ear points for 10 minutes using a probe and then applying gentle pressure over the fenugreek seed attached over the specified low back pain ear points which causes release of endorphins which are the natural pain killers and relaxers to relieve low back pain.

Data collection procedure

Data collection is the gathering of information needed to address a research problem. In this study data collection has been done during a period of one month. Collection of data was started on 05.06.2010. The researcher took written permission from the head of the institutions to conduct the study and obtained consent from the
subjects to participate in the study. An assurance was given regarding confidentiality while the actual data was collected. Researcher collected the data from the elderly with low back pain.

During the first week, the researcher has interviewed and gone through the medical records and have identified the elderly with low back pain. S.V. Home for Aged, Arumbakkam was selected for control group which has more than 100 people. In S.V. Home for Aged, Arumbakkam, 110 elderly were screened. Out of which 45 of them had low back pain. St. Thomas Home for Senior Citizens, Vyasarpadi was selected for the experimental group in which 80 people were residing. Here 80 elderly were screened in which 35 of them had low back pain.

Through randomization 30 elderly were selected as study participants from each old age home. The subjects were selected by using simple random sampling by using lottery method, where the name of the elderly who fulfil the inclusion criteria were written down in a chit and mother superior took the lots in both the homes.

The study was primarily concerned to assess the effectiveness of auriculotherapy upon low back pain among the elderly. The low back pain was assessed by using Oswestry low back pain scale in the control group. After gathering the pretest data, post test was collected on the seventh day from the control group.

The pre test data was collected from the experimental group. Each participant in the experimental group received auriculotherapy for a period of 15 minutes three times a day at 9am, 12pm and 3pm for seven days. The elderly were asked to sit on a flat chair with slippers removed. Auriculotherapy was given by the technique which involves the stimulation by placing firm, gentle pressure over the specified low back pain ear points for 10 minutes using a probe and then applying gentle pressure over the fenugreek seed attached over the specified low back pain ear points which causes release of endorphins which are the natural pain killers and relaxers to relieve low back pain.

After seven days, low back pain was reassessed by using Oswestry low back pain scale and level of satisfaction after auriculotherapy was obtained using the rating scale.
Problems faced during data collection

Some of the elderly were unwilling to participate in the study

Plan for data analysis

Data analysis is the systematic organization and synthesis of research data and testing of null hypotheses by using the obtained data.

Polit and Beck (2004)

In the present study, analysis and interpretation of data was carried out with descriptive statistics like frequency, percentage, mean and standard deviation and inferential statistics like chi square test and paired t test.

Summary

This chapter has dealt with the selection of research approach, research design, setting, population, sample, sampling technique, sampling criteria, selection and development of the instruments, validity and reliability of the instruments, pilot study, intervention protocol, data collection procedure, problems faced during data collection and plan for data analysis.
CHAPTER – IV

ANALYSIS AND INTERPRETATION

This chapter includes both descriptive and inferential statistics. Statistics is a field of study concerned with techniques or methods of collection of data, classification, summarizing, interpretation, drawing inferences, testing of hypotheses, making recommendations, etc. (Mahajan, 2004).

The data was collected from 60 elderly, 30 in the experimental group and 30 elderly in the control group to determine the effectiveness of auriculotherapy. The data were analyzed according to the objectives and hypotheses of the study. Data analysis was completed after all the data was transferred to master data coding sheet. The researcher used descriptive and inferential statistics for data analysis.

The data was analyzed, tabulated and interpreted using descriptive and inferential statistics in the sequence as follows.

Organization of the findings

➢ Prevalence of low back pain among the elderly
➢ Frequency and percentage distribution of demographic variables of the elderly in the control and experimental groups.
➢ Frequency and percentage distribution of clinical variables of the elderly in the control and experimental groups.
➢ Frequency and percentage distribution of level of low back pain of the elderly on the first and seventh day of auriculotherapy in the control and experimental groups.
- Comparison of mean and standard deviation of level of low back pain of the elderly on the first and seventh day of auriculotherapy in the control and experimental groups.

- Association between the demographic variables and the level of low back pain of the elderly before the therapy in the control group.

- Association between the demographic variables and the level of low back pain of the elderly after the therapy in the control group.

- Association between the demographic variables and the level of low back pain of the elderly before the therapy in the experimental group.

- Association between the demographic variables and the level of low back pain of the elderly after the therapy in the experimental group.

- Association between the selected clinical variables and the level of low back pain of the elderly before the therapy in the control group.

- Association between the selected clinical variables and the level of low back pain of the elderly after the therapy in the control group.

- Association between the selected clinical variables and the level of low back pain of the elderly before the therapy in the experimental group.

- Association between the selected clinical variables and the level of low back pain of the elderly after the therapy in the experimental group.

- Item wise frequency and percentage distribution of level of satisfaction of the elderly in the experimental group after auriculotherapy.
Fig. 3 Prevalence of low back pain among the elderly
Table 1

Frequency and percentage distribution of demographic variables of the elderly in the control and experimental groups.

(N=60)

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>Control group</th>
<th>Experimental group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency n</td>
<td>Percentage p</td>
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<tr>
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<td>10</td>
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<tr>
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<td>-</td>
</tr>
<tr>
<td>Widows/widowers</td>
<td>23</td>
<td>76.7</td>
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<td><strong>Religion</strong></td>
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<tr>
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<tr>
<td>Non vegetarian</td>
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</table>
In this study table 1 revealed that majority of the elderly with low back pain belonged to Hindu religion in both the control and experimental groups (93.3%, 63.3%), did not have the habit of smoking (90%, 76.4%), not alcoholics (83.3%, 90%) and were widows/widowers (76.7%, 80%) respectively. A significant percentage of the participants were educated up to primary level (33.3%, 40%). In case of females, majority of them in both the control and experimental groups have delivered vaginally, (85.7%, 100%).

Figure 3 showed that a significant percentage of the participants in both the control and experimental groups came under above 75 years (43.3%, 43.3%).

Figure 4 illustrated that most of the elderly in both the control and experimental groups were females (60%, 53.3%).

Figure 5 depicted that a significant percentage of the participants in both the control and experimental groups have attained menopause at the age of 30-40 years (38.9%, 50%).

Figure 6 illustrated that a significant percentage of the elderly in both the control and experimental groups have delivered twice (22.2%, 18.75%).
Fig. 4 Percentage Distribution of Age in years of the elderly with low back pain
Fig. 5 Percentage Distribution of Gender of the elderly with low back pain
Fig. 6 Percentage Distribution of Age of Menopause of the elderly with low back pain
Fig. 7 Percentage Distribution of Number of Deliveries of the elderly with low back pain

- Control group
- Experimental group

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<th>Deliveries</th>
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<th>Experimental Group</th>
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<td>One</td>
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<td>27.8%</td>
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<tr>
<td>Two</td>
<td>18.75%</td>
<td>22.2%</td>
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<tr>
<td>Three</td>
<td>16.7%</td>
<td>6.25%</td>
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<tr>
<td>More than three</td>
<td>18.75%</td>
<td>11.1%</td>
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<td>22.2%</td>
<td>50%</td>
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Table 2
Frequency and percentage distribution of clinical variables of the elderly in the control and experimental groups

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<th>Experimental group</th>
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<td>p</td>
<td>n</td>
<td>p</td>
<td>N</td>
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<td>22</td>
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<td>56.7</td>
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<td>Lying down</td>
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<td>50</td>
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<td>No relief by any postures</td>
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<td>3.3</td>
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<td></td>
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<tr>
<td>Method of coping</td>
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<td>Reading/ writing</td>
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<td>3.3</td>
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<td></td>
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<td>46.7</td>
<td>11</td>
<td>36.7</td>
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<td></td>
</tr>
<tr>
<td>Nil</td>
<td>14</td>
<td>46.7</td>
<td>14</td>
<td>46.7</td>
<td></td>
<td></td>
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<tr>
<td>Numbness in limbs</td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14</td>
<td>16.7</td>
<td>15</td>
<td>50</td>
<td></td>
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<tr>
<td>No</td>
<td>16</td>
<td>53.3</td>
<td>15</td>
<td>50</td>
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<td></td>
</tr>
<tr>
<td>Tingling sensation</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>33.3</td>
<td>16</td>
<td>53.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>66.7</td>
<td>14</td>
<td>16.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In this study table 2 showed that a majority of the participants in the control and experimental groups had dull pain (86.7%, 83.3%), none took complementary and alternative therapy, had straight spine (86.7%, 56.7%) with no spinal tenderness (76.7%, 56.7%). Most of them had history of trauma (50.0%, 73.3%), no urinary incontinence (63.3%, 83.3%), had aggravating factors such as standing/walking (56.7%, 50%), the relieving factor was lying down (76.7%, 50%) and took other type of allopathic drugs as per their disease (63.3%, 50%) respectively.
A significant percentage of the participants had no numbness (53.3%, 50%), no history of illness (40%, 46.7%), had tingling sensation (33.3%, 53.3%) and used no coping strategies for pain (46.7%, 46.7%) respectively.

Figure 7 showed that a significant percentage of the participants in the control and experimental groups had the duration of pain for more than 5 years (33.3%, 50%).

Figure 8 illustrated that most of the elderly in the control and experimental groups had radiation of pain to leg (66.7%, 63.3%).
Fig. 7 Percentage Distribution of Duration of Pain of the Elderly with Low Back Pain
Fig. 8 Percentage Distribution of Radiation of pain of the elderly with low back pain
Table 3

Frequency and percentage distribution of level of low back pain of the elderly before and after auriculotherapy in the control and experimental groups.

(N=60)

| Level of low back pain | Before Control Group | | Before Experimental group | | After Control group | | After Experimental group |
|------------------------|----------------------|------|---------------------------|------|----------------------|------|
|                        | n        | p    | n | p | n | p | n | p |
| Oswestry low back pain scale | | | | | | | | |
| No back pain           | - | - | - | - | - | - | - | - |
| Mild back pain         | 3 | 10 | 1 | 3.3 | 3 | 10 | 4 | 13.3 |
| Moderate back pain     | 10 | 33.3 | 6 | 20 | 9 | 30 | 11 | 36.7 |
| Severe back pain       | 10 | 33.3 | 10 | 33.3 | 10 | 33.3 | 15 | 50 |
| Completely severe back pain | 7 | 23.3 | 13 | 43.3 | 8 | 26.7 | - | - |

In this study table 3 showed that a significant percentage of the participants in the control group, had severe pain both before and after auriculotherapy (33.3%, 33.3%). On the other hand, a significant percentage of the participants in the experimental group had completely severe pain before therapy whereas none had completely severe pain after therapy (43.3%, 0%).

Table 4

Comparison of mean and standard deviation of level of low back pain of the elderly before and after auriculotherapy in the control and experimental groups
(N=60)

<table>
<thead>
<tr>
<th>Group</th>
<th>Before</th>
<th>After</th>
<th>‘t’ value</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Mean</td>
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<tr>
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<tr>
<td>Experimental group</td>
<td>30.33</td>
<td>7.53</td>
<td>23.73</td>
</tr>
</tbody>
</table>

*p<0.05

It can be inferred from table 4 that the mean and standard deviation of low back pain score of the control group of the elderly was same before therapy (M= 27.1 S.D=8.25) in comparison with the level of low back pain score after auriculotherapy (M=26.9, S.D=8.07). In the experimental group, the low back pain score before therapy was low (M= 23.73, S.D=6.84) in comparison with the level of low back pain score after therapy (M=30.33, S.D=7.53). The difference was found statistically significant at p<0.05 and can be attributed to the effectiveness of auriculotherapy. Thus the null hypothesis hereby Ho1 was rejected.
Fig. 9 Percentage Distribution of Level of satisfaction of the elderly with low back pain

- 83.3% Highly Satisfied
- 16.7% Satisfied
- 0% Highly Dissatisfied

Fig. 9 Percentage Distribution of Level of satisfaction of the elderly with low back pain
Table 5

Association between the demographic variables and the level of low back pain of the elderly before the therapy in the control group

(N=30)

| Demographic variables | Mild | Moderate | Severe | Complete
<table>
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<th></th>
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</tr>
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<td>Separated</td>
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<tr>
<td>Widower/widower</td>
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<td>Hindu</td>
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*p<0.05
Note: Categories under the variables were clubbed for the sake of chi square analysis.

In this study table 5 showed that there was no significant association between demographic variables and level of low back pain among the elderly before auriculotherapy in the control group except age in years ($\chi^2=9.7$, df=3) at p<0.05. Hence null hypothesis was partially rejected and there was a significant association between the age in years and level of low back pain among the elderly.

Table 6

Association between the demographic variables and the level of low back pain of the elderly after the therapy in the control group.

<table>
<thead>
<tr>
<th>Educational status</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Completely severe</th>
<th>$\chi^2$</th>
<th>df=3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>1</td>
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</tr>
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<td>3</td>
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<tr>
<td>Higher secondary</td>
<td>1</td>
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<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>2</td>
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</table>

<table>
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<tr>
<th>Habit of smoking</th>
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<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td></td>
</tr>
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<td>3</td>
<td>8</td>
<td>9</td>
<td>7</td>
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<td>df=3</td>
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<table>
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<tr>
<th>Habit of alcohol</th>
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<th></th>
</tr>
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<tbody>
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<td>7</td>
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<td>df=3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of diet</th>
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<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Age of menopause</th>
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<td>&lt;30 years</td>
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<td>df=3</td>
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<td>Above 50 years</td>
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</tbody>
</table>
It could be noted from table 6 that there was no significant association between the demographic variables and the level of low back pain among the elderly after auriculotherapy in the control group except age in years ($\chi^2=12.38$, df=3) at $p<0.01$ and type of deliveries ($\chi^2=14$, df=6) at $p<0.05$. Hence null hypothesis was partially rejected and there was a significant association between the age in years and type of deliveries and level of low back pain among the elderly.

### Table 7

**Association between the demographic variables and the level of low back pain of the elderly before therapy in the experimental group**

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Completely severe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of deliveries</strong></td>
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<td></td>
</tr>
<tr>
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<tr>
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<td>-</td>
</tr>
<tr>
<td>Nil</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td><strong>Type of deliveries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaginal</td>
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<td>4</td>
</tr>
<tr>
<td>Assisted</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Caesarean</td>
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<td>-</td>
<td>-</td>
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</tr>
</tbody>
</table>

*p<0.05  **p<0.01  

Note: Categories under the variables were clubbed for the sake of chi square analysis.
<table>
<thead>
<tr>
<th></th>
<th>Muslim</th>
<th>Others</th>
<th>Others</th>
<th>Others</th>
<th>Others</th>
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<td>4</td>
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<tr>
<td>Higher secondary</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>Graduate and above</td>
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<td>-</td>
<td>-</td>
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</tr>
<tr>
<td><strong>Habit of smoking</strong></td>
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<td>11</td>
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</table>
In this study table 7 revealed that there was no significant association between the demographic variables and the level of pain among the elderly before auriculotherapy in the experimental group except number of deliveries \( (\chi^2=8.9, \text{df}=3) \) at \( p<0.05 \). Hence null hypothesis was partially rejected and there was a significant association between the number of deliveries and level of low back pain among the elderly.

**Table 8**

**Association between the demographic variables and the level of low back pain of the elderly after the therapy in the experimental group**

Note: Categories under the variables were clubbed for the sake of chi square analysis.
(N=30)

<table>
<thead>
<tr>
<th>Demographic variables</th>
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<th>Severe</th>
<th>Completely severe</th>
<th>$\chi^2$</th>
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</table>
In this study table 8 revealed that there was no significant association between the demographic variables and the level of low back pain among the elderly after auriculotherapy in the experimental group except age of menopause ($\chi^2=7.93$, df=3) at $p<0.05$ and number of deliveries ($\chi^2=11.338$, df=3) at $p<0.01$. Hence null hypothesis was partially rejected and hence there was a significant association between the age of menopause and number of deliveries and level of low back pain among the elderly.
Table 9
Association between the selected clinical variables and the level of low back pain of the elderly before the therapy in the control group

Table (N=30)

<table>
<thead>
<tr>
<th>Clinical variables</th>
<th>Mild</th>
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<th>Completely severe</th>
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<td></td>
</tr>
<tr>
<td><strong>Spinal curvature</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straight</td>
<td>3</td>
<td>10</td>
<td>9</td>
<td>4</td>
<td>6.99</td>
<td></td>
</tr>
<tr>
<td>Curved</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<0.05

Note: Categories under the variables were clubbed for the sake of chi square analysis.

It could be noted that there was no significant association between the clinical variables and the level of low back pain among the elderly before auriculotherapy in the control group except aggravating factors ($\chi^2=9.7402$, df=3) at p<0.05. Hence null hypothesis was partially rejected and hence there was a significant association between aggravating factors and the level of low back pain among the elderly.

Table 10
Association between the selected clinical variables and the level of low back pain of the elderly after the therapy in the control group

(N=30)

<table>
<thead>
<tr>
<th>Clinical variables</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Completely severe</th>
<th>(\chi^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duration of pain</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1 year</td>
<td>3</td>
<td>4</td>
<td>3</td>
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<td>7.091</td>
</tr>
<tr>
<td>1-5 years</td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>-</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Radiation of pain</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buttocks</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Thigh</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>6.93</td>
</tr>
<tr>
<td>Leg</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>6</td>
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</tr>
<tr>
<td>Nil</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Any history of trauma</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>-</td>
<td>7</td>
<td>5</td>
<td>4</td>
<td>4.66</td>
</tr>
<tr>
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<td>3</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Aggravating factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coughing/ Sneezing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Sitting</td>
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<td>1</td>
<td>-</td>
<td>2</td>
<td>9.45*</td>
</tr>
<tr>
<td>Standing/ walking</td>
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<td>6</td>
<td>5</td>
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</tr>
<tr>
<td>Lifting heavy weight</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Continuous in nature</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Spinal curvature</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straight</td>
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<td>1</td>
<td>9</td>
<td>5</td>
<td>15.3**</td>
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<tr>
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<td>8</td>
<td>1</td>
<td>3</td>
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</tr>
</tbody>
</table>

\*p<0.05  **p<0.001

Note: Categories under the variables were clubbed for the sake of chi square analysis.

Table 10 revealed that there was no significant association between the clinical variables and the level of low back pain among the elderly after auriculotherapy in the control group except aggravating factors (\(\chi^2=9.45, df=3\)) at p<0.05 and spinal curvature (\(\chi^2=15.3, df=3\)) at p<0.01. Hence null hypothesis was partially rejected and hence there was a significant association between aggravating factors and spinal curvature and the level of low back pain among the elderly.

Table 11

Association between the selected clinical variables and the level of low back pain of the elderly before the therapy in the experimental group

(N=30)
Table 11 showed that there was no significant association between the clinical variables and the level of low back pain among the elderly before auriculotherapy in the experimental group except radiation of pain ($\chi^2=10.83$, df=3) at p<0.05. Hence null hypothesis was partially rejected and hence there was a significant association between the radiation of pain and the level of low back pain among the elderly.

Note: Categories under the variables were clubbed for the sake of chi square analysis.
Table 12
Association between the selected clinical variables and the level of low back pain of the elderly after the therapy in the experimental group
(N=30)

<table>
<thead>
<tr>
<th>Clinical variables</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Completely severe</th>
<th>(\chi^2)</th>
<th>(df)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duration of pain</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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<tr>
<td>1-5 years</td>
<td>-</td>
<td>4</td>
<td>5</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>1</td>
<td>5</td>
<td>9</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Radiation of pain</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buttocks</td>
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<td>-</td>
<td>-</td>
<td>3</td>
<td>21.67**</td>
<td>3</td>
</tr>
<tr>
<td>Thigh</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leg</td>
<td>-</td>
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<td>8</td>
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</tr>
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<td>10</td>
<td>-</td>
<td>1.737</td>
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</tr>
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<td>-</td>
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<tr>
<td><strong>Aggravating factors</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Coughing/ Sneezing</td>
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<td>-</td>
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<td>Sitting</td>
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<td>12</td>
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<td>Standing/ walking</td>
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<td>Lifting heavy weight</td>
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<td></td>
</tr>
<tr>
<td><strong>Spinal curvature</strong></td>
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</tr>
<tr>
<td>Straight</td>
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<td>6</td>
<td>7</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<0.05**p<0.01

Note: Categories under the variables were clubbed for the sake of chi square analysis.

Table 12 revealed that there was no significant association between the clinical variables and the level of low back pain among the elderly after auriculotherapy in the experimental group except radiation of pain (\(\chi^2=21.67\), \(df=3\)) at \(p<0.01\). Hence null hypothesis was partially rejected and hence there was a significant association between radiation of pain and the level of low back pain among the elderly.

Table 13
Item wise frequency and percentage distribution of the level of satisfaction of the elderly in the experimental group after auriculotherapy
It could be noted from table 13 that majority of the elderly were highly satisfied with auriculotherapy for low back pain (83.3%).

### Summary

This chapter has dealt with the analysis and interpretation of the data obtained by the researcher. The analysis of the results showed that in the experimental group the level of low back pain among the elderly was reduced after the therapy in comparison...
with before the therapy. This implied that the auriculotherapy has the effect to reduce low back pain among the elderly.

CHAPTER – V

DISCUSSION

An experimental study was conducted to assess the effectiveness of auriculotherapy upon low back pain among the elderly at selected old age homes, Chennai.

Objectives of the study

1. To assess the prevalence of low back pain among the elderly.
2. To assess the level of low back pain before and after auriculotherapy among the elderly in the control and experimental groups.

3. To assess the effectiveness of auriculotherapy among the elderly through comparison of low back pain before and after auriculotherapy.

4. To find out the association between the selected demographic and clinical variables and the level of low back pain before and after auriculotherapy among elderly in the control and experimental groups.

5. To assess the level of satisfaction of auriculotherapy among the elderly in the experimental group.

This study was carried upon 60 elderly with low back pain in selected old age homes, Chennai. Their low back pain score was assessed before and after auriculotherapy. Auriculotherapy was given to the experimental group. The level of satisfaction on auriculotherapy was assessed on the experimental group.

The discussion was presented under the following headings

- Prevalence of low back pain among the elderly.
- Demographic variables and clinical variables of the elderly.
- Level of low back pain of the elderly before and after therapy in the control and experimental groups.
- Effectiveness of auriculotherapy
- Assessment of level of satisfaction on auriculotherapy.
- Association of demographic variables and level of low back pain of the elderly.
- Association of clinical variables and level of low back pain of the elderly.
Prevalence of low back pain among the elderly

The prevalence of low back pain increases as the person ages and has been a matter of serious concern. One way or other most people of old age people suffer from it. In this study, the researcher depicted that a significant percentage of the elderly suffer from low back pain (42.105%) which is presented as mild, moderate, severe and completely severe pain (3.68%, 10.526%, 14.21% & 13.68%) which is compatible with the findings that 8 out of 10 people are affected with back pain at some point of time during their lives.

Demographic variables and clinical variables of the elderly

Human body functions like a locomotive system and movement of the person continues throughout life. Ageing joint shows wear and tear and symptoms of low back pain appears. The symptoms of low back pain increases as we age. In this study also a significant percentage of the participants in both the control and experimental groups were in the age group of above 75 years (43.3%, 43.3%) which shows the increased life expectancy in the country.

The number of females who have participated in the study (60%, 53.3%) in both the control and experimental groups were higher in comparing with the number of male participants, who were less comprising only 40% and 46.7% in this study. The findings were similar to the study conducted by Ayranci (2005) on old age and its related problems in which approximately two thirds of the study group were women (66.2%) and just over one-third were men (33.8%) and more than half of the respondents (56.4%) were aged 60-69 years.
Majority of the elderly belong to the age group of above 75 years and hence most of the elderly in both the control and experimental groups were widow/widower (76.7%, 80%). Majority of the elderly with low back pain belong to Hindu religion in both the control group (93.3%) and in experimental group (63.3%) which is consistent with the fact that though India is a secular country, it has a majority of Hindus with over 80.5 percent of Indians belonging to Hindu religion.

According to the Census 2001, the overall literacy rate works out to be 64.8 %, the male literacy rate is 75.3% and that for females is 53.7%. In the present study also the researcher found that most of them in both the control and experimental groups were educated up to primary level (33.3%, 40%) which could be recognized as a facilitating factor for understanding the procedure.

Majority of the participants were non smokers in the control and experimental groups (90%, 76.4%) and were not alcoholics (83.3%, 90%). This result is compatible with the study conducted in Turkey in 2005 by Ayranci which states that the number of non smokers and non drinkers in the elderly age were reported to be 67.5% and 94% respectively. Another study conducted by Min (2006) highlights that there was no statistically significant correlation between smoking and the development of low back pain. It could be predicted from the study findings that public had adequate awareness about the ill effects of smoking and alcoholism.

In case of females, the age of menopause was 30-40 years (38.9%) in the control group, whereas in the experimental group, it was 30-40 years (50%) which is consistent to the study conducted by Shyamala (2007) of India-based Institute for Social and Economic Change. London's Times reports 3.1% of women living in India became
menopausal between ages 30 and 34, 8% of women experienced menopause by age 39 and 19% of them were menopausal by age 41. The average menopausal age in India is 44.3 years. The study found that premature menopause was most common in rural areas, as well as among agricultural workers, women who were illiterate and women who had a low body mass index. According to the Times, malnutrition and poverty are believed to be contributing factors to premature menopause. In the control group, most of them have delivered one time (27.8%). In the experimental group, most of them had delivered twice (18.75%) and more than three (18.75%). Majority of them, in the control group (85.7%) and in the experimental group had delivered vaginally (100%).

Most of them had history of trauma (50.0%, 73.3%), no urinary incontinence (63.3%, 83.3%), had aggravating factors such as standing/ walking (56.7%, 50%), the relieving factor was lying down (76.7%, 50%), with radiation of pain to legs (66.7%, 63.3%) and took other type of allopathic drugs as per their disease (63.3%, 50%) respectively.

A significant percentage of the participants had the duration of pain for more than 5 years (33.3%, 50%), no numbness (53.3%, 50%) with no history of illness (40%, 46.7%), had tingling sensation (33.3%, 53.3%) and used no coping strategies for pain (46.7%, 46.7%) respectively. It is supported by the study conducted by Hestbaek (2005) and found that, high levels of passive coping were found to be associated with disabling neck and back pain.

Most of the study participants had no history of illness (40%, 46.7%). This throws light to the fact that most of the study participants in both the control and experimental groups did not have the history of hypertension (56.7%, 30.0%), diabetes
mellitus (66.7%, 66.7%) and health problem (90%, 90%) respectively. This data revealed that many of the elderly clients in the old age home were aware about the maintenance of their health status.

Most of the old aged people used other type of allopathic drugs as per their disease (63.3%, 50%). It is compatible with the study conducted by Stoehr (1997) which shows that 87% of older individuals (mean age 74.5 years) reported regular use of at least one form of medication. In both the control and experimental groups none took complementary and alternative therapy. It showed that though complementary and alternative therapies were traditional, the elderly don’t have adequate knowledge about the benefits of these therapies. Hence health education can be provided to the public by enhancing its benefits and motivating them to adopt it.

Most of them have straight spine (86.7%, 56.7%) and have no spinal tenderness (76.7%, 56.7%) which shows that low back pain prevails irrespective of the spinal curvature.

**Level of low back pain of the elderly before and after therapy in the control and experimental groups**

A significant percentage of the participants in the control group had severe pain before therapy (33.3 %). After the therapy also most of them suffered with the same level of low back pain 33.3% had severe pain without any relief from pain.
Whereas in the experimental group, a significant percentage of the participants had completely severe pain before therapy (43.3%) and after therapy, it was highly reduced and no one had completely severe pain which shows that auriculotherapy is highly effective in reducing the low back pain.

This figure is compatible with the results of the randomized, double-blind, sham control study by Barker (2006) to determine whether auricular acupressure can decrease the level of pain and the level of anxiety in a group of elder patients with acute hip fracture during ambulance transport. Subjects in the true intervention group (n = 18) received bilateral auricular acupressure at three auricular acupressure points for hip pain. Patients in the sham group (n = 20) received bilateral auricular acupressure at sham points. Patients in the true intervention groups had less pain (F = 28, p = 0.0001) and anxiety (F = 4.3, p = 0.018) and lower heart rate (F = 18, p = 0.0001) on arrival at the hospital than did patients in the sham control group. As a result, the patients in the true intervention group reported higher satisfaction in the care they received during the ride to the hospital. Min (2006) also supports that approximately 50% of patients who experience low back pain show improvement within seven days.

**Effectiveness of auriculotherapy upon low back pain**

The mean and standard deviation of low back pain score of the control group of the elderly was same before therapy (M= 27.1, S.D=8.25) in comparison with the level of low back pain score after therapy (M=26.9, S.D=8.07). In the experimental group, the low back pain score before therapy was low (M= 23.73, S.D=6.84) in comparison with the level of low back pain score after therapy (M=30.33, S.D=7.53). The difference was
found statistically significant at \( p<0.05 \) and can be attributed to the effectiveness of auriculotherapy. Thus the null hypothesis hereby \( H_0 \) was rejected. It is similar to the study conducted by researchers in Taiwan in which 129 patients were recruited with chronic low back pain which showed that acupressure is more effective in alleviating low back pain than physical therapy in terms of pain scores, functional status, and disability, say the authors. The effect was not only seen in the short term, but lasted for six months.

**Assessment of the level of satisfaction on auriculotherapy**

It could be noted that majority of the elderly (83.3\%) in the experimental group were highly satisfied with auriculotherapy for low back pain and none of the elderly expressed low satisfaction with auriculotherapy. The above findings reveal that there was a significant decrease in the level of low back pain after auriculotherapy which showed that auriculotherapy given by the investigator was highly effective. Hence auriculotherapy can be incorporated into nursing practice rather than using other invasive therapies. Being a very simple and non invasive technique it can be adapted to every setting offering the best for the elderly.

**Association between the level of low back pain and demographic and clinical variables of the elderly**

There was a significant association between the demographic variables such as age in years, \( (\chi^2=9.7, \text{df}=3) \) at \( p<0.05 \), type of deliveries \( (\chi^2=14, \text{df}=6) \) at \( p<0.05 \), number of deliveries \( (\chi^2=8.9, \text{df}=3) \) at \( p<0.05 \) and age of menopause \( (\chi^2=7.93, \text{df}=3) \) at
p<0.05 and the level of low back pain among the elderly. Hence the null hypothesis Ho2 was rejected.

There was a significant association between the clinical variables such as aggravating factors ($\chi^2=9.7402$, df=3) at p<0.05, spinal curvature ($\chi^2=15.3$, df=3) at p<0.01 and radiation of pain ($\chi^2=10.83$, df=3) at p<0.05 and the level of low back pain among the elderly. Hence the null hypothesis Ho2 was rejected which is complemented by a study conducted by Antonio (2009). It said that there was a significant association between low back pain and occupation, age, sex, obesity, unhealthy habits and chronic degenerative diseases.

Summary

This chapter has dealt about the discussion on the various aspects of study findings. This chapter comprises of prevalence of low back pain among the elderly, demographic variables and clinical variables of the elderly, level of low back pain of the elderly before and after the therapy in the control and experimental group, effectiveness of auriculotherapy, assessment of level of satisfaction on auriculotherapy, association between the level of low back pain and demographic variables and clinical variables of the elderly.

CHAPTER - VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

Summary
An experimental study to assess the effectiveness of auriculotherapy upon low back pain among the elderly at selected old age homes, Chennai.

**Objectives of the study**

1. To assess the prevalence of low back pain among the elderly.
2. To assess the level of low back pain before and after auriculotherapy among the elderly in the control and experimental groups.
3. To assess the effectiveness of auriculotherapy among the elderly through comparison of low back pain before and after auriculotherapy.
4. To find out the association between the selected demographic and clinical variables and the level of low back pain before and after auriculotherapy among elderly in the control and experimental groups.
5. To assess the level of satisfaction of auriculotherapy among the elderly in the experimental group.

**Null Hypotheses**

**Ho1:** There will be no significant difference in the level of low back pain between the elderly in control and experimental group after auriculotherapy.

**Ho2:** There will be no significant association between the demographic and clinical variables and the level of low back pain of the elderly before and after auriculotherapy in the control and experimental groups.

**The major findings of the study**

90
➢ The prevalence of low back pain revealed that a significant percentage of the elderly had low back pain (42.105%), which presented as mild, moderate, severe and completely severe (3.68%, 10.53%, 14.21% & 13.68%) respectively.

➢ A significant percentage of the participants in both the control and experimental groups were in the age group of above 75 years (43.3%, 43.3%) and educated up to primary level (33.3%, 40%).

➢ Majority of the elderly with low back pain belonged to Hindu religion in both the control and experimental groups (93.3%, 63.3%), did not have the habit of smoking (90%, 76.4%), not alcoholics (83.3%, 90%) and were widows/widowers (76.7%, 80%) respectively.

➢ Most of the elderly in both the control and experimental groups were females (60%, 53.3%). Among them, a significant percentage have delivered twice (22.2%, 18.75%), vaginally (85.7%, 100%) and attained menopause at the age of 30-40 years (38.9%, 50%) respectively.

➢ A majority of the participants in the control and experimental groups had dull pain (86.7%, 83.3%), none took complementary and alternative therapy, had straight spine (86.7%, 56.7%) with no spinal tenderness (76.7%, 56.7%) respectively.

➢ Most of them had history of trauma (50.0%, 73.3%), no urinary incontinence (63.3%, 83.3%), had aggravating factors such as standing/ walking (56.7%, 50%), the relieving factor was lying down (76.7%, 50%), with radiation of pain to legs (66.7%, 63.3%) and took other type of allopathic drugs as per their disease (63.3%, 50%) respectively.
A significant percentage of the participants had the duration of pain for more than 5 years (33.3%, 50%), no numbness (53.3%, 50%) with no history of illness (40%, 46.7%), had tingling sensation (33.3%, 53.3%) and used no coping strategies for pain (46.7%, 46.7%) respectively.

A significant percentage of the participants in the control group had severe pain both before and after therapy (33.3%, 33.3%). On the other hand, a significant percentage of the participants in the experimental group had completely severe pain before therapy whereas none had completely severe pain after therapy (43.3%, 0%).

The mean and standard deviation of low back pain score of the control group of the elderly was same before therapy (M= 27.1, S.D=8.25) in comparison with the level of low back pain score after therapy (M=26.9, S.D=8.07). In the experimental group, the low back pain score before therapy was low (M= 23.73, S.D=6.84) in comparison with the level of low back pain score after therapy (M=30.33, S.D=7.53). The difference was found statistically significant at p<0.05 and can be attributed to the effectiveness of auriculotherapy. Thus the null hypothesis hereby Ho1 was rejected.

Majority of the participants expressed high level of satisfaction with auriculotherapy for low back pain (83.3%).

There was significant association between the demographic variables such as age in years, ($\chi^2=9.7$, df=3) at p<0.05, type of deliveries ($\chi^2=14$, df=6) at p<0.05, number of deliveries ($\chi^2=8.9$, df=3) at p<0.05 and age of menopause ($\chi^2=7.93$, df=3) at p<0.05 and the level of low back pain among the elderly. Hence the null hypothesis Ho2 was rejected.
There was significant association between the clinical variables such as aggravating factors ($\chi^2=9.7402$, df=3) at $p<0.05$, spinal curvature ($\chi^2=15.3$, df=3) at $p<0.01$ and radiation of pain ($\chi^2=10.83$, df=3) at $p<0.05$ and the level of low back pain among the elderly. Hence the null hypothesis Ho2 was rejected.

**Conclusion**

The findings of the study indicate that the auriculotherapy reduces low back pain of the elderly. Auriculotherapy is a simple, easy to implement and the most acceptable way to tackle pain among the elderly with low back pain. After the therapy, level of low back pain was significantly reduced among the elderly who received auriculotherapy. The results supported that the incorporation of auriculotherapy in nursing care for the elderly with low back pain is the best intervention to reduce the level of low back pain.

**Implications**

**Nursing practice**

Low back pain is the most common problem among the elderly. The elderly people experienced increased pain before auriculotherapy and showed reduced level of low back pain after auriculotherapy which indicates that the auriculotherapy was effective in reducing low back pain. Nurses have a major role in assessing and providing necessary diversional therapy to decrease low back pain among the elderly. Many non pharmacological measures are available to reduce the level of low back pain. But auriculotherapy is very best, highly effective, cheap and non invasive.

Continuous nursing education programme can be conducted on auriculotherapy technique for the nurses. Coaching classes can be performed on auriculotherapy
technique in which the nurses are indulged in it to promote effective nursing care for the elderly. Nurses should have the awareness of non pharmacological methods of pain relief among the elderly and to make them understand the benefits and practice of new methods.

**Nursing education**

With the emerging health care trends nursing education must focus on auriculotherapy to enhance the nursing care. The nursing students should be taught about the importance of non pharmacological pain relief measures for low back pain among the elderly. Therefore the nursing students should be introduced with complementary and alternative therapies for pain reduction for low back pain among the elderly to deliver the nursing care effectively.

Nursing educators should incorporate the various methods of non pharmacological pain relief measures in their curriculum. Certificate courses can be started for student nurses on auriculotherapy. The auriculotherapy findings serve as a guide to evidence based practice and hence the students should be informed about the auriculotherapy findings. Auriculotherapy techniques can be demonstrated to the students in the clinical settings to enhance professionalism.

**Nursing administration**

With technological advances and the ever growing challenge of health care trends, the administrators have a responsibility to provide nurses with substantive continued education opportunities. This will enable the nurses to update their knowledge, acquire special skills and demonstrate high quality care. Nurse
administrators should take the initiate in organising continuing educational programs on auriculotherapy for the nursing personnel in the hospital and community settings with modern technological video aids to gain adequate knowledge and reduction of low back pain among the elderly.

Nurse administrator should collaborate with the governing bodies in formulating policies and protocols to emphasise nursing care among the elderly and plan for man power, money, material, methods and time to conduct successful and useful education program. Nurse administrator provides opportunity for nurses to attend training programs on complementary and alternative therapy for low back pain management.

Nursing research

There is a need for extensive and intensive research in this area. It opens a big avenue for auriculotherapy for innovative methods of diversion therapy. Development of good and effective centralized research for reducing the level of stress and pain during scientific data, based on which new strategies for reducing the pain can be developed. Disseminate the findings of the research through conferences, seminars and publishing in the nursing journal and promote effective utilization of research findings.

Recommendations

- The same study can be conducted in a larger sample to generalize the results.
- A comparative study can be conducted between various alternative and complementary methods to reduce low back pain among the elderly.
A comparative study can be conducted between various alternative and complementary methods to reduce low back pain among people of all the age groups.

A similar study can be conducted among people of other age groups.

A similar study can be conducted in different settings with similar facilities.

A study can be conducted to assess the knowledge and attitudes of nurse on complementary and alternative therapy for low back pain management.
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www.oldagesolutions.org/Health/HealthMain.aspx -
APPENDIX – A

LETTER SEEKING PERMISSION TO CONDUCT THE STUDY
Respected Sir / Madam,

Sub.: To request permission for research study – Reg.

Greetings! As part of the curriculum requirement our 2nd year M. Sc. (N) student Ms. Chitra D has selected the following title for her research study.

“A experimental study to assess the effectiveness of auriculotherapy upon low back pain among old age people at selected old age home, Chennai.”

So I kindly request your good selves to permit her to use the resource materials for the above-mentioned candidate.

Thanking You,

Dr. LATHA VENKATESAN
PRINCIPAL
IS/ISO 9001:2000
Vanagaram to Ambattur Main Road, Ayanambakkam, Chennai - 600 095.
Ph: 044 - 2653 4387  Tele fax: 044 - 2653 4923 / 044- 2653 4386
APPENDIX – B

LETTER PERMITTING TO CONDUCT THE STUDY

PERMISSION LETTER FOR CONDUCTING THE STUDY:

Date: 30.06.2010

To:
Dr. Latha Venkatesan,
Principal,
Apollo College of Nursing,
Ayanambakkam,
Chennai – 600 095.

Respected Madam,

As per your letter received to us dated 21.04.2010, as specified project to your student Ms. D. Chitra, 2nd M.Sc., (N) student as desired by the letter we permitted to perform the study from 4th June 2010 to 30th June 2010.

We confirm and acknowledge her project studies with our institution good and in scheduled timings always.

Thanking you and assuring you of our best attention always

Yours truly,

Rev. Fr. Maria Lawrence sdb,
Administrator

ADMINISTRATOR
BEATITUDES SOCIAL WELFARE CENTRE
36, SUNDARAM STREET, VYASARADI
CHENNAI - 600 039, INDIA

Copy to:
Ms.D.Chitra,
Msc.(Nig) 2 yr student,
Apollo College of Nursing,
Ayanambakkam,Chennai - 600 095

DONATIONS to "BEATITUDES SOCIAL WELFARE CENTRE" are eligible for tax relief in full under section 80G


BEATITUDES SOCIAL WELFARE CENTRE DEPENDS ON YOUR HELP AND LEGACIES
PERMISSION LETTER FOR CONDUCTING THE STUDY

Dated: June 29, 2010.

To

Dr. Latha Venkatesan,
PRINCIPAL,
Apollo College of Nursing,
Ayanambakkam,
Chennai - 600 095

Respected Madam,

As per your letter received to us dated 21.4.2010, as specified project to your student Ms. D. Chitra, 2nd M.Sc. [N] student as desired by the letter we permitted to perform w.e.f. 4th June 2010 to 30th June 2010.

We confirm and acknowledge her project studies with our institution good and in scheduled timings always.

Thanking you and assuring you of our best attention always.

Yours truly,

MANAGER Administration.
K. RAVI.

Copy to:

Ms. D. Chitra,
M.Sc. [Nursing] II Year student,
Apollo College of Nursing,
Ayanambakkam,
Chennai - 600 095.
APPENDIX- C

ETHICS COMMITTEE LETTER

Ethics Committee

To,
Ms. D. Chitra
Final Year M.Sc (Nursing)
Apollo College of Nursing, Chennai
Tamil Nadu, India

Ref: An experimental study to assess the effectiveness of auriculotherapy upon low back pain among the elderly at selected old age homes, Chennai.

Sub: Your letter dated 06 July 2010 for approval of the above referenced project and its related documents

14 July, 2010

Dear Ms. D. Chitra,

Ethics committee – Apollo Hospitals has received the following document submitted by you related to the conduct of the above – referenced study.

- Project Proposal titled “An experimental study to assess the effectiveness of auriculotherapy upon low back pain among the elderly at selected old age homes, Chennai.”
- Study Proforma

Ethics Committee Apollo Hospitals reviewed and discussed the above-mentioned documents presented by you related to the conduct of above-referenced study at its meeting held on 13 July, 2010.

The following Ethics Committee members were present at the meeting held on 13 July, 2010

<table>
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<tr>
<th>Name</th>
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<th>Position in the committee</th>
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<tr>
<td>Mr. S. S. Narayanan</td>
<td>Ethniet</td>
<td>Chairman</td>
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<td>Dr. Radha Rajagopalan</td>
<td>Clinician</td>
<td>Vice – Chairman</td>
</tr>
<tr>
<td>Ms. Jayanthi Swaminathan</td>
<td>Clinical Project Manager</td>
<td>Member Secretary</td>
</tr>
<tr>
<td>Dr. V. Balaji</td>
<td>Clinician</td>
<td>EC-Member</td>
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<tr>
<td>Dr. C. Paul Dilip Kumar</td>
<td>Clinician</td>
<td>EC-Member</td>
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<tr>
<td>Dr. K. C. Krishnakumar</td>
<td>Clinician</td>
<td>EC-Member</td>
</tr>
</tbody>
</table>

Apollo Hospitals Enterprise Limited
21, Gream’s Lane, Off Gream’s Road, Chennai - 600 006
E-Mail: eapollochennai@gmail.com
Ethics Committee

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<thead>
<tr>
<th>Name</th>
<th>Profession</th>
<th>Position in the committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Clive Fernandes</td>
<td>Consultant Clinical Pharmacologist</td>
<td>Basic Medical Scientist</td>
</tr>
<tr>
<td>Ms. Mai'mona Badsha</td>
<td>Lawyer</td>
<td>Lawyer</td>
</tr>
<tr>
<td>Mrs. Chandra Jebuseelan</td>
<td>Nursing Superintendent</td>
<td>EC-Member</td>
</tr>
<tr>
<td>Dr. P. Nalini Rao</td>
<td>Social Worker</td>
<td>EC-Member</td>
</tr>
<tr>
<td>Miss. N. Suseela</td>
<td>Retired English Teacher</td>
<td>Layperson</td>
</tr>
</tbody>
</table>

After due ethical and scientific consideration, the Ethics Committee has approved the above presentation submitted by you.

The Ethics Committee is constituted and works as per ICH-GCP, ICMR and revised Schedule Y guidelines.

Yours sincerely,

Dr. Radha Rajagopalan
Ethics Committee – Vice Chairman
Apollo Hospitals, Chennai

DR. RADHA RAJAGOPALAN
Vice Chairman
Ethics Committee
Apollo Hospitals Enterprise Limited
Chennai-600 006, Tamil Nadu.

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai – 600 006
Tel: 91 - 44 - 2829 3333 Extn: 6008, 91 - 44 - 2829 4439 Extn: 6639 Fax: 91 - 44 - 28294449
E-Mail: ecapolphennai@gmail.com

Date 4/1/10
APPENDIX –D

PLAGIARISM ORIGINALITY REPORT
APPENDIX – E

LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH

From
Ms. D. Chitra,
M.Sc. (Nursing) II year,
Apollo College of Nursing,
Chennai - 95.
To

Through proper channel,
Dr. Latha Venkatesan,
Principal,
Apollo College of Nursing.

Sub: Request for opinions and suggestions of experts for establishing content validity of Research tool.

Respected Madam,

Greetings! As a part of the Curriculum Requirement the following research title is selected for the study.

"An experimental study to assess the effectiveness of auriculotherapy upon low back pain among old age people at selected old age home, Chennai".

I will be highly privileged to have your valuable suggestions with regard to the establishment of content validity of Research tool. So I request you to validate my Research tool and give suggestions about the tool.

Thanking you,

Place: 

Date: 

Yours Sincerely,

(Ms. D. Chitra)
APPENDIX – F

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the Research tool of ________________

M.Sc (Nursing) II Year student who is undertaking research study.

“An experimental study to assess the effectiveness of auriculotherapy upon
low back pain among the elderly at selected old age homes, Chennai.”

Signature of Expert

Name & Designation
APPENDIX –G

LIST OF EXPERTS FOR CONTENT VALIDITY

1. Dr. Latha Venkatesan, M.Sc., (N), M.Phil., Ph.D.,
   Principal and Professor in Maternity Nursing,
   Apollo College of Nursing,
   Chennai-95

2. Prof. Lizy Sonia, M.Sc., (N),
   Vice Principal and Professor in Medical Surgical Nursing,
   Apollo College of Nursing,
   Chennai-95

3. Dr. Madhan Mohan Reddy,
   MS (ortho), MD., FRCS (UK)
   Consultant Orthopedic Surgeon,
   Apollo Hospitals,
   Chennai- 600 034

4. Prof. Vijayalakshmi, M.Sc., (N),
   Professor in Psychiatric Nursing,
   Apollo College of Nursing,
   Chennai-95

5. Mrs. Jaslina David, M.Sc., (N),
   Reader in Medical Surgical Nursing,
   Apollo College of Nursing,
   Chennai-95

6. Mrs. Sasi Kala, M.Sc., (N),
   Reader in Medical Surgical Nursing,
   Apollo College of Nursing,
   Chennai-95

7. Mrs. Kanchana, M.Sc., (N), M.Sc. (Psy),
   Reader in Medical Surgical Nursing,
   Apollo College of Nursing,
   Chennai-95

8. Mrs. Nicola Sharan Ambrose, M.Sc., (N),
   Lecturer in Community Health Nursing,
   Apollo College of Nursing,
   Chennai-95
APPENDIX – H

RESEARCH PARTICIPANTS CONSENT FORM

Dear participant,

I am a _________________ M.Sc., Nursing Student of Apollo College of Nursing, Chennai. As a part of my study a research on the effectiveness of auriculotherapy upon low back pain among the elderly is selected to be conducted. The findings of the study will be helpful in reducing low back pain.

I hereby seek your consent and cooperation to participate in the study. Please be frank and honest in your responses. The information collected will be kept confidential and anonymity will be maintained.

Signature of the Researcher

I ……………………………………., hereby consent to participate and undergo the study.

Signature of the Participant
அர்ஹன்பாதியர் பெண்களுக்கு முன்னேற்றம் நடத்தும் பட்டம்

அலங்கரிக்கும் பெண்களுக்கு, 

ஆல்கோலிக் பெற்றோர்கள் அறிவிக்கிறார் செங்குத்தாக நம்பியிருக்க வேண்டாம். செங்குத்தாய் பெரும்பாலும் வார்த்தாக குறிப்பிட்டு அதிகம் அறிவிக்கிறார் பெண்களுக்கு பெரும்பாலும் அதிகம் அறிவிக்கிறார் பெண்களுக்கு தீர்மானம் நேர்வழியாக மேற்கொள்ள வேண்டும். உள்ள உயிரினங்கள் தன்னார் படையானது வேறு விளக்கக்கூற்றும் விளக்கக்கூற்றும். உள்ள உயிரினங்கள் தன்னார் படையானது வேறு விளக்கக்கூற்றும் விளக்கக்கூற்றும்.

அர்ஹன்பாதியர் பெண்கள்

........................................

என்று என்ற இந்த அர்ஹன்பாதியர் பெண்கள் ஒன்றில் அறிமுகிக்கிறார்.

பெண்கள் பெருக்கத்தால் அகமதம்

111
APPENDIX – I

CERTIFICATE FOR AURICULOTHERAPY TRAINING

This is to certify that Mr. / Miss / Mrs. / Dr. D. CHITRA has successfully
completed the basic course in Acupressure & Reiki on............... at .................

[Acupuncture & Reiki]

Course Director

Dr. P.S. Lalitha, M.D. (M.A) M. Vsc. Phdl.,
D/p (Sujok) DMT
Reiki Grand Master / Acupuncturist
Crystal Therapist
CERTIFICATE FOR ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation "An experimental study to assess the effectiveness of auriculotherapy upon low back pain among the elderly at selected old age homes, Chennai." by D. Chitra, II year M.Sc.,(N) student, Apollo College of Nursing, was edited for English Language appropriateness.

Signature

B. KUMARAN, M.A., M.Ed.,
Lecturer (SS) in English
Guru Nanak College
Velachery, Chennai-42.
CERTIFICATE FOR TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation "An experimental study to assess the effectiveness of auriculotherapy upon low back pain among the elderly at selected old age homes, Chennai." by M.Ch.T.R.A. II year M.Sc., (N) student, Apollo College of Nursing, was edited for Tamil Language appropriateness.

[Signature]

Dr. M. MURTHI
Asst. Professor & Head
Department of Tamil
Guru Nanak College,
Chennai-600 042.
APPENDIX – L

DEMOGRAPHIC VARIABLE PROFORMA

Purpose

This proforma is used to measure the demographic variable such as age in years, gender, marital status, religion, educational status, habit of smoking, habit of alcoholism and type of diet. In case of females, it includes age of menopause, number of deliveries, type of delivery and type of anesthesia used.

Instructions

The researcher collects the following information from the participants by interviewing and by seeing record of the elderly. Please be frank and free in your responses. It will be kept confidential and anonymity will be maintained.

Sample No.

1. Age in years
   1.1. 60-65 years
   1.2. 66-70 years
   1.3. 71-75 years
   1.4. above 75 years

2. Gender
   2.1. Male
   2.2. Female
3. Marital Status
   3.1. Married
   3.2. Unmarried
   3.3. Separated
   3.4. Widow/Widower

4. Religion
   4.1. Hindu
   4.2. Christian
   4.3. Muslim
   4.4. Others

5. Educational Status
   5.1. Illiterate
   5.2. Primary
   5.3. High school
   5.4. Higher secondary
   5.5. Graduate and above

6. Habit of Smoking
   6.1. Yes
   6.2. No

7. Habit of Alcoholism
   7.1. Yes
   7.2. No
8. Type of Diet
   8.1. Vegetarian
   8.2. Non-Vegetarian

In case of females,

9. Age of Menopause
   9.1. < 30 years
   9.2. 30-40 years
   9.3. 41-50 years
   9.4. > 50 years

10. Number of Deliveries
    10.1. One
    10.2. Two
    10.3. Three
    10.4. More than three
    10.5. Nil

11. Type of delivery
    11.1. Vaginal
    11.2. Assisted
    11.3. Caesarian
நெசுசிவிலங்கள் ஆணையம் பாடல்

நெசுசிவிளக்க பாதுகாப்பு வருடநெசுசிவிளக்கத் தமதே, பால்போர், சிவன் நீர், மாத்தார், குளும்பருளுகள், புள்ளை நேரங்கள் போக்கத், மற்றும் ஆண்டு போக்கத், பசித்து ஆண்டுகள் தமது பெயர்க்கட்டுள்ளது கூறுங்கள் என்று கூறினார்.

களில்

துண்ண களிலைக்கட்டுக்கள் அண்டகட்டு வேலைக்கட்டு ஆண்டுசிலியில் பெயர்போக்கான களிலிற்கு போக்கப்படும். அடையாளப் பிள்ளைகள் கக்கட்டுலம், துண்ணங்களுடனை கால் குளிலியானம்.

உயர்ந்த பள்ளிகள் பல்கலைக்கழகம் பாதுகாப்புப் படை

பாதுகாப்பு வகை (மாதொட்டத்துறை)

1.  
1.1 60 - 65
1.2 66 - 70
1.3 71 - 75
1.4 >75

2.  
2.1 அல்லை
2.2 மாந்தன்
3. திறன்மை திறன்
  3.1 திறன்மைப் பாதை
  3.2 திறன்மைப் பாதை
  3.3 பிரிவுக்குக் குறிப்பிட்டு/திறன்மைக் குறிப்பிட்டு
  3.4 திறன்மை / மருத்துவியல் திறன்மை

4. வெளிம
  4.1 வெளிம
  4.2 குறிப்பிட்டு
  4.3 குறிப்பிட்டு
  4.4 வெளிம

5. காண்பிக்கப்பட்டு
  5.1 காண்பிக்கப்பட்டு அருகியம்
  5.2 காண்பிக்கப்பட்டு காண்பிக்கப்பட்டு
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  5.4 காண்பிக்கப்பட்டு காண்பிக்கப்பட்டு
  5.5 பட்டி பட்டி பட்டி அறக்கடை காண்பிக்கப்பட்டு

6. புதுக்குறிக்குப்புக்குறிக்கு
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<td>பில்லைக்கறிவாள் தரைச்சின்னம்</td>
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<td>10.5 பொருளினம் சிறுப்பாது</td>
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<td>11.</td>
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<td>11.1 காப்பிலம்</td>
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<td>11.2 அதனம்பில்லைக்கடி</td>
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<td>11. அலையாக சிறுப்பாது</td>
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</tbody>
</table>
APPENDIX – M

CLINICAL VARIABLE PROFORMA

Purpose

This proforma is used to assess the clinical variables such as duration of pain, nature of pain, radiation of pain, any history of trauma, aggravating factors, relieving factors, method of coping with back pain, numbness in limbs, tingling sensation, urinary incontinence, history of illness, history of allopathic treatment, treatment with Complementary and Alternative therapies, presence of spinal curvature and spinal tenderness.

Instructions

The researcher collects the following information from the participants by interviewing and by seeing record of the elderly. Please be frank and free in your responses. It will be kept confidential and anonymity will be maintained.

1. Duration of pain
   1.1. 0-1year
   1.2. 1-5years
   1.3. >5years

2. Nature of pain
   2.1. Dull
   2.2. Sharp
   2.3. Burning
   2.4. Stabbing
   2.5. Others
3. Radiation of pain
   3.1. Buttocks
   3.2. Thigh
   3.3. Leg
   3.4. Nil

4. Any history of trauma
   4.1. Yes
   4.2. No

5. Aggravating factors
   5.1. Coughing/ Sneezeing
   5.2. Sitting
   5.3. Standing/walking for a long time
   5.4. Lifting heavy weight
   5.5. Continuous in nature

6. Relieving factors
   6.1. Rest
   6.2. Lying down
   6.3. No relief by any postures

7. Method of coping with back pain
   7.1. Slow walking
   7.2. Reading/Writing
   7.3. Medications
   7.4. Others
   7.5. Nil
8. Numbness in limbs

8.1. Yes
8.2. No

9. Tingling sensation

9.1. Yes
9.2. No

10. Urinary incontinence

10.1. Present
10.2. Absent

11. History of illness

11.1. Arthritis
11.2. Osteoporosis
11.3. Diabetes Mellitus
11.4. Hypertension
11.5. Reproductive disorders
11.6. Others
11.7. Nil

12. History of Allopathic treatment

12.1. Oral NSAIDS
12.2. Parenteral NSAIDS
12.3. Narcotic Analgesics
12.4. Others
12.5. Nil
13. Treatment with Complementary and Alternative therapies

13.1. Yes

13.2. No

Clinical examination

14. Spinal Curvature

14.1. Straight

14.2. Curved

15. Spinal tenderness

15.1. Present

15.2. Absent
முதல்குறு செய்யும் முதலியல் கருவிகள் பட்டியல்

சொந்தம்

மலரியின் கருவி அடவு, மலரியின் விளக்கம், மலர் போட்டிய விளக்கம், கருவிகள் வருமாறு, அரசியல்விளக்கம் கருவிகள், துவாரப்பொருள் கருவிகள், மலரியின் விளங்கியத் விளக்கம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுപாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கருவிகள் வேறுபாட்டுப் போராட்டம், கரு

<table>
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<td>2.3</td>
<td>கரியான வகை</td>
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<td>2.5</td>
<td>பிர வகை</td>
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3. கல் பரப்பு விளக்க
  3.1 பிள்ளை
  3.2 பொருள்
  3.3 வரும்
  3.4 கிளைப்படு

4. கோபுரம் வாயில்
  4.1 சுற்று
  4.2 தீர்வு

5. கருவறிகள் காரணிகள்
  5.1 கொண்டால் / கல்லால்
  5.2 தூள்ளல்
  5.3 கிளைப்படு / கிளைப்படு கல்லால்
  5.4 கோட்டாரப்பட்டி கல்லால் காரணிகள்
  5.5 கோட்டாரியறிகை முழு தில்லை

6. சிற்றசாத்து காரணிகள்
  6.1 சுமார்
  6.2 பொறிகள்
  6.3 எச்சத் தலை பிள்ளைப்படுத்து சிற்றசாத்து காரணி பிளேட்ஸ்
7. தொடர்புற்றிய சார்புத்திகள் விளக்கம்
   7.1 எழுத்துரைகள்
   7.2 புதுக்கொடை / உத்தரக்கொடை
   7.3 மைய விளக்கம்
   7.4 பின்
   7.5 போராட்டம்

8. கால் என்று விளக்கம்
   8.1 முடிய
   8.2 தின்னகை

9. குறிப்பிட்டு
   9.1 முடிய
   9.2 தின்னகை

10. முதல் புதுப்பம் சிறி நிற விளக்கம்
    10.1 குறிப்பிட்டு
    10.2 தின்னகை

11. முன்னேற்றப் புதுப்பினை கையேடுத்துக்கொண்டு மறைவு
    11.1 குறிப்பிட்டு (அவ்வுரைக்குறியாகே)
    11.2 சொல்லிப் பதிலும் விளக்கம்
    11.3 தின்னகை (சாத்திக்கை) விளக்கம்
12. அணியாகி சித்தரங்க வேளை
12.1 மலபார் மலர் பால்கலைக்
12.2 ராமபார் மலர் பால்கலைக்
12.3 பார்ககுள் மலர் பால்கலைக்
12.4 பிற்
12.5 கிள் பாலைக்

13. பெருந்தி சித்தரங்க
13.1 அவ்
13.2 கிள் பாலைக்

பெருந்தி பரிநூற்றன்

14. கூர்பை பெலையு
14.1 திறன் கொலையு
14.2 பெருந்தி கொலையு

15. கூர்பை பெலை
15.1 கொலை
15.2 கிள் பாலைக்
Respected Sir,

I am D. Chitra doing my M.Sc., Nursing II year in Apollo College of Nursing, as a part of my curriculum. I am doing a research project on "An experimental study to assess the effectiveness of auriculotherapy upon low back pain among the old age people, at selected old age homes, Chennai". I prefer to use the Oswestry low back pain scale to measure the severity of low back pain. So I kindly request you to permit to use your tool.

Thank you.

Yours sincerely

D. Chitra
Purpose

This proforma is used to assess the low back pain variable such as pain intensity, personal care (washing, dressing, etc), lifting, walking, sitting, standing, sleeping, social life, traveling, changing the degree of pain.

Instructions

The researcher collects the following information by interviewing the participants. Please be frank and free in answering. It will be kept confidential and anonymity will be maintained.

Section 1 – Pain Intensity

0. The pain comes and goes and is very mild
1. The pain is mild and does not vary much
2. The pain comes and goes and is moderate
3. The pain is moderate and does not vary much
4. The pain comes and goes and is severe
5. The pain is severe and does not vary much

Section 2 – Personal Care (washing, dressing, etc)

0. I would not have to change my way of personal care to avoid pain.
1. I do not normally change my way of personal care even though it causes some pain
2. Personal care increases the pain but I manage not to change my way of doing it.
3. Personal care increases the pain and I find it necessary to change my way of doing it.
4. Because of the pain, I am unable to do some personal care without help.
5. Because of the pain, I am unable to do any personal care without help.

Section 3 – Lifting

0. I can lift heavy weights without extra pain
1. I can lift heavy weights but it gives extra pain
2. Pain prevents me lifting heavy weights off the floor
3. Pain prevents me lifting heavy weights off the floor, but I can manage if they are conveniently positioned (i.e. on a table)
4. Pain prevents me lifting heavy weights but I can manage light to medium weights if they are conveniently positioned
5. I can only lift very light weights at most.

Section 4 – Walking

0. I have no pain on walking
1. I have some pain on walking but it does not increase with distance
2. I cannot walk more than 1 mile without increasing pain
3. I cannot walk more than ½ mile without increasing pain
4. I cannot walk more than ¼ mile without increasing pain
5. I cannot walk at all without increasing pain

Section 5 – Sitting

0. I can sit in any chair as long as I like
1. I can sit only in my favorite chair as long as I like
2. Pain prevents me from sitting more than 1 hour
3. Pain prevents me from sitting more than ½ hour
4. Pain prevents me from sitting more than 10 minutes
5. I avoid sitting because it increases pain immediately

Section 6 – Standing

0. I can stand as long as I want without pain
1. I have some pain on standing but it does not increase time
2. I cannot stand for longer than 1 hour without increasing pain
3. I cannot stand for longer than ½ hour without increasing pain
4. I cannot stand for longer than 10 minutes without increasing pain
5. I avoid standing because it increases the pain immediately

Section 7 – Sleeping

0. I get no pain in bed
1. I get pain in bed but it does not prevent me from sleeping well.
2. Because of my pain my normal sleep is reduced by less than ¼
3. Because of my pain my normal sleep is reduced by less than ½
4. Because of my pain my normal sleep is reduced by less than ¾
5. Pain prevents me from sleeping at all.

Section 8 – Social Life

0. My social life is normal and gives me no pain
1. My social life is normal but it increases my pain
2. Pain has no significant effect on my social life apart from limiting my more energetic interests e.g. dancing
3. Pain has restricted my social life and I do not go out very often
4. Pain has restricted my social life to my home
5. I have hardly any social life because of the pain

Section 9 – Travelling

0. I get no pain when travelling
1. I get some pain when travelling but none of my usual forms of travel make it any worse
2. I get extra pain while travelling but it does not compel me to seek alternative forms of travel
3. I get extra pain while travelling which compels me to seek alternate forms of travel
4. Pain restricts me to short necessary journeys under ½ hour
5. Pain restricts all forms of travel

Section 10 – Changing Degree of Pain

0. My pain is rapidly getting better
1. My pain fluctuates but is definitely getting better
2. My pain seems to be getting better but improvement is slow
3. My pain is neither getting better nor worse
4. My pain is gradually worsening
5. My pain is rapidly worsening

Total score: ________________
**Scoring procedure:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Scores</th>
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<tbody>
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<td>No back pain</td>
<td>0-4</td>
</tr>
<tr>
<td>Mild back pain</td>
<td>5-14</td>
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<tr>
<td>Moderate back pain</td>
<td>15-24</td>
</tr>
<tr>
<td>Severe back pain</td>
<td>25-34</td>
</tr>
<tr>
<td>Complete severe back pain</td>
<td>above 34</td>
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</table>
அவர்களின் புத்தையரின் குறிப்பிட்டு அறிவியல் ஆராய்ச்சிகள்

கோட்டை: தமது விளக்கம் வாய்ந்தது குறிப்பிட்டு நூற்றாண்டு ஓர்க்குறிக்கை விளக்கம்

பிரிவு: 1. முதல் பிரிவு

0. பதிக்கும் உயிரின் ஆர்வம் மையம் விளக்கம்
1. பதிக்கும் உயிரின் ஆர்வம் மையம் இருக்கும் நூற்றாண்டு
2. பதிக்கும் உயிரின் ஆர்வம் விளக்கம்
3. பதிக்கும் உயிரின் ஆர்வம் இருக்கும் நூற்றாண்டு
4. அறிவியல் உயிரின் ஆர்வம் விளக்கம்
5. அறிவியல் உயிரின் ஆர்வம் இருக்கும் நூற்றாண்டு

பிரிவு: 2. காலப் பரவல் விளக்கு (முதல் காலங்கள், முதல் காலப் பரவல் விளக்கம்)

0. முதல் காலத்தில் குறிப்பிட்டு நூற்றாண்டு காலத்தில் குறிப்பிட்டு விளக்கம் செய்யப் பதிக்கும் நூற்றாண்டு
1. நூற்றாண்டு செய்யப் பதிக்கு மையம் விளக்கம் நூற்றாண்டு காலத்தில் குறிப்பிட்டு விளக்கம் செய்யப் பதிக்கும் நூற்றாண்டு
2. காலப் பரவல் விளக்கு மையம் வகைக்கற வகையான காலங்கள் காலங்களில் விளக்கம் செய்யப் பதிக்கும் நூற்றாண்டு
3. காலப் பரவல் விளக்கு மையம் குறிப்பிட்டு காலங்கள் காலங்களில் விளக்கம் செய்யப் பதிக்கும் நூற்றாண்டு
4. காலப் பரவல் விளக்கு மையம் குறிப்பிட்டு காலங்கள் காலங்களில் விளக்கம் செய்யப் பதிக்கும் நூற்றாண்டு
5. காலப் பரவல் விளக்கு மையம் குறிப்பிட்டு காலங்கள் காலங்களில் விளக்கம் செய்யப் பதிக்கும் நூற்றாண்டு.
பின்னு : 3 கலா நடைமுறை

1. மெனுவியைக் காரணமாக உரைநாள் உரைத்தல் முடிக்க வேண்டும்
2. மெனுவியை உரைநாள் காரணப்படி மொத்த உரைத்தல் முடிக்க வேண்டும்
3. மெனுவியை காரணப்படி மொத்த உரைத்தல் முடிக்க வேண்டும்
4. மெனுவியை காரணப்படி மொத்த உரைத்தல் முடிக்க வேண்டும் (அல்லும் பெரும்பாளை உரைத்தல்)
5. மெனுவியை காரணப்படி மொத்த உரைத்தல் முடிக்க வேண்டும்.

பின்னு : 4 கலாநிலை

0. பல்கரங்க பொருள் மெனுவியைக்
1. பல்கரங்க பொருள் சிலமை மெனு உரைநாள் புகழ்பெற்று உரைநாள் காரணமாக
2. மெனுவியை உரைநாள் ஒரு கோடி. 10 புல்காரங்க வேண்டும்
3. மெனுவியை உரைநாள் 1/2 கோடி. 10 புல்காரங்க வேண்டும்
4. மெனுவியை உரைநாள் 1/4 கோடி. 10 புல்காரங்க வேண்டும்
5. மெனுவியை உரைநாள் காரணமாக 10 புல்காரங்க வேண்டும்

பின்னு : 5 கலாநிலை

0. பல்கரங்க பொருள் காரணமாக உரைநாள் முடிக்க வேண்டும்
1. பல்கரங்க பொருள் காரணமாக உரைநாள் முடிக்க வேண்டும்
2. மெனுவியை உரைநாள் ஒரு கோடி. 100 புல்காரங்க வேண்டும்
3. மெனுவியை உரைநாள் 1/2 கோடி. 100 புல்காரங்க வேண்டும்
4. மெனுவியை உரைநாள் 10 கோடி. 100 புல்காரங்க வேண்டும்
5. மனிதன் நான்காலம் விளையாடும் கால் அளவுற்றுக்கோடையால்.

பிரிவு : 6 நிறுவனங்கள்

0. நான்காலம் கால் விளையாட்டுக்கோடையால் மனிதன் விளையாடும் நிறுவனங்கள்.
1. நான்காலம் நான்கால விளையாட்டு மனிதன் விளையாடும் அளவுற்றுக்கோடை.
2. மனிதன் நான்காலம் ஒரு முறை விளையாட்டுக்கோடை விளையாடும் நிறுவனங்கள்.
3. மனிதன் நான்காலம் மோ முறை விளையாட்டுக்கோடை விளையாடும் நிறுவனங்கள்.
4. மனிதன் நான்காலம் மோமுறை விளையாட்டுக்கோடை விளையாடும் நிறுவனங்கள்.
5. மனிதன் நான்காலம் கிளைக்காலம் விளையாடும் நிறுவனங்கள்.

பிரிவு : 7 காலத்திருத்தல்

0. புதுக்காலம் காலம் மல்ல காலம் காலத்திருத்தல்.
1. புதுக்காலம் காலம் மல்ல காலம் காலம் விளையாடும் விளையாடிகள்
2. மனிதன் நான்காலம் மோ முறை விளையாடும் விளையாடிகள்
3. மனிதன் நான்காலம் மோ முறை விளையாடும் விளையாடிகள்
4. மனிதன் நான்காலம் மோ முறை விளையாடும் விளையாடிகள்
5. மனிதன் நான்காலம் கிளை மல்ல காலம் காலத்திருத்தல் புதுக்காலம்.

பிரிவு : 8 நூற்றண்டுக்கள்

0. குறுக்கு நூற்றண்டுக்கள் புதுக்காலம் மல்ல காலம் காலம் காலத்திருத்தல்.
1. குறுக்கு நூற்றண்டுக்கள் புதுக்காலம் மல்ல காலம் காலம் விளையாடிகள்
2. குறுக்கு நூற்றண்டுக்கள் புதுக்காலம் விளையாடும் விளையாடிகள் காலம் காலம்.
3. மனிதன் புதுக்காலம் விளையாடும் விளையாடும் விளையாடிகள்
4. மனிதன் புதுக்காலம் விளையாடும் விளையாடிகள்
5. மனிதன் குறுக்கு நூற்றண்டு விளையாடும் விளையாடும் விளையாடும் காலத்திருத்தல்.
பிரிவு: 9 பாகங்கள்

0. பாகங்கள் பார்க்கவும் முடியும்

1. பாகங்கள் பார்க்கவும் நிரந்தரமாக முடியும். மேலும் பாகங்களையும் பார்க்கவும் முடியும்

2. பாகங்கள் பார்க்கவும் அதிகமான முடியும். அதுவால் பாகங்களையும் பார்க்கவும் முடியும்

3. பாகங்கள் பார்க்கவும் அதிகமான முடியும். அதுவால் பாகங்களையும் பார்க்கவும் முடியும்

4. தனியாரால் ½ பாடல் சுருக்கிக்கொள்ளும் முடியும் பாகங்களின் பார்க்கல்

5. தொகையாக விளக்கப்பட்டு பாகங்கள் பார்க்கவும்

பிரிவு: 10 பாகங்கள் பார்க்கல்

0. தன் பாடல் சுருக்கக்குரைக்கும்

1. பாடலின் பார்க்கும் சுருக்கக்குரை சுருக்கக்குரை

2. பாடல் சுருக்கக்குரை

3. பாடல் அதிகமான சுருக்கக்குரை, சுருக்கக்குரை

4. பாடல் சுருக்கக்குரை அதிகமான சுருக்கக்குரை

5. பாடல் சுருக்கக்குரை அதிகமான சுருக்கக்குரை
### APPENDIX - O

#### BLUE PRINT

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Factor</th>
<th>Items</th>
<th>Total items</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Method of auriculotherapy</td>
<td>1,2,3,4,8</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>2.</td>
<td>Benefits of auriculotherapy</td>
<td>5,6,7,9,10</td>
<td>5</td>
<td>50%</td>
</tr>
</tbody>
</table>
APPENDIX – P

RATING SCALE ON THE LEVEL OF SATISFACTION OF AURICULOTHERAPY

Purpose

This rating scale is designed to assess the level of satisfaction of the elderly regarding auriculotherapy and this is recorded by the researcher after the therapy.

Instructions

There are ten items given below. Kindly listen to the items. Responses extend from highly satisfied to dissatisfied. Describe your satisfaction regarding auriculotherapy. Give your responses freely and frankly. It will be kept confidential and anonymity will be maintained.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Item</th>
<th>Highly Satisfied</th>
<th>Satisfied</th>
<th>Highly Dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Are you satisfied with</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Duration of auriculotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Frequency of auriculotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Method of application of auriculotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Comfort you have experienced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>after auriculotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relief of pain after auriculotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------</td>
<td>-------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Approach of the researcher</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cost effectiveness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Easy to do auriculotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Other benefits of auriculotherapy (relaxation, increased coping ability, etc)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Scoring key:**

<table>
<thead>
<tr>
<th>Scores</th>
<th>Percentage</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10</td>
<td>≤ 34 %</td>
<td>Highly dissatisfied</td>
</tr>
<tr>
<td>11-20</td>
<td>35-69 %</td>
<td>Satisfied</td>
</tr>
<tr>
<td>&gt;21</td>
<td>≥ 70 %</td>
<td>Highly satisfied</td>
</tr>
</tbody>
</table>
அறிவுரைநூற்றாண்டு விளைவு கிளைப்பிட்டு ஆக்கம் அலைப்படாம்

စ்தானம்

பணிக்குறிப்பாகக் கிளைப்பிட்டு இலகுத்தியம் நிரிப்புறக்கமளித்து பதில் பெற்று
அடுத்துள்ள புருநோன்றுப்பாட்டு.

அதிகாரிகளால்

சின்னம 10 கிளைப்பிட்டு புருநோன்றுப்பாட்டுகள். தவறை மன்னர் அடையக்கை
கைத்தின்஼ாமை. மூன்று கிளைப்பிட்டு திருத்தல் நிரிப்புறக்கத்திலிருந்து மாற்று என
பதிலிட்ட நிரிப்புறக்கம். கிளைப்பிட்டு பதிலிட்டு நிரிப்புறக்க செய்யக் (✓) அளிப்பாம் மேம்படு
பணிக்குறிப்பாகக் கைத்தின்஼ாமையின் கூறுக்கிளைப்பிட்டு. இலகுத்தியம் பதிலிட்டு புருநோன்று கைத்தின்று மெற்கு
அறிவுரையின் கைத்தின்று புருநோன்று கைத்தின்று.

<table>
<thead>
<tr>
<th>மேற்கோள்</th>
<th>கிளைப்பிட்டு</th>
<th>பதிலிட்டு</th>
<th>பதிலிட்டு</th>
<th>பதிலிட்டு</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. அறிவுரைப் பெயரிட்டு கால் அளியும்</td>
<td>கிளைப்பிட்டு</td>
<td>பதிலிட்டு</td>
<td>பதிலிட்டு</td>
<td></td>
</tr>
<tr>
<td>2. அறிவுரைப் பெயரிட்டு 'அந்தக் காலம்'</td>
<td>பதிலிட்டு</td>
<td>கிளைப்பிட்டு</td>
<td>பதிலிட்டு</td>
<td></td>
</tr>
<tr>
<td>3. கிளைப்பிட்டு முழுமையடையும் போல்</td>
<td>கிளைப்பிட்டு</td>
<td>பதிலிட்டு</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. கிளைப்பிட்டு முழுமையடையும் காலம்</td>
<td>பதிலிட்டு</td>
<td>கிளைப்பிட்டு</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. கிளைப்பிட்டு பதிலிட்டு முழுமையடையும் காலம்</td>
<td>பதிலிட்டு</td>
<td>கிளைப்பிட்டு</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. கிளைப்பிட்டு பதிலிட்டு முழுமையடையும் காலம்</td>
<td>பதிலிட்டு</td>
<td>கிளைப்பிட்டு</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. அறிவுரையின் முக்கிய அமைப்புகள்</td>
<td>கிளைப்பிட்டு</td>
<td>பதிலிட்டு</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. கிளைப்பிட்டு பதிலிட்டு முழுமையடையும் காலம்</td>
<td>பதிலிட்டு</td>
<td>கிளைப்பிட்டு</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. கிளைப்பிட்டு பதிலிட்டு முழுமையடையும் காலம்</td>
<td>பதிலிட்டு</td>
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INTRODUCTION

Auriculotherapy also called as auricular therapy or ear acupuncture or auriculo-acupuncture is a form of alternative medicine based on the idea that the ear is a micro-system with the entire body represented on the auricle, the outer portion of the ear. It is also believed that the ear develops along with each stage of the development of the brain and that there is a direct connection of the skin surface of the external ear with the brain map that corresponds to the different parts of the body.

MEANING

Auriculotherapy is a non-invasive form of electrical stimulation to the external ear for the relief of pain, addictive behaviors, and the support of healing processes throughout the whole body.

METHOD OF ACTION

The ear is frequently likened to a computer keyboard with peripheral access to the body’s central microprocessor unit, the brain. By typing in a command on the keyboard (the ear) a signal is sent to the main computer (the brain), the computer then sends a signal to the device (organ, or any other body part) that is governed by the computer. By sending signals to the brain, it is thought to stimulate healthy signal patterns from the brain to the corresponding area in the body that relates to the area stimulated in the ear and these signals are neuro-chemical in nature and involve endorphins which are natural pain killers and relaxers.
INDICATIONS

- Back Pain
- Headaches
- Shoulder Pain
- Hypertension
- Asthma
- Insomnia
- Addictions for Nicotine
- Appetite Control
- Other difficult patient complaints

CONTRAINDICATIONS

- Any pain needed to diagnose an underlying problem,
- Any pain needed to limit range of movement of an injured area of the body

PROCEDURE STEPS

1. Ask person to sit on a flat chair with slippers removed.
2. Instruct the person to close the eyes.
3. Trace up the upper inner aspect of pinna of the ear (specified low back pain ear points) by using a hand held probe.
4. Apply firm, gentle pressure over the specified low back pain ear points for 10 minutes using a probe.
5. Attach one fenugreek seed over the upper inner aspect of pinna of the ear (specified low back pain ear points) by using a micropore.
6. Apply gentle pressure over the attached fenugreek seed by the tip of the index finger for 5 minutes.
7. Repeat the entire procedure for three times a day (9am, 12pm and 3pm) for seven days.
SCHEMATIC MAP OF THE AURICULOTHERAPY
APPENDIX – R

DATA CODE SHEET

Demographic variable proforma

SM. NO. - Sample Number
1. AGE - Age in years
   1.1. 60-65 years
   1.2. 66-70 years
   1.3. 71-75 years
   1.4. above 75 years
2. GEN - Gender
   2.1. Male
   2.2. Female
3. MS - Marital status
   3.1. Married
   3.2. Unmarried
   3.3. Separated
   3.4. Widow/Widower
4. RELI - Religion
   4.1. Hindu
   4.2. Christian
   4.3. Muslim
   4.4. Others
5. EDU - Educational status
   5.1. Illiterate
   5.2. Primary education
   5.3. High school education
   5.4. Higher secondary education
   5.5. Graduate
6. HOS - Habit of Smoking
   6.1. Yes
   6.2. No
7. HOA - Habit of Alcoholism
   7.1. Yes
   7.2. No
8. TODIET - Type of diet
   8.1. Vegetarian
   8.2. Non-Vegetarian
9. AOM - Age of Menopause
   9.1. < 30 years
   9.2. 30-40 years
   9.3. 40-50 years
   9.4. > 50 years
10. NOD - Number of Deliveries
    10.1. One
    10.2. Two
    10.3. Three
    10.4. More than three
    10.5. Nil
11. TOD - Type of Delivery
    11.1. Vaginal
    11.2. Assisted
    11.3. Caesarian
Clinical Variable Proforma
1. DUR - Duration of pain
   1.1. 0-1 year
   1.2. 1-5 years
   1.3. >5 years
2. NAT - Nature of pain
   2.1. Dull
   2.2. Sharp
   2.3. Burning
   2.4. Stabbing
   2.5. Others
3. **RAD**-Radiation of pain
   3.1. Buttocks
   3.2. Thigh
   3.3. Leg
   3.4. Nil

4. **HOT**-Any history of Trauma
   4.1. Yes
   4.2. No

5. **AGG F**-Aggravating factors
   5.1. Coughing/Sneezing
   5.2. Sitting
   5.3. Standing/walking for a long time
   5.4. Lifting heavy weight
   5.5. Continuous in nature

6. **RELIV**-Relieving factors
   6.1. Rest
   6.2. Lying down
   6.3. No relief by any postures

7. **M/O CO**-Method of coping with back pain
   7.1. Slow walking
   7.2. Reading/Writing
   7.3. Medications
   7.4. Others
   7.5. Nil

8. **NUM**-Numbness in limbs
   8.1. Yes
   8.2. No

9. **TING**-Tingling sensation
   9.1. Yes
   9.2. No

10. **URI IN**-Urinary incontinence
    10.1. Present
    10.2. Absent

11. **H/OI**-History of Illness
    11.1. Arthritis
    11.2. Osteoporosis
    11.3. Diabetes Mellitus
    11.4. Hypertension
    11.5. Reproductive disorders
    11.6. Others
    11.7. Nil

12. **H/O ALL**-History of Allopathic Treatment
    12.1. Oral NSAIDS
    12.2. Parenteral NSAIDS
    12.3. Narcotic Analgesics
    12.4. Others
    12.5. Nil

13. **CAM**-Treatment with Complementary and Alternative therapies
    13.1. Yes
    13.2. No

Clinical examination

14. **SP CUR**-Spinal Curvature
    14.1. Straight
    14.2. Curved

15. **SP TEND**-Spinal tenderness
    15.1. Present
    15.2. Absent
## APPENDIX – S

### MASTER CODE SHEET

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