INTRODUCTION

Pre-operative anxiety is defined as a ‘‘persistent feeling of dread, apprehension, unpleasant state of psychological distress or tension and uneasiness’’[1]. Anxiety before undergoing surgery is experienced by approximately 60–70% of adult patients[2]. Its global incidence varies from 60% to 92% among different surgical groups, where as 11% to 80% among adult surgical patients[3]. Sympathetic and parasympathetic nervous system, stimulated by preoperative anxiety results in tachycardia, hypertension and cardiac adverse events like arrhythmias. It also stimulates endocrine system, there by 40% increase in plasma adrenaline level and electrolyte imbalance leading to negative consequences during intra operative and postoperative periods[4]. Preoperative anxiety is associated with increased postoperative pain, drug requirement, post operative nausea and vomiting and duration of hospital stay[5]. Thus preoperative anxiety and stress is a major concern for anesthesiologists.

To overcome these consequences the attributing elements that influence pre-operative anxiety levels and the different techniques used to relieve it have gained considerable attention. Communication of anaesthesiologist on pre-operative visit has proven role in alleviating the patient's anxiety thus decreasing pre-operative anxiety, increasing patient satisfaction, decreases requirement of postoperative analgesia and results in a better recovery[6].

The traditional approach to reduce preoperative anxiety includes pharmacological anxiolysis with opiods, benzodiazepines, barbiturates, neuronal Kv7 channels stimulants like Flupirtine etc[7]. Due to the limitations such as overuse, side-

effects, tolerance and dependence of conventional pharmacotherapy, the non pharmacological methods that alleviate anxiety effectively have been tried. They include behavioral interventions such as patient counseling, distraction, attention focusing, psychological interventions, music, audiovisual intervention, yoga and relaxation procedures[8,9]. Although such therapies are helpful, their routine usage is limited due to lack of desired intellectual level and illiteracy among patients.

Acupuncture is an effective non pharmacological tool and its efficacy and safety for treating various mental and physical disorders have been studied. It is beneficial to the patient as it lacks side effects and is of relatively low cost. Acupuncture is gaining popularity in western medical practice as a tool for pain relief[1,10]. Acupuncture is studied as a non-pharmacological tool to bring down the anxiety. Studies have suggested that acupuncture at EX-HN3 (Yintang) point and HT-7 (Shenman) points appear to be an efficient way in rapidly treating anxiety before medical procedure, although studies including surgical patients are lacking. Hence in an attempt to reduce pre-operative anxiety without having any side effects, this study was performed to assess the influence on pre-operative anxiety levels in patients undergoing surgical procedures by using acupuncture at EX-HN3 (Yintang) point.

AIMS AND OBJECTIVES

AIM: The aim of the study is to assess ‘’effect of acupuncture on pre-operative anxiety levels in patients undergoing surgery under general anaesthesia’’.

OBJECTIVES: To assess ‘’effect of acupuncture at the EX-HN3 (Yintang) point on pre-operative anxiety levels in patients undergoing surgery under general anaesthesia’’.

REVIEW OF LITERATURE

The notion that being admitted to the hospital particularly for the surgical procedure can be a cause of significant anxiety for the patient is neither new nor unexpected. The assessment of steps to reduce anxiety is important in patients undergoing surgery as anxious patients behave in a different way to anaesthesia than the non anxious patients.

Anxious patients require higher doses of induction agents and post-operative analgesic drugs and also have diverse consequences such as difficult venous access, delayed relaxation, coughing during anesthetic induction, autonomic fluctuation, altered hemodynamic and higher anesthetic requirements, higher post-operative pain, delayed recovery and longer hospital stay.

S.Surijadi et.al conducted a randomized control trial (RCT) on 38 patients to determine the effect of acupuncture on serum serotonin levels and anxiety. Study concluded that serum serotonin levels on acupuncture group significantly differed after acupuncture therapy than control group. Anxiety scores (Hamilton Anxiety Rating Scale) also found to be lower in acupuncture group[14].

Cheng-Hao Tu et.al performed a study to ‘’assess the effect of acupuncture on glutaminergic neuro-transmission in patients with anxiety, depression, schizophrenia, Alzheimer disease’’ and concluded that acupuncture modulates glutamate receptors and excitatory amino acid transporter (EAAT) expression[15].

Many pharmacological methods are used to reduce pre-operative anxiety. Ghanasham.Y (2017) conducted prospective double blind trial on 124 patients to

compare efficacy of flupirtine (potassium channel opener at KV-7 neuronal channels) versus placebo and observed that flupirtine is useful premedication in conjuction to pre-operative behavioral therapy to alleviate patient anxiety during pre-operative period[7].

Sanchez et al (2015) from study conducted on children aged 3-12 years posted for elective surgery, concluded that use of non-pharmacological measures like costumes, jokes, magic, reduced pre-operative anxiety in children, use of hospital clowns reduce psychological discomfort in children to the maximum extent[17].

Cheryl.H.T.C (2016) from a meta-analysis of 18 studies concluded that audiovisual intervention can be effective in reducing pre-operative anxiety. Videos, multifaceted programmes and interactive games appear to be more effective. Whereas music therapy and internet programmes are less effective[8].

Arsain Natal investigated the ‘’effect of music on pre-operative anxiety on 64 participants undergoing urogenital surgery’’ in Turkey between ages of 18-65 yrs by a randomized control trial in which the music of choice was played by a portable cassette player and headphones 30 minutes before surgery and those in control group where rested in quite areas for 30 minutes before they completed the pre-operative anxiety questionnaire. The investigator concluded that the patients who listened to music pre-operatively had reduced anxiety levels[9].

Hyojeong.B conducted meta-analysis after searching for the electronic databases and included randomized controlled trials where pre-operatively, acupuncture group were compared to control groups receiving placebo for controlling

anxiety and concluded that acupuncture therapy was significantly effective relative to placebo or nor treatment in reducing pre-operative anxiety[3].

MD Willis (2017) conducted randomized control trial to examine the ‘’effect of acupuncture at EX-HN3 (Yintang) point’’ on 128 patients undergoing neurosurgery to relieve pre-operative anxiety in which 64 patients received acupuncture and other 64 did not receive any intervention. He concluded that acupuncture at EX-HN3 (Yintang) point reduces pre-operative anxiety levels in patients awaiting neurosurgical surgery[1].

Chan-Young Kwon et al investigated five randomized control trials which were aimed at preoperative anxiety, shown that acupuncture at EX-HN3 was used to reduce preoperative anxiety was found to be effective[24].

H.Volkan Acar et al conducted randomized controlled study to examine ‘’effect of acupuncture at YINTANG point or Sham point’’ on 52 adult surgical patients in decreasing preoperative anxiety. Efficacy was evaluated by means of change in bispectral index (BIS) and STAI and concluded that BIS values were lower in acupuncture (Yintang) compared to Sham group, while no change was observed in trait anxiety(STAI)[23].

A.ParasKeva et.al performed a study on effect of acupuncture on anxiety and BIS on 50 patients where one group received acupuncture at Yintang point, other group at 2 cm lateral to the end of right eyebrow.BIS and anxiety levels were assessed before and after acupuncture.BIS values were significantly decreased in Yintang group and decrease in anxiety level seen. However no differences were seen in other group[26].

Sina Valiee et.al did a study on 70 subjects to assess the ‘’effect of acupuncture on pre-operative anxiety’’. One group received acupuncture at true point and other group at sham point (false). Vital signs and pre-operative anxiety were measured before and after intervention. Pre-operative anxiety levels were assessed by verbal score scale (0=No anxiety,10=Post anxiety). There was statistically significant difference in acupuncture group. Hence concluded that ‘’acupuncture at true point reduces pre-operative anxiety compared to sham point’’[27].

A.Agarwal et.al conducted prospective randomized control study on 76 adult patients to assess the ‘’effect of acupuncture on BIS and pre-operative anxiety’’ where anxiety levels were assessed by visual stress scale and concluded that both BIS and pre-operative anxiety were decreased in acupuncture group[28].

D.warren Spence et.al conducted a clinical study on 18 anxious adult patients who complained of insomnia and concluded that acupuncture increases nocturnal melatonin secretions and helps in reduction of anxiety and insomnia which were assessed by State-Trait Anxiety Inventory questionnaire, polysomnography respectively[29].

Wang et.al (2006), Luo et.al (2007), Yoan et.al (2007) performed a study on specific anxiety disorders to compare the effect of acupuncture with pharmacotherapy and concluded that acupuncture is as effective as pharmacotherapy with benefits of nil complications[13,30,31].

BASIC SCIENCES

PHYSIOLOGY AND THERAPY OF ANXIETY: Anxiety can be defined as subjective unpleasant feeling of dread to happen, accompanied by restlessness, muscular tension, and fatigue[5].

AREAS OF BRAIN ASSOCIATED WITH ANXIETY Areas of brain involved in anxiety are Prefrontal cortex, temporal lobe and Pons[11,12].

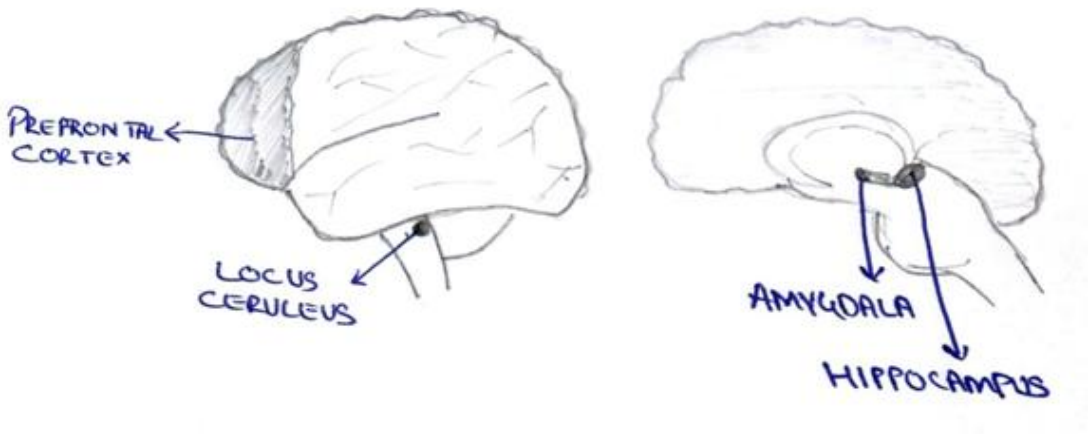


Figure 1 Areas of brain associated with anxiety

Prefrontal Cortex: It is a part of cerebral cortex of frontal lobe which is involved in expression of personality, social behavior, handling the problems and making decisions.

Amygdala: It is situated in front part of the Temporal lobe. It forms a part of limbic system with hippocampus and also plays a role in controlling memories, fear and emotional experiences.

Hippocampus: It is located in medial part of the temporal lobe which is involved in long term memory and processing emotions.

Locus Ceruleus: It is a nuclei in the pons of brain which is involved in determining the stimuli and response to stress.

Pathophysiology of anxiety: Abnormal levels of neurotransmitter like GABA, noradrenaline, serotonin are involved in pathophysiology of anxiety, which is explained by following neurochemical theories.

I) Noradrenaline theory

II) Serotonin theory

III) GABA receptor theory

Noradrenaline theory: Noradrenergic neurons are found in the locus ceruleus. It plays an important role in response to fight and flight, stabilization of sleep rhythm, mood and blood pressure. Anxiety increases the release of noradrenaline and sustained stimulation of locus ceruleus results in manifestation of anxiety symptoms[13].

Serotonin theory: 5-HT is an inhibitory neurotransmitter. Serotonergic pathways arising from the brainstem nucleus raphe innervate a wide range of structures which is involved in anxiety, including the frontal cortex, amygdala, hypothalamus and hippocampus. Abnormal responsiveness and regulation of 5-HT results in development of anxiety[14].

GABA receptor theory: GABA is a inhibitory neurotransmitter. Deficiency of GABA is associated with anxiety. It mediates the release of cholecystokinin and has

influence on anxiety levels by inhibition of neuronal activity in noradrenergic and serotonergic system[15].

CONSEQUENCES OF PRE OPERATIVE ANXIETY: Preoperative anxiety is a process that starts from the date of planning a given surgery and progressively intensifies till the moment of the surgery itself.

The causes of pre-operative anxiety can be divided into in two main areas i.e[16,17].

i) Common anxiety provoking events.

ii) Specific anxiety provoking events.

Table 1 Causes of Preoperative Anxiety

Common anxiety provoking events	**Specific anxiety provoking events**
• Surgery getting postponed	• Pathological anxiety
• Insufficient attention from caregiver	• Adverse effects of anaesthesia drugs
• Financial loss due to hospitalization	• Harm from mistake during the surgery
• Nakedness on the operative table	• Female gender
• Unfamiliar surroundings	• Low educational status
• Inability to pay hospital bills	• Previous surgical treatment and preoperative anxiety
• Hospital smell and noise	• Postoperative pain
• Fear of unknown origin	• Looking at syringes

Pre-operative anxiety stimulates ‘’sympathetic, parasympathetic and endocrine systems’’ leading to an increase in ‘’heart rate, blood pressure and cardiac excitability resulting in cardiac adverse effects like arrhythmias’’. It increases ‘’plasma adrenaline levels by 40% and causes electrolyte imbalance’’.

RECENT TRENDS IN THE MANAGEMENT OF ANXIETY: Pre operative anxiety is the result of interaction of many factors. Many pharmacological and non pharmacological therapies has been evaluated in the treatment of pre operative anxiety.

I.PHARMACOLOGICAL APPROACHES: The traditional medications that are prescribed for anxiety includes opiods, benzodiazepines (alprazolam), selective serotonin re-uptake inhibitors (SSRIs) such as paroxetine and tricyclic antidepressants (imipramine), either singularly or in combination. Inspite of pharmacological treatment around 50% of patients continued to have symptoms of pre operative anxiety like tachycardia and hypertension. Opiods often produce side effects like bradycardia, hypotension, pruritis, respiratory depression and post-operative nausea and vomiting. Where as benzodiazepines are associated with side effects like drowsiness, difficulty in framing new memories (anterograde amnesia), delayed emergence, there by prolonging patients recovery and treatment duration. Hence the above pharmacological methods are not ideal as concern about the safety and adverse effects[1,8].

II. Non pharmacological approach: Non pharmacological techniques have also been evaluated for the prevention of pre operative anxiety with varying degrees of success.

These include[3,7,8,9,12].

- Behavioral interventions such as distraction, attention focusing.
- Patient counseling
- Psychological interventions
- Music, audiovisual intervention
- Yoga and relaxation procedures
- Acupuncture

Behavioral therapies: This method concentrates on using guided imagery and relaxation training. Here person is made to come across the scenario or the situation gradually which he is afraid of initially using photographs or sound. Once he copes with the situation, person is made to confront the real challenge.

Cognitive-behavioral therapy (CBT): Cognitive-behavioral therapy (CBT) is very useful in treating anxiety. The cognitive part is involved in changing the pattern of looking after the fears or situation. Whereas the behavioral part helps in reacting to anxiety provoking situations.

Psychotherapy: These therapies stress on rising and resolving situations involved in anxiety. This is achieved by talk therapy, group discussions.

ACUPUNCTURE

HISTORY: Acupuncture originated in China and has been used for more than 3,000 years. It has proven to be an effective intervention for anxiety, pain and vomiting in many situations[18].

MECHANISM OF ACTION: The working principle of acupuncture remains speculative.

Many theories have explained the mechanism of acupuncture on the body but the exact mechanism completely unknown till date. The following theories explaine the action as follows.

- **PHYSIOLOGICAL AND BIOCHEMICAL ACTION OF ACUPUNCTURE**: Effects of acupuncture therapy occurs both at the peripheral and central levels of the nervous system,

  Peripheral mechanisms: Insertion and manual or electrical stimulation of needles activates A-delta and C-fibers of the skin whereas A-alpha, A-beta, A-delta and C-fibers are activated for muscle fibers. Manual stimulation causes release of ‘’calcitonin gene-related peptide (CGRP) and vasoactive intestinal polypeptide (VIP)’’ from peripheral nerve terminals and other vasodilatory mediators from the tissue around the needle which increases the blood flow to the tissues. Many stress related organ diseases have high concentration of nerve growth factors. Acupuncture modulates the activity of organ related sympathetic nerves[19].

  Central mechanisms: The stimulation from the acupuncture needle is conducted to the brain via peripheral nervous system. Acupuncture modulates the endocrine metabolic functions. Acupuncture-induced release of CNS neuropeptides produces functional changes in organ systems by increasing the central hypothalamic beta endorphin system which is a key mediator in regulating the activity of vasomotor centre which in turn brings about hemodynamic regulation by decreasing the sympathetic tone, improving the

blood flow and decreased muscle sympathetic nerve activity. Most of the acupuncture points are found in muscle tissue.

Activation of the muscle spindles occurs when an acupuncture needle is inserted in the muscle and rotated. Ia afferent nerves convey the information to the spinal cord. This results in reflex contraction of muscle fibres. Ergo receptors (pressure receptors) present in the muscle are activated by further needle manipulation. Following this activation patient feels a dull, burning, aching/ stinging sensation. A fibres ie, thin myelinated nerve fibres transmit afferent activity to the spinal cord from the ergo receptors. It is further transmitted to the thalamus and CNS by the spinothalamic tract. On the pathway to the CNS, ascending nerve fibres also relate to the peri-acqueductal grey (PAG) in the mesencephalon and rostral ventromedial (RVM) in the medulla. The descending nerve fibres from the RVM further relay to the spinal cord and modulates the transmission of nocicceptive sensations and sympathetic tone by releasing endogenous opioids (enkephalins and endorphins), GABA, Mono-amines(noradrenaline and serotonin) and Glycine.

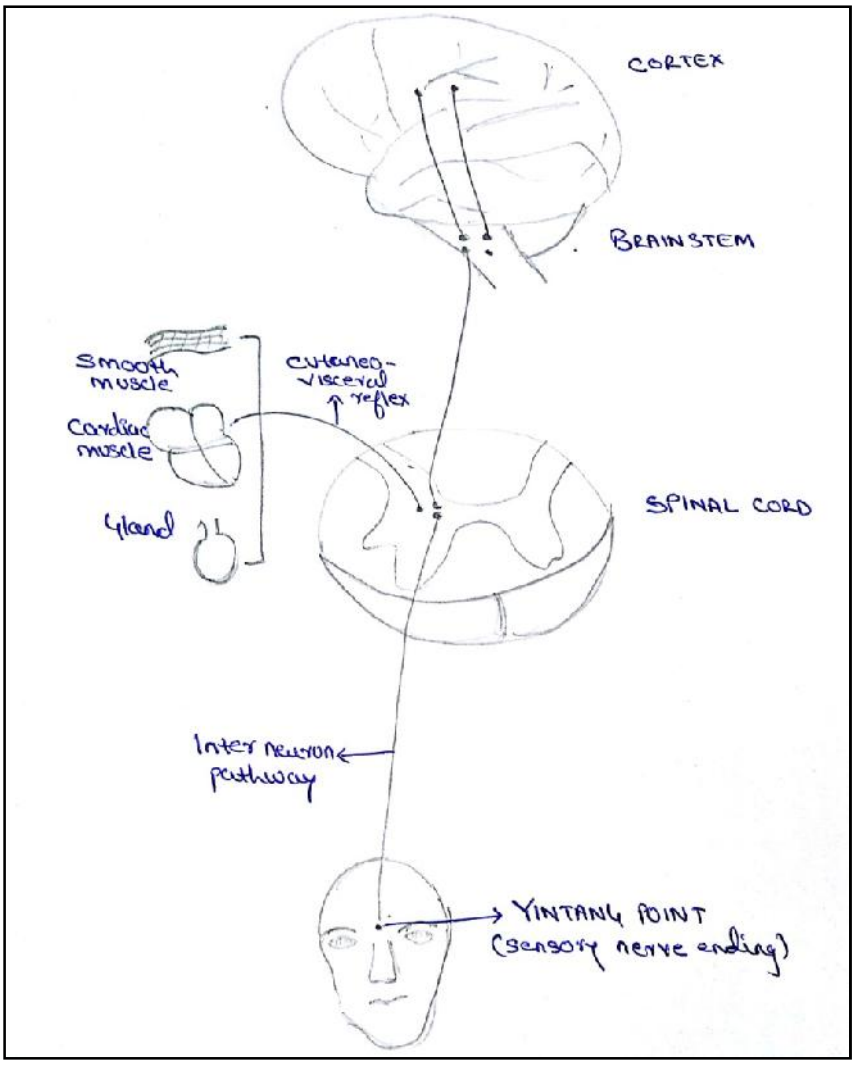


Figure 2 CNS pathway

At the level of the brainstem, alternate pain inhibitory systems are originated. Following painful and intense stimulation by the needle, one of the mechanisms activated is diffuse noxious inhibitory control system. The spinothalamic tract carries the sensation to the thalamus and subsequently relate to the limbic structures and pre-frontal cortex.

The limbic structures have an important function in affective response whereby stimulation by a needle results in deactivation, thus reducing affective components of the symptoms. Thus acupuncture results in deactivation of neurons in the brain that are involved in anxiety[10].

Spinal and supraspinal effects – Activation of variety of endogenous mechanism is the basis of acupuncture. This is supported by studies showing that the therapeutic effect induced by 2 and 100 Hz electro acupuncture (EA) stimulation may work through different mechanisms[20].

Central effects – Neuroimaging has been used to characterize the evoke based response and to assess longitudinal changes in brain activity following acupuncture therapy. It is found that in response to acupuncture needle stimulation, a pattern of deactivation and activation with overlapping responses within multiple brainstem, subcortical/limbic and cortical areas were seen in fMRI in a recent meta-analysis study[21].

- **Meridian theory:** It was introduced on the basis of empirical experience which was believed over decades. There are 14 imaginary meridians on one's body. Each meridian conducts energy specifically to anatomical regions. These imaginary meridians provide a pathway to the higher centre which in turn communicates to the organ of particular meridian.

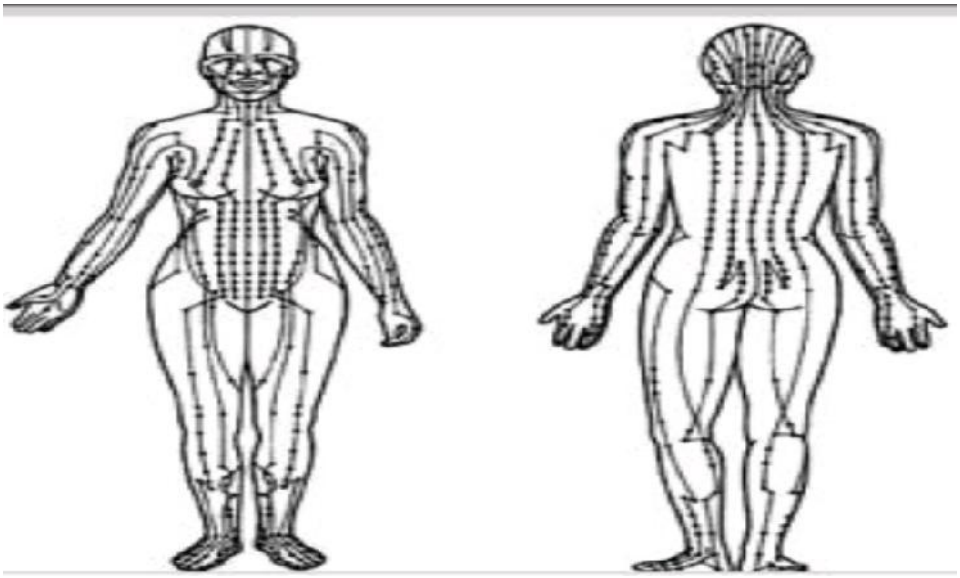


Figure 3 Meridians over body

This science explains that whenever there is a stimulation of tissues along the meridian, it results in proper energy conduction to the affected organ which is achieved by acupuncture application by interrupting the Qi (energy) flow and making the organ to function normally[22].

MODE OF APPLICATION OF ACUPUNCTURE: Acupuncture points, are called as potent points, places over the skin surface which are involved in impulse conduction throughout the body once stimulated[1,23,24].

LOCATION OF ACUPUNCTURE POINT EX-HN3 (YINTANG)

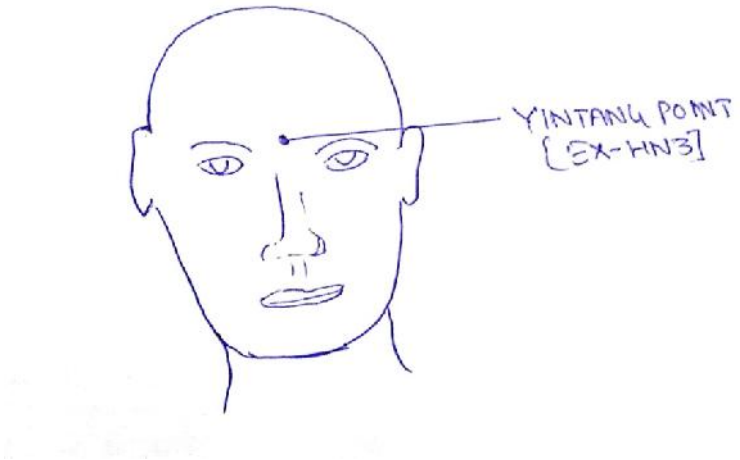


Figure 4 Location of EX-HN3

Yintang (EX-HN 3) located in between the two eyebrows and root of the nose. The third-eye chakra in the Hindu tradition, known as Ajna, is also located in the same area as

EX-HN3. In traditional chinese medicine (TCM) known to have mentally stabilizing effect. This point has been described as having sedative and relaxant properties too[25].

It is interesting that stimulating for 30 minutes to this acupuncture point was reported to produce an anxiolysis action for up to 24 hours. A commercially available press needle (JIAVIAN) is attributed to be an effective method of stimulating to EXHN3 (Yintang) point to possess anxiolysis. Continuous stimulation can be applied using the press needle (JIAVIAN). These needles are chinese made, commercially available as press stud needle (0.2 mm x 1.5 mm JIAVIAN) that is applied to the EX-HN3 point.

METHODOLOGY

Source of data

Type of study: Randomized Clinical Trial

Patients aged 18-50 years, of either gender, belonging to ASA grade I and II, undergoing elective surgery under general anaesthesia at ‘’KLE’s Dr.Prabhakar Kore Hospital and Medical Research Centre, Nehru Nagar, Belagavi’’ 590010, between January 2018 to December 2018

Inclusion Criteria:

- ASA status I and II.
- Age between 18 to 50 years.
- Elective surgeries under general Anaesthesia.
- Provides Consent.

Literate and able to understand pre-operative questionnaire.'

Exclusion Criteria :

- Patient undergoing emergency surgery.
- Patient who are not able to give consent.
- Patients requiring rapid sequence intubation.
- Contraindication to acupuncture.
- Psychiatric patients.
- History of previous acupuncture therapy.
- Planned use of acupuncture for post operative nausea and vomiting.
- Use of any sedatives medications in 24 hours before surgery.

METHODS: After obtaining ethical committee approval and written informed consent, a total of number of 240 patients undergoing surgery under general anaesthesia were considered for the study. After having met inclusion and exclusion criteria and having obtained informed consent, patients were randomized based on computer generated randomization table in to two groups.

Group A :(120 Patients) Patients who received acupuncture at EX-HN3 (Yintang) point.

Group B :(120 Patients) Patients who did not receive acupuncture.

At the pre-operative visit, the patient will be assessed for the pre-operative anxiety scores by using,

OBJECTIVE CRITERIA which includes heart rate, blood pressure, respiratory rate.

SUBJECTIVE CRITERIA using a self evaluation questionnaire. They are,

A. ‘’Shortened 6 items state trait anxiety inventory (STAI-S6)’’.

B. ‘’Amsterdam pre-operative anxiety and information scale’’.

The patients were retained in the pre-operative room for 40 minutes on the day of surgery and the patients in group A i.e, those receiving acupuncture therapy received acupuncture in single session that consisted of insertion of press-stud needle (0.2mm x1.5mm JIAVIAN) at EX-HN3 (Yintang) point and instructed to stimulate the needle manually in a small circular fashion every 10 minutes by applying a pressure to the press stud. The needle was left insitu and after 30 minutes it was removed, where as the patients in a group B were retained in the pre-operative area for 30 minutes and left undisturbed, at the end of 30 minutes the patients in the both groups were asked to complete both questionnaires and vitals were recorded (HR, BP, RR).

A) Shortened six items state trait anxiety inventory (STAI-S6) questionnaire.

Each answer was awarded particular score which were added up, giving a aggregate score of 6-24. The final score was divided by 6 (total items) and multiplied with 20 to get an appropriate score between 20 and 80 for the need of comparison.

	Not at all	Somewhat	Moderately	Very much
I feel calm	4	3	2	1
I feel tense	1	2	3	4
I feel upset	1	2	3	4
I am relaxed	4	3	2	1
I am content	4	3	2	1
I am worried	1	2	3	4

Figure 1 STAI-S6

B) Amsterdam pre-operative anxiety and information scale.

The response of patients to the questionnaire was assessed by five point Likert Scale, 1 representing “Not at all” and 5 as “Extremely”. Questions 1,2,4 and 5 of the questionnaire contained anxiety elements and scores of which were added up giving a aggregate score of 4-20.

1. I am worried about the anesthetic.
2. The anesthetic is on my mind continually.
3. I would like to know as much as possible about the anesthetic.
4. I am worried about procedure.
5. The procedure on my mind continually.
6. I would like to know as much as possible about the procedure.

Statistical Methods

Sample size formula:

The sample size formula is based on ‘’mean and

standard deviation’’ (SD).

$$n = \frac{(z_\alpha + z_\beta)^2(s_1^2 + s_2^2)}{(\bar{X}_1 - \bar{X}_2)^2}$$

where z_α is linked with the level of significance and z_β is linked with the power of the test. For 5% level of the significance z_α =1.96 and z_β =0.84 for 80% power of the test.

$\bar{X}_1$ is the mean of the first group (88.87) and $\bar{X}_2$ is the mean of the second group (91.70)[4].

s_1 is the standard deviation of the first group (8.20) and s_2 is the standard deviation of the second group (7.42)[4].

With these values the sample size obtained is 240.

Hence we divided these patients into two groups.

Student unpaired‘t’ test is used to calculate the significance of study in Inter group and for intra group analysis students paired ‘t’ test is used.

Significant figures

NS- Not significant

S- Significant

VS- Very Significant

HS- Highly Significant

Statistical software: The Statistical software namely SPSS 20.0, was used for the analysis of the data and to generate graphs and tables etc Microsoft word and Microsoft Excel have been used.

RESULTS

The study was conducted on 240 Patients of ASA class I and II, scheduled to undergo surgery under General Anaesthesia. Patients were randomly allocated to two groups.

Group A: (120 Patients) Patients who received ‘’acupuncture at EX-HN3 (Yintang) point’’.

Group B: (120 Patients) Patients who did not receive acupuncture.

Demography

Table 1 Weight of the patients

	GROUP A	**GROUP B**	
	MEAN (S.D).	MEAN (S.D).	p VALUE
WEIGHT(Kg)	59.81 (9.15)	60.12 (8.97)	0.7923

Table 2 Height of the patients

	GROUP A	**GROUP B**	
	MEAN (S.D).	MEAN (S.D).	p VALUE
HEIGHT(cm)	160.00 (5.57)	159.63 (5.48)	0.6077

Table 3 Sex of the patients

SEX	GROUP A	GROUP B	TOTAL
FEMALES	68	61	129
MALES	52	59	111
TOTAL	120	120	240

Figure 1 Height and weight distribution of patients

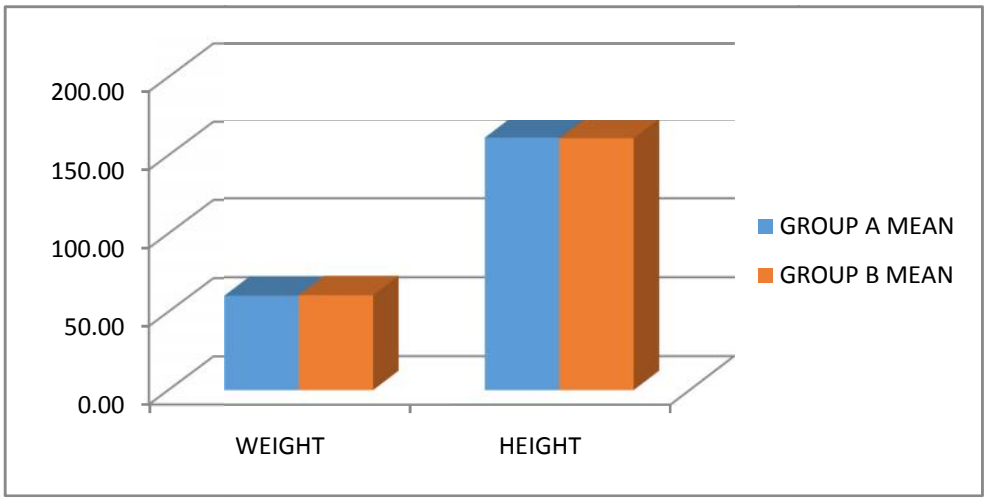


Figure 2 Sex distribution of patients

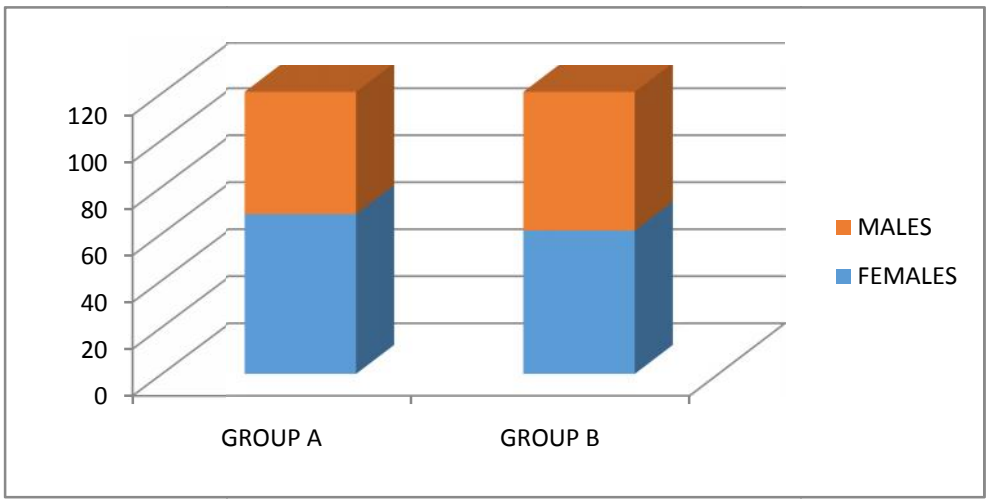
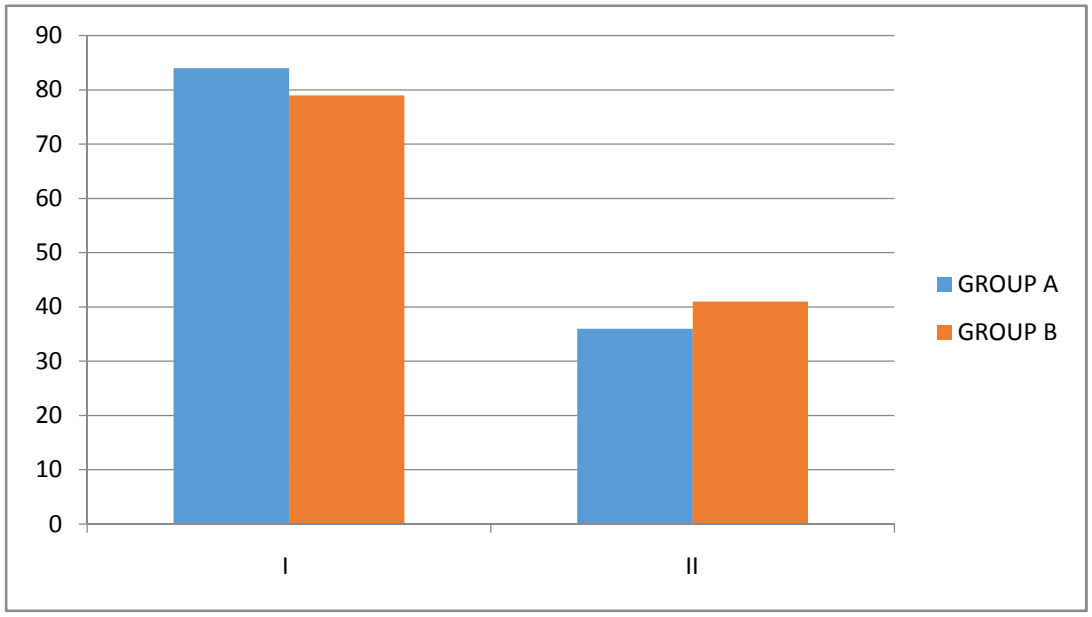


Table 4 Comparison of ASA status

ASA STATUS	GROUP A	GROUP B	TOTAL
I	84	79	163
II	36	41	77
TOTAL	120	120	240

Figure 3 ASA status distribution of patients

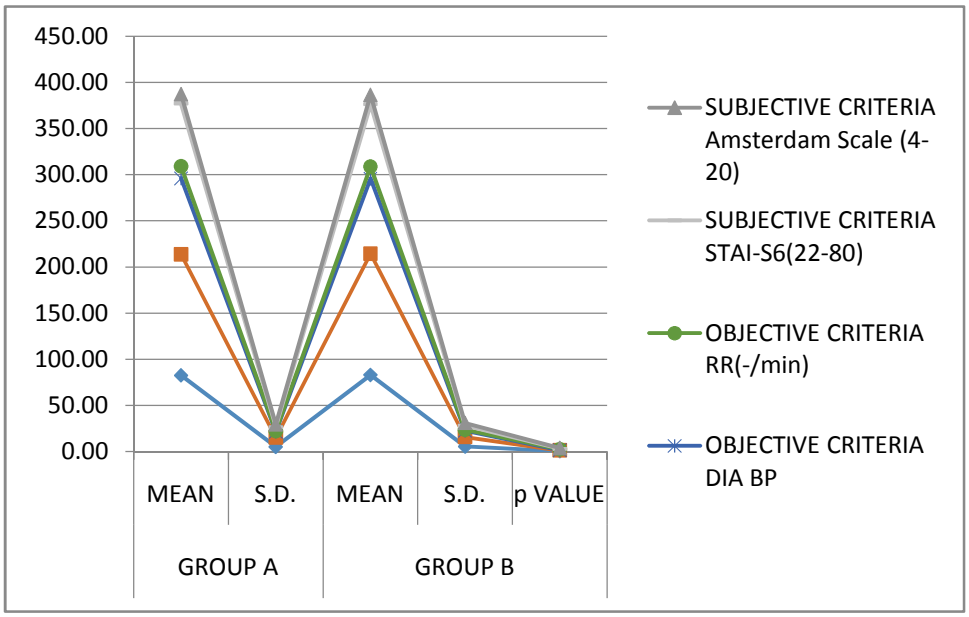


The groups were comparable with respect to age, sex, weight and ASA status. There was no statistical significance observed between the groups.

Table 5 Preoperative anxiety scores on preoperative day

CRITERIA	PARAMETER	GROUP A	GROUP B	
		MEAN (S.D)	MEAN (S.D)	p VALUE
OBJECTIVE CRITERIA	**PR (-/min)**	82.47 (5.23)	82.90 (5.59)	0.5359
	SYS BP (mmHg)	131.15 (9.97)	131.57 (10.19)	0.7490
	DIA BP (mmHg)	82.48 (6.24)	81.17 (6.91)	0.1225
	RR (-/min)	12.86 (0.65)	12.86 (0.85)	1.0000
SUBJECTIVE CRITERIA	**STAI-S6 (22-80)**	67.87 (4.52)	67.63 (4.57)	0.6807
	Amsterdam Scale (4-20)	10.23 (2.92)	10.31 (3.04)	0.8457

Figure 4 Preoperative anxiety scores on preoperative day

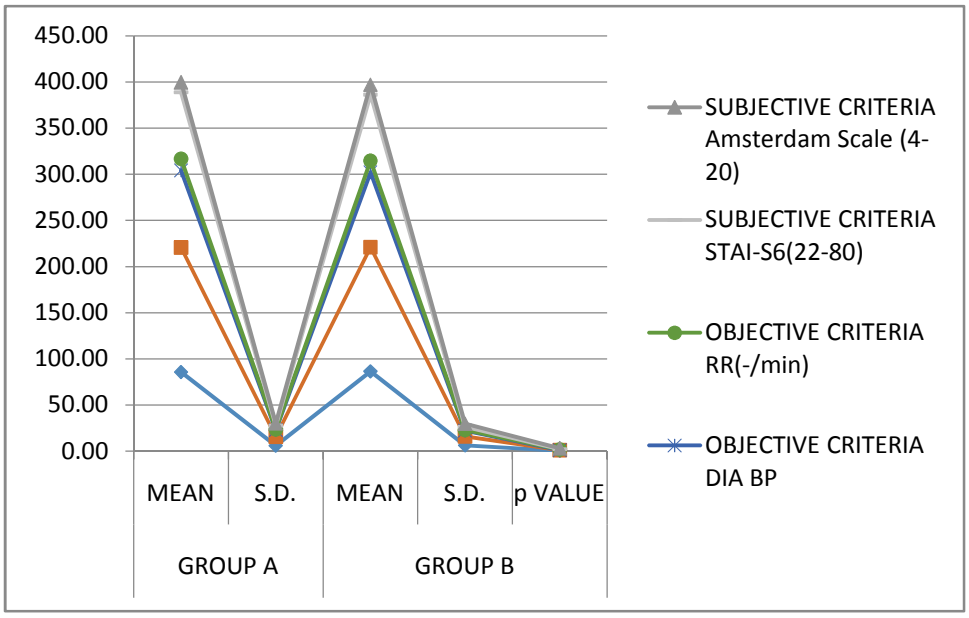


Pre operative anxiety scores with respect to objective and subjective criteria on pre operative day were statistically insignificant.

Table 6 Preoperative anxiety scores on the day of sx before acupuncture therapy

CRITERIA	PARAMETER	GROUP A	GROUP B	
		MEAN (S.D)	MEAN (S.D)	p VALUE
OBJECTIVE CRITERIA	PR (-/min)	85.57 (5.93)	86.34 (6.24)	0.3248
	SYS BP (mmHg)	134.92 (9.89)	134.57 (9.92)	0.7846
	DIA BP (mmHg)	83.77 (7.22)	81.20 (6.15)	0.0033
	RR (-/min)	12.60 (0.70)	12.57 (0.62)	0.6968
SUBJECTIVE CRITERIA	STAI-S6 (22-80)	71.80 (3.83)	71.40 (3.47)	0.3975
	Amsterdam Scale (4-20)	11.10 (2.72)	11.04 (3.34)	0.8822

Figure 5 Preoperative anxiety scores on the day of sx before acupuncture therapy

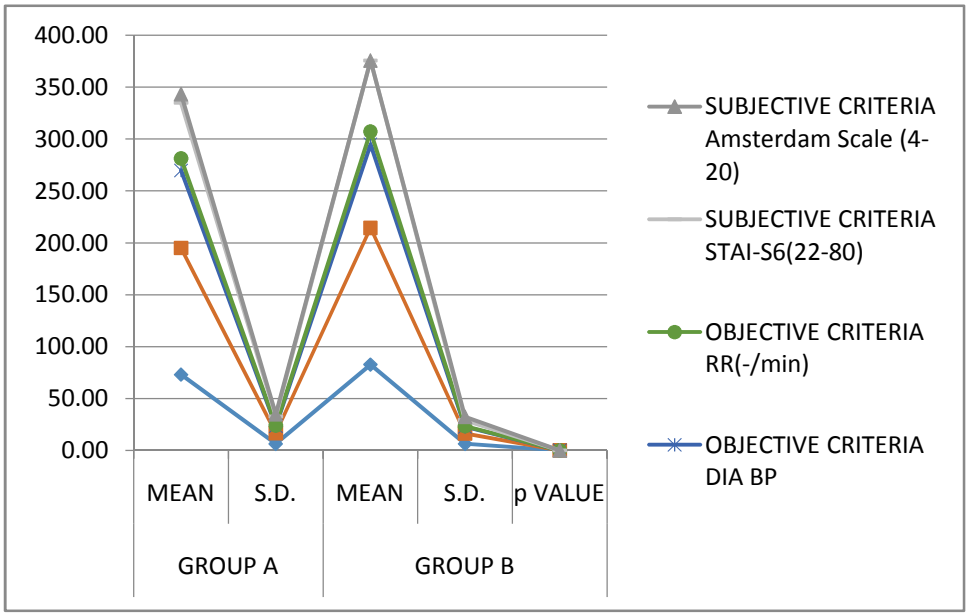


On the day of surgery before acupuncture therapy DBP was VS in group B compared to group A. Whereas PR, SBP, RR and subjective criteria were statistically insignificant.

Table 7 Preoperative anxiety scores on the day of surgery Sx after acupuncture therapy

CRITERIA	PARAMETER	GROUP A	GROUP B	
		MEAN (S.D)	MEAN (S.D)	p VALUE
OBJECTIVE CRITERIA	PR (-/min)	73.18 (6.41)	82.83 (6.43)	0.0000
	SYS BP (mmHg)	121.78 (10.27)	131.48 (9.91)	0.0000
	DIA BP (mmHg)	74.65 (6.76)	80.42 (6.34)	0.0000
	RR (-/min)	11.46 (0.74)	12.32 (0.73)	0.0000
SUBJECTIVE CRITERIA	STAI-S6 (22-80)	53.85 (8.36)	68.53 (5.68)	0.0000
	Amsterdam Scale (4-20)	8.18 (2.40)	3.26	0.0000

Figure 6 Preoperative anxiety scores on the day of surgery after acupuncture therapy

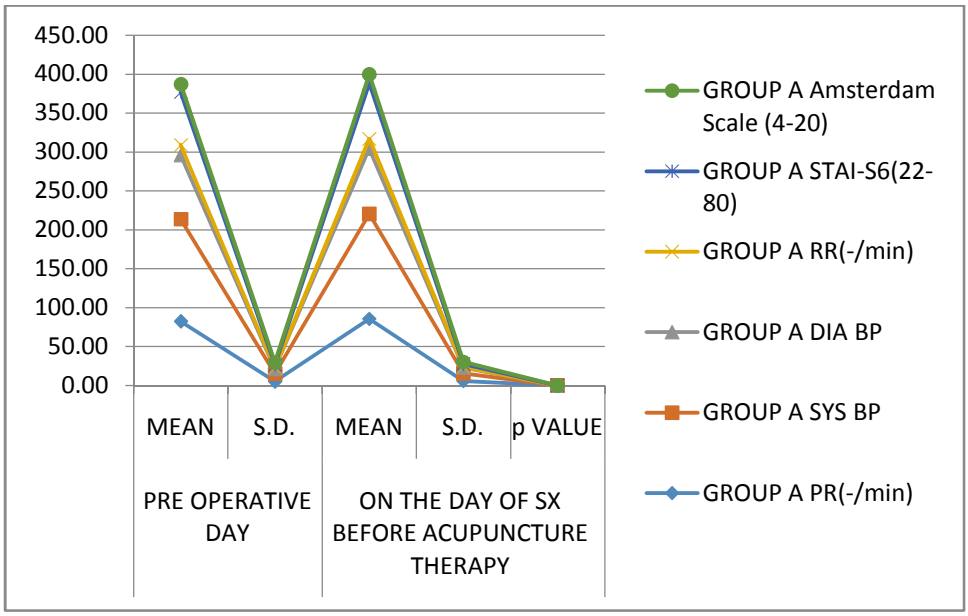


On the day of surgery after acupuncture therapy objective and subjective criteria were significantly low in group A, compared to group B.

Table 8 Pre operative anxiety scores in group A on pre operative day and on the day of sx before acupuncture therapy

CRITERIA	PARAMETER	PRE OPERATIVE DAY	ON THE DAY OF SX BEFORE ACUPUNCTURE THERAPY	
		MEAN (S.D)	MEAN (S.D)	p VALUE
OBJECTIVE CRITERIA	PR (-/min)	82.47 (5.23)	85.57 (5.93)	<0.0001
	SYS BP (mmHg)	131.15 (9.97)	134.92 (9.89)	<0.0001
	DIA BP (mmHg)	82.48 (6.24)	83.77 (7.22)	0.0288
	RR (-/min)	12.86 (0.65)	12.60 (0.70)	0.0029
SUBJECTIVE CRITERIA	STAI-S6 (22-80)	67.87 (4.52)	71.80 (3.83)	<0.0001
	Amsterdam Scale (4-20)	10.23 (2.92)	11.10 (2.72)	<0.0001

Figure 7 Pre operative anxiety scores in group A on pre operative day and on the day of sx before acupuncture therapy

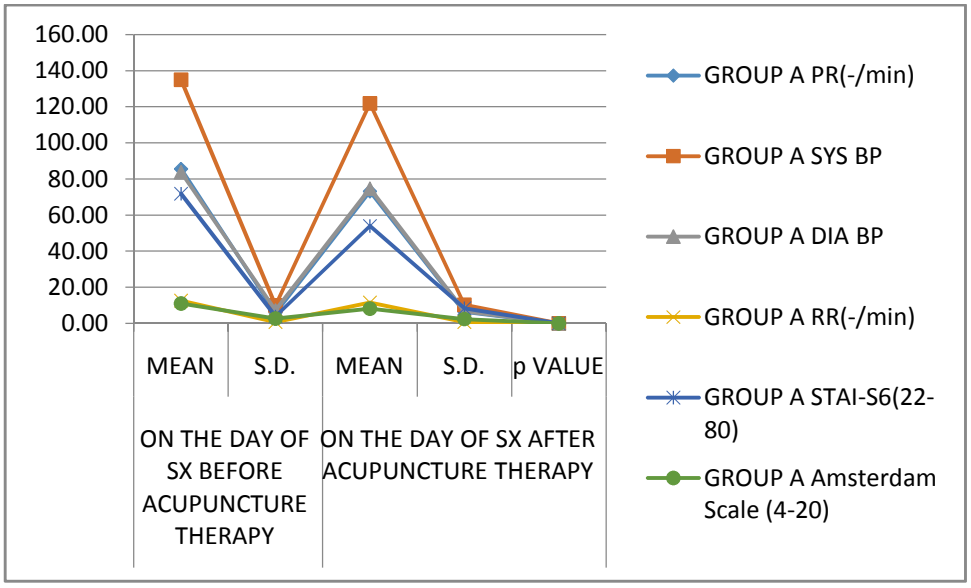


Group A was statistically significant with respect to objective and subjective criteria, when compared on pre operative day to a day of surgery before acupuncture therapy.

Table 9 Pre operative anxiety scores in group A on the day of sx before and after acupuncture therapy

CRITERIA	PARAMETER	ON THE DAY OF SX BEFORE ACUPUNCTURE THERAPY	ON THE DAY OF SX AFTER ACUPUNCTURE THERAPY	
		MEAN (S.D)	MEAN (S.D)	p VALUE
OBJECTIVE CRITERIA	**PR (-/min)**	85.57 (5.93)	73.18 (6.41)	<0.0001
	SYS BP (mmHg)	134.92 (9.89)	121.78 (10.27)	<0.0001
	DIA BP (mmHg)	83.77 (7.22)	74.65 (6.76)	<0.0001
	RR (-/min)	12.60 (0.70)	11.46 (0.74)	<0.0001
SUBJECTIVE CRITERIA	**STAI-S6 (22-80)**	71.80 (3.83)	53.85 (8.36)	<0.0001
	Amsterdam Scale (4-20)	11.10 (2.72)	8.18 (2.40)	<0.0001

Figure 8 Pre operative anxiety scores in group A on the day of sx before and after acupuncture therapy.

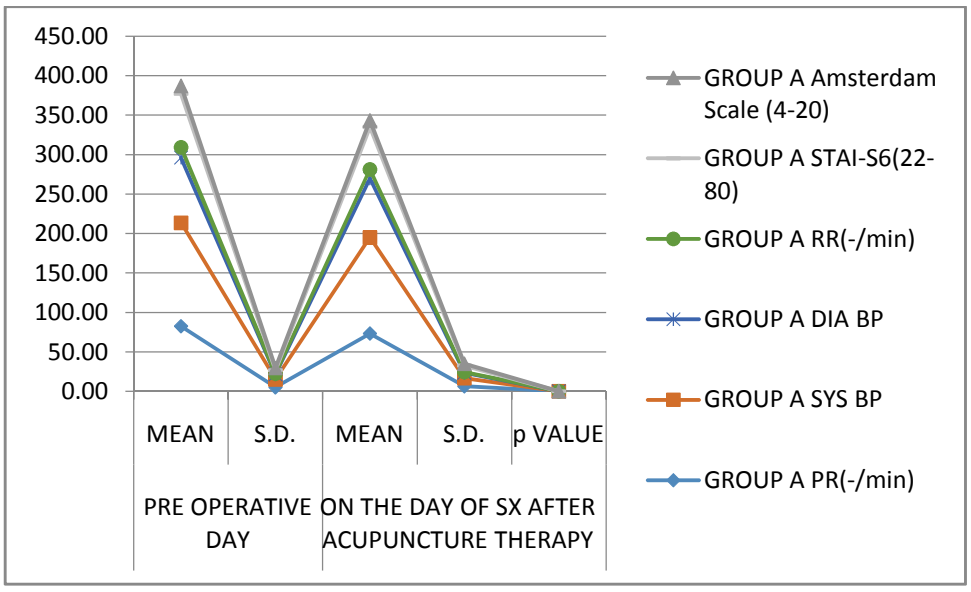


There was a ‘’significant reduction in pre operative anxiety scores in Group A after acupuncture therapy’’.

Table 10 Pre operative anxiety scores in group A on pre operative day and on the day of sx after acupuncture therapy

CRITERIA	PARAMETER	PRE OPERATIVE DAY	ON THE DAY OF SX AFTER ACUPUNCTURE THERAPY	
		MEAN (S.D)	MEAN (S.D)	p VALUE
OBJECTIVE CRITERIA	PR (-/min)	82.47 (5.23)	73.18 (6.41)	<0.0001
	SYS BP (mmHg)	131.15 (9.97)	121.78 (10.27)	<0.0001
	DIA BP (mmHg)	82.48 (6.24)	74.65 (6.76)	<0.0001
	RR (-/min)	12.86 (0.65)	11.46 (0.74)	<0.0001
SUBJECTIVE CRITERIA	STAI-S6 (22-80)	67.87 (4.52)	53.85 (8.36)	<0.0001
	Amsterdam Scale (4-20)	10.23 (2.92)	8.18 (2.40)	<0.0001

Figure 9 Pre operative anxiety scores in group A on pre operative day and on the day of sx after acupuncture therapy.

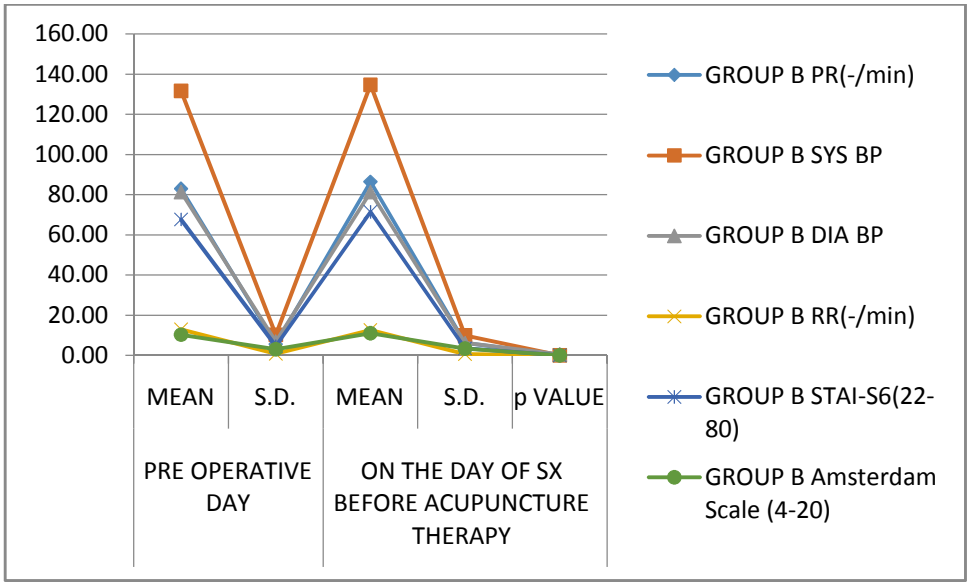


There was a ‘’statistically significant reduction in the preoperative anxiety scores in Group A on the day of surgery in comparison to the scores on the pre operative day’’.

Table 11 Pre operative anxiety scores in group B on pre operative day and on the day of sx before acupuncture therapy

CRITERIA	PARAMETER	PRE OPERATIVE DAY	ON THE DAY OF SX BEFORE ACUPUNCTURE THERAPY	
		MEAN (S.D)	MEAN (S.D)	p VALUE
OBJECTIVE CRITERIA	PR (-/min)	82.90 (5.59)	86.34 (6.24)	<0.0001
	SYS BP (mmHg)	131.57 (10.19)	134.57 (9.92)	<0.0001
	DIA BP (mmHg)	81.17 (6.91)	81.20 (6.15)	0.4760
	RR (-/min)	12.86 (0.85)	12.57 (0.62)	0.0010
SUBJECTIVE CRITERIA	STAI-S6 (22-80)	67.63 (4.57)	71.40 (3.47)	<0.0001
	Amsterdam Scale (4-20)	10.31 (3.04)	11.04 (3.34)	<0.0001

Figure 10 Pre operative anxiety scores in group B on pre operative day and on the day of sx before acupuncture therapy

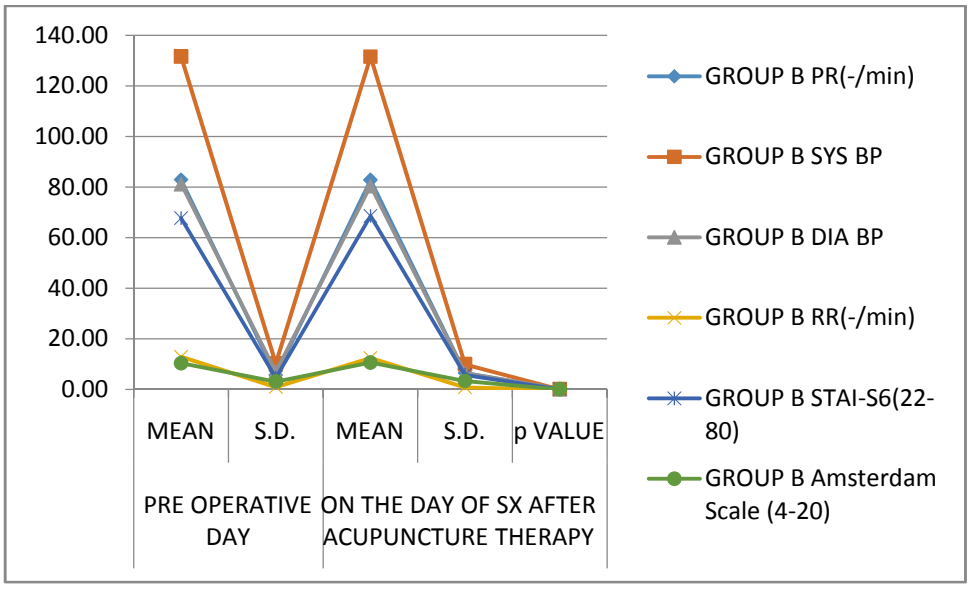


There was statistically significant rise in anxiety scores with respect to objective and subjective criteria in Group B, when compared on pre operative day to a day of surgery before acupuncture therapy except DBP which is statistically insignificant.

Table 12 Pre operative anxiety scores in group B on the day of sx before and after acupuncture therapy

CRITERIA	PARAMETER	ON THE DAY OF SX BEFORE ACUPUNCTURE THERAPY	ON THE DAY OF SX AFTER ACUPUNCTURE THERAPY	
		MEAN (S.D)	MEAN (S.D)	p VALUE
OBJECTIVE CRITERIA	**PR (-/min)**	86.34 (6.24)	82.83 (6.43)	<0.0001
	SYS BP (mmHg)	134.57 (9.92)	131.48 (9.91)	<0.0001
	DIA BP (mmHg)	81.20 (6.15)	80.42 (6.34)	0.0556
	RR (-/min)	12.57 (0.62)	12.32 (0.73)	0.0013
SUBJECTIVE CRITERIA	**STAI-S6 (22-80)**	71.40 (3.47)	68.53 (5.68)	<0.0001
	Amsterdam Scale (4-20)	11.04 (3.34)	10.58 (3.26)	0.0095

Figure 11 Pre operative anxiety scores in group B on the day of sx before and after acupuncture therapy

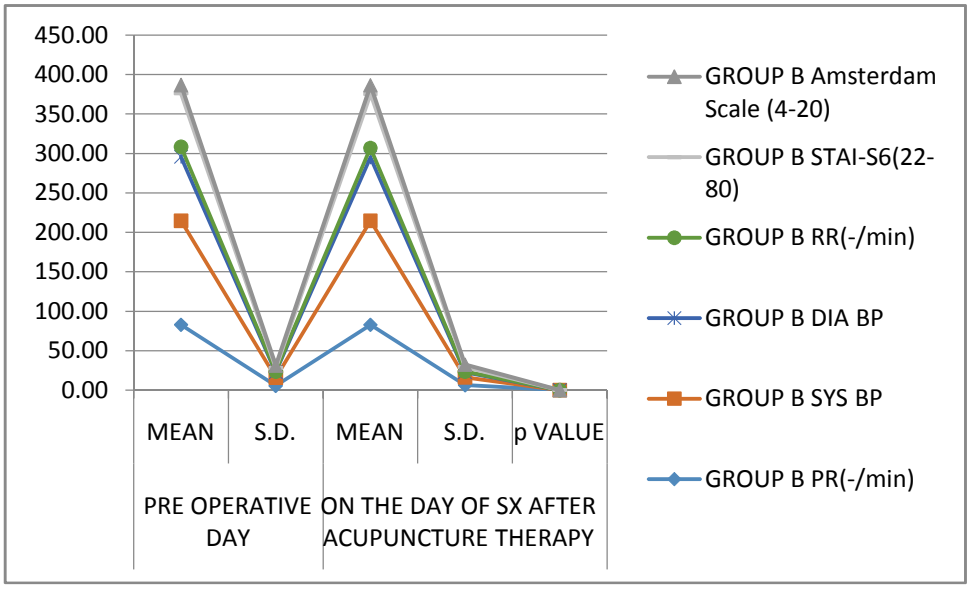


Preoperative anxiety scores in Group B after acupuncture therapy were statistically insignificant.

Table 13 Pre operative anxiety scores in group B on pre operative day and on the day of sx after acupuncture therapy

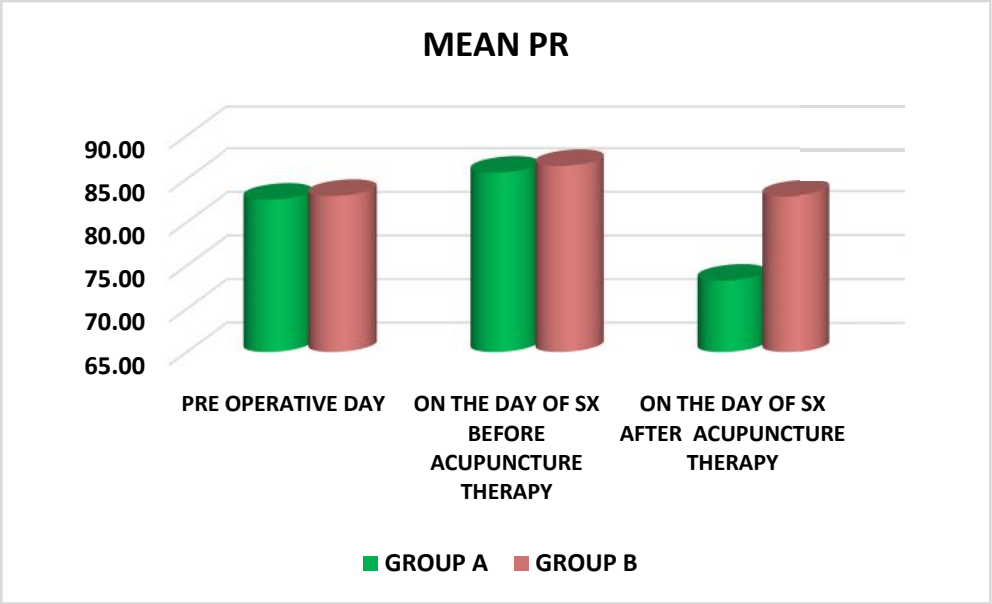
CRITERIA	PARAMETER	PRE OPERATIVE DAY	ON THE DAY OF SX AFTER ACUPUNCTURE THERAPY	
		MEAN (S.D)	MEAN (S.D)	p VALUE
OBJECTIVE CRITERIA	PR (-/min)	82.90 (5.59)	82.83 (6.43)	<0.0001
	SYS BP (mmHg)	131.57 (10.19)	131.48 (9.91)	<0.0001
	DIA BP (mmHg)	81.17 (6.91)	80.42 (6.34)	0.0556
	RR (-/min)	12.86 (0.85)	12.32 (0.73)	0.0013
SUBJECTIVE CRITERIA	STAI-S6 (22-80)	67.63 (4.57)	68.53 (5.68)	<0.0001
	Amsterdam Scale (4-20)	10.31 (3.04)	10.58 (3.26)	0.009496

Figure 12 Pre operative anxiety scores in group B on pre operative day and on the day of sx after acupuncture therapy



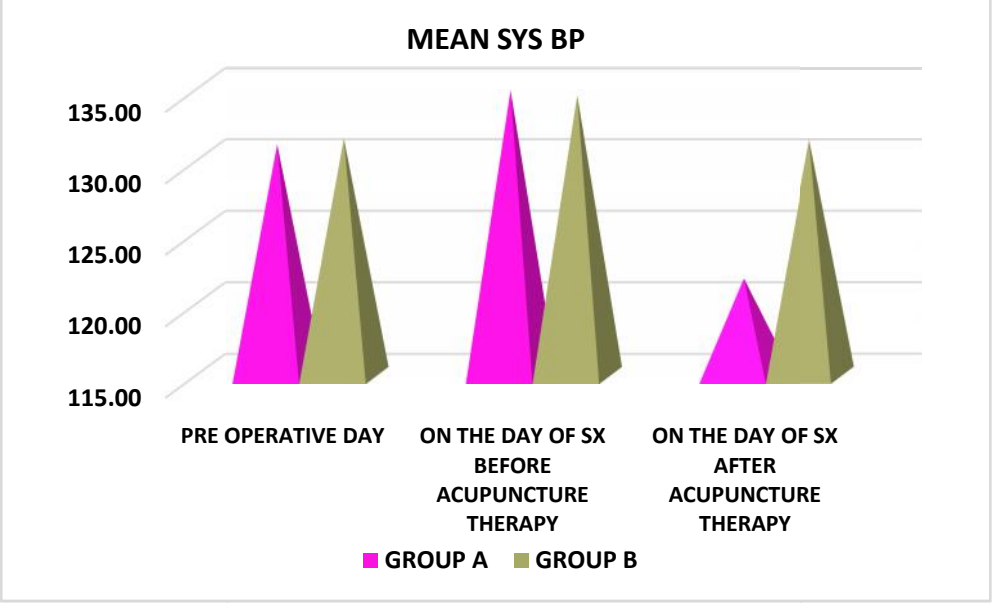
Pre operative anxiety scores were statistically insignificant in Group B when compared on pre operative day to a day of surgery after acupuncture therapy.

Figure 13 Mean PR



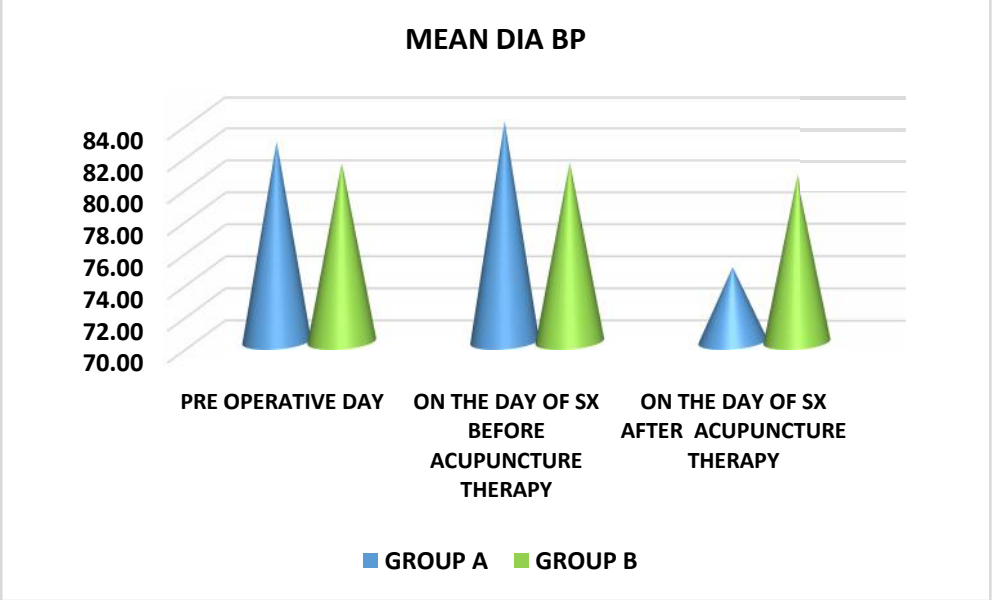
There was a ‘’statistically significant difference between the groups with respect to pulse rate (PR)’’.

Figure 14 Mean systolic BP



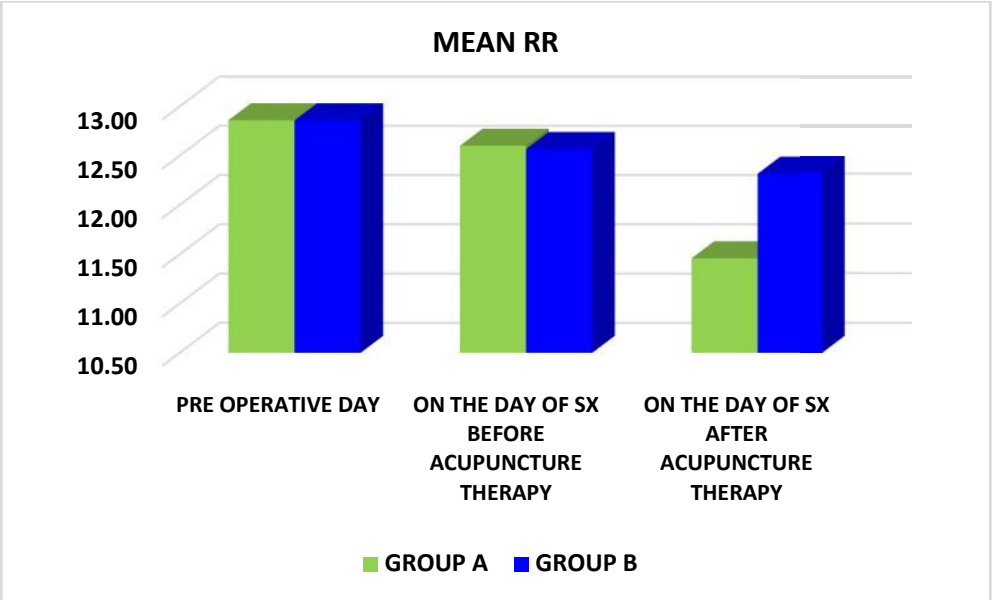
There was a ‘’statistically significant difference between the groups with respect to systolic blood pressure (SBP)’’.

Figure 15 Mean diastolic BP



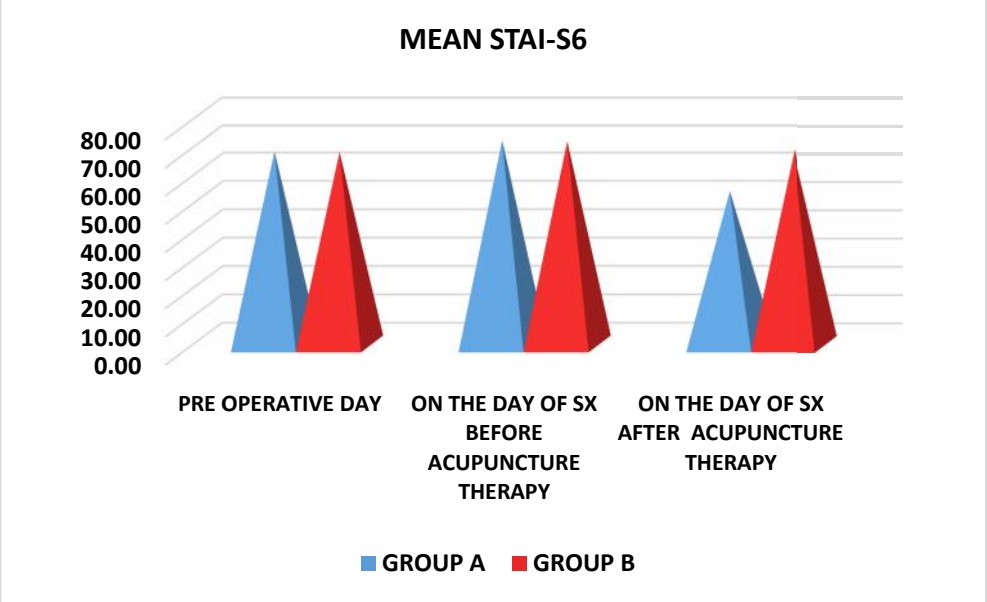
There was a ‘’statistically significant difference between the groups with respect to diastolic blood pressure (DBP)’’.

Figure 16 Mean RR



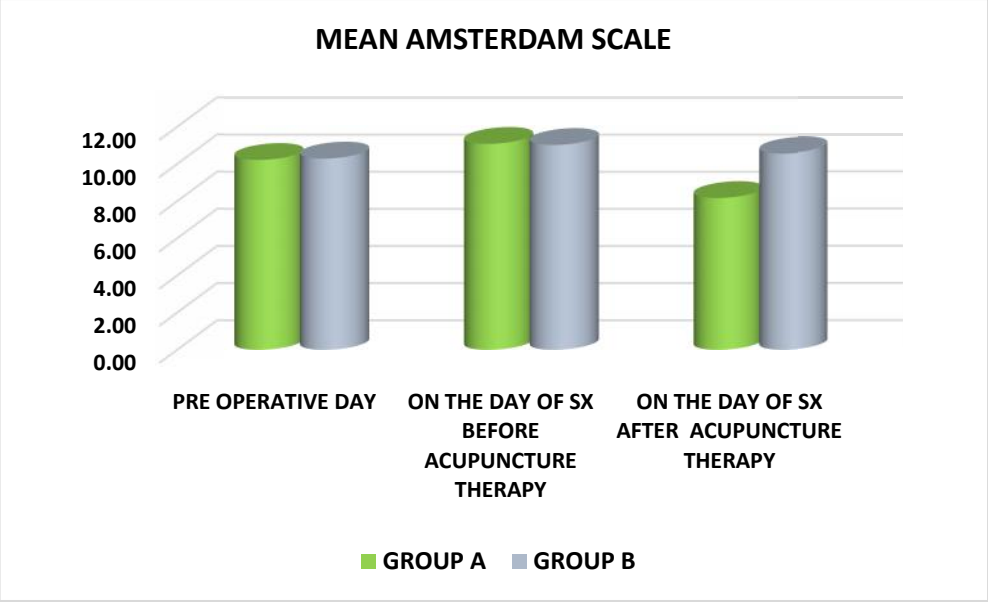
There was a ‘’statistically significant difference between the groups with respect to respiratory rate (RR)’’.

Figure 17 Mean STAI-S6



There was a ‘’statistically significant difference between the groups with respect to STAI-S6’’.

Figure 18 Mean Amsterdam scale



There was a ‘’statistically significant difference between the groups with respect to Amsterdam scale’’

DISCUSSION

Pre operative anxiety is the subjective emotional state characterised by feeling of fear over something unlikely to happen as a feeling of death. The incidence of pre-operative anxiety in adults varies from 11% to 80% in different surgical groups[32].

Anaesthetic concerns associated with pre-operative anxiety on induction of anaesthesia correlates with increased time for the jaw relaxation, higher incidence of coughing, postoperative pain, increase in analgesic and anaesthetic requirements, delayed recovery and discharge from hospital. In addition, anxiety may adversely affect recovery and decreases patient's satisfaction with peri-operative experience[33,34].

The etiology of preoperative anxiety is multifactorial, they are divided as[35,36]

i. Common anxiety provoking agents
ii. Specific anxiety provoking agents

Many pharmacological and non-pharmacological methods have been adopted to reduce the pre-operative anxiety. The most commonly used pharmacological agents being opioids and benzodiazepines. Opioids are only moderately effective in alleviating pre-operative anxiety and often produce side effects like ''bradycardia, hypotension, pruritis, respiratory depression and post-operative nausea and vomiting''. Whereas benzodiazepines are associated with side effects like drowsiness, delayed emergence, there by prolonging patient's recovery and treatment duration.

Many non-pharmacological methods have been adopted for relieving pre-operative anxiety like relaxation techniques, psychological interventions, music, pre operative education regarding surgery, audiovisual intervention, acupuncture, etc[30,37].

Acupuncture is beneficial to patient as it lacks side effects and is of relatively low cost. Acupuncture gaining popularity in western medical practice as a tool for pain relief. Acupuncture has been investigated as a non-pharmacological method for reduction of anxiety[13,38].

Acupuncture is the ancient Chinese science, on which various studies have been made. Most studies indicate the ‘’efficacy of acupuncture at the EX-HN3 (YINTANG) point in reducing preoperative anxiety’’. EX-HN3 (Yintang) point can be found easily and can be stimulated using a needle sticker or needle. It can be used even by a doctor or nurse, no expertise is required. It is economical and cost effective. MD Willis (2017) conducted randomized control trial to examine the ‘’effect of acupuncture at EX-HN3 (Yintang) point’’ and concluded that acupuncture at EX-HN3 (Yintang) point reduces pre-operative anxiety levels in patients awaiting neurosurgical procedures[1]. H.Volkan Acar et al conducted randomized controlled study to examine ‘’effect of acupuncture at YINTANG point or Sham point’’ on 52 adult surgical patients in decreasing preoperative anxiety. Efficacy was evaluated by means of change in bispectral index (BIS) and STAI and concluded that BIS values were lower in acupuncture (Yintang) compared to Sham group[23]. Chan-Young Kwon et al investigated five RCTs which were aimed at preoperative anxiety, revealed that acupuncture at EX-HN3, used to reduce preoperative anxiety was found to be effective. Therefore in concurrence with above studies we placed acupuncture at EX-HN3 (Yintang) point[24].

We conducted acupuncture session for a period of 30 minutes at EX-HN3 point in preoperative room which is similar to the M.D.Wiles et al where they have placed the acupuncture needle at EX-HN3 (YINTANG) point 30 minutes before

induction of anesthesia. H.Volkan Acar et.al in their study have placed acupuncture needle at Yintang point for a period of 20 minutes before induction. Chan Young Kwon et.al conducted 30 minutes of acupuncture session in his study[1,23,24].

STAI-S6 and Amsterdam scale considered to be gold standard for assessing pre-operative anxiety,because it has the advantage of being simple questionnaire. Jaime Ortiz et.al assessed pre-operative anxiety by questionnaires concerned to age, sex, education status, primary language and patients satisfaction with concern to knowledge regarding anaesthesia and surgery and found that patient education improved patient's satisfaction regarding their knowledge of the perioperative process but did not reduce anxiety related to surgery. Where as in our study both groups were comparable with respect to the demographic data. M.D.Wiles et.al, H.Bae et.al and N.Panda et.al in their study assessed pre-operative anxiety using STAI-S6 and Amsterdam Scale.

A.Agarwal et.al by a randomized control study assessed the ''effect of acupuncture on BIS and pre operative anxiety'' where anxiety levels were assessed by visual stress scale. Annie Thushara Matthias et.al in their study assessed pre-operative anxiety by STAI questionnaire and Visual Analog scale. Therefore, in correlation with M.D.Wiles et al and H.Bae et.al and N.Panda et.al, in our study we assessed ''pre-operative anxiety by STAI-S6, Amsterdam Scale and Vital signs''[1,4,28,34].

Our study has shown that 30 minutes of acupuncture at EX-HN3 point resulted in reduction in pre-operative anxiety levels as measured by objective criteria (HR, BP,RR) and subjective criteria(STAI-S6 and Amsterdam Scale) in patients undergoing surgery under General Anaesthesia. Pre operative anxiety levels as

assessed by objective criteria (HR, BP, RR) shown significant reduction in intervention group (P<0.001) compared to the control group (P=0.0556) which were similar to Huang and Tang (2009) who performed acupressure at EX-HN3 in Group A (n= 40) and did not perform any intervention in Group B (n = 40) and found heart rate (HR), systolic blood pressure (SBP), and diastolic blood pressure (SBP) at post intervention in the Group A (P< 0.01) were all significantly lower compared to Group B (P< 0.05)[37].

In concern to subjective criteria we observed STAI-S6 and Amsterdam scale, to be decreased in acupuncture Group A (P<0.001) (P<0.001) compared to control Group B (P=0.47) (P=0.0095) respectively. These results are similar to the Wiles et al. (2017) who performed acupuncture using an acupuncture sticker on EX-HN 3 in Group A (n = 62) and did not perform any intervention in a Group B (n = 62) and found lower STAI-S6 and Amsterdam scale in Group A (P< 0.001 ; P< 0.001) compared to Group B (P= 0.829 ; P=0.872) respectively. Acar et al. (2013) performed acupuncture using an acupuncture sticker on EX-HN3 in an Group A (n =26) and sham acupuncture on a non- acupoint in a Group B (n= 26). The anxiety score measured by the STAI-S, and anxiety level were lower in Group A (P= 0.018) compared to Group B (P= 0.387)[23].

Exact mechanism of acupuncture by which it is exerting anxiolytic effect has to be determined. Decreased activity in amgydala and hypothalamus shown by functional MRI imaging. This is either due to direct ‘’central sedative effect or sympatholysis effect’’.

Limitations of our study, the period of acupuncture session was short. We did not follow up the patient postoperatively. Anxiety causes activation of sympathetic nervous system leading to increase in plasma catecholamine. In our study we didn't measure plasma catecholamine before and after initiation of acupuncture therapy, future work could investigate this.

CONCLUSION

Acupuncture at EX-HN3 point decreases ‘’pre operative anxiety levels effectively in patient undergoing surgery under general anaesthesia’’.

SUMMARY

Pre operative anxiety is a process that starts from the date of planning a given operation and progressively intensifies up to the moment of the operation itself. Many drugs either alone or in combination have been implicated in preventing pre operative anxiety, which might cause side effects to the patient. Acupuncture being non pharmacological, devoid of any side effects have been used in many studies in preventing pre operative anxiety.

The present study, entitled ‘‘One Year Randomized Clinical Trial To Assess The Effect Of Acupuncture At The Ex-Hn3 (Yintang) Point On Pre Operative Anxiety Levels In Patients Undergoing Surgery Under General Anaesthesia’’ was conducted at ‘’KLE’S Dr.Prabhakar Kore Hospital And Medical Research Center, Nehru Nagar, Belagavi’’-590010

After obtaining clearance from hospital’s ethical committee, 240 patients of ASA 1 and 2 were randomly allocated to two groups –

Group A: (120 Patients) Patients who will receive ‘’acupuncture at EX-HN3 (Yintang) point’’.

Group B: (120 Patients) Patients who will not be receiving acupuncture.

At the pre-operative visit and on the day of surgery, the patient will be assessed for the pre-operative anxiety scores and in the both groups were asked to complete both questionnaires and vitals were recorded (HR, BP, RR).

We conclude that, Acupuncture being non invasive, non pharmacological, inexpensive and better patient acceptability can be effectively used in alleviating pre operative anxiety. Acupuncture is also devoid of any side effects.

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ANNEXURE-II

PROFORMA

"ONE YEAR RANDOMISED CLINICAL TRIAL TO ASSESS THE EFFECT OF ACUPUNCTURE AT THE EX-HN3 (YINTANG) POINT ON PRE-OPERATIVE ANXIETY LEVELS IN PATIENTS UNDERGOING SURGERY UNDER GENERAL ANAESTHESIA."

Patients Name	:	I.P No.	:
Age	:	Weight	:
Height	:	Gender	:
Date of operation	:	Occupation	:
Address	:	Anesthesiologist:	

Pre anesthetic evaluation

Chief complaints

Past History

- HTN / DM/ IHD / Arrhythmia / LVH / Valvular heart disease
- H/o uncontrolled hypertension/diabetes mellitus
- H/o previous surgery/(s) where airway difficulty was encountered.

Family History

General physical examination

Weight (Kg)	:	Temperature (^{0}F)	:	Pallor	:
Cyanosis	:	Pedal edema	:	Clubbing	:
PR	:	BP	:	RR	:

Systemic examination:

RS	:	CNS	:
CVS	:	GIT	:

Airway Assessment – Airway difficult score

Spine-

Investigations

Hb%	:	Urine routine	:
Blood urea	:	Serum creatinine:	
FBS	:	CXR	:

Diagnosis

Proposed surgery

Preoperative physical status ASA Grade I II III IV V

Inclusion Criteria:

- ASA physical status I and II.
- Age between 18 to 50 years.
- Patients undergoing elective surgeries under general Anaesthesia.
- Provides Consent.
- Literate and able to understand pre-operative questionnaire.

Exclusion Criteria:

- Patient undergoing emergency surgery.
- Patient who are not able to give consent.
- Patients requiring rapid sequence intubation.
- Contraindication to acupuncture.
- Psychiatric conditions.
- Previous history of acupuncture.
- Planned use of acupuncture for post operative nausea and vomiting.
- Use of any sedatives medications in 24 hours before surgery.

- **Methodology:**
- After obtaining the approval of ethical committee and written informed consent, a total of patients undergoing surgery under general anaesthesia will be included in the study.
- After having met inclusion and exclusion criteria and having obtained informed consent, patients will be randomized based on computer generated randomization table in to two groups.
- Group A: Patients who will receive acupuncture at EX-HN3 (Yintang) point.
- Group B: Patients who will not be receiving acupuncture.
- At the pre-operative visit, the patient will be assessed for the pre-operative anxiety scores by using,
- OBJECTIVE CRITERIA which includes heart rate, blood pressure, respiratory rate.
- SUBJECTIVE CRITERIA self evaluation questionnaire.
- A. Shortened 6 items state trait anxiety inventory (STAI-S6).
- B. Amsterdam pre-operative anxiety and information scale.

On the day of surgery, the patients will be retained in the pre-operative holding area for 40 minutes and the patients in group A ie those receiving acupuncture therapy will receive acupuncture in single session that consisted of insertion of press-stud needle (0.2mm x1.5mm JIAVIAN) at EX-HN3 (Yintang) point and instructed to manually stimulate the needle every 10 minutes by applying digital pressure in a small circular movements to the press stud. The needle was left in place and after 30 minutes it is removed, where as the patients in a group B retained in the pre-operative area for 30 minutes and left undisturbed, at the end of 30 minutes the patients in the both groups were asked to complete both questionnaires and vitals were recorded (HR, BP, RR).

Table 1.Shortened six items state trait anxiety inventory (STAI-S6) questionnaire. The scores for each answer are added together, giving a possible total score of 6-24. The total score was divided by 6 (the number of items) and multiplied by 20 to a prorated score between 20 and 80 for purposes of comparison.

	Not at all	Somewhat	moderately	very much
I feel calm	4	3	2	1
I feel tense	1	2	3	4
I feel upset	1	2	3	4
I feel relaxed	4	3	2	1
I am content	4	3	2	1
I am worried	1	2	3	4

Pre operative day	Before acupuncture therapy	After acupuncture therapy

Table 2.Amsterdam pre-operative anxiety and information scale. Patients respond to the six questions using a five point Likert scale, where 1 represents ‘not at all’ and 5 ‘extremely’. The scores from the anxiety elements of the questionnaire (questions 1, 2, 4 and 5) are added together giving a possible of total score of 4-20.

1. I am worried about the anaesthetic.
2. The anaesthetic is on my mind continually.
3. I would like to know as much as possible about the anaesthetic.
4. I am worried about procedure.
5. The procedure on my mind continually.
6. I would like to know as much as possible about the procedure.

OBSERVATIONS

	Pre-operative day.	On the day of surgery before acupuncture therapy and surgery.	On day the day of surgery after acupuncture therapy and before surgery.
OBJECTIVE CRITERIA			
PR (-/min)			
BP (_/mmHg)			
RR (_/min)			
SUBJECTIVE CRITERIA			
STAI-S6 (20-80)			
Amsterdam scale (4-20)			

SIGNATURE OF THE ANESTHESIOLOGIST - _____

SIGNATURE OF THE PRINCIPAL INVESTIGATOR - _____

ANNEXURE IV: PHOTOGRAPHS

PHOTOGRAPH1: LOCATION OF EX-HN3

PHOTOGRAPH 2: ACUPUNCTURE NEEDLES

ANNEXURES V - MASTER CHART

SL.NO	GROUP	NAME	AGE(YRS)	SEX	WT(KG)	HT(CM)	IP NO	ASA	EDUCATION	PRE OPERATIVE DAY					ON THE DAY OF SX BEFORE ACUPUNCTURE THERAPY					ON THE DAY OF SX AFTER ACUPUNCTURE THERAPY				
										OBJECTIVE CRITERIA			SUBJECTIVE CRITERIA		OBJECTIVE CRITERIA			SUBJECTIVE CRITERIA		OBJECTIVE CRITERIA			SUBJECTIVE CRITERIA	
										PR(-/min)	BP(-/mmHg)	RR(-/min)	STAI-S6(22-80)	APAI (4-20)	PR(-/min)	BP(-/mmHg)	RR(-/min)	STAI-S6(22-80)	APAI (4-20)	PR(-/min)	BP(-/mmHg)	RR(-/min)	STAI-S6(22-80)	APAI (4-20)
1	B	Narayanamma H	45	Female	65	156	865598	II	Primary	70	156/92	14	70	12	90	144/86	12	78	16	68	130/92	10	50	4
2	A	Sushma D	28	female	45	160	867055	I	Primary	90	124/86	14	72	8	88	130/96	13	76	12	72	120/70	11	22	4
3	A	Anjana H	41	Female	50	155	867241	I	Primary	74	110/76	12	60	8	78	130/80	13	70	16	68	122/68	12	40	8
4	B	Manisha K	34	Female	55	156	869105	I	Primary	82	130/90	14	71	12	78	132/80	13	78	16	80	130/84	13	78	16
5	A	Ratna M	43	Female	45	152	867101	I	Primary	80	142/86	13	70	16	94	140/80	13	78	16	76	132/76	11	40	8
6	B	Shalan P	42	Female	65	156	868565	II	Primary	80	130/80	13	66	12	90	134/76	12	73	16	88	132/84	12	73	16
7	B	Komal D	26	Female	56	157	869711	I	Primary	76	130/70	11	73	8	86	140/82	12	80	8	84	148/84	12	76	8
8	B	Akshata K	28	Female	55	155	869648	I	Primary	88	138/70	13	63	16	84	130/82	12	70	16	86	134/82	12	70	16
9	A	Ramesh Obi	51	Male	70	165	871752	II	professional	86	132/86	13	67	8	94	154/92	12	76	8	60	110/80	10	43	8
10	A	Chayatai shinde	41	Female	50	155	871647	II	Primary	80	140/80	13	66	12	88	146/98	12	73	12	70	130/84	11	50	8
11	B	Dashrath D	45	Male	55	163	872735	I	Pre primary	80	136/82	12	66	12	86	130/70	13	73	12	84	134/70	13	70	12
12	A	MD Rafeeq S	32	Male	60	165	873280	I	professional	78	140/80	12	60	12	78	134/86	14	70	8	64	130/66	11	43	8
13	B	Deepa P	34	Female	50	156	870307	I	Primary	82	110/70	11	66	12	86	116/82	13	73	16	80	118/76	11	76	16
14	A	Jayashree	57	Female	70	157	873831	I	Primary	86	154/94	13	73	16	92	162/100	12	77	16	84	150/80	12	53	12
15	A	Suvarna H	32	Female	75	160	871663	I	Primary	80	134/80	12	70	16	104	150/94	14	70	16	66	104/60	10	33	12
16	B	Lilabai	48	Female	65	168	873766	II	Primary	80	140/80	13	60	12	96	154/86	12	73	16	92	156/80	12	67	16
17	A	Shivkumar H	30	Male	70	168	873844	I	professional	80	120/88	14	67	8	82	130/90	12	70	8	86	118/92	13	73	8
18	B	Nagesh	22	Male	40	165	872625	I	secondary	70	112/70	12	70	12	74	100/70	13	73	8	64	110/64	12	63	8
19	A	Kumar M	27	Male	60	168	872650	I	Pre primary	80	130/80	13	67	16	82	130/86	13	77	16	72	110/76	11	50	12
20	A	Supriya	27	Female	48	160	874683	I	secondary	88	124/82	12	57	8	86	118/78	13	70	12	70	112/70	11	43	12
21	A	Ramu R	48	Male	70	168	875825	II	Pre primary	86	136/84	13	63	8	80	140/82	12	70	8	76	138/80	12	67	8
22	B	Husensab P	50	Male	60	158	874707	I	Pre primary	86	150/94	14	57	8	94	148/96	12	67	8	90	144/90	13	63	8
23	B	Bharamanna	30	Male	68	170	874705	I	professional	72	118/72	14	60	16	68	112/68	12	67	16	64	110/62	12	60	16
24	A	Rahamatbi S	47	Female	60	163	876040	I	Primary	88	156/84	13	70	12	92	168/80	13	73	12	75	132/82	12	54	12
25	A	Babaso T	50	Male	60	170	875818	I	Pre primary	68	118/70	13	67	4	72	122/82	13	70	4	66	116/78	13	60	4
26	A	Basappa	50	Male	70	168	877373	II	Pre primary	89	144/86	13	67	8	88	126/82	12	67	8	76	114/80	12	60	8

27	B	Sushila T	49	Female	60	158	874790	II	Primary	86	136/90	14	73	12	94	158/86	13	70	12	90	150/80	13	73	12
28	A	Narayan N	31	Male	65	168	877037	II	Pre primary	88	138/90	13	63	8	93	140/87	13	67	12	76	128/80	11	57	8
29	B	Dundavva H	47	Female	70	160	871814	II	Primary	90	130/78	13	70	8	96	140/86	13	77	8	94	138/82	12	73	12
30	B	Mahadevi	45	Female	68	164	871382	II	Primary	84	130/80	12	60	12	88	136/78	13	73	12	80	132/84	12	67	12
31	A	Basavaraj S	48	Male	75	168	877248	II	Professional	88	138/86	14	63	12	92	132/84	12	70	12	82	112/72	12	50	8
32	B	Shehanaz M	44	Female	60	156	875483	I	Primary	76	138/78	13	63	8	88	140/82	12	67	8	80	132/74	12	60	8
33	A	Raghavendra	47	Male	70	170	877250	II	Teacher	84	142/84	11	70	12	94	138/82	12	73	16	68	112/84	11	57	8
34	A	Shankarappa M	49	Male	68	167	877127	II	Pre primary	96	130/84	13	60	8	91	128/106	12	63	8	84	122/80	12	47	8
35	A	Ajit S	24	Male	60	165	876440	I	secondary	78	132/80	14	73	8	76	136/72	13	73	8	62	112/72	11	47	8
36	B	Krishnagouda	40	Male	80	170	877134	I	Pre primary	78	132/86	14	73	8	84	128/72	12	77	8	76	118/78	13	73	8
37	A	Basappa P	44	Male	75	170	876249	I	Professional teacher	86	136/82	13	57	8	88	144/82	12	70	12	76	130/72	11	57	8
38	A	Laxmi S	38	Female	45	161	874827	I	Primary	84	126/82	12	63	4	76	122/84	13	67	8	68	112/70	11	47	8
39	B	Fakirappa	21	Male	41	168	875580	I	Coolie	88	130/72	13	70	8	86	138/84	12	73	8	94	128/88	11	67	8
40	B	Rafeeq Ibrahim	45	Male	68	168	876203	II	Pre primary	86	144/86	13	63	8	84	140/78	13	70	8	88	136/70	12	67	8
41	B	Gurunath	31	Male	74	170	877076	I	Pre primary	82	132/72	12	67	8	84	126/82	11	70	8	80	128/76	11	63	8
42	B	Akkamahadevi	45	Female	67	164	876704	II	Primary	72	138/84	13	60	8	76	144/76	12	70	8	82	140/74	12	67	8
43	A	Sunita S	34	Female	60	162	875780	I	Primary	86	134/88	13	60	8	84	124/76	11	63	8	76	112/72	11	47	4
44	A	Kallavva B	33	Female	54	158	875672	I	Primary	86	136/84	13	63	8	72	132/86	11	57	8	74	112/72	10	50	8
45	B	Uma B	45	Female	55	156	878492	I	Primary	88	130/80	12	67	8	86	138/86	11	73	8	80	132/76	12	70	8
46	B	Rukmini B	30	Female	70	160	878629	I	Primary	68	120/70	13	60	8	76	132/82	11	67	8	78	128/84	12	67	8
47	B	Ramya J	21	Female	40	158	878848	I	secondary	94	130/86	14	70	12	96	136/84	13	70	12	88	138/74	13	73	12
48	B	Tishakumari K	18	Female	40	164	878762	I	secondary	82	132/74	13	67	8	86	128/76	12	76	8	78	124/78	12	70	8
49	A	Soniya S	23	Female	45	156	879120	I	secondary	76	136/82	12	67	8	78	130/86	13	70	12	72	122/72	11	63	4
50	B	Prakash K	36	Male	60	168	878394	I	Pre primary	82	132/86	14	70	8	78	130/76	13	73	8	74	134/74	13	67	8
51	B	Bhimawwa K	49	Female	60	155	878480	I	Primary	86	118/78	11	70	8	88	128/76	12	70	12	84	124/82	11	70	8
52	A	Kaveri S	18	Female	40	157	879298	I	secondary	84	112/86	13	73	8	88	118/78	12	77	8	76	112/70	12	53	8
53	A	Demavva S	35	Female	64	157	879224	I	Primary	74	142/76	12	70	12	88	140/84	13	73	12	76	112/72	11	50	8
54	B	Devappa T	50	Male	74	172	878316	II	Pre primary	94	142/86	13	70	8	92	144/82	13	67	8	88	140/86	12	63	8
55	B	Savitri P	50	Female	54	148	879322	II	Primary	84	136/86	12	63	8	86	134/84	12	67	8	82	130/82	12	63	8
56	B	Rukmavva T	50	Female	65	160	879300	I	Primary	82	140/76	14	70	12	86	138/72	13	67	12	80	136/74	12	70	12
57	B	Basangouda	29	Male	70	169	879252	I	professional	86	136/84	14	67	16	84	130/82	13	70	16	80	134/76	13	60	12
58	A	Sunanda S	32	Female	56	155	878077	I	Primary	78	132/76	13	73	12	88	144/72	14	73	12	72	124/86	11	67	8
59	A	Siddaramappa	49	Male	65	168	878387	II	Pre primary	78	138/82	14	67	8	86	144/86	13	70	12	72	132/74	12	50	4
60	B	Ashwini S	49	Female	60	156	879781	II	Primary	87	148/90	14	67	12	86	144/94	13	70	12	82	140/86	14	67	12
61	B	Bhimappa B	50	Male	70	168	879476	I	Pre primary	86	150/94	13	73	12	84	148/90	12	77	12	88	142/86	13	73	12
62	A	Rekha N	22	Female	45	155	879489	I	secondary	78	130/84	14	67	12	86	138/86	14	73	12	72	126/74	11	50	8
63	A	Renuka P	20	Female	50	150	880126	I	Primary	84	126/84	13	70	12	88	130/86	13	77	12	72	124/76	12	50	8
64	B	Siddivinayak	19	Male	45	148	880139	I	secondary	84	118/84	13	70	12	88	126/74	13	73	12	80	122/84	13	70	12
65	A	Maruthi H	50	Male	72	163	879520	II	Pre primary	78	144/96	13	60	12	73	142/92	14	70	12	68	138/88	11	53	8
66	A	Nandakishor	18	Male	40	152	880221	I	secondary	84	118/76	13	67	12	86	122/84	14	73	12	72	108/70	12	53	8

67	B	Hanumanth T	50	Male	70	164	880090	II	Pre primary	88	146/94	13	73	8	92	144/92	14	70	12	84	138/96	12	73	8
68	A	Savitri B	40	Female	58	158	879923	I	Primary	78	138/84	13	73	8	86	142/86	13	70	12	70	118/74	12	50	4
69	A	Goura S	29	Female	48	150	879822	I	Primary	78	128/74	13	63	8	84	134/82	13	73	12	68	118/64	11	50	8
70	B	Fakirappa	25	Male	45	153	876601	I	secondary	76	126/86	12	67	8	80	130/84	13	70	8	78	134/72	11	67	8
71	A	Sanjay K	36	Male	76	168	880747	I	professional	86	136/82	13	63	8	84	144/84	12	70	8	88	132/86	13	60	8
72	B	Sophya G	19	Female	45	154	880662	I	secondary	76	118/76	14	70	8	84	126/74	13	73	8	80	122/76	12	70	8
73	A	Noorjahan B	42	Female	64	160	880587	II	Primary	86	132/84	13	70	12	88	136/86	12	77	12	72	126/74	11	60	4
74	A	Ramachandra K	50	Male	68	168	880690	II	Pre primary	84	136/90	13	70	8	86	144/86	12	73	8	74	130/74	12	50	8
75	A	Shankar p	50	Male	68	168	880315	I	Pre primary	86	134/96	13	67	8	84	144/84	12	67	8	76	136/80	12	50	8
76	A	Shrinivas C	18	Male	60	157	880985	I	secondary	78	118/80	13	73	8	84	122/76	13	73	8	72	112/72	11	57	8
77	B	Basawanewwa	50	Female	60	150	880427	II	Primary	76	100/70	13	70	8	90	112/76	14	70	8	84	108/72	12	70	8
78	A	Geeta K	39	Female	65	160	880801	I	Primary	82	136/90	14	67	8	88	138/84	13	73	8	74	130/72	12	50	8
79	A	Siddarth S	22	Male	68	170	881147	I	secondary	74	118/74	13	67	8	86	124/86	13	73	8	72	108/68	11	50	8
80	B	Disha M	46	Female	70	156	881148	II	Primary	86	140/72	13	70	8	84	136/80	13	73	8	82	138/82	12	70	8
81	B	Yallappa B	50	Male	74	166	881151	I	Pre primary	86	144/80	14	70	8	88	138/84	13	73	8	90	136/80	13	70	8
82	B	Nidha P	18	Female	40	154	881046	I	secondary	88	118/72	14	70	8	94	116/78	13	73	8	90	110/84	14	70	8
83	A	Murugal N	43	Female	64	163	881388	I	Primary	78	136/84	13	67	12	84	128/80	12	70	12	66	118/74	11	50	8
84	B	Maruthi D	18	Male	60	160	879963	I	secondary	84	116/76	14	67	8	88	118/74	13	67	8	82	112/78	13	63	8
85	B	Yashvanth S	50	Male	68	167	881629	I	Pre primary	86	146/92	12	63	4	88	144/96	13	70	4	76	140/94	12	63	4
86	A	Anand K	19	Male	60	168	881800	I	secondary	78	132/84	13	73	8	86	136/74	12	73	8	74	118/72	12	63	8
87	B	Gourawwa H	49	Female	54	159	881724	I	Primary	86	138/94	13	67	4	94	144/90	12	67	8	84	136/86	13	70	4
88	A	Bhimrao H	28	Male	64	164	881756	I	secondary	78	122/84	12	63	8	88	130/86	13	70	12	64	112/78	11	53	8
89	A	Rajshree P	35	Female	68	157	882050	I	Primary	86	136/74	12	63	8	88	144/80	13	67	8	76	128/72	11	53	8
90	A	Soumya P	35	Female	48	152	881974	II	Primary	90	108/80	13	67	8	86	118/76	13	73	8	76	112/70	11	50	8
91	B	Kasthuri B	50	Female	70	158	880758	I	Primary	78	138/92	12	67	8	84	144/86	13	70	8	82	136/84	12	67	8
92	A	Sachin K	21	Male	65	167	881876	I	secondary	78	126/74	12	70	8	84	130/84	12	73	12	76	112/68	11	63	8
93	B	Laxmi M	50	Female	62	155	881994	II	Primary	94	142/94	12	70	5	86	144/90	12	73	5	88	138/84	13	70	5
94	B	Shahanawaz T	42	Male	68	168	882167	I	professional	84	130/80	12	67	8	86	134/82	13	67	8	82	132/84	13	67	8
95	A	Yallawwa	28	Female	50	154	882436	I	Primary	86	124/86	13	70	8	84	130/82	12	73	8	76	118/74	11	63	8
96	B	Arjun G	20	Male	50	158	880933	I	Coolie	86	126/78	13	63	4	87	130/74	12	70	8	76	124/82	12	67	12
97	A	Laxmi C	28	Female	58	154	868926	II	Primary	88	138/74	14	70	8	92	136/74	13	63	8	84	118/70	12	50	8
98	A	Bahubali N	50	Male	70	168	882742	I	Pre primary	78	118/82	13	67	8	86	138/78	12	73	8	72	124/72	11	50	8
99	A	Manjunath M	25	Male	65	167	882787	I	secondary	92	108/78	12	70	8	88	118/84	13	70	12	76	112/64	11	53	4
100	A	Vidya shree A	27	Female	60	160	882792	I	Primary	76	118/78	13	73	8	88	126/74	12	77	12	64	108/64	11	47	4
101	B	Laxmi N	27	Female	65	162	881177	I	Primary	78	130/88	13	67	8	86	134/82	12	70	8	84	130/76	12	67	8
102	A	Aarti K	21	Female	52	152	882584	I	Primary	84	118/74	13	70	12	86	122/80	12	73	12	72	112/68	12	53	8
103	A	Mouneshwar K	38	Male	65	166	882887	I	professional	89	126/84	12	70	4	92	124/86	13	73	8	82	116/74	11	47	8
104	B	Sunita C	20	Female	45	156	883537	I	secondary	84	116/84	12	67	8	86	122/72	13	70	8	82	124/76	13	70	8
105	B	Gouravva	45	Female	60	155	883925	I	Primary	86	142/82	13	70	8	88	138/80	13	70	8	84	136/84	12	73	8
106	A	Shilpa C	42	Female	65	156	883538	I	Primary	84	118/78	12	67	8	88	122/76	13	70	8	76	116/68	11	50	8

107	A	Preeya JS	18	Female	54	150	883917	I	Primary	84	126/86	13	70	8	88	130/70	12	70	8	72	116/72	11	50	8
108	A	Sunanda M	35	Female	45	150	884554	I	Primary	86	126/84	14	77	8	92	132/80	13	77	8	80	130/84	14	67	8
109	A	Kantilal P	48	Male	68	168	884562	II	professional	64	148/86	13	70	8	66	144/82	12	70	8	56	130/86	12	67	8
110	B	Sanjay N	44	Male	70	168	883672	I	Pre primary	98	132/86	12	63	4	96	140/84	13	67	4	84	114/80	11	60	4
111	B	Basayya	40	Male	50	156	884542	I	Pre primary	92	124/84	13	67	8	88	128/82	13	67	8	86	120/84	13	70	8
112	A	Seema K	18	Female	51	154	884567	II	secondary	78	118/82	13	67	8	86	138/78	12	73	8	72	124/72	11	50	8
113	A	Nisha	37	Female	60	162	885563	I	Primary	88	128/80	12	70	8	87	138/82	13	73	12	66	108/78	11	50	8
114	B	Raghav	45	Male	67	159	881771	I	Pre primary	88	138/74	14	70	8	92	136/74	13	63	8	84	118/70	12	50	8
115	B	Naveen	21	Male	58	156	882784	I	secondary	78	130/88	13	67	8	86	134/82	12	70	8	84	130/76	12	67	8
116	B	Hemalata	49	Female	65	160	887278	II	Primary	76	114/78	12	70	16	78	126/82	13	73	16	80	120/76	12	70	12
117	A	Anand P	27	Male	64	153	885373	I	professional	84	118/74	13	70	12	86	122/80	12	73	12	72	112/68	12	53	8
118	A	Tulasi	23	Female	54	157	883767	I	secondary	84	116/84	12	67	8	86	122/72	13	70	8	82	124/76	13	70	8
119	B	Prathap K	41	Male	71	161	887046	II	professional	76	114/78	12	70	16	78	126/82	13	73	16	80	120/76	12	70	12
120	A	Sambhaji P	50	Male	70	168	887064	II	Pre primary	88	144/86	13	70	4	86	140/84	12	67	8	86	142/84	13	67	8
121	B	Muttappa S	25	Male	68	168	886972	I	Pre primary	84	130/86	14	67	8	88	132/84	13	67	8	86	134/82	13	67	8
122	B	Pallavi P	19	Female	56	156	887278	I	secondary	86	150/94	14	57	8	94	148/96	12	67	8	90	144/90	13	63	8
123	B	Naazmin G	25	Female	65	153	882609	I	Primary	72	118/72	14	60	16	68	112/68	12	67	16	64	110/62	12	60	16
124	B	Shirn banu	21	Female	49	154	884787	I	secondary	84	130/80	12	60	12	88	136/78	13	73	12	80	132/84	12	67	12
125	A	Kallappa	49	Male	60	157	892890	I	Pre primary	90	124/86	14	72	8	88	130/96	13	76	12	72	120/70	11	22	4
126	A	Kaveri K	29	Female	56	150	897070	I	Primary	86	154/94	13	73	16	92	162/100	12	77	16	84	150/80	12	53	12
127	A	Mmuutthamma	50	Female	68	152	895402	I	Primary	80	134/80	12	70	16	104	150/94	14	70	16	66	104/60	10	33	12
128	B	Nagendra M	26	Male	64	154	896280	I	professional	90	130/78	13	70	8	96	140/86	13	77	8	94	138/82	12	73	12
129	B	Manoj S	30	Male	47	158	890764	I	professional	84	130/80	12	60	12	88	136/78	13	73	12	80	132/84	12	67	12
130	A	Sihlpa K	19	Female	41	152	887092	I	secondary	84	142/84	11	70	12	94	138/82	12	73	16	68	112/84	11	57	8
131	A	Yallawwwa	50	Female	67	160	885398	II	Primary	96	130/84	13	60	8	91	128/106	12	63	8	84	122/80	12	47	8
132	A	Pakeeerappa	50	Male	70	162	898887	I	Pre primary	78	132/80	14	73	8	76	136/72	13	73	8	62	112/72	11	47	8
133	A	Peerzade P	38	Male	68	167	897745	I	professional	86	154/94	13	73	16	92	162/100	12	77	16	84	150/80	12	53	12
134	B	Anitha N	46	Female	53	159	887909	II	Primary	80	140/80	13	60	12	96	154/86	12	73	16	92	156/80	12	67	16
135	A	Lalitha G	42	Female	68	168	3007950	I	Primary	84	132/86	13	70	16	78	142/84	12	73	16	74	136/84	13	53	12
136	B	Radhika H	34	Female	54	161	894787	II	Primary	80	140/80	13	60	12	96	154/86	12	73	16	92	156/80	12	67	16
137	B	Devaki	38	Female	56	157	898854	I	Primary	86	142/78	13	57	12	88	148/84	14	67	12	68	132/76	11	60	8
138	A	Shobha T	40	Female	72	160	899280	I	Bank worker	78	138/68	11	67	12	86	144/82	13	70	12	68	132/70	11	60	12
139	A	Sahera banu	32	Female	56	157	899345	II	Primary	76	128/88	12	73	12	86	138/78	13	70	12	62	134/80	12	67	12
140	A	DishaKumar	32	Female	68	162	899347	I	Primary	78	138/72	13	70	12	88	142/82	11	67	12	80	136/78	12	63	12
141	B	Harsha M	49	Male	64	156	889450	I	Pre primary	86	134/86	13	63	12	92	136/82	12	67	12	84	138/78	13	70	12
142	B	Sanju G	30	Male	54	166	889535	I	secondary	80	130/68	12	67	12	86	136/72	13	67	12	84	132/80	12	67	12
143	B	Shantawwa P	43	Female	52	156	890140	I	Primary	76	118/68	13	70	16	80	120/74	13	73	16	84	124/76	13	70	16
144	A	Savitri T	25	Female	56	154	807726	I	secondary	76	118/76	13	77	12	84	128/84	12	77	12	70	110/70	11	60	8
145	B	Sujata	35	Female	57	158	914067	II	Primary	84	130/82	12	70	12	86	132/86	12	73	12	88	134/82	12	70	12
146	B	Rajashree J	20	Female	48	150	907680	II	secondary	86	130/84	13	70	12	84	128/84	13	67	12	88	130/86	13	73	12

147	A	Rahul	29	Male	61	162	886590	I	professional	84	132/84	13	70	12	88	136/90	12	73	12	68	112/76	12	60	8
148	A	Zakriya	24	Female	52	156	885698	II	secondary	84	132/86	12	70	16	88	138/84	13	73	16	72	120/68	11	63	12
149	B	Musthafa S	45	Male	63	159	865701	I	Pre primary	78	132/84	12	67	12	76	130/76	12	67	12	82	134/80	13	70	16
150	B	Akshatha C	22	Female	53	157	874060	II	secondary	88	130/72	13	70	8	86	138/84	12	70	8	94	128/88	11	73	8
151	A	Rekha	31	Female	55	159	876003	I	Primary	78	112/68	13	67	12	76	118/74	13	67	12	64	110/60	11	60	8
152	A	Shahin H	35	Female	52	160	865823	II	House wife	88	138/90	13	63	8	93	140/87	13	67	12	76	128/80	11	57	8
153	A	LADKOBA	21	Female	60	160	904062	I	secondary	76	118/76	13	77	12	84	128/84	12	77	12	70	110/70	11	60	8
154	B	Akbar P	40	Male	67	165	904237	I	Pre primary	82	130/90	14	71	12	78	132/80	13	78	16	80	130/84	13	78	16
155	B	Shahisham	22	Male	50	152	897919	II	secondary	80	142/86	13	70	16	94	140/80	13	78	16	76	132/76	11	40	8
156	B	Rishika	19	Female	54	159	863575	I	secondary	80	130/80	13	66	12	90	134/76	12	73	16	88	132/84	12	73	16
157	A	Suhana	34	Female	57	160	868892	I	Primary	78	112/68	13	67	12	76	118/74	13	67	12	64	110/60	11	60	8
158	B	Imthiyaz	31	Male	67	167	899268	I	professional	78	132/86	14	73	8	84	128/72	12	77	8	76	118/78	13	73	8
159	B	Yaseen B	50	Male	78	162	894563	I	professional	80	140/80	13	60	12	96	154/86	12	73	16	92	156/80	12	67	16
160	A	Kruthi	21	Female	58	159	869012	II	professional	80	140/80	13	66	12	88	146/98	12	73	12	70	130/84	11	50	8
161	B	Navashree K	25	Female	50	157	879013	I	secondary	86	150/94	14	57	8	94	148/96	12	67	8	90	144/90	13	63	8
162	A	Kumar S	45	Male	66	155	875436	II	Pre primary	78	132/80	14	73	8	76	136/72	13	73	8	62	112/72	11	47	8
163	B	Hema	43	Female	58	160	865744	I	Primary	72	118/72	14	60	16	68	112/68	12	67	16	64	110/62	12	60	16
164	B	Ravi G	37	Male	71	161	891342	II	Pre primary	86	136/90	14	73	12	94	158/86	13	70	12	90	150/80	13	73	12
165	B	Sakamma	50	Female	65	159	865720	I	Primary	90	130/78	13	70	8	96	140/86	13	77	8	94	138/82	12	73	12
166	B	Mallappa	46	Male	71	167	870098	I	Pre primary	84	130/80	12	60	12	88	136/78	13	73	12	80	132/84	12	67	12
167	B	Kalpana C	30	Female	70	162	887988	II	Primary	76	138/78	13	63	8	88	140/82	12	67	8	80	132/74	12	60	8
168	B	Shreenidhi	23	Female	57	159	897003	I	secondary	90	130/78	13	70	8	96	140/86	13	77	8	94	138/82	12	73	12
169	B	Irfan P	18	Male	51	157	868905	I	secondary	84	130/80	12	60	12	88	136/78	13	73	12	80	132/84	12	67	12
170	A	Kalamma	42	Female	69	161	898909	I	Primary	86	136/82	13	57	8	88	144/82	12	70	12	76	130/72	11	57	8
171	B	Siddhu	28	Male	64	159	867980	I	professional	72	118/72	14	60	16	68	112/68	12	67	16	64	110/62	12	60	16
172	A	Firoz S	49	Male	68	163	887903	II	professional	84	126/82	12	63	4	76	122/84	13	67	8	68	112/70	11	47	8
173	B	Datthubai	43	Male	70	160	867342	I	Pre primary	88	146/94	13	73	8	92	144/92	14	70	12	84	138/96	12	73	8
174	A	Raju	30	Male	67	159	890654	II	professional	86	136/82	13	57	8	88	144/82	12	70	12	76	130/72	11	57	8
175	A	Alfan	19	Male	58	153	894324	I	secondary	86	144/80	14	70	8	88	138/84	13	73	8	90	136/80	13	70	8
176	A	Bhagya L	21	Female	45	161	908765	II	secondary	78	144/96	13	60	12	73	142/92	14	70	12	68	138/88	11	53	8
177	A	Vittal R	47	Male	76	163	906543	I	Pre primary	84	118/76	13	67	12	86	122/84	14	73	12	72	108/70	12	53	8
178	B	Swathi	22	Female	54	166	907654	II	secondary	82	132/86	14	70	8	78	130/76	13	73	8	74	134/74	13	67	8
179	B	Sanjay	19	Male	53	159	908732	I	secondary	86	118/78	11	70	8	88	128/76	12	70	12	84	124/82	11	70	8
180	A	Clifford	20	Male	47	168	925678	I	secondary	86	136/82	13	63	8	84	144/84	12	70	8	88	132/86	13	60	8
181	A	Sonali H	26	Female	57	161	879987	I	Primary	84	118/76	13	67	12	86	122/84	14	73	12	72	108/70	12	53	8
182	B	Sanny	30	Male	56	164	897655	I	professional	87	148/90	14	67	12	86	144/94	13	70	12	82	140/86	14	67	12
183	A	Santhosh G	38	Male	68	159	904321	I	professional	86	132/84	13	70	12	88	136/86	12	77	12	72	126/74	11	60	4
184	B	Jafar N	37	Male	63	154	926743	II	professional	86	140/72	13	70	8	84	136/80	13	73	8	82	138/82	12	70	8
185	B	Raghu G	41	Male	72	166	907652	I	professional	86	138/94	13	67	4	94	144/90	12	67	8	84	136/86	13	70	4
186	A	Naina	23	Female	56	156	887654	I	secondary	86	132/84	13	70	12	88	136/86	12	77	12	72	126/74	11	60	4

187	B	Prem Kumar	35	Male	73	165	897653	I	Pre primary	76	126/86	12	67	8	80	130/84	13	70	8	78	134/72	11	67	8
188	B	Anand A	27	Male	62	154	908765	I	professional	86	118/78	11	70	8	88	128/76	12	70	12	84	124/82	11	70	8
189	A	Prasanna	30	Male	67	159	889321	II	professional	78	130/84	14	67	12	86	138/86	14	73	12	72	126/74	11	50	8
190	A	Samad	25	Male	59	163	927654	I	secondary	84	126/84	13	70	12	88	130/86	13	77	12	72	124/76	12	50	8
191	A	Arjun J	34	Male	63	159	892009	I	professional	78	144/96	13	60	12	73	142/92	14	70	12	68	138/88	11	53	8
192	A	Mahalasa	47	Female	69	160	908065	I	Primary	76	136/82	12	67	8	78	130/86	13	70	12	72	122/72	11	63	4
193	B	Muhammed	45	Male	71	160	895431	II	Pre primary	86	118/78	11	70	8	88	128/76	12	70	12	84	124/82	11	70	8
194	A	Hida	19	Female	49	156	925431	II	secondary	84	126/84	13	70	12	88	130/86	13	77	12	72	124/76	12	50	8
195	B	Mahesh	40	Male	72	166	925456	I	Pre primary	76	118/76	14	70	8	84	126/74	13	73	8	80	122/76	12	70	8
196	A	Annapoorna K	38	Female	50	154	896532	I	Primary	86	132/84	13	70	12	88	136/86	12	77	12	72	126/74	11	60	4
197	A	Shiv M	43	Male	69	163	889230	II	Pre primary	84	136/90	13	70	8	86	144/86	12	73	8	74	130/74	12	50	8
198	A	Nagamma	49	Female	60	159	924566	I	Primary	86	134/96	13	67	8	84	144/84	12	67	8	76	136/80	12	50	8
199	A	Jyothi	44	Female	55	155	885989	I	Primary	88	132/76	12	70	8	82	130/82	13	63	8	76	118/78	12	57	8
200	A	Rajashree J	34	Female	50	163	884771	I	Primary	84	126/78	13	73	8	88	132/84	13	77	8	76	128/82	13	63	8
201	A	Shekamma K	18	Female	44	156	930842	I	secondary	78	130/84	13	70	16	84	138/86	12	70	16	86	122/76	12	63	12
202	B	Sarika K	41	Female	58	150	930663	II	Primary	86	144/80	13	77	12	88	138/86	13	77	16	82	134/84	13	77	16
203	A	Atharv K	21	Male	61	165	929824	I	secondary	76	128/68	13	70	16	84	132/76	12	70	16	68	116/70	11	60	16
204	B	Shraveen H	26	Male	56	158	929826	I	professional	76	130/82	12	70	12	84	140/84	13	73	12	86	142/86	13	73	12
205	A	Tunga	18	Female	44	150	928469	I	secondary	78	116/84	14	73	12	76	130/70	12	77	12	66	108/60	10	53	12
206	B	Sakubai D	49	Female	64	156	923841	II	Primary	86	138/82	13	77	12	84	138/84	13	77	12	86	136/82	13	77	12
207	B	Uma N	48	Female	69	159	926922	II	Primary	84	130/86	11	70	12	86	134/82	12	77	12	84	136/82	13	77	12
208	A	Annapoorna K	44	Female	61	152	926852	II	Primary	88	138/92	13	73	16	92	136/94	12	77	16	76	130/80	11	50	16
209	A	Shanta bai	40	Female	50	151	926452	II	Primary	84	138/90	13	67	12	86	144/96	12	70	12	72	128/80	11	50	8
210	A	Kalmesh	26	Male	57	159	926467	I	secondary	80	122/84	12	60	12	76	132/80	13	73	12	70	114/64	11	50	8
211	B	Raziya B	18	Female	49	150	926468	I	secondary	86	122/86	13	70	12	88	130/84	13	70	12	84	132/82	13	73	12
212	A	Onkaramma H	49	Female	42	158	919253	II	Primary	86	144/86	13	70	12	84	138/88	12	77	12	70	124/82	12	60	8
213	B	Seema S	41	Female	61	159	919180	II	Primary	88	138/82	13	67	16	86	144/82	13	67	16	82	136/86	12	63	16
214	B	Vimal D	35	Male	70	161	918806	II	Pre primary	82	138/72	13	70	12	86	136/82	12	70	12	84	134/80	12	73	12
215	B	Geeta B	42	Female	54	152	917632	II	Primary	90	144/86	13	73	16	88	138/78	12	77	16	88	140/80	13	77	16
216	B	Balawwa k	48	Female	49	151	916851	II	Primary	78	126/82	13	73	12	82	132/80	12	70	12	80	128/84	13	67	12
217	B	Shweta R	49	Female	64	156	915704	II	Primary	84	126/84	13	70	8	86	132/80	13	73	8	82	130/76	13	70	12
218	B	Arjun H	47	Male	60	159	915882	II	Pre primary	86	144/84	12	70	16	92	138/86	13	70	16	86	140/82	13	70	16
219	A	Kalpana	38	Female	58	160	911918	II	Primary	88	138/82	13	60	12	90	140/82	13	70	12	86	136//86	13	60	12
220	B	Anita T	22	Female	54	159	911481	I	secondary	86	140/82	13	70	8	84	138/78	13	70	8	82	138/84	13	73	8
221	A	Basawanna K	34	Male	61	166	911502	II	professional	78	142/84	13	73	12	88	136/80	12	73	16	80	130/72	11	60	8
222	A	Raghuvendra K	25	Male	59	162	909133	I	secondary	76	126/80	13	60	12	84	130/82	12	70	12	70	116/84	11	53	12
223	A	Iranna	25	Male	60	156	908834	I	secondary	84	132/86	13	70	12	88	136/82	12	73	12	72	118/70	11	70	12
224	B	Kasthuri	42	Female	53	151	909166	I	Primary	76	114/78	12	70	16	78	126/82	13	73	16	80	120/76	12	70	12
225	A	Sumitra	20	Female	46	157	909140	I	secondary	76	138/70	12	70	12	84	136/76	13	77	12	80	122/70	11	53	3
226	B	Shubham K	21	Male	56	161	908742	I	secondary	78	122/68	13	70	8	84	124/76	13	77	8	80	126/80	13	73	8

227	B	Vidya D	31	Female	57	152	907923	I	Primary	88	138/72	12	67	12	86	140/76	12	70	12	80	132/86	12	67	12
228	A	Krishna	35	Male	69	160	908854	II	professional	92	132/86	12	73	12	88	118/72	13	73	12	72	112/68	12	57	8
229	A	Nazhat	29	Female	61	157	908267	I	Primary	84	132/86	12	73	12	88	118/72	13	73	12	72	112/68	12	57	8
230	A	Kasturi	25	Female	51	157	908061	I	secondary	88	128/84	13	70	16	92	136/80	13	73	16	76	122/74	11	60	8
231	A	Nagavva A	45	Female	40	150	907397	I	Primary	82	136/86	12	73	12	84	132/82	13	77	12	72	116/72	11	60	8
232	B	Vishnu A	30	Male	65	157	907154	I	Pre primary	76	112/72	13	67	8	78	124/84	12	67	8	76	118/80	12	67	8
233	A	Lingappa	46	Male	68	162	908801	I	Pre primary	84	138/90	13	67	12	86	144/96	12	70	12	72	128/80	11	50	8
234	B	Vijay R	30	Male	69	164	907254	I	professional	84	132/86	13	70	12	86	136/84	13	73	12	84	134/82	13	77	12
235	B	Ramayya	26	Male	50	160	838099	I	secondary	80	130/80	13	73	12	76	132/84	12	73	12	88	130/76	13	77	12
236	A	Vidyashree	31	Female	54	158	834567	I	Primary	78	116/84	14	73	12	76	130/70	12	77	12	66	108/60	10	53	12
237	B	Mayoori	21	Female	54	155	836764	II	secondary	86	138/82	13	77	12	84	138/84	13	77	12	86	136/82	13	77	12
238	A	Kumarappa	50	Male	71	160	925684	I	Pre primary	76	138/70	12	70	12	84	136/76	13	77	12	80	122/70	11	53	3
239	A	Ruksana	45	Female	73	159	907551	II	Primary	84	138/90	13	67	12	86	144/96	12	70	12	72	128/80	11	50	8
240	B	Haneef	48	Male	65	168	885544	II	professional	78	126/82	13	73	12	82	132/80	12	70	12	80	128/84	13	67	12
241	B	subhash	41	male	55	167	885631	II	primary	90	136/76	12	70	12	94	140/82	13	73	16	86	128/88	13	70	12
242	B	upasana	42	female	58	164	885756	II	primary	86	130/80	13	70	12	90	130/78	12	73	16	90	132/86	12	70	12
243	B	arun	35	male	62	162	885797	I	primary	84	128/78	12	73	12	90	134/82	11	73	12	90	130/78	13	70	12
244	B	shreedhar	29	male	68	168	885802	I	primary	86	132/82	11	73	12	92	136/82	13	73	16	88	128/86	13	70	12

ANNEXURE-VI

KEY TO MASTER CHART

DEMOGRAPHY

WT-Weight

HT-Height

OBJECTIVE CRITERIA

HR- Heart rate

BP- Blood pressure

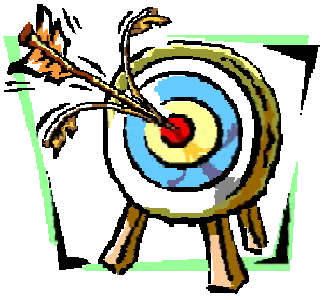
RR- Respiratory rate

SUBJECTIVE CRITERIA

STAI-S6- Shortened 6 item state trait anxiety inventory

APAI- Amsterdam preoperative anxiety and information scale

Introduction



Objectives

Review of Literature

Basic Sciences

Methodology

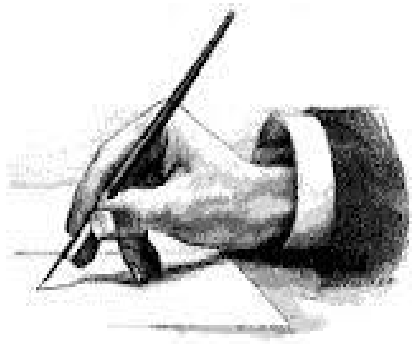
Results

Discussion

Conclusion

Summary

Bibliography



Annexure-I

Annexure-II

Annexure-III

Annexure-IV

Annexure-V

Annexure-VI