

**A comparative study of the effect of yoga and physical training on  
Psychological Health of Rag pickers**

*Dissertation submitted by*

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*Under the Guidance of*

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*Towards the partial fulfillment of*

**Master of Science in Yoga (M.Sc. Yoga)**

**MAY 2017**



**To**

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## ***CERTIFICATE***

This is to certify that **Astha Rai** is submitting this Experimental Research on “**A comparative study between the effect of yoga and physical training on Psychological Health of Rag pickers**” in partial fulfillment of the requirement for the Master of Science (Yoga therapy) registered in **SWAMI VIVEKANANDA YOGA ANUSANDHANASAMSTHANA (S-VYASA UNIVERSITY) BENGALURU** and this is a record of the work carried out by her in this institution.

**Date:**

**Dr. BALRAM PRADHAN**

**Place:** Bangalore

Guide

## **DECLARATION**

I, hereby declare that this study was conducted by me at Swami Vivekananda Yoga AnusandhanaSamsthana (S-VYASA), Bangalore, under the guidance of Dr. **Balram Pradhan S-VYASA** University Bangalore.

I also declare that the subject matter of my dissertation entitled “**A comparative study between the effect of yoga and physical training on Psychological Health of Rag pickers**” has not previously formed the basis of the award of any degree, diploma, associate-ship, fellowship or similar titles.

## ACKNOWLEDGEMENT

I would like to express the deepest gratitude to my guide, Dr. BALRAM PRADHAN for his guidance and encouragement. I can't express his contribution in my development through words. My sincere gratitude goes to Mr. RAVI MANAS (CHILDREN OF MOTHER EARTH) and who has been most cooperative throughout the study.

I thank all my friends for their help at different stages of this work and I also would like to thank all the participants who co-operated my research as subjects. I will be always grateful to my university Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA) for its support in promoting my career.

I am indebted to my parents for their inspiration, love and support.

Finally I thank that unseen Divine without whose wish, this work wouldn't have been possible.

Date:

ASTHA RAI

Place: Bangalore

(Candidate)

**STANDARD INTERNATIONAL TRANSLITERATION CODEUSED TO  
TRANSLITERATE SANĀKRIT WORDS**

a	=	A	ia	=	'	pa	=	p
ä	=	Aa	ca	=	c	pha	=	)
i	=	#	cha	=	D	ba	=	b
é	=	\$	ja	=	j	bha	=	É
u	=	%	jha	=	H	ma	=	m
ü	=	^	ï	=		ya	=	y
â	=	\	öa	=	q	ra	=	r
è	=	§	öha	=	Q	la	=	l
e	=	@	òa	=	f	va	=	v
ai	=	@e	òha	=	F	ça	=	z
o	=	Aae	ëa	=	[	ña	=	;
au	=	AaE	ta	=	t	sa	=	s
à	=	A	tha	=	w	ha	=	h
ù	=	A>	da	=	d	kña	=	]
ka	=	k	dha	=	x	tr	=	Ç
kha	=	o	na	=	n	jia	=	}
ga	=	g			gha		=	"

## ABSTRACT

**Background:** Over 250 million children around the world — in countries rich and poor — work and many of them are at risk from hazardous and exploitative labour. Denied education and trapped in cycles of poverty, their most basic rights, their health and even their lives are in jeopardy.(Bellamy, 1997). Being deprived of normal family children become vulnerable to the psychological and emotional problems. Yoga practice can be the optimistic measure to overcome psychological and emotional abnormality and to improve wellbeing of young rag pickers.

**Methods:** Samples of 62 children were taken from a NGO named Children Of Mother Earth between the age group of 8 to 13 years who are randomly allocated into yoga and physical training group. Yoga group has been given yoga practices for 30 days and the physical training group is given physical training for 30 days and assessment are taken in first day and last day.

**Setting:** Study was conducted on sixty two young rag pickers, Lucknow, India, between the periods of June 2016 to July 2016.

**Intervention:** 1 hour yoga practices are designed which is the combination of breathing, loosening, Surya Namaskara, asana along with pranayama practices followed by relaxation\meditation and yogic games. Physical training group 1 hour of exercise which included of jogging, twisting and games.

**Result:** The independent Sample T-test using SPSS showed no significant change in Between group's analysis. Though significant change was seen in the within group analysis of physical training group.

**Conclusion:** Doing any physical activity may it be yoga or physical training (PT) helps in maintaining good physical and psychological health.

**Keywords:** young rag pickers, psychological wellbeing, yoga, physical training

## Table of Contents:

1. INTRODUCTION.....	8
2. YOGA & PSYCHOLOGICAL HEALTH.....	10
3. RAG PICKERS.....	11
4. REVIEW OF LITERATURE.....	13
4.1 MODERN LITERATURE.....	13
4.2 ANCIENT LITERATURE.....	14
5. AIM AND OBJECTIVE.....	18
6. METHODS.....	18
7. INCLUSION AND EXCLUSION.....	19
8. ETHICAL CONSIDERATION.....	19
9. DESIGN OF STUDY.....	19
10. INTERVENTION.....	19
11. DESIGN FLOWCHART.....	20
12. ASSESMENT TOOL.....	21
TABLE.1. YOGA MODULE.....	22
TABLE .2. PHYSICAL TRAINING.....	24
13. DATA EXTRATION AND ANALYSIS.....	25
14. RESULT.....	26
TABLE.3.....	26
TABLE.4.....	27
TABLE.5.....	28
TABLE.6.....	28
15. DISSCUSION.....	29
16. APPRAISAL.....	30
17. REFFERENCE.....	31
18. APPENDIX.....	35

## INTRODUCTION

Yoga is a holistic system of mind-body practices for mental and physical health and incorporates multiple techniques including physical postures and exercises that develop strength and flexibility, breathing exercises, deep relaxation, and meditation/mindfulness techniques to train attention. Yoga and meditation techniques have been shown to reduce perceived stress and improve mood.

Yoga is an ancient mind-body practice which originated in India more than 2,000 years ago and is described systematically early on (Patanjali's Yoga Sutras, circa 900 B.C.). Although, according to traditional scriptures, its ultimate goal is to achieve a unified state of consciousness and self-realization, yoga may be used to improve overall health and well-being.

Yoga is becoming popular as a preventive and therapeutic intervention and appears as safe as usual care and exercise (Catalá López et al., 2015). There is a very recent pilot study which showed that Yoga is a feasible and acceptable intervention in combating trauma-related distress, emotional and behavioural difficulties among children living in orphanages (Culver, Whetten, Boyd, & O'Donnell, 2015). Beneficial effects of Yoga were also observed in improving concentration, mood, and ability to function under pressure in children in postwar stress situations in Israel (Ehud, An, & Avshalom, 2010), imitation skills, cognitive skills, and social communicative behaviours (Radhakrishna, Nagarathna, & Nagendra, 2010). Trauma-related distress, emotional and behavioural difficulties among children living in orphanages (Culver et al., 2015).

Research documenting the therapeutic benefits of yoga has grown steadily for the past 3 decades and now includes controlled clinical trials on psychiatric conditions such as depression and anxiety, breathing disorders such as asthma, cardiovascular disorders such as hypertension, endocrine disorders such as diabetes, and a variety of musculoskeletal and neurological conditions. There is also a growing body of research literature documenting the benefits of yoga in children and adolescents.

For example, yoga intervention studies have reported improvements in attention-deficit hyperactivity disorder in boys; in weight loss, self-esteem, and anxiety in mostly Hispanic children and adolescents; and eating disorders in adolescents. The multiple techniques of yoga likely work synergistically together to yield stress reduction and improved well-being. There are a few pilot studies that have examined the psychological effects of yoga in children outside of the school curriculum. For example, an inner-city after-school program with a weekly 12-week yoga protocol showed fewer stress-related negative behaviors in comparison with a control group. There are even fewer studies that have evaluated yoga within the school curriculum. A study incorporating yoga within the school curriculum evaluated a relaxation program incorporating yoga for fifth-grade students in Germany.

Students experienced significant reductions in aggression, helplessness in school, physical complaints, and improvements in static balance and stress-coping abilities. More recently, a randomized controlled trial of a 12-week, in-school yoga program in fourth and fifth graders reported a positive impact on problematic responses to stress including rumination, intrusive thoughts, and emotional arousal.



Although yoga and meditation techniques seem ideally suited to prevent or alleviate the psychological issues encountered by adolescents in high school, we are unaware of reports of any randomized controlled studies within the school setting in this population. The overall purpose of this research program is to evaluate the psychological benefits of a yoga program conducted within the school curriculum for adolescents. This program has begun as a series of pilot studies aimed to develop the yoga intervention, test feasibility, and establish initial efficacy. Our initial pilot study was the first group-randomized controlled trial of yoga for adolescent mental health.

## YOGA AND PSYCHOLOGICAL HEALTH

Whatever the external condition may be, the children have to evolve out from the environment and prove themselves as the children of mainstream. For such a positive change in them, they need to be physically and mentally fit. Physical fitness is being considered as a powerful marker of health in childhood and adolescent and can be defined as the ability to perform a given set of physical activity, which later translate into cardiorespiratory fitness, muscular fitness, speed and agility. (Ortega, Ruiz, Castillo, & Sjöström, 2008).

Yoga is also now considered as an important intervention for promoting physical health. Regular practice of yoga promotes muscular strength (Dash & Telles, 2001), and overall physical fitness (Telles, Singh, Bhardwaj, Kumar, & Balkrishna, 2013) in children. Yoga is very important now a day as a people are becoming very conscious about their health. Yoga is very good for young rag pickers because it helps them to remove or throw out depression on irregularity or imbalance of mind. Psychological problems which are real, painful and costly but with the help of yoga, asana, pranayama and meditation technique the rag pickers can improve their mental health. The most important benefit of yoga is that yoga will help one to reach a state free from mental illness. Children must be protected from negative samskaras such as violence, hopelessness and mindfulness. We obviously can't avoid negative input ourselves, or completely protect children from it, but we can strive to minimize it. So the principal behind purification is not only working to eliminate the physical and mental impurities we already have, but also adjusting out life so that we can take in as a few new negative impressions as possible (Nayak B.K., 2014). For children who have to deal with stressors, anxiety, traumas, abuse, learning disabilities, and even bullying, the discipline developed by practicing contemplative techniques could be the difference between failure and success, both in their professional and personal life. (taken from Are There Benefits from Teaching Yoga at Schools? A Systematic Review of Randomized Control Trials of Yoga-Based Interventions) The age of onset of most mental health disorders in adults occurs in childhood and adolescence, with around 7.5% of adolescents meeting DSM-IV-TR criteria for 1 or more mental health conditions. Furthermore, stress was identified as a strong indicator across the spectrum of mental health disorders. The transactional view of psychosocial stress centers upon an individual's cognitive appraisal of internal and external events as stressful, from which coping responses may follow (J. J. Noggle, N. J. Steiner, T. Minami, and S. B. S. Khalsa, 2012)

## RAG PICKERS

Over 250 million children around the world — in countries rich and poor — work and many of them are at risk from hazardous and exploitative labour. Denied education and trapped in cycles of poverty, their most basic rights, their health and even their lives are in jeopardy. (Bellamy, 1997) Because the causes of child labour are complex, the solution must be comprehensive. The report calls for the immediate end to hazardous child labour and proposes strategies to help eliminate and prevent it including: to education; wider legal protection; birth registration for all children; collection of information; and mobilization of the widest possible coalition of partners among governments, communities, non-governmental organizations (NGOs), employers and trade unions. The single most effective way to protect children from hazardous and exploitative labour, the report argues, is to extend and improve education so that it will attract them and inspire their lives. (Bellamy, 1997)

Poverty in early childhood is one of the major predictor of worse developmental outcomes in later life (Heckman, 2006). Child Labor is a global phenomenon. It exists both in the developing and the developed countries though with a difference in cause and magnitude. Its prevalence is more in the developing countries as compared to the developed ones, because the families, to which the working children belong, are in an urgent need of income of child labor for their subsistence, whereas children in the developed countries are often working for pocket money. The working children themselves may not be productive but are capable of relieving the adults for productive employment by engaging themselves in domestic chores and looking after younger children in the home. This way, they allow their parents to spend more time on income generating activities. Amongst various causes of child labor, unemployment, poverty and indebtedness of the households are the most important. Many parents secure advances from the landlords or the employers and repay the loans in terms of their child labor. In some cases the children are compelled to migrate temporarily to the nearest cities or the urban areas of adjoining states to earn the necessary subsistence.

These changes have a very negative effect on their personality. In the competition to get enough and good quality plastic and paper waste they get up very early in the morning, this puts them in risk of getting molested and in the worst case scenario getting rapped. They often get physically assaulted by police officers, shopkeepers and their parents. In the day to day life they go through a lot of things which stresses them and in turn cause a lot of psychological problems. The police exploit the rag pickers, for they find it easy to register petty cases of theft etc., falsely. The health hazards faced by them is very acute. Most of them suffer from seasonal fever, malaria (due to mosquito bite) and other skin ailments due to very bad hygiene. These children become easy victims of all bad habits and become real criminal due to misuse. Unless some sympathetic/ understanding social workers help them with good guidance and protection they will die at an early age for they are unaware of any health problems they face due to their profession. They do not know the means to save or use properly the money they earn by rag picking. Unless public and government take a sympathetic stand and help them nothing much can be achieved.

In 2001, waste-picking was included among the hazardous occupations banned under the Child Labor (Prohibition and Regulation) Act, 1986. But apart from this very brief mention, rag picking is ignored in legislation regarding child labor. Contrary to most child laborers, rag pickers are self-employed or working with their parents and therefore not answerable to any employer.

([www.pratham.org](http://www.pratham.org))

Whatever the external condition may be, the children have to evolve out from the environment and prove themselves as the children of mainstream. For such a positive change in them, they need to be physically and mentally fit. Physical fitness is being considered as a powerful marker of health in childhood and adolescent and can be defined as the ability to perform a given set of physical activity, which later translate into cardio respiratory fitness, muscular fitness, speed and agility (Ortega, Ruiz, Castillo, & Sjöström, 2008).

## REVIEW OF LITERATURE

### 4.1. MODERN LITERATURE

S.NO	AUTHOUR	SAMPLE SIZE	INTERVENTION	RESULT/ DESIGN
1.	(Daly, Haden, Hagins, Papouchis, & Ramirez, 2015)	SS=38, YG=19 PT=19	16 week yoga intervention to YG. And 16 week Physical training to control group	The current study provides initial evidence as to the positive Effects of yoga on the emotion regulation of high school students. ANOVA.
2.	(Purohit, n.d.)	SS=72 YG=40 WL=32	3 Months yoga intervention to YG. And physical activity to PE group.	randomized wait list control pre post Study. Positive effect of yoga was seen.
3.	(Telles, Singh, Bhardwaj, Kumar, & Balkrishna, 2013)	SS=98 YG=49 PE=49	3 Months yoga intervention to YG. And physical activity to PE group.	Yoga and physical exercise are useful additions to the school routine, with physical exercise improving social self-esteem. Randomized controlled trail.
4.	(Chaya, Nagendra, Selvam, Kurpad, & Srinivasan, 2012)	SS=200 YG=100 PE=100	3 Months yoga intervention to YG. And physical activity to PE group.	Improvement in the mean scores of cognitive tests. No significant difference was found between the two groups. Randomized control trail.

## 4.2 Ancient literature

In the beginning of the class there used to be yogic prayer, a small session on understanding of the yogic concepts and their relevance to lead a positive lifestyle. *Mantra* forms an integral part of Indian way of life. *Mantra* is the Sanskrit word that means power which is considered to be essential for the internal journey of self-realization. *Mantra* is the science of the cosmic powers of sound; the unique sound creates electromagnetic waves and vibration that can replace the negative energy with positive thoughts. With practice of *mantra*, the sleepy mind is transformed into awakened mind named as intuition. The etymological meaning of *mantra* is

mnnat! Çayte #it mÜ>

*Mananätträyateiti mantra*

The meaning is by recitation of the particular *mantra* one's can protect himself or herself. In other words person can get rid of all their sins either mental or emotional through recitation of *mantra*.

According to *Haöha Yoga Pradipékä*

AvXy>svRzôa[a<zKy>svRdehlna<  
AçayaemÜyÜa[a<yaeglyu' smaixna .

*Avadhyaùsarvaçasträëääçakyaùsarvadehénääà |*

*Agrähyomantrayanträëääyogéyuktasamädhinä || HYP .4 - 113 ||*

**Meaning-** it talks that *mantra* and *yantra* are techniques of *tantra*, which awaken potential energy in the mind by separating and directing it from the underlying consciousness,

According to *Bhagavad-Gita*

ragÖe;ivyu'ESt iv;yainiNÖyEírn!,

AaTmvZyEivRxeyaTma àsadmixgCDit.É gl.2-64.

*rägadveñavimuktaistu viñayänindriyaiçcaran |*

*ätmavaçyairvidheyätmä prasädamadhighacchati || BhaGi||2-64||*

**Meaning:** A man of disciplined mind, who has his senses under control and who has neither attraction nor aversion for sense objects, attains tranquillity, though he may be moving amidst objects of the senses.

According to Patanjali yoga sutra

श्रेयते 1-2

*Yoga cittav ttinirodha || 1.2||*

**Meaning:** Health is discussed in different ways in the field of Yoga. The Yogasutra of Patanjali presents optimum health as a state of mind that is alert and in peace at the same time.

**Annamaya kosha**

Diet

युः सत्त्वाः रोग्याः सुखाः प्रीतिः विवर्धनः  
सः स्निग्धाः स्थाः हृद्यः हारः सत्त्विकाः प्रीयः

*yu -sattva-bal rogya-sukha-pr ti-vivardhan  
rasy snigdha sthir h idy h r s ttvika-priy*

**Meaning:** Persons in the mode of goodness prefer foods that promote the life span, and increase virtue, strength, health, happiness, and satisfaction. Such foods are juicy, succulent, nourishing, and naturally tasteful.

Asana

॥

*Sthirasukham sanam||P.Y.S 2-46||*

Posture (asana) is to be seated in a position which is firm but relaxed. Which is firm and pleasant.

प्रयत्नशैथिल्यानन्तसमापत्तिभ्याम्॥

Prayatna aithily nantasam pattibhy m//P.Y.S. 2-47//

*Posture becomes firm and relaxed through control of the natural tendencies of the body,  
and through meditation on the infinite.*

### Pranayama Kosha:

हे न श्व प्रश्न च प्र

*Tasminsati v sapra v sayorgativiccheda pr y ma || P.Y.S 49//*

Meaning: That (Asana) Having Been Perfected, Regulation Of The Flow Of Inhalation And Exhalation Is Pranayama (Breath Control).

### Manomaya kosha

प्र न द्रव

*Pram aviparyayavikalpanidr sm taya || P.Y.S 1-6//*

Meaning: These five kinds of thought-waves are: right knowledge, wrong knowledge, verbal delusion, sleep and memory. Of all the countless thought impressions that come into the mind field, which form the matrix of the barrier or veil covering the true Self or centre of consciousness, they all fall into one or more of these five categories. In other words, while there are many individual thought impressions, there are *not* countless *types* of thoughts to deal with,

but *only five*. This can help greatly in seeing the underlying simplicity of the process of Yoga, not getting lost in the apparent multiplicity in the gross and subtle realms.

### Vijnanamaya kosha

Aahar-inÔa-Éy-mEwunm! c

smanM@tTpzuiÉnRra[am!,



xmaeR ih te;am! Aixkae ivze;ae

xmeR[ hlna> pzuiÉ> smana>.

ähära-nidrā-bhaya-maithunam ca

samānametatpaçubhirnaräëäm |

dharmo hi teñäm adhiko viçeño

dharmeëa hénäù paçubhiù samänäù||

Meaning: Eating, sleeping, sex, and defense—these four principles are common to both human beings and animals. The distinction between human life and animal life is that a man can search after God but an animal cannot. That is the difference. Therefore a man without that urge for searching after God is no better than an animal.

### Anandamaya Kosha

स क्तः |

असक्तो ह्यचरन्कर्मपरमाप्नोति पूरुषः ॥ 19 ॥

*tasm dasakta satata k rya karma sam chara*

*asaktohy charan karma param pnotip ru ha || g tä 3-19||*

Meaning-Therefore, giving up attachment, perform actions as a matter of duty, for by working without being attached to the fruits, one attains the Supreme.

## **5. AIM AND OBJECTIVES**

### **5.1. AIM:**

To measure the changes in psychological wellbeing of young rag pickers on effects of Yoga and PT.

### **5.2. OBJECTIVE:**

To measure the psychological wellbeing in young rag pickers.

### **5.3. RESEARCH QUESTION:**

What is the effect of yoga on psychological wellbeing of young rag pickers?

### **5.4. HYPOTHESIS:**

Yoga effects psychological wellbeing of young rag pickers.

### **5.5. NULL HYPOTHESIS:**

Yoga does not affect psychological wellbeing of rag pickers.

## **6. METHODS:**

**6.1 Subjects:** 62 young rag pickers both male and female will be selected as participants, ages ranging between 8-15 years will be selected from an NGO named CHILDREN OF MOTHER EARTH, LUCKNOW (UTTAR PRADESH). All participants will be divided into two groups randomly i.e., Yoga group (n=31) and Physical training group n=31. The sample size was calculated using G power. According to the G power calculation, it showed that the required sample size was 33.

## **7. INCLUSION AND EXCLUSION**

### **7.1 INCLUSION**

- ) Age group between 8-15
- ) Physically and mentally fit

### **7.2 EXCLUSION**

- ) Children with acute or chronic illness
- ) Children who are physically and mentally challenged

## **8. ETHICAL CONSIDERATION**

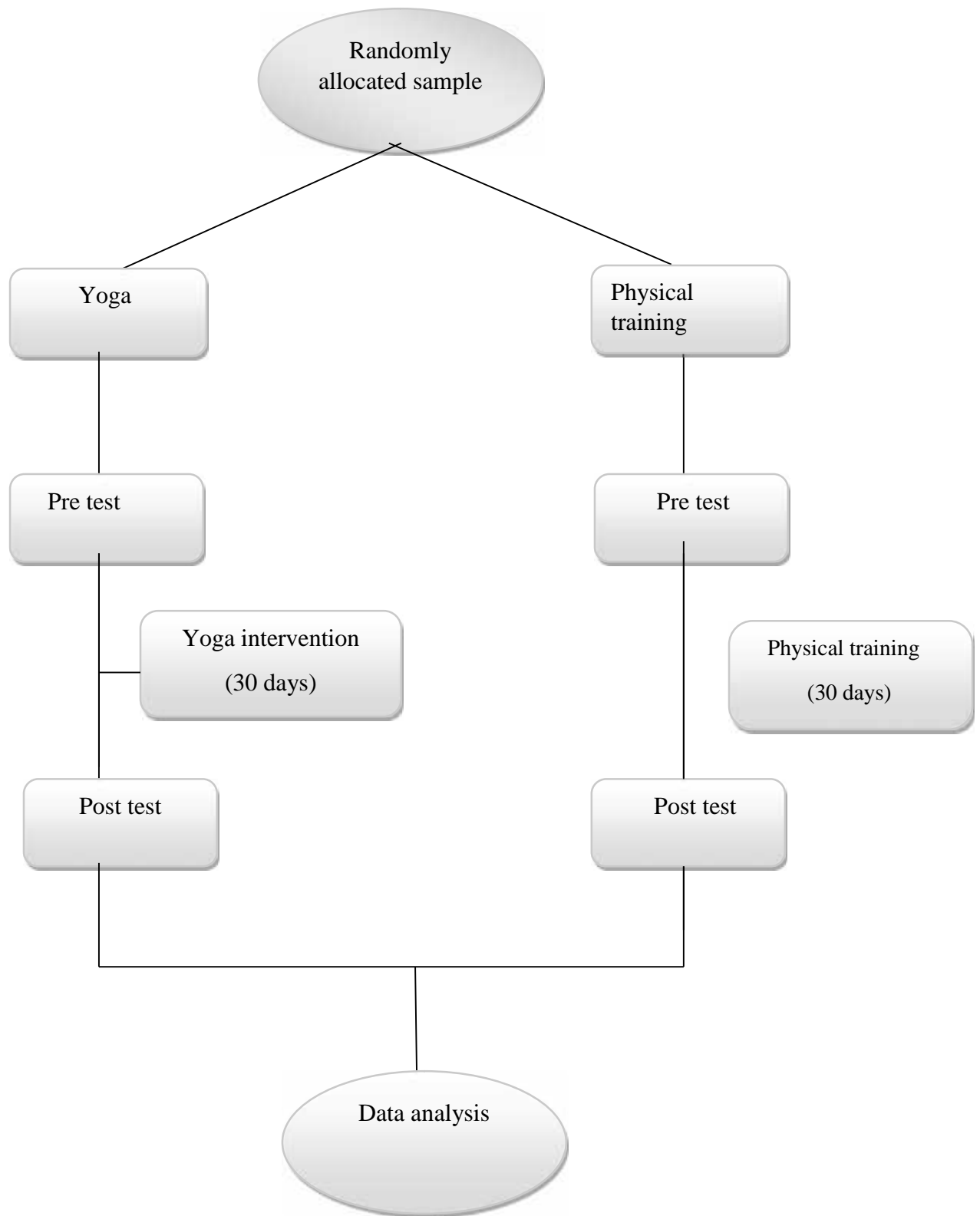
As all the participants are minor so the nature of the study will be explained to the parents or the care taker of the child. Informed consent will be given to the parents to sign.

## **9. DESIGN OF STUDY**

A randomized control pre-post study will be conducted. Participants were randomized by a statistician using a computerized random number table from [www.randomizer.org](http://www.randomizer.org) and assigned into two groups as Yoga group (YG) and control group (CG). The YG underwent the Yoga program for 1 month. Participants in the CG underwent physical training (PT).

## **10. INTERVENTION**

The YG will be given integrated approach of yoga – 60 minutes, 6 days/week, for a 1 month. The yoga intervention was taken from a study done on orphan children of age 8-13.(International, Journal, Purohit, Pradhan, & Ramarao, 2016). Yoga intervention starts with yogic prayer it includes loosening and breathing exercises, yoga postures, concentration and relaxation techniques and yogic games aimed to the multidimensional strengthening of the body, mind and social skills. The various components of the Yoga program are mentioned in the [Table 1](#). And the control group that is the PT group will get 45min of physical training which is mentioned in [Table 2](#). The physical training module was taken from(Telles et al., 2013).



## **12. ASSESSMENT TOOL**

### **PANAS-H**

The PANAS is a 20-item scale that measures positive affect (PA) and negative affect (NA). PA refers to the extent to which a person feels enthusiastic, active, and alert and NA refers to subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and nervousness. Items are self-rated on a 5-point Likert scale from 1 (very slightly or not at all) to 5 (extremely). Scores for PA and NA are summed. The PANAS is also sensitive enough to capture shifts in mood. (Pandey & Srivastava, 2016) A significant but low negative correlation was observed between PA and NA which suggests that PA and NA are not independent of each other. Item analysis done for each subscales revealed that the Hindi affective lexicon used for tapping the dimensions of PA and NA are reliable and valid and form a homogeneous item-pool. The reliability of the PA and NA subscales as well as that of the whole scale was found to be highly satisfactory (0.804 for PA, 0.776 for NA, and 0.658 for full scale). Overall, the findings suggest that 1) the PANAS-H can reliably and validly measure the PA and NA of Hindi speaking individuals, and 2) the PANAS-H measures two distinct (PA and NA) but negatively related dimensions of affect.

Positive and Negative Affect Schedule (Watson, David; Clark, Lee; & Tellegen, 1988). The PANAS is a 20-item scale that measures positive affect (PA) and negative affect (NA). PA refers to the extent to which a person feels enthusiastic, active, and alert and NA refers to subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and nervousness. Items are self-rated on a 5-point Likert scale from 1 (very slightly or not at all) to 5 (extremely). Scores for PA and NA are summed. The PANAS is also sensitive enough to capture shifts in mood.

<b>S.NO.</b>	<b>INTERVENTION COMPONENT</b>	<b>NO. OF ROUNDS</b>	<b>APPROX. TIME</b>	<b>GENERAL JUSTIFICATION</b>
1.	Yogic prayer, session on basic concepts of yoga and instructions for the class		5MINS	Give directions and motivation for living a life with positivity and enthusiasm with acceptance and the importance of different yoga activities/skills
2.	Preparatory practices (a) Warm-up: jogging, jumping, hopping, forward and backward bending, side bends and twisting (b) Loosening: for toes, ankle, knee, hips, fingers, wrist, elbow and neck (c) Stretching with breathing exercises: hands in and out, hands stretch, ankle stretch, hip stretch, backstretch, tiger stretch (spinal updowns), supine straight leg raising, cycling, lumber stretch, rocking and rolling	1 each	10MINS	Preparatory practices of Asana and Pranayama. Warm up the body, loosen the joints and stretch the muscles
3.	Sun salutation (Suryanamaskar)	5	5 MINS	Gives an all-round benefit by balancing physiological systems and removing mental rigidity (Tamas)
4.	Asana (postures) A. Standing postures (a) Half waist rotation posture (Ardhakati Chakrasana) (b) Foot palm posture (Padahasthasana) (c) Half wheel posture (ArdhaChakrasana) (d) Triangle posture (Trikonasana) (e) Tree posture (Vrikshasana) B. Sitting postures (a) Diamond (Vajrasana) (c) Sleeping diamond posture (Supta Vajrasana) (d) Camel posture (Ustrasana) (f) Spinal twist posture (Ardha Matsyendr sana) C. Prone posture	1 each	10MINS	Culturing the body and mind by improving strength, stamina and flexibility

	<p>(a) Cobra posture (Bhujangasana)</p> <p>(b) Grasshopper posture (Salabhasana)</p> <p>(c) Bow posture (Dhanurasana)</p> <p>(d) Shoulder stand (Sarvangasana)</p> <p>(e) Plough posture (Halasana)</p> <p>D. Supine postures</p> <p>(a) Fish posture (Matsyasana)</p> <p>(b) Boat posture (Naukasana)</p>			
5.	Deep relaxation technique (DRT)		5MIN	Gives total rest to the body muscles and mind
6.	<p>(a) Breathing with forceful exhalation with passive inhalation (Kapalabhati-3 types)</p> <p>(b) Breathing with rapid inhalation and exhalation (Bhastrika)</p> <p>(c) Slow and rhythmic alternate nostril breathing (NadiSodhana)</p> <p>(d) Exhalation, with a honeybee sound (Bhramari)</p>	1 each	5MIN	Improves lung capacity, balances vital energy, regulates emotions by reducing anxiety and stress
7.	<p>(a) Eye exercises (Netra Sakti Vikasana)</p> <p>(d) Trataka</p> <p>(e) Palming</p>	1 each	5MINS	Gives rest and rejuvenates the ocular muscle. Also improves concentration and attention
8.	Yogic games (games for memory, awareness and creativity)		15MINS	Yogic games help in reducing stress and the feeling of loneliness by improving the social skills/ peer relationship and caring attitude



Table 2: Intervention for the control group

S.NO	NAME OF THE EXERCISE	EXERCISE TIME	RECOVERY TIME
1	Jogging in place (i) Slow jogging (ii) Thighs perpendicular to the trunk (iii) Knees flexed, feet directed sideways (iv) Knees flexed, heels touching the buttocks	8min	2min
2	Rapid bending forwards & backwards (i) With legs together (ii) With legs apart	5min	2min
3	Bending sideways (i) With legs together (ii) With legs apart	5min	2min
4	Spinal twisting	3min	1min
5	Relay races/games	30min	2min

## **13. Data Extraction and Data Analysis**

### **13.1. Data Extraction**

Data of PANAS was collected on the first day and last day of intervention and control sessions. Questionnaires were administrated by experienced yoga instructor. Subjects were instructed to read questionnaire properly and choose any option in answer they felt appropriate to them. The questionnaires were scored manually as per standard criteria. There after data was computerized in Microsoft excel.

### **13.2. Data Analysis**

Statistical analysis was done by using IBM statistics SPSS software (version 19). The raw data obtained for each subject in each recording session was tabulated separately using M S Excel. All variables were expressed as mean  $\pm$  standard deviation. A paired t test was used to identify the differences in the pre and post groups statistical analysis was done using SPSS. For Within group a Paired Sample t-Test was used and for between groups Independent Sample t-Test was used to determine results.

## 14. Result

There is no significant difference between the score of post yoga group and post physical training group in the result of between group test. And There is no significant difference between the pre and post yoga group in the within group test. Whereas significant difference was found in scores of pre physical training group and post physical training group.

**Table 3: Total score of PANAS, % change, p-value pre and post control and yoga intervention; value are grouped mean±SD.**

VARIABLE	STATE		SESSION	
			YOGA GROUP (n=31)	PHYSICAL TRAINING GROUP (n=31)
PANAS	PRE	Positive	31.03±3.808	27.16±3.760
		Negative	29.23±3.676	27.74±3.614
	POST	Positive	31.23±3.538	33.19±4.118
		Negative	31.19±4.453	27.42±4.241
	With-in Group P-Value	Positive	.833	.000
		Negative	.083	.754
	Percentage Change (%)	Positive	0.006	0.222
		Negative	0.068	0.011

## INDEPENDENT SAMPLE T-TEST

Table .4

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Pre P score	Equal variances assumed	.077	.783	4.027	60	.000	3.871	.961	1.948	5.794
	Equal variances not assumed			4.027	59.991	.000	3.871	.961	1.948	5.794
Post P score	Equal variances assumed	.727	.397	-2.018	60	.048	-1.968	.975	-3.918	-.017
	Equal variances not assumed			-2.018	58.664	.048	-1.968	.975	-3.919	-.016
Pre N score	Equal variances assumed	.054	.817	1.603	60	.114	1.484	.926	-.368	3.336
	Equal variances not assumed			1.603	59.983	.114	1.484	.926	-.368	3.336
Post N score	Equal variances assumed	.230	.633	3.417	60	.001	3.774	1.104	1.565	5.983
	Equal variances not assumed			3.417	59.858	.001	3.774	1.104	1.565	5.983

## WITHIN GROUP TEST OF YOGA GROUP

Table .5

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Yoga Pre P score – Yoga Post P score	-.194	5.069	.910	-2.053	1.666	-.213	30	.833
Pair 2	Yoga Pre N score - Yoga Post N score	-1.968	6.102	1.096	-4.206	.270	-1.796	30	.083

## WITHIN GROUP TEST OF PHYSICAL TRAINING GROUP

Table .6

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PT Pre P score - PT Post P score	-6.032	5.492	.986	-8.047	-4.018	-6.115	30	.000
Pair 2	PT Pre N score - PT Post N score	.323	5.689	1.022	-1.764	2.409	.316	30	.754

## 15. DISSCUSSION

The current randomized control trial was aimed to investigate the difference of effect of 1 month of yoga and 1 month of physical training intervention on psychological well-being of young rag pickers. A study done on primary school age children showed yoga brings significant change on avoidance behavior and coping strategies (Richter et al., 2016). A study done in university students showed yoga can increase emotional sensitivity and can paved the way for academic success (T. S. Ganpat, Dash, & Ramarao, 2014). Yoga practices bring significant improvements on cognitive function such as performance enhancement, neural activity, executive function and attention. it also increase heart rate variability, parasympathetic activity and balance autonomic nervous system reactivity (Nagendra et al., 2015).

.This was a questionnaire based study so there can be possibility of bias while answering the question by students though the subjects were explained well about questionnaire and way of answering questions. Another possible reason can be the short span of yoga intervention. Well-designed yoga intervention with *bhajan* and Chanting for three month or more might bring significant changes on psychological well-being of young rag pickers.

## **16. Appraisal**

### **16.1. Limitation**

- ) Small sample size
- ) Short duration of intervention
- ) Level of understanding the questionnaire in Hindi was a difficulty. Even though it was explained in local language, still it was difficult and it would have been much easier for them to understand and grasp the meaning if the questionnaire would have been in simple Hindi term which is used in day to day life.
- ) As the children were not able to understand the questionnaire they were not willing to fill. That's why I could not get them to fill more than one questionnaire.

### **16.2. Strength of the study**

- ) This is only study which is done on psychological well-being of young rag pickers.
- ) Randomized control study on young rag pickers.
- ) All children were regular in the class.

### **16.3 De- Limitation of the study**

- ) Rag pickers from only one area were taken for study.
- ) Only age group 8-14 were the part of study.
- ) Only questionnaire based study was done.
- ) Sample area for Lucknow.

### **16.4 Scope for future study**

- ) Questionnaire should be in a simpler language.
- ) A bigger sample can be taken for future study.
- ) Intervention could have been longer to see better result.
- ) Objective parameters would have been added in study to make the study stronger.

## **17. CONCLUSION**

Untreated illness in early stages may have impact on whole quality of life. Through present study an attempt had made to decrease some of the psychological problems in few orphan children which show significant results proving that practice of yoga may help in decreasing anxiety and violence and increasing hope and mindfulness as a whole yoga not only helps to maintain physical health it even have good impact in maintaining good psychological health.

Whatever the external condition may be, these children have to evolve out from the environment and prove themselves as the children of mainstream. For such a positive change in them, they need to be physically and mentally fit. Physical fitness is being considered as a powerful marker of health in childhood and adolescent and can be defined as the ability to perform a given set of physical activity, which later translate into cardio respiratory fitness, muscular fitness, speed and agility (Ortega, Ruiz, Castillo, & Sjöström, 2008).

Any physical activity may it be yoga or physical training or any sports have positive effect on psychological as well as physical self.



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## APPENDIX

Yoga					
		Pre data	Pre data	Post data	Post data
NAME	AGE	Yoga P score	Yoga N score	Yoga P score	Yoga N score
Aklema	10years	27	29	37	38
Shikha	12years	28	27	29	32
Mahima	8years	28	22	33	33
Babu	8years	30	32	30	29
Sumit	9years	31	32	34	31
Arpita	10years	33	33	37	38
Amela	10years	30	29	31	33
Shafikool	11years	30	29	31	37
Shivangi	14years	39	35	32	23
Hilmeena	10years	27	25	31	32
Anju	14years	31	28	31	33
Shipra	14years	33	29	26	27
Marjina 1	9years	35	31	23	21
Marjina 2	10years	35	29	35	32
Sandhya	11years	27	28	30	29
Kriti	13year	27	27	32	33
Asma	10years	28	26	35	38
Rinki	14years	31	32	32	33
Shradha	14years	36	37	26	28
Priyanka	8years	41	29	35	33
Asmina	14years	35	31	32	33
Maikail	10years	27	26	29	32
Samaan	11years	31	29	32	28
Alia	12years	33	29	31	31
Asmina	13year	28	24	28	27
Marjina	9years	27	27	31	32
Shahida	14years	28	26	37	38
Shamat	13year	31	32	30	31
Rahima	9years	36	39	33	34
Maku	12years	27	29	23	23
Sanu	10years	32	25	32	25

Physical Training					
		Pre data	Pre data	Post data	Post data
NAME	AGE	PT P score	PT N score	PT P score	PT N score
Lucky	10years	33	25	31	23
Pari	12years	28	27	33	22
Mahima	9years	28	22	37	29
Mahima 1	10years	20	31	33	33
Khushboo	13years	29	31	35	27
Hemat	10years	27	32	28	26
Madhuri	11years	22	30	33	32
Neha	13years	26	31	40	33
Fatima	10years	26	29	31	30
Suhana	9years	24	27	35	26
Sharifool	13years	28	29	37	25
Manover	12years	28	27	40	35
Sunaina	13years	23	25	33	31
Muskaan	11years	30	25	36	30
Himanshu	8years	28	24	31	22
Anora	11years	32	22	26	24
Reena	9years	30	25	33	31
Rokibool	9years	31	26	38	30
Soumya	13years	20	30	34	25
Farida	10years	27	25	33	22
Imran	12years	29	27	32	32
Mahima 2	13years	28	22	34	30
Aditi	12years	22	29	27	27
Agrima	12years	24	30	24	20
Shikha	10years	30	29	37	30
Rupa	9years	28	27	38	35
Shiraz	11years	29	28	34	24
Pinky	12years	36	39	30	23
Alisha	10years	21	32	34	26
Preeti	8years	27	30	37	25
Mahima	13years	28	24	25	22

# CONSENT FORM



## INFORMED CONSENT TO PARTICIPATE IN RESEARCH

SWAMI VIVEKANANDA YOGA ANUSANDHANA  
SAMSTHANA DEEMED UNIVERSITY

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**Title of the Project: YOGA FOR PSYCHOLOGICAL WELLBEING OF YOUNG RAGPICKERS.**

**Principal investigator:** Astha Rai

**Organization:** Swami Vivekananda yoga Anusandhana Samsthana Deemed University

**This informed consent has two parts:**

- ) Information sheet (to share information about the research)
- ) Certificate of Consent (for signature if you allow to conduct the study )

**You will be given a copy of fully informed consent form.**

Your organization is being invited to participate in a research study. This form is designed to provide you with information about this study. The principal investigator or representative will describe this study to you and will clear any of the questions, complaints about the informed consent process or the research study, if you have any.

**Purpose of the Research:**

Aim of this study is to measure the effect of yoga on psychological well-being of young rag pickers.

### PANAS (The Positive and Negative Affect Schedule)

विविन्न प्रकार के भाव एवं संवेगों से सम्बंधित नीचे कुछ शब्द दिये गये हैं। आपको

यहाँ यह दर्शाना है कि इन भावों और संवेगों की सामान्यतः आप अपने जीवन में किस सीमा तक अनुभव करते हैं। अपने उत्तर को अर्कों में दर्शाने के निम्न गापनी का प्रयोग करें—

1	2	3	4	5
अल्पमात्र में या लगभग कभी नहीं	थोड़ा बहुत या कभी-कभी	मध्य सीमा का या औसत रूप से	पर्याप्त मात्रा में या प्रायः	बहुत अधिक मात्रा में या लगभग हमेशा

जीवन के मनोभावों व संवेगों की प्रकट करने वाले प्रत्येक शब्द को पढ़कर यह निर्णय लेने का प्रयास करें कि वह आपके जीवन को किस हद तक परिभाषित करता है जम्हा आमतौर पर उस भाव या संवेग को आप अपने जीवन में किस आवृत्ति या मात्रा में अनुभव करते हैं। उपर्युक्त उत्तर विकल्पों से जो विकल्प आप के जीवन के सार्वभौमिक स्थिति को सही-सही प्रकट करता हो उससे सम्बंधित अंक को प्रत्येक शब्द के आगे दिये गये कोष्ठक में भरें।

1. Interested	सोचकता का अनुभव	
2. Distressed	दुःख या पीड़ा अनुभव	
3. Excited	उत्तेजना (हर्ष वृत्ता) का अनुभव	
4. Upset	मानसिक उद्विग्नता या परेशानी का अनुभव	
5. Strong	सबलता एवं बहादुरी का अनुभव	
6. Guilty	स्वयं को दोषी मानना, अपराधबोध की भावना	
7. Scared	भयग्रस्त रहना या अकारण डर का अनुभव करना	
8. Hostile	शत्रुता एवं विद्वेष का भावना	
9. Enthusiastic	उत्साह एवं उत्साह का अनुभव	
10. Proud	नर्व का अनुभव	
11. Irritable	विद्वेषिभाव का अनुभव	
12. Alert	सजगता एवं कृति का अनुभव	
13. Ashamed	लज्जित होना या शर्मिन्धगी का अनुभव	
14. Nervous	परेशान एवं बेचैन अनुभव	
15. Determined	दृढ़ निश्चयी एवं सकल्पवान	
16. Attentive	स्वतः एवं एकाग्र	
17. Jittery	आशंकित एवं हँसल	
18. Active	सक्रिय / उर्जावान	
19. Afraid	भयभीत	
20. Inspired	आत्मारहित या अन्तःप्रेरित	

# CHILDREN OF MOTHER EARTH





