EFFECTIVENESS OF AEROBIC EXERCISE FOR REDUCTION ON ANXIETY AMONG ALCOHOLIC DEPENDENCE IN SELECTED DE ADDICTION CENTER AT MADURAI, TAMIL NADU.

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

APRIL – 2014
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BY
301230551

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Approved by the dissertation Committee on: ………………………………………

HOD in Research: ……………………………………
Prof. Mrs. SHABERA BANU, M.Sc., (N), Ph.D
Principal,
Matha College of Nursing,
Manamadurai.

Clinical Specialty
Expert: ……………………………………
Mr. PREM KUMAR, M.Sc., (N),
Reader in Mental Health Nursing,
Matha College of Nursing,
Manamadurai.

Medical Expert: ……………………………………
Dr. KARTHIKEYAN , M.D.D.M,
Psychiatric Consultant,
Meenakshi Mission Hospital and Research Centre,
Madurai.

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APRIL – 2014
This is the bonafide work of Reg.No.301230551, M.Sc., Nursing (2012 – 2014 Batch) II year student from Matha College Of Nursing, (Matha Memorial Education Trust) Manamadurai – 630 606, submitted in partial fulfillment for the Degree of Master of Science in Nursing, under the Tamilnadu Dr. M. G. R. Medical University, Chennai.

SIGNATURE:  .............................................................
Prof. Mrs. SHABERA BANU, M.Sc., (N), Ph.D
Principal, MathaCollege of Nursing,
Manamadurai.

COLLEGE SEAL:

APRIL – 2014
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“Oh, give thanks to the ‘lord’, for he is good!

For his mercy endures forever”

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ABSTRACT

STATEMENT OF THE PROBLEM:

“A study to assess the effectiveness of aerobic exercises on reduction of anxiety among alcoholic dependence in selected de addiction center at Madurai”

METHODOLOGY

A quantitative approach was used for this study. The study population was alcoholic dependence who are staying in de addiction center at Madurai. The sample size consists of 60 samples. Purposive sampling was used to select the samples. One group pre test post test design was used in this study. The data collection tool was 1. demographic data 2. Standardized Hamilton anxiety scale. Conceptual frame work is based on Roys adaptation Model. The content validity and reliability were established for the entire tool. The pilot study was conducted to find out the feasibility of the main study. The collected data was analyzed by using descriptive and inferential statistics.

OBJECTIVES

- To assess the pre test level of anxiety among alcoholic dependence in de addiction centers at Madurai.
• To assess the post test level of anxiety among alcoholic dependence in de addiction centers at Madurai.

• To find out the effectiveness of aerobic exercise in post test level of level of anxiety among alcoholic dependence in de addiction centers at Madurai.

• To associate mean pre test level of anxiety among alcoholic dependence with their selected demographic variables.

**Hypotheses:**

• $H_1$: The mean post test score of anxiety lesser than the mean pre-test score of anxiety among alcoholic dependence.

• $H_2$: There will be a significant association between mean pre test anxiety and their selected demographic variables such as age, education, religion, occupation, marital status, income, place of living, type of family, duration of stay, duration of consumption, type of alcohol, amount of consumption, causative factors for alcohol consumption.
MAJOR FINDINGS OF THE STUDY.

Majority of the samples 20(33.3%) belonged to the age group of 20-30 years and 22(36.7%) samples belonged to the age group of 31-40 years.

Regarding the groups majority of the samples were Hindus by religion 51(85.0%) in 60 samples, 9(15%) were other religion.

Regarding educational status, majority 19 (31.7%) of the samples had illiterate 7(11.7%) of samples had primary education and 17(28.3%)of samples had high school / higher secondary education, the 17(28.3%) of the samples had Diploma and graduate.

Regarding the occupational status, majority 25(41.7%) of the samples from were coolie and 16 (26.7%) were business man 12, (20%) were private employees.

Regarding martial status, 7(11.7%) single and 20(33.3%) married, majority of 22(36.7%) divorced or separated whereas in the 60 samples, 11(18.3%) of them widower.

Regarding the family income per month, majority 35 (58.3%) of the samples in the had an income of Rs. 3001-57000, whereas whereas in the 14(23.3%) had an income of Rs. 5001-7000.

Regarding the type of family, majority 37(61.7%) of them were from nuclear family in the group, 23(38.3%) of them were in the joint family.
Regarding the place of residence, majority of the samples were from rural areas and in the as 33(55%) and 27(45 %) were from urban areas respectively.

Regarding the duration of stay, majority59 (98.3%) of the samples were staying for less than one month whereas1 (1.7%) of the samples were staying than one month . With regard to the duration of consumption of alcohol, majority29(48.3%) of the samples were consuming alcohol for 3-5years and whereas in, 23(38.3.3%) were consuming alcohol for 6-8 years.

Regarding the types of alcoholic beverages, majority of them were taking Indian made foreign liquor both in the 59(98.3%) and 1(1.7%) respectively.

Regarding the amount of alcohol consumption in a day for the past one month, majority of them 30(50%) were taking 90ml-279ml and16 (26.7%) of them were taking 180-296ml.

Regarding the factors causing anxiety, majority 27(Regarding the types of alcoholic beverages, majority of them were taking Indian made foreign liquour both in the 59(98.3%) and 1(1.7%) respectively.

Regarding the amount of alcohol consumption in a day for the past one month, majority of them 30(50%) were taking 90ml-279ml and16 (26.7%) of them were taking 180-296ml.
Regarding the factors causing anxiety, majority 27 (45%) of them experienced anxiety due to financial factors 20 (33.3%) of them experienced anxiety due to about withdrawal behavior.

RECOMMENDATIONS

On the basis of the present study the following recommendations have been made for further studies.

• A descriptive study can be undertaken to determine the level of anxiety and different anxiety disorders among alcohol dependence.

• A longitudinal study can be undertaken to see the long term effect of aerobic exercise in reducing the level of anxiety.

• A similar study can be done in various other settings with large samples.

• A qualitative approach can be applied in studying the effects of aerobic exercise on anxiety.

CONCLUSION

These findings of the study have been discussed in terms of the objectives, theoretical base and hypothesis.

1. Most of the alcohol dependence in selected de-addiction centres suffered from anxiety.
2. Aerobic exercise was effective in reducing the level of anxiety among the alcohol dependence in the de-addiction centers.

The findings indicate that aerobic exercise can be administered to all the groups of psychiatric patients in reducing the level of anxiety.
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CHAPTER – I

INTRODUCTION

“Alcohol isn't a spectator sport. Eventually the whole family gets to play”

- Joyce Rebata –Burdi

BACKGROUND OF THE STUDY

The word ‘ALCOHOL’ is derived from the Arabian term “Alkakal” which means “finely divided spirit”. The usage of alcohol may vary across societies and cultures. In this modern world man has to face many problems to lead the life in a successful way. If he fails to succeed then he may end up in anxiety, frustration, irritability, depression, lack of confidence and self concept. To get rid of these emotions, an individual starts to sip alcohol as he/she goes for parties and later on becomes addicted to it. India is one of the largest producers of alcohol in the world and that has been steadily increasing in the developing countries like India and decreasing in the developed countries since 1980s. It is estimated that there are 62.5 million alcohol users in India. Alcoholism remains a serious problem in a contemporary society around the world. Alcohol dependence is the major public health
problem worldwide and it is the fourth leading cause of disability. Alcohol dependence is present in approximately 4% of the United States. Adult is common among primary care patients and may contribute to more than 1,000,000 preventable deaths per year. (P. Devi 2004)

Alcoholism and anxiety are co-morbid, or occur together. Between 22 percent and 69 percent of alcohol dependence patients have comorbid anxiety (Robert 2005). Researchers and clinicians have long observed that the rate of anxiety disorders among those suffering with Alcohol dependence is two to four times greater than that found in the general population. “Anxiety disorders are fairly common to begin with, about 15 percent of all adults, but the rate of anxiety disorders among alcohol dependent, individuals can be as high as 50 percent (Kushna 2005).

Smail, Shockwell, Canter and Hodgson (2009) conducted a prevalence study to assess anxiety among sixty male alcohol dependent patients. It was found that 21 subjects had severe phobias. The more severely phobic patients were more alcohol dependent patients. Kushner, Kenneth and Carrie (2001) conducted a systematic review on the relationship between alcohol dependence and anxiety by reviewing the laboratory, clinical, family and prospective studies. Finding shows that there is an increased co-morbid anxiety among alcohol dependence.
Schukit and Herrebrock (2004) conducted a co-relation study to assess the relationship between the alcohol dependence and anxiety among alcoholic dependence. Retro perspective analysis was used and the reports were collected from database Medline during the period of 1975-1994. Results show that the high rates of co-morbidity in some studies likely reflect a mixture of true anxiety disorders among alcoholics at a rate equal to or slightly higher than that for the general population, along with temporary, but at times severe substance induced anxiety syndrome.

In recent years, a growing body of empirical research has examined the numerous physical and psychological benefits of exercise, and has begun to explore potential treatment applications of exercise (United States Department of Health and Human Services 2006).

Exercise may represent a potentially useful and relatively unexplored alternative behavior for alcoholics working toward long-term recovery on “Lifestyle Modification,” (Marlatt, 2006) and cites exercise as “a highly recommended lifestyle changing activity” and discusses the advantages of exercise as a relapse prevention strategy. Other writers have agreed that lifestyle-enhancing factors such as exercise and fitness may play an important role in the prevention and treatment of addictive disorders (Agne & Paolucci, 1982; C.B. Taylor, Sallis, & Needle, 2005; Tkachuk & Martin, 2009).
Exercise also has the potential to be cost-effective, flexible and accessible; many forms of exercise (e.g., running, fitness videotapes, swimming) may be conducted independently, either at home or outdoors and associated costs are likely to be minimal. Finally, exercise has minimal side effects compared to pharmacological. (Broocks et al., 2008).

With the use of proper precautions for prevention of injuries, exercise carries with it far less risk of adverse events than does the use of psychotropic medication. (American College of Sports Medicine, 2006).

Thus it appears that exercise participation may offer decided advantages as a maintenance strategy for alcohol dependent individuals. Research is proving that aerobic exercise has a part to play in the treatment of psychological and mental health problems.

SIGNIFICANCE AND NEED FOR THE STUDY

India is one of the largest producers of alcohol in the world and there has been a steady increase in its production over the last 15 years. India is a dominant producer of alcohol in South-East. Asia, with 65 per cent of the total share, and contributes to around 7 percent of the total alcohol beverage imports into the region. More than two-thirds of the total beverage, alcohol consumption in the region is in India and there has
been a steady increase in the production in the country. Production doubled from 887.2 million liters in 1992-93 to 1,654 million liters in 1999-2000. It was expected to treble to 2,300 million liters by 2007-08. (Alcohol Atlas of India.2009 ).

Studies by Alcohol and Drug Information Centre (ADIC)-India shows an alarming increase in alcohol consumption among adolescents and youth during the last 20 years. The average age of initiation to alcohol in Kerala which was 19 years in 1986 has come down to 14 years in 2006. The statistics shows an extreme gender difference in consumption patterns. Prevalence among women has consistently been estimated at less than 5 percent but is much higher in the North-Eastern States. Significantly higher use has been recorded among tribal, rural and lower socio-economic urban sections. A substantial portion of the family income is spent on alcohol, more so in rural households, which also tend to be poor and marginalized (32 percent in the urban and 24 percent in the rural).

The statistics shows that alcoholism increases suicidal tendencies, incidents of domestic violence and affects the ability of a person to concentrate at work.

A study conducted by the National Institute of Mental Health and Neurosciences, Bangalore and sponsored by the World Health Organization shows that 20 per cent of women reported domestic
violence and 94.5 per cent of women identified their husband’s alcohol consumption (www.nimhans.org, 12-3-2011). An as a risk factor in the incidents of domestic violence another study by Alcohol Drug Information Centre (ADIC), India reveals that 40 percent of the Road accidents were alcohol related.

There are various types of aerobics such as cow impact aerobics, water aerobics, step aerobics, dance aerobics and sports aerobics. Aerobic exercise done for about 15-20 minutes helps to increase the level of chemicals such as endorphins, catecholamine, adrenaline, serotonin and dopamine in the brain. Aerobic exercise is also linked with improved mental vigor, including reaction time, activity and math skills. Aerobic exercise helps to increase flexibility, reduce anxiety.

Marcorus (2006) conducted a study on the impact of an aerobic exercise programmed on post-traumatic stress disorders, anxiety and depression. Results suggested that aerobic exercise programmed for four weeks has a beneficial effect on anxiety and depression. During hospitalization for treatment of Alcohol Dependence, the patient exhibits not only physical symptoms but also psychological and emotional disturbances such as fear, anxiety, helplessness and hopelessness. This will again worsen their mental well-being during hospitalization as well as after they get discharged and this would result in readmission. Hence the investigator felt that it is important to promote physical and mental
well-being of the patient with alcohol dependence who is admitted in de-addiction centre.

The aerobic exercise will have the potential of avoiding side effects of pharmacological medications because of all these advantages the researcher has introduced aerobic exercise as an effective non-pharmacological management in the treatment of anxiety. So the research wanted to find out the effectiveness of aerobic exercise on anxiety and has undertaken this study

**STATEMENT OF THE PROBLEM**

“A study to assess the effectiveness of aerobic exercise on reduction of anxiety among an alcoholic dependence in selected de addiction centers at Madurai”.

**OBJECTIVES OF THE STUDY**

- To assess the pre test level of anxiety among alcohol dependence in the selected de addiction centers at Madurai.
- To assess the post test level of anxiety among alcohol dependence in the selected de addiction centers at Madurai.
- To find out the effectiveness of aerobic exercise on reduction of anxiety among an alcohol dependence.
To associate the pre test anxiety levels of alcohol dependence with their demographic variables such as age, occupation, religion, education, income, duration of consumption, type of family, place of residence and duration of stay

**HYPOTHESES**

All hypotheses was tested at 0.05 level of significance.

1. The mean post-test anxiety score of the alcohol dependence who had aerobic exercise was a significantly lesser than the mean pre-test anxiety score among alcoholic dependence.

2. There was a significance association between the pre test anxiety level of alcohol dependence and their selected demographic variables such as age, religion, education, occupation, marital status, income of the family, type of family, place of living, duration of stay in hospital, duration of consumption, type of alcohol, amount of consumption during past one month, causative factors.
OPERATIONAL DEFINITION

Alcohol Dependence

It is a psychiatric diagnosis describing an entity in which an individual uses alcohol despite significant areas of dysfunction, evidence of physical dependence and/or related hardship.

Anxiety

Anxiety is a diffuse apprehension present in the alcohol dependence that is vague in nature and associated with feelings of isolation, alienation and insecurity which is measured by Hamilton anxiety scale.

Aerobic Exercise

It is a systematic and regular movement of hands and legs performed in well ventilated room to the slow, rhythmic music in three sequential sessions namely warm up, work out and cool down.

Effectiveness

It is the outcome of the aerobic exercise which will be appraised, validated by decrease in the anxiety level among alcohol dependence after interventions and measure by Hamilton anxiety scale.

De addiction Centers

De addiction centers refers to the institutions where the alcohol dependence are getting treatment.
ASSUMPTIONS

1. Alcohol dependence are filled with anxiety, frustration, indecisiveness, struggle and looking out for support.
2. Many alcohol dependence patients are affected by mental health problems.
3. Aerobic exercise has an effect on the body and the mind.

Delimitations

1. The study is delimited to the alcohol dependence who are in selected de addiction centers at Madurai.
2. The data collection period is limited to six weeks.

Projected Outcome

This study proposes to evaluate the effectiveness of aerobic exercise in the reduction of anxiety among alcohol dependent patients.

1. The findings of the study will elicit the level of anxiety among alcohol dependence
2. The study report will help to arrange aerobic exercise sessions in order to manage anxiety among alcohol dependence.

Conceptual Framework

The conceptual framework in this study is based on the sister Callista Roy’s Adaptation Model (1939) which involves five concepts.

- Person
• Goal of nursing
• Nursing activities
• Health
• Environment

The adaptive system has four components like input, processes, effectors and output.

For the present study, the above mentioned components have been modified as follows:

1. Roy states that the recipient of nursing care may be an individual, a family, a group, a community or a society. Each one is considered as an adaptive system. In this study the focus is on individual person as an adaptive system, who are in constant interactions with their environments.

It causes exchange of information, matter and energy. The constant interaction of persons with their environment is characterized by both internal and external change. In this changing world, persons must maintain their own integrity i.e. each person must make some kind of adaptation for better existence. Hence the person is viewed as an adaptive system. It has input, coming from the external environment as well as internally from itself. In this study, assessment of anxiety among alcohol dependence are taken as input.
2. Roy has utilized the harm-coping mechanisms to describe the control process of the person as an adaptive system. Some are inherited or genetic, other mechanisms are learned.

In this study aerobic exercises are learned and practiced by the alcohol dependent patients under supervision to cope with anxiety.

3. Effectors refer to the regulator and cognator. There are the sub-systems of the person as a system. It is viewed as acting with four adaptive modal such as physiological function, self concept, role function and interdependence.

In this study, the effectors are the adaptive modes of the alcohol dependent patients which are regulated by the neuro-endocrine changes gained through the practice of aerobic exercise.

4. Outputs of the person as a system are the behaviors of the persons. Output behaviors can be both external and internal. These behaviors observed, measured or subjectively reported, becomes the feedback to the system.

Roy states output of the system as either adaptive responses or ineffective responses. In this study the positive or the adaptive responses to aerobic exercise on anxiety becomes the output. It can be either positive, that is reduction in anxiety or negative result, such as no
reduction in anxiety. In this case, the negative result becomes the feedback, where it must be reassessed and reinstituted in the aerobic exercise in the same manner or in a modified way.
Demographic variables
The alcoholic dependence with anxiety and their demographic variables.
- Sex
- Religion
- Education status
- Occupation
- Marital status
- Income
- Type of family
- Residence place
- Duration of stay
- Duration of consumption
- Type of alcohol
- Amount of consuming
- Causative factors
  Anxiety assessed by Hamilton anxiety scale

SISTER CALLISTA    ROYS ADAPTATION MODEL- 1939
CHAPTER II

REVIEW OF LITERATURE

“First the man takes a drink; then the drink takes a drink; then the drink takes the man”.

*Japanese Proverb*

The review of related research and theory on a topic has become a standard and virtually essential activity of scientific research projects. Review of literature was done to gain indepth knowledge of the various aspects of the problem from published articles, text, books reports and Medline search. Literature review is a critical summary of research on a topic of interest, often prepared to put a research problem in context or as the basis for an implementation project. (Polit & Hungler, 2012)

Literature review is organized and presented under the following headings in this study.

1. Studies related to overview of alcohol and alcohol dependence.
2. Studies related alcohol dependence and anxiety.

1. STUDIES RELATED TO OVERVIEW OF ALCOHOL AND ALCOHOL DEPENDENCE:

ALCOHOL:

Alcohol refers to pure spirit of wine, pure or highly rectified spirit. It is extracted by simple distillation from various vegetable juices and infusions of a saccharine nature. (online dictionary-babylon.com, 30-05-2011).

Alcoholism

Alcoholism is a primary illness or disorder characterised by some loss of control over drinking, with habituation or addiction to the drug alcohol, causing interference in any major life function example. health, family, job, spiritual, friends, legal, etc (http://www.alcoholism-and-drug-addiction-help.com/definition-of-alcoholism.html,28-8-2011).

Having friends or a close partner who drinks regularly could increase your risk of alcoholism. The glamorous way that drinking is sometimes portrays in the media may also send the message that it's ok
to drink excessively (www.alcoholism and drug addiction.com, 3-11-2011)

AUDIT

The Alcohol Use Disorders Identification Test (AUDIT) is the most accurate alcohol screening tool for identifying potential alcohol misuse, including dependence. It was developed by the World Health Organisation, designed initially for use in primary health care settings with supporting guidance. (www.wikipedia.org, 5-7-2011).

The CAGE Test

One of the oldest and most popular screening tools for alcohol abuse is the CAGE test, which is a short, four-question test that diagnoses alcohol problems over a lifetime.

C - Have you ever felt you should **cut down** on your drinking?

A - Have people **annoyed** you by criticizing your drinking?

G - Have you ever felt bad or **guilty** about your drinking?

E - **Eye opener:** Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover? (counselingresource.com, 14-7-2011).
Alcohol dependence is a psychiatric diagnosis (a substance related disorder DSM-IV) describing an entity in which an individual uses alcohol despite significant areas of dysfunction, evidence of physical dependence and/or related hardship and also may cause stress and bipolar disorder. (www.wikipedia.org, 5-7-2011).

Saha, T. D, Grant, B. F (2006) research shows that people are most likely to drink the heaviest in their late teens and early twenties. 70 percent of young adults, or about 19 million, reported drinking in the year preceding this survey. They found that although rates of heavy episodic drinking were slightly higher for college students than for non college students, the greatest differences were related to where those young adults lived.

Romanowicz M, (2009) Alcohol consumption is associated with a broad array of physiologic and behavioural effects including changes in heart rate. A significant inverse correlation was found between heart rate variability and both the severity of depression and the duration of the depressive episode and anxiety. At present however there is almost no research data supporting this hypothesis.
**Chung T, Maisto SA (2006)** Relapse serves as an early warning sign of a failure to maintain desired behavioural change. Because relapse is ideally understood in the context of longer term patterns of use, the review also discusses the extent to which early episodes of use mark clinically significant change points in post-treatment course, and how knowledge of longer term clinical is essential to understanding the relapse process and mechanisms underlying the maintenance of behavioural change.

**National Epidemiologic Survey on Alcohol and Related Condition (2004)** Researchers reported that the risks of meeting the criteria for both alcohol and abuse were in direct proportion to how often people exceeded the daily limits. People who begin to drink at a young age are at much higher risk of developing a problem with alcohol later in life. This link between early drinking and later problems was first demonstrated using data. Researchers found that 45 percent of the people who began drinking before the age of 14 developed later alcohol dependence, compared with only 10 percent of those who waited until they were 21 or older to start drinking.
2. STUDIES RELATED TO ALCOHOL DEPENDENCE AND ANXIETY:

Joshua, Brian and Michael (2004) who conducted a study on the effect of aerobic anxiety sensitivity, showed that it reduces the anxiety sensitivity. Anxiety sensitivity is a known precursor to panic attacks and panic disorder. Exercise and specifically aerobic exercise that increases oxygen levels in the body is a natural, non-

Two of the most common anxiety disorders found among alcoholics are social phobia, or fear and avoidance of social situations and panic disorder or persistent “panic attacks” or episodes of intense anxiety” (Connor 2006).

Schukit and Herrebrock (2005) conducted a co-relation study to assess the relationship between the alcohol dependence and anxiety among alcoholic patients. Retroperspective analysis was used and the reports were collected from database Medline during the period of 2005-2008. Results have shown that the high rates of comorbidity in some studies are likely to reflect a mixture of true anxiety disorders among alcoholics at a rate equal to or slightly higher than that for the general population, along with temporary, but at times severe substance induced anxiety syndromes.
Loes.a. Marquenie et al., (2007) conducted a co-relational study to assess the alcohol dependence and anxiety among alcoholic patients. Retroperspective analysis was used for data collection and the sampling method used was multistage, stratified random sampling procedure. Results showed elevated co-morbidity rates of alcohol dependence and anxiety disorder.

Kushner, Kenneth and Carrie (2007) conducted a systematic review on the relationship between alcohol dependence and anxiety by reviewing the laboratory, clinical, family and prospective studies. Finding shows that there is an increased co-morbid anxiety among alcohol dependent patients.

Smail, Hockwell, Canter and Hodgson (2009) conducted a prevalence study to assess anxiety among sixty male alcohol dependent patients. It was found out that 21 subjects had severe phobias. The more severely phobic patients were more alcohol dependent patients.
3. STUDIES RELATED TO AEROBIC EXERCISE:

Aerobic exercise is a physical exercise of relatively low intensity that depends primarily on the aerobic energy-generating process. Aerobic literally means "living in air" and refers to the use of oxygen to adequately meet energy demands during exercise. (www.wikipedia.org,6-9-2011).

Aerobic exercise is defined as "any activity that uses large muscle groups, that can be maintained continuously, and is rhythmic in nature." (The American College of Sports Medicine, 2012).

Today, the message is loud and clear, but with different modalities. The running craze from the 1970s is still going strong, with numerous marathons, 5- and 10-kilometer races and triathlalons testing the limits of aerobic exercise. Group classes have evolved from simply aerobics to step aerobics, kickboxing, Zumba, boot camp and spinning. Aerobic training machine options now feature treadmills, stair climbers, elliptical trainers and a variety of indoor cycling options. (http://www.livestrong.com,22-3-2011)

Aerobic exercise is the simple form of exercise which can be easily followed and practiced by an individual. Human beings need relaxation and want to spend their life in a peaceful manner. Regular aerobic exercise has been shown to decrease the amount of anxiety a
person typically experiences in his/her daily life. It appears that low to moderate intensity exercise is the best for such a benefit, while an exercise in with the intensity level is too high may not be of as much (if any) benefit. Such an impact on anxiety has not been demonstrated for resistance exercise. The impact of regular aerobic exercise on the amount of anxiety a person typically experiences in his/her daily life is even greater for those who have a diagnosable anxiety disorder. This appears to be true, regardless of whether or not a person experiences any increases in physical fitness. It also appears that this benefit is noted when the intensity of exercise is low to moderate (Counselling & Psychological Services, University, of California, 2005).

“Exercise has long been regarded in popular culture as a good way to relax when a person is feeling anxious or nervous. Aerobic exercise is a continuous exercise without intermittent rest periods as in going for a jog, walking, swimming laps at a pool and riding an exercise bike”. “Exercise increases blood flow to the brain, releases hormones, stimulates the nervous system, and increases the levels of morphine like substances found in the body that can have a positive effect on mood. Exercise may trigger a neurophysiological high- a shot of adrenaline or endomorphins, that produces an anti - depressant depression, prevent muscle spasm, relieve muscular tension, reduce stress
and improve mental health. These aerobic exercises have three sequential sessions such as warm up, work out and cool down (www.livestrong.com, 2011).

prescription drug a way to deal with anxiety because it fools the body into thinking it is either fighting or fleeing. During exercise, body engages in intense activity that puts those chemicals and increases blood flow to good use. Body, in general and brain in particular, receive a high dose of oxygen which helps reduce tension in the body and muscles, making more relaxed and calm. Physical activity is defined as any bodily movement that results in energy expenditure. Exercise is a subset of physical activity and is defined as “planned, structured and repetitive bodily movement done to improve or effect in maintain one or more components of physical fitness” (Caspersen, Powell, and Christenson, 2005).

4. STUDIES RELATED TO THE EFFECT OF AEROBIC EXERCISE ON ANXIETY AMONG ALCOHOL DEPENDENT PATIENTS

Egil.w Martinsen and Leir and Ole Bjorn (2009) conducted an explorative study to determine the effect of aerobic exercise on
anxiety among non-psychotic alcohol dependent patients. All eighty-nine patients took part in aerobic exercise for 8 weeks and took part for at least 1 hour five times a week. Degree of mental distress (anxiety disorder) was measured by the symptom rating scale (SRT), physical work capacity (PWC) was calculated from a Submaximal Bicycle Ergometer Test. Results indicated that 65 percent of respondents exercise regularly and regular exercise habits were most strongly associated with low SRT score at follow up. Patients retrospectively ranked physical aerobic exercise as the most important component in the treatment programme.

Matthew P Herring et al (2008) conducted a systematic review to determine the effects of aerobic exercise on anxiety. Literature review was done from the Physical Activity Guidelines for American Scientific database, supplemented by additional searches through December 2008 of the following database: Google scholar, Medline, Psych info, Pub Med and web of science. Articles were reviewed from January 1995 to August 2007. They included both an anxiety outcome measured at baseline and after exercise training and random alignment to either an exercise intervention of three or more weeks or a comparison condition that lacked exercise. Results shown that exercise training reduces anxiety symptoms among sedentary patients who have a chronic illness.
P.Devi (2004) conducted an experimental study to determine the effectiveness of aerobic exercise on anxiety among patients with alcohol dependence, admitted at De-addiction cum Rehabilitation centre at Valarsarvakkam in Chennai. Forty patients with alcohol dependence were taken in Dr. AJ.Dorr Hospital at de-addiction centre.

Methods used for this study was technique by lottery method using State Trait Anxiety Inventory Scale. Results have shown that after receiving aerobic exercise in the control group, the patient score - 32(80%) were in moderate level of anxiety and eight (20%) had mild level of anxiety. In the post test, 28(70%) had mild level of anxiety and 12(30%) were in the normal level. Effect in some, an anti-anxiety effect in others and a general sense of feeling better in most. (Michael H. Sacks 2007.)

Jennifer P (2008) in New York, reported the effect of aerobics on fifty eight adult participants receiving the inpatients alcoholic rehabilitation treatment. The result revealed that these subjects demonstrated better abstinence than non-exercising subjects of other two groups. It also has the significant improvement in the negative emotion factor such as stress, anger, anxiety, depression and confusion.
Donogh and Mutric (2006) in the United states of America reported a randomized controlled trial of hundred and seventeen problem drinkers and concluded that there was a good evidence that structured three weeks aerobic exercise program followed by a twelve week home based program was beneficial in improving physical fitness and strength, significant reduction in anxiety, depression and Psychological perception of self work.

Colling Wood (2006), evaluated the effect of eight weeks of aerobic exercise programme on anxiety among alcohol dependent patients in Substance Abuse Residential Treatment Centres of U.S.A. The results reported that there is a significant improvement in the negative emotion factors such as anxiety, anger, stress, depression and confusion. The result suggests that aerobic exercise was associated with improved mood and may be a useful way of reducing anxiety during inpatient psychiatric treatment.

Core and Oak (2010) explored a study in Japan on the effect of aerobic exercise on anxiety among 95 alcohol dependent patients and the result shown that aerobic exercise was effective in lowering the anxiety level and increasing self-esteem of patients with alcohol dependence.
CHAPTER 3

RESEARCH METHODOLOGY

This chapter includes research approach, research design, setting, population, sampling size, sampling technique, and criteria for selection of the sample, description of tools, testing the tools, pilot study, data collection, and protection of subject rights.

Statement of the problem:

A study to assess the effectiveness of aerobic exercise on reduction of anxiety among an alcoholic dependence in selected De addiction centre at Madurai.

Research approach:

Quantitative approach was used for this study.

Research design:

Pre experimental research design that is one group pre test post test design was used in this study.
O1 - Pretest level of anxiety.

X    - Intervention (aerobic exercise ).

O2- Post test level of anxiety.

**Setting of the study**

The study was conducted in two de-addiction centers at Madurai. The two de-addiction centers are namely, Trishul De-addiction and After Care, Centre in K.K. Nagar at Madurai which is run by Chellamuthu Trust and Swasham De-addiction Center which are located at Aanaiyoor.

**STRENGTH OF THE DE-ADDICTION CENTRE**

Trishul De-addiction and After Care Centre

Total Strength -40 beds.

Aanaiyoor De-addiction Centre.

Total strength -20 beds.
INFRASTRUCTURE

Trishul De-addiction and After Care Centre in K.K. Nagar at Madurai is located at the centre of the city. Each room consists of 10 beds. This de-addiction centre has good physical facilities like large size halls for exercise, drinking water supply and toilet facilities. All the four rooms are well ventilated and are under close supervision of the staff nurses and supportive staff.

Swasham De-addiction Centre is located in Aanaiyur which is located in the extension area. All the physical facilities are similar to that of Trishul De-addiction and After Care, Centre in K.K. Nagar at Madurai.

Population:

The population of the study consisted of alcoholic dependence.

Sample:

Alcohol dependence those who have anxiety in selected de-addiction centers at Madurai.

Sample size:

Sample size was 60 who fulfill the inclusion criteria was selected for the study.
Sampling techniques:

Purposive sampling technique was used.

Criteria for sample selection:

The sample was selected based on the following inclusion and exclusion criteria.

Inclusion criteria:

- Alcohol dependence who were willing to participate in this study.
- Alcohol dependence with anxiety.
- Alcohol dependence with maintenance therapy.
- Those who could read and understand Tamil and English.

Exclusion criteria:

- Those who are not willing to participate.
- Alcohol dependence with other mental disorder.
- Alcohol dependence with cardiac disease or unfit to do aerobic exercise.

Description of tool:

The research tool had two sections.

Part 1

This tool consisted of demographic variables such as age, education, marital status, family income, occupation, type of family
types of residence, duration of stay, duration of consumption of alcohol, type of alcoholic beverages, amount of alcohol consumption in a day for past one month, factors causing anxiety.

Part 2

Hamilton anxiety scale was used to detect the anxiety level among alcoholic dependence. It is a four point Likert scale which was assessed the anxiety level. Normal score = 0 – 17, mild anxiety = 18 – 24, moderate anxiety = 25 -29, severe anxiety =<30.

Testing of the tool

Validity & Reliability

For demographic variable tool, the content validity was obtained from 5 experts from nursing and medical field. The Hamilton anxiety scale internal consistency and a reliability coefficient.

Reliability:

Stability of the scale was very good, with a correlation of 0.96.

Intervention:

Samples are divided into 6 groups consisting of 10 samples in each group.
Aerobic exercise involves three phases.

- Warming up phase
- Comprehensive phase
- Cooling down phase

1. **Warming up phase:**
   In this phase, only formation of warm up drills alone such as jumping and skipping for about five minutes etc

2. **Comprehensive Phase:**
   It lasts for about thirty minutes. In this phase, all the strenuous movements will be performed.

**Cooling down Phase:**
Put on some slow beat music, the subject can also perform some of the warming up movements.

**AEROBIC EXERCISE ROUTINES**
Aerobic exercise routines involve three phases. It starts with warming-up and then goes through a strenuous movement phase. The final stage is the cooling-down phase. Aerobic exercise, when done in
this standard way, increases oxygen intake of the body. This is a key factor in staying healthy and fit.

According to fitness experts, aerobic exercises should be performed at moderate levels in extended period of time. A typical aerobic exercise routine involves three phases, warming up, intensive movements and cooling down. Here is a brief description of all the three stages of an aerobic exercise session.

**WARMING-UP PHASE**

Warming up is necessary before any strenuous activity, as it stretches and loosens the body muscles. Warming-up prevents from muscle cramps, muscle fatigue and injuries due to sudden jerk. The subject can warm up the body in several ways.

**COMPREHENSIVE PHASE**

The comprehensive phase should last for about thirty minutes. Put on preferred fast beat music. Repeat the below-mentioned movements to a count of six. The first movement is, step with your left foot, bend and try to touch the ground with the toe of the right foot. Do it alternatively as well. The second movement is to step the left foot, bend forward and touch the ground with the heel of the right foot. Do this movement
alternatively. Step the left foot and raise the right foot and do it alternatively. The other aerobic movements involve moving four steps forward, backward and on the sides. Repeat this movement to a count of eight. Raise the arms towards the ceiling and bring them back down. Repeat this movement for a count of ten. Jump up and down for a few minutes. All these movements increase the heart beat, which itself raises the oxygen consumption. Physical activities such as swimming, rope-skipping and cycling are other examples of aerobic exercises. When the subjects have been sweating for about ten minutes, then the participants are ready to start with the final phase of the aerobic exercise routine.

COOLING-DOWN PHASE

Put on some slow beat music. Raise the arms up and inhale. Bring the arms down and exhale. Repeat this movement for a count of five. The subject can also perform some of the warming-up movements. It would relax the chest. Repeat this movement for a count of ten. Jump up and down for a few minutes. All these movements increase the heart beat, which itself raises the oxygen consumption. Physical activities such as swimming, rope-skipping and cycling are other examples of aerobic exercises. When the subjects have been sweating for about ten
minutes, then the participants are ready to start with the final phase of the aerobic exercise routine.

PILOT STUDY

In order to test the feasibility, relevance and practicability of the study, a pilot study was conducted among 6 alcohol dependence with anxiety in a de-addiction centre at Madurai. The study was conducted in a manner in which the final study would be done. It revealed that the study was feasible. Data were analyzed to find out the suitability of the statistical method.

Data collection procedure:

The data collection was done for five weeks in two selected de-addiction centers of Madurai district. Before conducting the study researcher obtained a formal written permission to conduct the study, from the director of Chella Muthu de addition centre and Swasham de addiction centre, Madurai district and from the dissertation committee of Matha college of nursing, Manamadurai. Researcher obtain a verbal consent from the study participants. Hamilton anxiety scale was used to assess the level of anxiety among alcohol dependent patients, 60 samples with anxiety were selected for the study in Trishul and Swasham de
addiction centre. Approximately 10 minutes was taken to complete the assessment on each individual. There were 3 sessions (in each session one single group was involved in aerobic exercise). Each session progressed through 3 phases; nearly 45 minutes had been taken for the completion of each session. After 3 weeks of intervention post test was conducted.

**Data analysis:**

The data analyzed using both descriptive and inferential statistics.

**Descriptive statistics:**

1. Frequency, percentage distribution was used to analyze the demographic variable.

2. Mean and standard deviation was used to assess the level of anxiety among an alcoholic dependence.

**Inferential statistics:**

1. Student paired t test was used to find out the effectiveness of Aerobic exercise.

2. Chi-square test was used to find out the association between the demographic variables and the pre test level of anxiety.
Protection of human subjects

The dissertation committee was approved the research proposal prior to pilot study and main study. Permission was obtained from Head of the department of psychiatric nursing, Matha College of nursing, Manamadurai. And from higher authority of Matha college of nursing at Sivagangai Verbal and written Permission was obtained from the Trishul de addiction center and Swasham de addiction center for authorities. And study subject’s data collection kept confidential. Assurance was given study subjects that anonymity of each individual was maintained.
CHAPTER IV
DATA ANALYSIS AND INTERPRETATION OF DATA

This chapter deals with the descriptive and inferential analysis of the data collected from 60 samples to determine the effectiveness of aerobic exercise on reduction of anxiety among alcoholic dependence in selected de addiction centers at Madurai.

Analysis is a process of organizing and synthesizing data in such a way that research questions can be answered and hypothesis tested (Polit and Hungler 2012).

This chapter deals with the description of the samples, analysis and interpretation of the data collected and achievement of the objectives of the study.

OBJECTIVES OF THE STUDY:

• To assess the pre test level of anxiety among alcoholic dependence residing in de addiction centers at Madurai.

• To assess the post test level of anxiety among alcoholic dependence residing in de addiction center.
• To find out the effectiveness of aerobic exercise in post test level of anxiety among alcoholic dependence residing in de addiction centers at Madurai.

• To associate mean pre test level anxiety among alcoholic dependence with their selected demographic variables.

ORGANIZATION OF THE DATA:

The analysis and interpretation of data are presented tabulation and statistical form under the following sections.

SECTION A : Distribution of samples based on their selected demographic variables.

SECTION B : Distribution of samples based on their level of anxiety in pre-test and post-test score.

SECTION C : Evaluate the effectiveness of aerobic exercise on reduction of anxiety among the samples.

SECTION D : Association between pre-test level of anxiety among alcohol dependence in selected demographic variables
## SECTION – I

### Table 2:

Frequency and percentage sample distribution of alcohol dependence based on their demographic variables. N=60

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<th>DEMOGRAPHIC VARIABLES</th>
<th>F</th>
<th>%</th>
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</thead>
<tbody>
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<td>1</td>
<td>Age in years</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>a) 20-30 years</td>
<td>20</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>b) 31-40 years</td>
<td>22</td>
<td>36.7</td>
</tr>
<tr>
<td></td>
<td>c) 41-50 years</td>
<td>13</td>
<td>21.7</td>
</tr>
<tr>
<td></td>
<td>d) 51-60 years</td>
<td>05</td>
<td>8.3</td>
</tr>
<tr>
<td>2</td>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Hindu</td>
<td>51</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>b) Others</td>
<td>9</td>
<td>15</td>
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<td>Educational status</td>
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<td>a) Illiterate</td>
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<tr>
<td></td>
<td>b) Primary</td>
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<td>11.7</td>
</tr>
<tr>
<td></td>
<td>c) High school / Hr. secondary</td>
<td>17</td>
<td>28.3</td>
</tr>
<tr>
<td></td>
<td>d) Diploma / Graduate</td>
<td>17</td>
<td>28.3</td>
</tr>
<tr>
<td></td>
<td>Occupation</td>
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<td>4</td>
<td>a) Student</td>
<td>02</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>b) Coolie</td>
<td>25</td>
<td>41.7</td>
</tr>
<tr>
<td></td>
<td>c) Business man</td>
<td>16</td>
<td>26.7</td>
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<tr>
<td></td>
<td>d) Private employees</td>
<td>12</td>
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<td></td>
<td>e) Government employees</td>
<td>05</td>
<td>8.3</td>
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<td></td>
<td>Marital status</td>
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<tr>
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<tr>
<td></td>
<td>b) Married</td>
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<tr>
<td></td>
<td>c) Divorced / separated</td>
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<td></td>
<td>d) Widower</td>
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<td>18.3</td>
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<td>Income of the family</td>
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<td>a) Rs.3000-5000</td>
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<td>58.3</td>
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<td></td>
<td>b) Rs.5001-7000</td>
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<td>23.3</td>
</tr>
<tr>
<td></td>
<td>c) Rs.7001-9000</td>
<td>04</td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td>d) Above Rs.9000</td>
<td>07</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td>Place of Residence</td>
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</tr>
<tr>
<td>8</td>
<td>a) Rural</td>
<td>33</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>b) Urban</td>
<td>27</td>
<td>45</td>
</tr>
<tr>
<td>9</td>
<td>Duration of stay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>a) Less than one month</td>
<td>59</td>
<td>98.3</td>
</tr>
<tr>
<td></td>
<td>b) One month</td>
<td>01</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>c) One month -3 month</td>
<td>0</td>
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<table>
<thead>
<tr>
<th>10</th>
<th>Duration of consumption</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) 3-5 years</td>
<td>29</td>
<td>48.3</td>
</tr>
<tr>
<td></td>
<td>b) 6-8 years</td>
<td>23</td>
<td>38.3</td>
</tr>
<tr>
<td></td>
<td>c) 9-11 years</td>
<td>08</td>
<td>13.3</td>
</tr>
<tr>
<td></td>
<td>d) Above 11 years</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11</th>
<th>Type of alcoholic beverage</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) Arrack</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>b) Ethyl alcohol</td>
<td>01</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>c) Indian made foreign liquor</td>
<td>59</td>
<td>98.3</td>
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<table>
<thead>
<tr>
<th>13</th>
<th>Factors causing anxiety</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) Fear about well being without alcohol</td>
<td>13</td>
<td>21.7</td>
</tr>
<tr>
<td></td>
<td>b) Withdrawal of alcohol</td>
<td>20</td>
<td>33.3</td>
</tr>
<tr>
<td></td>
<td>c) Treatment plans</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>d) Financial</td>
<td>27</td>
<td>45</td>
</tr>
</tbody>
</table>
Figure: 1

Frequency percentage sample distribution related to Age:

Table 2 predicts that, Majority of the samples 20 (33.3%) belonged to the age group of 20-30 years and 22 (36.7%) samples belonged to the age group of 31-40 years.
Regarding the groups majority of the samples were Hindus by religion 51(85.0%) in 60 samples, 9(15%) were other religion.
Regarding the educational status, majority 19 (31.7%) of the samples had illiterate, 7 (11.7%) of samples had primary education and 17 (28.3%) of samples had high school / higher secondary education, the 17 (28.3%) of the samples had Diploma and graduate.
Regarding the occupational status, majority 25 (41.7%) of the samples from were coolie and 16 (26.7%) were business man, 12 (20%) were private employees.
Regarding marital status, 7(11.7%) single and 20(33.3%) married, majority of 22(36.7%) divorced or separated whereas in the 60 samples, 11(18.3%) of them widower
Figure: 6

Frequency percentage sample distribution related to family income:

Regarding the family income, majority 35 (58.3%) of the samples in the had an income of Rs. 3001-57000, whereas in the 14 (23.3%) had an income of Rs. 5001-7000.
Figure: 7

Frequency percentage sample distribution related to type of family:

Regarding the type of family, majority 37(61.7%) of them were from nuclear family in the group, 23(38.3%) of them were in the joint family.
Figure: 8

Frequency sample percentage distribution related to place of living:

Regarding the place of residence, majority of the samples were from rural areas and in the as 33(55%) and 27(45%) were from urban areas respectively.
Regarding the duration of stay, majority 59 (98.3%) of the samples were staying for less than one month whereas 1 (1.7%) of the samples were staying than one month.
Regarding the duration of consumption of alcohol, majority 29(48.3%) of the samples were consuming alcohol for 3-5 years and whereas in, 23(38.3.3%) were consuming alcohol for 6-8 years.
Figure: 11

Frequency percentage sample distribution related to type of alcoholic beverage:

Regarding the types of alcoholic beverages, majority of them were taking Indian made foreign liquor both in the 59(98.3%) and 1(1.7%) respectively.
Figure: 12

Frequency percentage sample distribution related to amount of alcohol consumption in a day for the past one month:

Regarding the amount of alcohol consumption in a day for the past one month, majority of them 30(50%) were taking 90ml-279ml and 16 (26.7%) of them were taking 180-296ml.
Regarding the factors causing anxiety, majority 27(45%) of them experienced anxiety due to financial factors 20(33.3%) of them experienced anxiety due to about withdrawal behavior.
SECTION II

This section deals with the frequency and percentage distribution of samples based on the level of anxiety of the samples:

<table>
<thead>
<tr>
<th>S.NO</th>
<th>LEVEL OF ANXIETY</th>
<th>PRE TEST</th>
<th></th>
<th>POST TEST</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>Normal</td>
<td>-</td>
<td>-</td>
<td>57</td>
<td>95</td>
</tr>
<tr>
<td>2</td>
<td>Mild anxiety</td>
<td>11</td>
<td>18.3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Moderate anxiety</td>
<td>19</td>
<td>31.7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Severe anxiety</td>
<td>30</td>
<td>50</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table:2 statistically predicts the distribution of alcohol dependent patients according to the level of anxiety before and after manipulation.

Among the pre test, majority 30(50.0%) of the samples experienced severe anxiety and 19(31.7%) experienced moderate anxiety and 11(18.3%) of them experienced mild anxiety. Post test, majority 57(95%) of the samples experienced normal level and 3 number of samples (5%) experienced mild anxiety.
Figure: 14

Frequency percentage sample distribution related to level of anxiety in pre and post test:

Table 3:

Comparison of the level of anxiety before and after aerobic exercise in the samples:

N=60

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>MD</th>
<th>SD</th>
<th>T. Value</th>
<th>P. Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test</td>
<td>33.70</td>
<td></td>
<td>10.150</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>21.066</td>
<td></td>
<td>23.34</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Post test</td>
<td>12.633</td>
<td></td>
<td>2.899</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To compare the mean pre test and post test level of anxiety of the alcohol dependent patients, the null hypothesis was stated as follows:

There was significant difference between the pre test and post test anxiety score at 0.05 level of significance.

The hypothesis was tested using paired ‘t’ test method.

Table 5 portrays that the mean post test anxiety score (12.63%) was less than the mean pre test anxiety score (33.70%). The obtained ‘t’ value 23.34 was statistically highly significant at 0.05 level. This illustrates that the mean difference of (21.06)% was true difference and has not occurred by chance. Therefore the researcher rejects the null hypothesis and accepts the research hypothesis.
### SECTION: 2

Table 8:
Association between the pre test level anxiety and demographic variables of the alcohol dependence.

N = 60

<table>
<thead>
<tr>
<th>Serial no</th>
<th>Demographic variables</th>
<th>Level of anxiety</th>
<th>Chi square</th>
<th>Table value</th>
<th>Calculate t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mild anxiety</td>
<td>Moderate Anxiety</td>
<td>Severe anxiety</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Below 30</td>
<td>2</td>
<td>2</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) 31-40 years</td>
<td>4</td>
<td>6</td>
<td>13</td>
<td>20.688*</td>
</tr>
<tr>
<td></td>
<td>c) 41-50 years</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Above 51 years</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Hindu</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>4.487*</td>
</tr>
<tr>
<td></td>
<td>b) Others</td>
<td>11</td>
<td>13</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Educational status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Illeterate</td>
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<td>5</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Primary</td>
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<td>6</td>
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</tr>
<tr>
<td></td>
<td>c) Higher secondary</td>
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<td></td>
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<td>4.486*</td>
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<td></td>
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<td>3</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Diploma</td>
<td>2</td>
<td>4</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Occupation</td>
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<td></td>
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<tr>
<td>---</td>
<td>----------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>a) Student</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Coolie</td>
<td>5</td>
<td>7</td>
<td>13</td>
<td>3.899*</td>
</tr>
<tr>
<td></td>
<td>c) Business</td>
<td>3</td>
<td>2</td>
<td>11</td>
<td>2.31</td>
</tr>
<tr>
<td></td>
<td>d) Private company</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e) Government</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
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<td>Marital status</td>
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<td>0</td>
<td>7</td>
<td>24.973*</td>
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<td>b) Married</td>
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<td>2</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Divorced/separated</td>
<td>3</td>
<td>4</td>
<td>15</td>
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<td></td>
<td>d) Widower</td>
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<td>8</td>
<td>1</td>
<td></td>
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<tr>
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<td></td>
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<tr>
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<td>a) Rs.3000-5000</td>
<td>6</td>
<td>9</td>
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<td>d) Above Rs.9000</td>
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<td>1</td>
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<tr>
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<td>Type of family</td>
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<tr>
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<td>---</td>
<td>-------------------</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Rural</td>
<td>4</td>
<td>9</td>
<td>20</td>
<td>2.096</td>
<td>4.303</td>
</tr>
<tr>
<td>b) Urban</td>
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<table>
<thead>
<tr>
<th>9</th>
<th>Duration of stay</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>b) One month</td>
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</tr>
<tr>
<td>c) One month-3 month</td>
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</table>

<table>
<thead>
<tr>
<th>10</th>
<th>Duration of consumption of alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) 3-5 years</td>
<td>5</td>
</tr>
<tr>
<td>b) 6-8 years</td>
<td>4</td>
</tr>
<tr>
<td>c) 9-11 years</td>
<td>2</td>
</tr>
<tr>
<td>d) Above 11 years</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11</th>
<th>Type of alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Arrack</td>
<td>0</td>
</tr>
<tr>
<td>b) Ethyl alcohol</td>
<td>0</td>
</tr>
<tr>
<td>c) Indian made foreign liquor</td>
<td>11</td>
</tr>
</tbody>
</table>
To find out an association between the pre test level of anxiety and demographic variables of the alcohol dependence.

The null hypothesis was stated as follows:

There was significant association between pre test level of anxiety and selected demographic variables.

Table 8 depicts that there was a statistically significant association between pre test level of anxiety and age ($\chi^2 2.45^*$), religion ($\chi^2 2.78$), education ($\chi^2 2.45$), marital status ($\chi^2 2.447$), occupation ($\chi^2 2.31$),

<table>
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<th>12</th>
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<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a) 0-89ml</td>
<td>2</td>
<td>0</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) 90-179ml</td>
<td>6</td>
<td>7</td>
<td>18</td>
<td>6.791*</td>
</tr>
<tr>
<td></td>
<td>c) 180-269ml</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Above 270ml</td>
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<td>1</td>
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</thead>
<tbody>
<tr>
<td></td>
<td>a) Fear about well</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>being without alcohol</td>
<td>0</td>
<td>6</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Withdrawal of alcohol</td>
<td>3</td>
<td>3</td>
<td>14</td>
<td>4.478*</td>
</tr>
<tr>
<td></td>
<td>c) Treatment plans</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Financial</td>
<td>8</td>
<td>5</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>
duration of stay in the hospital \( (\chi^2 4.303) \), duration of consumption of alcohol in past one month \( (\chi^2 2.78) \), amount of alcohol consumption \( (\chi^2 2.447) \) and factors causing anxiety \( (\chi^2 4.303^*) \) at 0.05 level of significance. Therefore the researcher rejects the null hypothesis and accepts the research hypothesis.
CHAPTER-V
DISCUSSION

Anxiety is a psychological and physiological state characterized by somatic, emotional, cognitive and behavioural components. It is the displeasing feeling of fear and concern.

The aim of the study was to evaluate the effectiveness of aerobic exercise on anxiety among alcohol dependence in selected addiction centres of Madurai.

The study findings are discussed in this chapter with reference to the objectives and hypotheses stated in chapter -1

**Distribution of samples with regards to demographic variables**

, Majority of the samples 20(33.3%) belonged to the age group of 20-30 years and 22(36.7%) samples belonged to the age group of 31-40 years. Regarding In the groups majority of the samples were Hindus by religion 51(85.0%) in 60 samples,9(15%) were other religion.

Regarding the educational status, majority19 (31.7%) of the samples had illiterate 7(11.7%) of samples had primary education and
17(28.3%) of samples had high school / higher secondary education, the 17(28.3%) of the samples had Diploma and graduate.

Regarding the occupational status, majority 25(41.7%) of the samples from were coolie and 16 (26.7%) were business man, 12 (20%) were private employees.

Regarding the marital status, 7(11.7%) single and 20(33.3%) married, majority of 22(36.7%) divorced or separated whereas in the 60 samples, 11(18.3%) of them widower.

Regarding the family income, majority 35 (58.3%) of the samples in the had an income of Rs. 3001-57000, whereas in the 14(23.3%) had an income of Rs. 5001-7000.

Regarding the type of family, majority 37(61.7%) of them were from nuclear family in the group, 23(38.3%) of them were in the joint family.

Regarding the place of residence, majority of the samples were from rural areas and in the as 33(55%) and 27(45%) were from urban areas respectively.

Regarding the duration of stay, majority 59 (98.3%) of the samples were staying for less than one month whereas 1 (1.7%) of the samples were staying than one month.
Regarding the duration of consumption of alcohol, majority 29 (48.3%) of the samples were consuming alcohol for 3-5 years and whereas in, 23 (38.3%) were consuming alcohol for 6-8 years.

Regarding the types of alcoholic beverages, majority of them were taking Indian made foreign liquor both in the 59 (98.3%) and 1 (1.7%) respectively.

Regarding the amount of alcohol consumption in a day for the past one month, majority of them 30 (50%) were taking 90ml-279ml and 16 (26.7%) of them were taking 180-296ml.

Regarding the factors causing anxiety, majority 27 (45%) of them experienced anxiety due to financial factors 20 (33.3%) of them experienced anxiety due to about withdrawal behaviour.

The first objectives of the study were to assess the pretest level of anxiety among alcohol dependence:

Among the pre test, majority 30 (50.0%) of the samples experienced severe anxiety and 19 (31.7%) experienced moderate anxiety and 11 (18.3%) of them experienced mild anxiety.
The second objectives of the study were to assess the post test level of anxiety among alcohol dependence:

There was a marked improvement in the level of anxiety in alcohol dependence after the aerobic exercise which proves the efficiency of aerobic exercise in reducing anxiety. Statistically predicts the distribution of alcohol dependent patients according to the level of anxiety before and after manipulation.

Among the post test, majority 57(95%) of the samples experienced normal level and 3 number of samples(5%) experienced mild anxiety.

The third objectives of the study were to find out the effectiveness of aerobic exercise on anxiety among alcohol dependence.

There will be no significant difference between the pre test and post test anxiety score at 0.05 level of significance.

The hypothesis was tested using paired ‘t’ test method.

Table 5 portrays that the mean post test anxiety score (12.63%) was less than the mean pre test anxiety score (33.70%). The obtained ‘t’ value 23.34 was statistically highly significant at 0.05 level. This illustrates that the mean difference of (21.06)% was true difference and
has not occurred by chance. Therefore the researcher rejects the null hypothesis and accepts the research hypothesis.

The related evidence for the study are mentioned below. Collingwood (2004) evaluated the effect of eight weeks of aerobic exercise programme on anxiety among Alcohol dependence in Substance Abuse Residential Treatment Centers of USA. The results reported that there is a significant improvement on the negative emotion factors such as anxiety, anger, stress, depression and confusion. The result suggests that aerobic exercise was associated with improved mood and may be a useful way of reducing anxiety during inpatient psychiatric treatment.

Sineger (2006) in West Indies conducted a study on aerobic exercise on anxiety among 58 participants receiving treatment in alcohol rehabilitation centre and he concluded that there was a reduction in anxiety following the practice of aerobic exercise in alcohol consuming persons.

Marlatt (2008) has suggested that engaging in physical activity might improve alcohol and other substance treatment outcomes because physical activity is an alternative, competing, and pleasurable behaviour, which may provide mood benefits and function as a coping skill in some high-risk situations for relapse.
The fourth objectives of the study was to associate the pre test level of anxiety with the selected demographic variables of anxiety among alcohol dependence.

There will be no significant association between post test level of anxiety and selected demographic variables.

Table 8 depicts that there was a statistically significant association between pre test level of anxiety and and age ($\chi^2 2.45^*$), religion ($\chi^2 2.78^*$), education ($\chi^2 2.45^*$), marital status ($\chi^2 2.447^*$), occupation ($\chi^2 2.31^*$), duration of stay in the hospital ($\chi^2 4.303^*$), duration of consumption of alcohol in past one month ($\chi^2 2.78^*$), amount of alcohol consumption ($\chi^2 2.447^*$) and factors causing anxiety ($\chi^2 4.303^*$) at 0.05 level of significance. Therefore the researcher rejects the null hypothesis and accepts the research hypothesis.

There was no significant association between the other demographic variables like family income, type of family, type of residence, duration of alcohol consumption, duration of stay, types of alcohol consumption,. Researcher feels that major strength of the study is that this therapy were simple but neglected due to lack of sufficient literature. So this study topic and findings will add new knowledge to the nursing profession.
CHAPTER VI
SUMMARY, CONCLUSION, IMPLICATIONS & RECOMMENDATIONS

This chapter contains the summary of the study and conclusion drawn. It clarifies the limitations of the study and the implications. The recommendations are given for different areas like nursing education, administration and health care delivery system, nursing practice and nursing research.

MAJOR FINDINGS OF THE STUDY

Majority of the samples 20(33.3%) belonged to the age group of 20-30 years and 22(36.7%) samples belonged to the age group of 31-40 years. Regarding the groups, majority of the samples were Hindus by religion 51(85.0%) in 60 samples, 9(15%) were other religion.

Regarding the educational status, majority 19 (31.7%) of the samples had illiterate 7(11.7%) of samples had primary education and 17(28.3%) of samples had high school / higher
secondary education, the 17(28.3%) of the samples had Diploma and graduate.

Regarding the occupational status, majority 25(41.7%) of the samples from were coolie and 16 (26.7%) were business man, 12, (20%) were private employees.

Regarding the marital status, 7(11.7%) single and 20(33.3%) married, majority of 22(36.7%) divorced or separated whereas in the 60 samples, 11(18.3%) of them widower.

Regarding the family income, majority 35 (58.3%) of the samples had an income of Rs. 3001-57000, whereas in the 14(23.3%) had an income of Rs. 5001-7000.

Regarding the type of family, majority 37(61.7%) of them were from nuclear family in the group, 23(38.3%) of them were in the joint family.

Regarding the place of residence, majority of the samples were from rural areas and in the as 33(55%) and 27(45 %) were from urban areas respectively.
Regarding the duration of stay, majority 59 (98.3%) of the samples were staying for less than one month whereas 1 (1.7%) of the samples were staying than one month.

Regarding the duration of consumption of alcohol, majority 29 (48.3%) of the samples were consuming alcohol for 3-5 years and whereas in, 23 (38.3%) were consuming alcohol for 6-8 years.

Regarding the types of alcoholic beverages, majority of them were taking Indian made foreign liquor both in the 59 (98.3%) and 1 (1.7%) respectively.

Regarding the amount of alcohol consumption in a day for the past one month, majority of them 30 (50%) were taking 90ml-279ml and 16 (26.7) of them were taking 180-296ml.

Regarding the factors causing anxiety, majority 27 (45%) of them experienced anxiety due to financial factors 20 (33.3%) of them experienced anxiety due to about withdrawal behavior. There was significant difference between the pre test and post test anxiety score at 0.05 level of significance.
The hypothesis was tested using paired ‘t’ test method.

Table 5 portray that the mean post test anxiety score (12.63%) was less than the mean pre test anxiety score (33.70%). The obtained ‘t’ value 23.34 was statistically highly significant at 0.05 level. This illustrates that the mean difference of (21.06)% was true difference and has not occurred by chance. Therefore the researcher rejects the null hypothesis and accepts the research hypothesis.

There is no significant association between the other demographic variables like, family income, type of family, type of residence, types of alcohol consumption.

**IMPLICATION FOR NURSING**

**Nursing practice:**

- The study findings revealed the importance of nurse, role in managing anxiety among alcohol dependent patients by using aerobic exercise which is cost-effective, safe, and non-pharmacological treatment.
Study findings signify the importance of formulation of guidelines and implementation of aerobic exercise especially in de-addiction centres where literature reveals lack of psychotherapeutic intervention.

Nurses, specializing in psychiatry, need to be empowered in administering aerobic exercise.

In clinical areas there must be provision for administering aerobic exercise.

**NURSING EDUCATION:**

- Aerobic exercise can be included as de-addiction care in nursing curriculum
- Post graduate nursing students specializing in psychiatry should be trained in administering aerobic exercise therapy.
- Nurse educators should enhance nursing students by reducing their anxiety with aerobic exercise.
- Students should be periodically evaluated for their anxiety level in personal and professional interaction.
✓ A considerable amount in the budget can be allocated for organizing the continuing nursing education programme and training in aerobic exercise.

NURSING RESEARCH

The finding of the present study has added knowledge to the already existing literature and the implications for the nursing research are given in the form of recommendation. This study can be a base line for future studies to build upon and motivate other investigators to conduct further studies.

NURSING ADMINISTRATION:

➢ The administrations can encourage the nurses to use different cost effective, safe psychotherapeutic intervention in reducing anxiety among alcohol dependence patients.

➢ Nursing personnel working in de-addiction ward and psychiatric ward should be given in service education
regarding significance of aerobic exercise in reducing anxiety.

- A staff nurse can be trained specially to administer aerobic exercise.
- The administration can arrange seminars on anxiety.

**RECOMMENDATIONS**

On the basis of the present study the following recommendations have been made for further studies.

- A descriptive study can be undertaken to determine the level of anxiety and different anxiety disorders among alcohol dependent patients.
- A longitudinal study can be undertaken to see the long term effect of aerobic exercise in reducing the level of anxiety.
- A similar study can be done in various other settings with large samples.
- A qualitative approach can be applied in studying the effects of aerobic exercise on anxiety.
CONCLUSION

These findings of the study have been discussed in terms of the objectives, theoretical base and hypothesis. Most of the alcohol dependence in selected de-addiction centers suffered from anxiety. Aerobic exercise was effective in reducing the level of anxiety among the alcohol dependence in the de-addiction centers. The findings indicate that aerobic exercise can be administered to all the groups of psychiatric patients in reducing the level of anxiety.
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Taylor CB, Sallis JF, Needle R. The relation of physical activity and exercise to mental health. Public Health Reports. 1985;100(195201)


13. Aerobic Exercise for Alcohol Recovery: Rationale, Program Description, and Preliminary Findings

14. Richard A. Brown, Ph.D.,* Ana M. Abrantes, Ph.D., Jennifer P. Read, Ph.D., Bess H. Marcus, Ph.D., John Jakicic, Ph.D., David R. Strong, Ph.D., Julie R. Oakley, M.S., Susan E. Ramsey, Ph.D., Christopher W. Kahler, Ph.D., Gregory G. Stuart, Ph.D., Mary Ella Dubreuil, and Alan A. Gordon, M.D.
10.1080/17461391.2010.509889 Asgeir Mamen\textsuperscript{a*}, Ståle Pallesen\textsuperscript{b} & Egil W. Martinsen pages 269-276


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http://counsellingresource.com
http://www.umm.edu

Changes in mental distress following individualized physical training in patients suffering from alcohol dependence
APPENDIX - A
COPY OF LETTER SEEKING PERMISSION FROM
TO CONDUCT THE STUDY IN SELECTED DE-ADDICTION
CENTRES, MADURAI

Prof. Shabeera Banu, Ph.D
Principal.

vaanpuram,
Manamadurai,
Sivagangai.

To

THE DIRECTOR,

Respected Sir / Madam,

Sub: Matha college of nursing -Manamadurai – Project work of

M. Sc (Nursing) student – permission requested – reg.

We wish to state that Ms.N.Lavanya, Final year M. Sc (Nursing) student of our college has to conduct a Research project, which is to be submitted to The Tamil Nadu Dr. M.G.R. Medical University, Chennai in partial fulfillment of University requirements.

The topic of research project is “A STUDY TO ASSESS THE EFFECTIVENESS OF AEROBIC EXERCISE FOR REDUCTION OF ANXIETY AMONG ALCOHOLIC DEPENDENCE IN SELECTED DEADDICTION CENTER AT MADURAI”

We therefore request you to kindly permit him to do the research work in your organization under your valuable guidance and suggestions

Thanking you,

Yours faithfully,
APPENDIX- B

LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY AND VALIDITY OF TOOL.

From

II year MSc (Nursing)
Matha college of nursing,
Madurai-20

To,

Respected Sir/Madam

SUB : Requesting opinions and suggestion of experts for the content validity and validity of tool.

I am a post graduate student (Psychiatry Nursing) of Matha college of nursing. I have selected the below mentioned topic of the research project submitted to DR.M.G.R. Medical university, Chennai as a fulfilment of Master of Science in nursing.

“A study to assess the effectiveness of aerobic exercise for reduction of anxiety among alcoholic dependence in selected de addiction centres at Madurai” With regard to this may I kindly request you to content and validate my tool for its relevancy. I am enclosing the objectives of the study. I would be highly obliged and remain thankful if you could validate and send it as early as possible.

Thanking you

Place : Your faithfully,

Faithfully
APPENDIX C
LIST OF EXPERTS CONSULTED FOR CONTENT VALIDITY

1. Dr. Mrs. Shabeera Banu, M.Sc (N), Ph. D
   Principal
   Matha college of nursing,
   Sivagangai.

2. Mrs. Jancy Rachel Daisy
   Reader,
   C.S.I. Jeyaraj Annapackiam College of Nursing,
   Pasumalai, Madurai.

3. Mrs. Jesintha
   H.O.D in Mental health nursing,
   Sacred heart nursing college,
   Madurai.

4. Dr. Karthickeyan, MD (Psy)
   Sr. Consultant psychiatry,
   Meenakshi mission hospital and research center,
   Madurai.

5. Mr. Suya, ASP
   Southern swingers institution,
   Kal mandapam, Rayapuram,
   Chennai-600013.
6. Prof, Mr. Kannan, M.Sc, M.Phil  
   Professor cum Statistician,  
   Madurai.

7. Mr. Sankara pandiyan MSW  
   Team leader in M.S. Chella muthu trust.  
   Madurai.

8. Mr. Vignesh kumar, Msc (Clinical Psychology)  
   Department of Psychiatry  
   M.S, chellamuthu trust and research foundation.  
   Madurai.
Certificate Course in Aerobic Exercise and Dance

Date: 05-Mar-2012

This is to Certify that Ms. N. Lavanya has completed our CERTIFICATE COURSE IN AEROBIC EXCERCISE AND DANCE (24hrs / Part time Education Programme designed and offered by experts in Choreography) by effectively participating in practical classes and successfully completing all the exercises. She has been placed in ...FIRST CLASS

A.S.P Surya B.E.,
Senior Choreographer
Southern Swingers Institution
APPENDIX E
DEMOGRAPHIC DATA

Part – I

1. Age in years : 20 – 30
  31 – 40
  41 – 50
  51 – 60

2. Religion : Christian
  Hindu
  Muslim
  Others

3. Educational Status : Illiterate
  Primary
  High School / Higher
  Secondary
  Diploma / Graduate

4. Occupation
  Student
  Coolie
  Business man
  Private employees
  Government employees

5. Marital Status : single
  Married
  Divorced / Separated
  Widower
6. Income of the family : Rs. 3000 – 5000
                      Rs. 5001 – 7000
                      Rs. 7001 – 9000
                      Above Rs. 9000

7. Type of family : Nuclear
                  Joint
                  Extended family

8. Place of residence : Rural
                       Urban

9. Duration of stay : Less than one month
                   One month
                   One month – 3 month

10. Duration of consumption of alcohol : 3 - 5 years
                                      6 - 8 years
                                       9 - 11 years
                                        Above 11 years

11. Which type of alcoholic beverages consumed by you? :
    a. Arrack
    b. Ethyl Alcohol
    c. Indian made foreign liquor
       (Whisky, Vodka, Brandy, rum etc)
12. How much amount you consume in a day for past one month?
   a. 0 – 89 ml
   b. 90 – 179 ml
   c. 180 – 269 ml
   d. Above 270 ml

13. Which factors causing you anxiety?
   a. Fear about well being without alcohol
   b. Withdrawal of alcohol
   c. Treatment plans
   d. Financial
APPENDIX F

QUESTIONNAIRE ENGLISH PART

The Hamilton Anxiety Scale is an Excellent Benchmark for Rating Anxiety Levels.

Hamilton Anxiety Scale - Questionnaire

On a scale of 0 to 4, with 0 being "there is no problem" and 4 being "the situation is disabling to you", how do you rate yourself for each of the following symptoms of anxiety.

Symptom Rating Scale (0 = No Problem, 4 = Disabling)

Anxious Mood

1. Worries ______

2. Anticipates worst ______

Tension

3. Startles ______

4. Cries easily ______

5. Restless ______

6. Trembling ______

Fears

7. Fear of the dark ______

8. Fear of strangers ______

9. Fear of being alone ______

10. Fear of animals ______

Insomnia
11. Difficulty falling asleep or staying asleep _____
12. Difficulty with nightmares _____

**Intellectual**

13. Poor concentration _____
14. Memory impairment _____

**Depressed Mood**

15. Decreased interest in activities _____
16. Anhedonia (inability to experience pleasure) _____
17. Insomnia (inability to get restful sleep) _____

**Somatic Complaints: Muscular**

18. Muscle aches or pains _____
19. Bruxism (clenching and grinding teeth) _____

**Somatic Complaints: Sensory**

20. Tinnitus (ringing in ears) _____
21. Blurred vision _____

**Cardiovascular Symptoms**

22. Tachycardia (abnormally rapid heartbeat) _____
23. Palpitations (noticeably rapid, strong, or irregular heartbeat) _____
24. Chest pain _____
25. Sensation of feeling faint _____
Respiratory Symptoms

26. Chest pressure _____
27. Choking sensation _____
28. Shortness of Breath _____

Gastrointestinal symptoms

29. Dysphagia (difficult or painful swallowing) _____
30. Nausea or Vomiting _____
31. Constipation _____
32. Weight loss _____
33. Abdominal fullness _____

Genitourinary symptoms

34. Urinary frequency or urgency _____
35. Dysmenorrhea (painful menstruation) _____
36. Impotence (inability to achieve an erection) _____

Autonomic Symptoms

37. Dry mouth _____
38. Flushing _____
39. Pallor _____
40. Sweating _____

How Did You Act As You Completed This Questionnaire

41. Fidgety _____
42. Had Tremors _____
43. Paced Around _____

Once you have completed the Hamilton Anxiety Scale questionnaire, total up your score.

0-17: Normal
18-24: Mild anxiety
25-29: Moderate anxiety
30 +: Severe anxiety
APPENDIX -H
AEROBIC EXERCISE PROCEDURE

Aerobic exercise starts with warming up phase.

Stretching exercises were performed in order to relax the muscles and make firm the body to perform the strenual exercise.

I. Warming Phase : (5-10 minutes)

Begin the warm up exercise by finding a comfortable place and position.

Switch on the music, ask the participants to jump for 2 to 3 minutes.

Following that Participants are asked to perform marching on the spot drill.

1. Marching on the spot

Count 1 : Hands on the hip and raise the right leg.

Count 2 : Place the right leg down and raise the left leg up.

Count 3 : 3, 4 & 5… up to 32 counts, the exercise goes on.

2. One – Two Three forward (walking)

Count 1, 2, 3 : Move to front

Count 4 : Tap with the left leg in front

Count 5, 6, 7 : Come back

Count 8 : Move the right leg in back and continue the exercise.
3. One Two – Three Knee Lift:

Count 1, 2, 3 : Marching on the spot
Count 4 : Right Knee up
Count 5, 6, 7 : Same as 1-2-3
Count 8 : Left knee up and exercise continues.

Moving your arms one by one in circular motion before going to the next phase.

II. Comprehensive Phase: (20 – 30 minutes)

- Switch on the preferred fast beat music.
- Start the speed movement exercise without taking next.

‘V’ Step

Count 1 : Move the right leg in front in a cross manner and swing the hands.
Count 2 : Move the left leg in front and parallel to right leg.
Count 3 : Right leg back to the position.
Count 4 : Left leg back to the position and exercise continues for 2-3 cycles.
‘V’ Step Rotation

Count 1 : Move the right leg in front in a crossed position to the right side.

Count 2 : Move the left leg parallel to right leg with arm actions according to their wishes.

Count 3 : Change the direction of the toe and body to the right.

Count 4 : Left leg joined with the right.

Count 5, 6 : Same as the 1-2-3-4 (Then the direction of rotation can be changed to left upto 16 to 32 counts).

Jump in V step

Count 1 : Jump to the right side in cross with the right leg same as in v step by finishing each side with a jump.

Count 2 : Jump to the left side with left leg parallel to right leg.

Count 3 : Jump to the back and join the two legs.

Count 4 : Another jump at the back and the exercise continues to 16 or 32 count.
**Diamond in V step**

Count 1 : Move the right leg forward in a crossed position to the right side and then left leg parallel to the right leg.

Count 2 : Move to the front, place the right leg in a crossed position to the centre

Count 3 : Move the left leg also to the same position.

Count 4 : Repeat the exercise in the reverse order (The exercise can be done with the rotation)

**Power Walk**

Count 1 : Move the right leg to the right side simultaneously moving the left leg upto the right side shoulder level by swinging the hands.

Count 2 : Move back to the left side upto the original position.

Repeat the first two counts for 2-3 minutes.

**III. Cooling Down phase**

- Switch on some slow beat music
- Slowly inhale while raising the arms up
- Slowly exhale while bringing the arms down
Repeat the above two steps for 2-3 minutes.

✓ Loosen the stretched muscles by performing the warm up drills in a slow manner.

✓ Repeat the marching on the spot drill in a slow manner.

✓ Keep jumping for one minute in a slow manner

✓ Hydrate yourself with water after twenty minutes and relax.
## QUESTIONNAIRE – TAMIL

<table>
<thead>
<tr>
<th>வினையோகம்</th>
<th>மூலமாய் விளக்கம்</th>
<th>பல்வேறு வகைகளுடன் புரோதாமரம்</th>
<th>தெரிவுகள்</th>
<th>வடிவம்</th>
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<tr>
<td>1. உயர்ந்த வாய்ப்பு (தெரிவுகள்)</td>
<td>20 – 30</td>
<td>31 – 40</td>
<td>41 – 50</td>
<td>51 – 60</td>
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<td>துரிதம்</td>
<td>பொிரிய வாய்ப்பு</td>
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<td>3. குறுகிய வாய்ப்பு</td>
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<td>நல்ல கலந்த வாய்ப்பு</td>
<td>பண்பாட்டுறவுப் போக்கு / பண்பாட்டுறவுப் போக்கு</td>
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</tr>
<tr>
<td>4. சிறு வாய்ப்பு</td>
<td>அக்காலம்</td>
<td>கதை</td>
<td>விளம்பரம்</td>
<td>கதைகள் அக்காலம்</td>
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<tr>
<td>5. தொழில்நுட் வாய்ப்பு</td>
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<td>தொழில்நுட்ப வேலைகள்</td>
<td>விளங்குகிற வேலைகள்</td>
<td>பரிசுகிற வேலைகள்</td>
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</tbody>
</table>
6. உயிர் உருவாக்கம்  டேலை: 10 - 3000
   நேர்வேல் 2000 - 5000
   நேர்வேல் 5000 - 7000
   நேர்வேல் 7000 - 9000
   நேர்வேல் 9000 முதற் இடம்

7. உயிர் உயிரியம்  உயிரியம்
   உயிரியம் இந்திய உயிரியம்
   உயிரியம் இந்திய உயிரியம்

8. முறையிட்டு
   முறையிட்டு

9. கொரோனா வைரசோனை வையிலினால்

10/ முறையிட்டு
   உயிரியம் 3 - 5 முதல்
   ஐந்து பத்து முதல்
   ஐந்து ஐந்து முதல் 3 முதல்

11/ உயிரியங்களை தம்பிற்றிய நீர் விளகி வையிலினால்?
   அ/ பல்கை ஸ்டேடிய
   உ/ அர்த்த ஸ்டேடிய
   ஐ/ உயிரியங்களை தம்பிற்றிய நீர் வையிலினால்
   (விளக்கம்: செயிப் தம்பிற்றிய முதல் ஐந்து)
12/ கொஞ்சு குறிக்குற்றம் நிறுவத்தும் நேரலாறு செய்யவும்
அத்திணைத்தது;
அ/ 0 – 89 தரவு
ஆ/ 90 – 179 தரவு
இ/ 180 – 269 தரவு
த/ 270 மற்றோம்

13. தன்னிற்கேற்று கையெழுத்தில் காணப்பட்டுள்ள என்ன வாசிப்
முற்பைந்தது;
அ/ எழுதப்பட்ட காணாமயிலானது செயல்பாடு முறையின் படி
ஆ/ எழுதப்பட்ட காணாமயிலானது விளக்கம்
இ/ வெளிக்காலம் புதுமை
த/ மேலும் செய்யப்பட்டது
HAMILTON ANXIETY SCALE

பாதுகாக்க முன்னிலை
1. குழுநாயக்கான
2. பாலசமம் சுத்தமைக்கப்படுவது

பாதுகாப்பு
1. பிலிப் பாதுகாப்பு
2. கலியாந்த அதிகாரிகள்
3. அரசியல் குறிப்பிட்டும்
4. குழுநாயக்கான

பாதுகாப்புப் பண்புகள்
1. குழுநாயக்கான் கிரிமியமைப்பு
2. மன்னரிடமிருந்து கிரிமியமைப்பு

அருமை கருத்து விளக்கம்
1. குழுநாயக்கான் கிரிமியமைப்பு
2. முதலிங்காக குழு

தமது விளக்கம் விளக்கம்
1. தமது கொடுத்தநாயக்கான் பிள்ளை குடும்ப கைலாமுகு
2. பிள்ளை கைலாமுகு கைலாமுகு
3. தமது கைலாமுகு

தமது கருத்து உள்ளது கைலாமுகு
1. மீதமை விளக்கம் அனுப்பி வைக்கு
2. பாதுகாப்பு குடும்பத்து
சாதாரணமான வாழ்க்கை பணியில் உள்ள ஆதாரங்கள்
1. காரை, விழாக்கள்
2. மண்டலப்பள்ளிப் பாண்டி

சிற்று வழங்கலான வாழ்க்கை ஆதாரங்கள்
1. சிற்று வழங்கு தாக்க
2. பொருள்பொருள்
3. பொருள் வலிதம்
4. மண்டல வகைப்பாடு பாண்டியில் வாழ்க்கை

குறுக்கை வழங்கலான ஆதாரங்கள்
1. வாழ்வு வாழ்வு, பாண்டியில் வாழ்க்கை
2. பொருள் வாழ்வு, பாண்டியில் வாழ்க்கை
3. பொருள் மேம்பாடு

சிற்று வழங்கலான ஆதாரங்கள்
1. சிற்று வழங்கு தாக்க
2. பொருள் வலிதம்
3. பொருள் வகைப்பாடு
4. மண்டலப்பள்ளிப் பாண்டி

தி குருதிய வழங்கலான ஆதாரங்கள்
1. குருதிய வழங்கு தாக்க
2. பொருள் வலிதம்
3. பொருள் வகைப்பாடு
4. மண்டலப்பள்ளிப் பாண்டி

சிற்று வழங்கலான ஆதாரங்கள்
1. காரை, விழாக்கள்
2. மண்டலப்பள்ளிப் பாண்டி
3. பொருள்பொருள் வாழ்வு
4. பொருள் வகைப்பாடு
APPENDIX - I

அதிக உள்ளிட்ட வருடானால் நோய் குற்றுகளை
பற்றிய கால சுருக்கங்கள்

முன்னணி அமைப்புகள்

இப்போது வளரும் வருடானால் நோய்

உயிரியல் குற்றுகள் (5-10 பிரிவுகள்)

1. மனிதர் உயிரியல் சரியான குற்றுகள்

அமைப்புகள் 1. காலத்தில் முன்னேற்றம் வசதிய கொலை

அமைப்புகள் 2. தொடர் கொலை செய்ய வசதிய

அமைப்புகள் 3. 3.4. 5 வருடக் கொலை

2. அன்னமைப்பு காற்று வருடான பெரும் குற்று

அமைப்புகள் 1.2.3 : பொறியாக கொலை

அமைப்புகள் 4 : இல்லா கொலை பொறியாக கொலை

அமைப்புகள் 5.6.7 : ?

அமைப்புகள் 8 : அறை கொலை தசாய்ப்பு கொலை
3. சுறுப்பு விளக்கம் செய்யும் புதுக்கோட்டைக் குறுக்கு

வகையிட்டல் 1.2.3 : முக்கியமானது

வகையிட்டல் 4 : வுறும்படை முக்கியமானது

வகையிட்டல் 5.6.7 : 1.2.3 வுறும்படையில் உள்ளவை

வகையிட்டல் 8 : முக்கியமரை முக்கியமானது

(இவ்வாறு அகவலா முதலாக குறிப்பிட்டது. பல தொடர்ந்த முக்கிய குறுக்கு)

4. எம்பிளேன் முக்கியம் (20 -30 முதலே)

❖ எம்பிலேன் முகாம் வலியவிதமாக வந்து வைக்க

❖ வலியவிதமாக முகாம் நோக்கி செய்யலாம் நோக்கியே நோக்கியே

அதைப்போலே நோக்கியே

1. 'அ' வகு

வகையிட்டல் 1: வண்ண கலாசை பூனையாக நோக்கி வணக்கம்

குறுக்கு அகலமுக

வகையிட்டல் 2: வண்ண கலாசை வண்ண கலாசையாக வண்ணப்பட்ட கலாசைக் குறுக்கு

வகையிட்டல் 3: வண்ண கலாசை நேர்வண்ண அகலமுக கலாசைக் குறுக்கு
2. 'அ' ஏற்ற குறிப்பிட்டு

செயல்பாக்கி 1: அழிய காலம் பின்புறம் நுழைத்து கூறினார்

செயல்பாக்கி 2: அழிய காலம் எழுகு ஆணாவார்

செயல்பாக்கி 3: காண்க சிவப்பு வெள்ளை

செயல்பாக்கி 4: அழிய காலம் எழுகு ஆணாவார்

செயல்பாக்கி 5.6: 1.2.3.4 பல்வேறு செயற்பாடு

(அழிய காலம் இடைவெளியால் 16 பகத்தில் 32 பகத்தில் செயற்பாடு)

3. 'ஆ' ஏற்ற குறிப்பிட்டு

செயல்பாக்கி 1: அழிய காலம் எழுகு நுழைத்து கூறினார்

செயல்பாக்கி 2: அழிய காலம் எழுகு அழிய படுத்தி நூற்றாண்க

செயல்பாக்கி 3: பிணையாக திண்ம அளவு கைகைவாழை

செயல்பாக்கி 4: அழிய காலம் எழுகு ஆணாவார்
4. வழி வழி போர்க்கினி

வழி வழி போர்க்கினி 1: அடுத்தயை வரையறை போர்க்கினி அடுத்தயை

வழி வழி போர்க்கினி 2: அடுத்தயை வரையறை போர்க்கினி அடுத்தயை

வழி வழி போர்க்கினி 3: அடுத்தயை வரையறை போர்க்கினி அடுத்தயை

வழி வழி போர்க்கினி 4: அடுத்தயை வரையறை போர்க்கினி அடுத்தயை

வழி வழி போர்க்கினி 5.6.7.8: இரண்டு வரையறை போர்க்கினி போர்க்கினி (போர்க்கினி வரையறை போர்க்கினி போர்க்கினி)

5.அதுட்டயை போர்க்கினி

வழி வழி போர்க்கினி 1: அடுத்தயை வரையறை போர்க்கினி அடுத்தயை போர்க்கினி அடுத்தயை

வழி வழி போர்க்கினி 2: அடுத்தயை வரையறை போர்க்கினி அடுத்தயை போர்க்கினி அடுத்தயை

வழி வழி போர்க்கினி 3: வழியை வரையறை போர்க்கினி 2வது வரையறை வரையறை