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### Editorial.....

It is heartening to note that our journal is able to sustain the enthusiasm and covering various facets of knowledge. It is our hope that IJMER would continue to live up to its fullest expectations savoring the thoughts of the intellectuals associated with its functioning .Our progress is steady and we are in a position now to receive evaluate and publish as many articles as we can. The response from the academicians and scholars is excellent and we are proud to acknowledge this stimulating aspect.

The writers with their rich research experience in the academic fields are contributing excellently and making IJMER march to progress as envisaged. The interdisciplinary topics bring in a spirit of immense participation enabling us to understand the relations in the growing competitive world. Our endeavour will be to keep IJMER as a perfect tool in making all its participants to work to unity with their thoughts and action.

The Editor thanks one and all for their input towards the growth of the **Knowledge Based Society**. All of us together are making continues efforts to make our predictions true in making IJMER, a Journal of Repute

**Dr.K.Victor Babu**  
**Editor-in-Chief**

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(P.K. Thakur)

Secretary( Officiating)





## ARTIFICIAL INTELLIGENCE TECHNIQUES: A SURVEY TO THEIR USE ON PREVENTION OF DRUG ADDICTION

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**Abstract :** Nowadays, teens and young adults spend a significant amount of time on social media. According to many researchers, teens who spend a lot of time on social media sites are at increased risk of smoking, drinking and illicit drug use. Hence, Drug addiction become a major problem in our societies, it affects any community and requires a serious solutions. To detect substance use related social media posts, and to understand the relationship between a person's activities in social networks and behavior related to addiction, we study the state-of-the-art social media analytics that combines Artificial Intelligence technologies. Our conclusion that AI used methods to prevent drug addiction are effective in identifying substance use-related social media posts.

**Keywords:** drug addiction, Artificial Intelligence, Machine Learning, deep analysis, Data mining, social media

### Introduction

Addiction is a disorder involving a malfunction in the reward circuitry of the brain. This malfunction leaves addiction sufferers less able to experience pleasure from regular activities. According to the National Institute of Drug Abuse, an estimated 60% of addiction sufferers inherit this malfunction genetically, whereas the others are believed to have damaged their reward system through overuse [1].

Drug abuse is prevalent among young people and can be heavy consequences. The problem is treated well if it is taken early, but prevention is better than cure. For example, It is estimated that one in 20 adults has consumed at least one in 2014. This represents 250 million people aged 15 to 64, approximately equivalent to the populations of Germany, France, Italy and United United Kingdom; that's a lot, but it does not seem have been increasing in the last four years proportionately to the world population [1]. Based on the same source, in 2014, an estimated 183 million people would have used cannabis, which would



always be the most commonly consumed globally, followed by amphetamines. In fact, more deaths, illnesses and disabilities are associated with drug abuse than any other preventable health condition. The major problem that the risk of drug use increases greatly during times of transition. For an adult, a divorce or loss of a job may increase the risk of drug use. Hence, Setting up of drug policies based on scientific data can, thanks to prevention and treatment measures example, mitigate the adverse consequences that consumption of drugs has for health. When based on scientific data, preventive measures, early intervention, treatment, care, recovery, rehabilitation and social integration and the entire care system for drug users reduce consumption and thus limit its impact on public health, which is one of the essential elements for the well-being of society.

In this paper, we report our effort on surveying Artificial Intelligence methods on prevention of drug addiction based on social media. We apply a descriptive statistical study to automatically prevent any drug addiction.

The main contributions of this research include:

- 1) The presentation of the different used concepts and notions,
- 2) The study of the state-of-the-art of Artificial Intelligence methods used to identify substance use-related social media documents,
- 3) Conducting comprehensive survey to demonstrate the effectiveness of the used methods to avoid many Drug addiction problems.

This paper is organised into five sections, this being the first one. Section 2 presents the different used notions and concepts. On section 3, we review the literature and present the related work. Section 4 describes our synthetic result. Finally, Section 5 points out conclusions and future work.

## 2.2 Machine Learning

Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves.

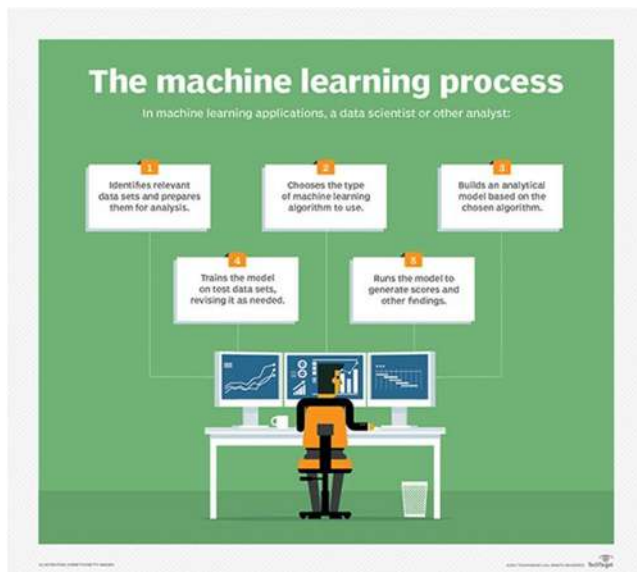
## 2.3 Deep learning

Deep learning is an Artificial Intelligence (AI) function that imitates the workings of the human brain in processing data and creating patterns for use in decision making. Deep learning is a subset of Machine Learning (ML) in AI that has networks capable of learning unsupervised from data that is unstructured or unlabeled. Also known as deep neural learning or deep neural

network [21]. Machine learning is the concept that a computer program can learn and adapt to new data without human interference.

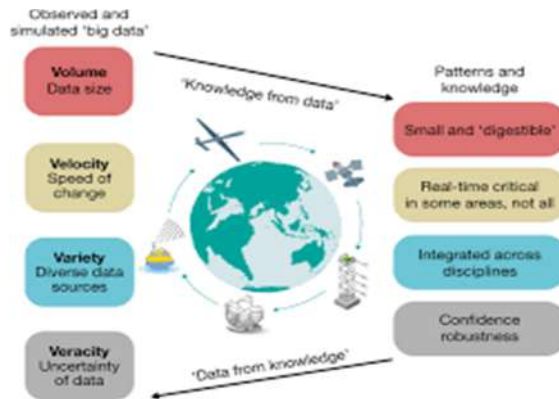
The importance of this field that it is able to learn from vast amounts of unstructured data that would normally take humans decades to understand and process. The process of performing Machine Learning often requires many more steps before and after the predictive analytics. It is based on the following steps

1. Finding and Understanding the Data
2. Cleaning the Data and Feature Engineering
3. Choosing a Model
4. Tuning and Evaluating
5. Using the Model and Presenting Results



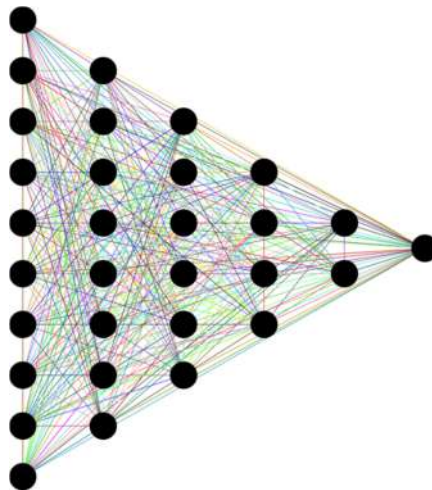
**Figure 1The machine learning process [22].**

Deep Learning uses a Neural Network to imitate animal intelligence. There are three types of layers of neurons in a neural network: the Input Layer, the Hidden Layer(s), and the Output Layer. Neurons apply an Activation Function on the data to “standardize” the output coming out of the neuron. The following figure (see Figure 20) presents the deep learning process.



**Figure 2 Deep learning process**

We start by creating an artificial neural network where nodes represent our input values and our output values then our predictions and in between those, we have a layers where the information travels before it hits the output (see Figure 3).



**Figure 3An Artificial Network**

## **2.4Social media**

Social media users are increase every second and the number of active users suggested to be around 2.32 billion users in 2019 [1]. The huge distribution for different application of social media in smart phone and tablets enable everyone on the earth to chat and communicate with each other's.



Many individuals start to post their daily activity through different social media application due to the wide use of social media among the world. Social media applications include: - WhatsApp, Snapshot, IMO, we chat, YouTube and others. This technology has a great impact on knowledge and education but there are also other dangerous effects. Several authors and researchers studied social media for medical, educational, statistical and other purposes.

The big problem with social media is that within very short time individuals can communicate with each other's and build a network to find illegal products such as weapons and drugs [2]. In addition, social networks can be used by terrorists to post some movies and photos for terrorist attack like ISIS and other terrorist groups. According to U.S. Central Command [3].

Threats include: - thieves, hackers, phishers/scammers, terrorists, intelligence spies and pedophiles. Thieves can follow the internet users and determine their location and to know if someone is available at home to perform a crime.

Pedophiles using social media to trap young children for sex offenders (e.g. MySpace). Phishers sending fake e-mail for internet users to update their information though using malicious software and collected user's sensitive data. In addition, Terrorists such as ISIS and Al Qaeda using internet to seek information about officers, authorized persons (work time, work location etc) [3].

Social media was used for medical studies for example it was used to study depression [4]. There is lot of arguments about advantages and disadvantages of social media. A recent study suggested that reduce time for using social media to 10 minutes/day have significant effect in reduce mental illnesses such as depression, anxiety and fear [5]. Analysis of social media was an interested topic for many authors in fact, social network analysis (SNA) was started in 1991 when Malcom Sparrow developed social network analysis (SNA) as a tool for criminal intelligence [6]. Other studies on social media network analysis (SNA) focused on criminal's identification [7-8].

## **2.5 Drug abuse and social media**

Social media application and technology can be used as a tool for drug traffic and smuggling through the Internet. However, many authors studied this phenomenon by using data mining to analyse social media for drugs of abuse traffics. A previous study focusses on the detection and analysis both illicit drugs (e.g. cocaine, heroin, marijuana etc.) and prescription drug (e.g. Ritalin) abuse using tweets [9]. Twitter was used to determine the drugs abusers through their tweets [9]. Death related to opiate use & abuse increases every

year in USA and it was suggested that there is more than 21% increase in death related to opiate and opiate like medication due to overdose [9]

Tweeter was used also to determine abuse of opiates drugs such heroin, morphine and use of synthetic opiate prescribed drugs such as OxyContin, Ritalin, Vicodin. [10-11]

The method for pervious study was depend on four steps

- 1- The tweets were collected by using Application Programming Interface (API) which allows applications to communicate with each other.
- 2- All data will be managed through database management systems (DBMSs). It provides users with a systematic way to update and manage data.
- 3- Tweets are reused and filter and inserted into data analysis and artificial intelligent systems to identify tweets contain drugs of abuse words
- 4- Systems will be used in different drug abuse (illegal & medical) monitoring services

In addition to tweeter other social media was studied by many authors. Instagram was used as a tool to identify drugs of abuser through examining users' posts [12]. A previous study applied on 58000 posts and 100 account for drug abusers [12]. Hashtags were examined by using NYSAGO from New York State Attorney General's office (include 1000 drugs of abuse related posts). All Hashtags set-up-to-date by using Apriori algorithm [13]. Results showed that percentage of cases consuming cannabis, pills and cough syrup were 72%, 14% and 13% respectively [12].

### **3. Drug abuse social media and Artificial Intelligence: a survey**

The authors on [24] use Instagram to develop an approach that predict someone's risk of substance abuse based on their Instagram accounts. They use multiple different machine learning architectures to analyze texts and images. The authors found that their AI could identify alcohol risk based on Instagram content significantly better than what is expected due to random chance.

Atomwise is a company that uses AI for drug discovery, illustrates the potential for AI to improve the results of businesses of all kinds. AI is part of the Atomwise team, but there are many humans in the effort including medicinal chemists, structural biologists and machine learning experts. The company is an excellent example of how artificial intelligence technology can augment and accelerate human efforts in the achievement of a goal. In this case, the company is helping provide insight so that medicines to fight some of the world's harshest diseases such as Ebola can be developed faster [24].

The aim of this paper [25] is to explore, through data mining techniques, the reasons why teens use drugs. Many data mining techniques are used in the drug related context; the authors compare their performance to correctly classify the participants in drug user/never drug user. Also, they examine the frequent reasons why high school students use drugs and if they differ from the type of substance used.

## **6.Discussion**

The aim of the different approaches is to detect a not null probability of being a drug abuser using algorithms from machine learning, data mining, etc.

The different presented works aim to explore different data sources from social media in order to find underlying patterns about Drug addiction. Some of the extracted knowledge provided multiple issues : the role of individuals' feelings after the first drug abuse in the success of following treatments, characteristics of abusers, main reason of addiction among different age groups, and the influence of family history on individuals' addiction. Findings of the study can help different organizations in making decisions about addiction. We note that the different methods are semi automatic. Many parameters are used on the different experiences that can have an important impact of the effectiveness of the proposed solution.

## **6.Conclusion**

The paper shows that Artificial Intelligence methods like machine learning, deep learning, etc. could be used to identify potential substance abuse behavior using social media.

Hence, a need to design an automated prevention of substance use- related social media is very important point about our future work. Some methods like random forest, random subspaces, and KNN algorithms, as classifiers, can be implemented on different datasets in order to increase the accuracy of the knowledge.

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## CURCUMA LONGA A PANACEA IN THE MANAGEMENT OF NON-COMMUNICABLE DISEASES

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### **Abstract**

Curcuma longa (CL) is a rhizomatous herbaceous perennial plant, native to South Asia and now largely cultivated other tropical countries also. It is a very important ingredient in many traditional medical formulae. Many researches, in animals and humans, have been carried out from the recent past to evaluate its efficacy. Published journal articles were filtered from the data bases PubMed and Google scholar by using the search term 'Curcuma longa' OR 'curcumin' AND with the specific disease conditions. Most of the research studies were done with the extract of turmeric or curcumin which is the active ingredient of the turmeric. All these studies exhibit the fact that curcumin is more effective and possessing cardio-reno-hepato and neuro protective effect, anti-atherogenic, anti-ovarian cancer, anti-rheumatic and osteo arthritis, anti-osteoporosis and anti-androgenic activities. Some studies further reveal the fact that the amount of curcumin presence in the turmeric powder is very less and also poorly absorbed by the gut. As such, it does not produce any therapeutic effect. However, there are many fortified curcumin products available in the market. The public is not aware the value of this remedy for many chronic ailments. Therefore it has become mandatory to educate the public to utilize these simple methods to prevent and alleviate many diseases. It is further proposed to perform extensive human studies.

**Key wards:** Curcuma longa', 'curcumin', specific disease

### **Introduction**

Curcuma longa (CL) is a rhizomatous herbaceous perennial plant of the ginger family, Zingiberaceae. It is native to South Asia and now largely cultivated in India, Sri-Lanka, China and other tropical countries. It is grown in the mid and moist low-country in Sri-Lanka. It has been given internally by the traditional Physicians to treat diarrhea, dysentery, worm infestations, rheumatism, bronchial ailments, disorders of the blood and snake bites etc. Fresh rhizome is crushed and applied externally on bruises, sprains, wounds and leech-bites. Inhalation of fumes of burning dry turmeric relieves cold and catarrh. The powdered form of CL rhizome is commonly used as a spice in cooking curries in Asian countries and it is also used to dyeing robes of Buddhist priests (Jayaweera & Senaratne, 2006). Its active compound, curcumin possesses an earthy, bitter, peppery flavour (Jageta & Aggarwal, 2007).

The curcumin content of turmeric is around 3 % and also it is poorly absorbed into the blood stream. However, turmeric combined together with the consumption of black

pepper (contains piperine) increases the absorption of curcumin by 2,000 % (Tayyemet al, 2006;Shoba et al, 1998). In assays researchers use the extracts of turmeric, contain curcumin and the dosages usually goes above one gram (1 gram) per day. But, in the daily life the amount of turmeric that we use as curry powder will not achieve the therapeutic value to cure a disease. Therefore, now curcumin extract available in capsules form.

In considering the dosage of turmeric, in a study curcumin 1000 mg / day was taken by the patients for 8 weeks (Panahi et al, 2017). Turmeric powder has traditionally been used as a stimulant and carminative and the dosage ranges from 0.5 to 3 g/day. Further 6 g/day have been found to be protective effects (Chainani-Wu et al, 2012). Another review found that there were minimal to no side effects by the curcumin supplementation in longer duration (Yang et al, 2019) and the bioactivity of turmeric is tremendous, and indicated as a panacea for Non-communicable Diseases. This review article is aimed at to compile the information mainly on the therapeutic efficacy of turmeric on certain non-communicable diseases based on the scientific evidences.

### **Methods and Materials**

To find the efficacy of *Curcuma longa* the published journal articles were filtered using online electronic databases such as PubMed advanced and Google scholar up to February 2020. The articles were selected only from English publications. To complete the systematic review in effective manner the articles were filtered using different search terms combining 'Curcuma longa' OR 'curcumin' OR 'turmeric' AND the disease conditions such as 'osteoarthritis'. The search terms were changed according to each and every disease condition. Animal studies and human trials were selected to confirm the therapeutic activity of turmeric on specific NCDs as inclusion criteria. Duplicated publications, articles not directly related to therapeutic efficacy were excluded.

### **Results and Discussion**

#### **Cardio-protective action**

Studies disclosed that curcumin nanoparticles more efficient than conventional curcumin and exerted better antioxidant effects and also prevented cardiomyocytes damage, and ECG alteration in isoproterenol (ISO)-induced MI rats (Boarescu et al, 2019).

#### **Animal studies**

As anatomically and physiologically rabbit's heart is similar to human heart and therefore a study was done in rabbits to find the efficacy of curcumin on cardioprotective effects. In this study, chronic heart failure (CHF) was induced by ten weeks period. Authors revealed that ten-week treatment with curcumin improved cardiac performance and cardiac remodeling, including myocardial hypertrophy etc. The expression of some CHF molecular biomarkers was also decreased by curcumin (Cao et al, 2018). Doxorubicin (DOX) is a cardiotoxic drug. In a rat model study, DOX induced changes in troponin I level and ECG parameters with atrophic changes of the



myocardium and vessels, reduction of cardiomyocyte nuclei, and increment of connective tissue. But, curcumin 100 mg/kg/day protected DOX toxicity (Jafarinezhad et al, 2019). Oral curcumin significantly decreased the vessel inflammation in (Chagas) acute cardiomyopathy mice (Hernández et al, 2018).

### **Reno-protective**

Renal injury and fibrosis are the common pathological manifestations of end-stage renal disease. In a study found that curcumin alleviates ischemia reperfusion-induced late kidney fibrosis via the APPL1/Akt pathway. This clears that the anti-fibrosis mechanism of curcumin removed the pathogenesis of Acute kidney injury-induced late fibrosis (Hongtao et al, 2018; Fan, et al, 2017).

### **Animal study**

In a rat model, it was found that the oral administration of both the extract of *C. longa* (1000mg/kg) and *N. sativa* (200mg/kg) potentiate the protective effect on rat's kidney (Mohebbati et al, 2016). In a study gentamicin- (GM-) induced nephrotoxicity (mitochondrial alterations in ultrastructure) in rats and 400 mg/Kg/day curcumin was administered orally for 5 days before and during the GM exposure. Protection of curcumin against GM-induced nephrotoxicity was found (by maintenance of mitochondrial functions and biogenesis) (Negrette-Guzmán et al, 2015).

### **Hepato-protective**

#### **Animal Study**

A review concluded that curcumin attenuates liver injury induced by ethanol, thioacetamide, iron overdose, cholestasis and acute, sub chronic and chronic carbon tetrachloride (CCl<sub>4</sub>) intoxication and it reverses CCl<sub>4</sub> cirrhosis to some extent in animal model (Rivera-Espinoza & Muriel , 2009).

In a RCT study, TB patients on anti-tuberculosis treatment have been selected. One drug control group received only anti-tuberculous treatment such as isoniazid, rifampicin, pyrazinamide and ethambutol for first 2 months followed by continuation phase therapy excluding Pyrazinamide for 4 months as directed by the physician. Trial group received same anti- tuberculous treatment plus herbal formulation (containing *Curcuma longa* and *Tinospora cordifolia*). Liver enzymes were taken as biomarkers at different occasions with that it was proved by that study that the incidence and severity of hepatotoxicity was significantly lower in trial group (Adhvaryu et al,2008). Another study was designed on non-alcoholic fatty liver disease (NAFLD)patients (grade 1 -3) with 2 groups one Curcumin group (n = 50) received phytosomal form of curcumin 1000 mg / day for 8 weeks, second placebo group (n = 52). This trial revealed that the liver enzymes were reduced significantly at the trial end in the curcumin group (Panahi et al, 2017).

### **Neuro-protective**

A study found that the curcuminoids from rhizomes of *Curcuma longa* has inhibitory potency on BACE-1 (Wanget al, 2014). BACE1 ( $\beta$ -site amyloid precursor protein

cleaving enzyme 1) is the  $\beta$ -secretase enzyme required for the production of the neurotoxic  $\beta$ -amyloid ( $A\beta$ ) peptide that is widely considered to have a main role in the etiology of Alzheimer's disease (AD) (Robert, 2014). Neuro-protective effect of the demethoxycurcumin (DMC), a derivative of curcumin was investigated using the cell line (SH-SY5Y) against rotenone induced neurotoxicity. Study found that as DMC is a potent therapeutic agent particularly neurodegenerative diseases like Parkinson's disease (Ramkumaret al, 2017).

#### **Animal study**

Curcumin alleviates neuro-inflammation response in sub arachnoid hemorrhage induced rats (Gaoet al, 2019) and nerve regeneration of sciatic nerve crush injury in rats (Moharrami Kasmaieet al, 2019).

#### **Anti -atherogenic**

In turmeric, alpha-tocopherol, curcumin and co- antioxidant are responsible for the anti-inflammatory and anti-atherogenic activity (Miquel et al, 2002) and curcumin potentials to modulate lipid metabolism and suppress the progression of atherogenesis (Lin et al, 2015).

#### **Animal studies**

In a study, rabbits were fed curcumin with high cholesterol diet to find the effect and potential mechanism for anti-atherosclerosis activity. The study revealed that curcumin employs an anti-atherosclerotic effect by multiple mechanisms include lowering serum lipids and oxidized low-density lipoprotein, therefore modulating the proinflammatory cytokine levels and altering adhesion molecules and matrix metalloproteinases (MMP) gene expression (Um et al, 2014).

#### **Human based studies**

Authors found in a study, a daily oral administration of the extract of *Curcuma longa*, decreases LDL and apoB and increases the HDL and apoA in healthy subjects (Ramirez-Bosca et al, 2000). It had been identified that Cholesterol-rich, apolipoprotein B (apoB) was one of the most important causative agents of atherosclerotic cardiovascular disease (Shapiro & Fazio, 2017).

#### **Anti-Ovarian cancer**

Curcumin, was shown to interfere with multiple cell signaling pathways, including cell cycle apoptosis, proliferation, survival, invasion, angiogenesis, metastasis and inflammation (Anand et al, 2008). Also, curcumin increases cytosolic  $Ca^{2+}$  concentration through inhibition of sarco/endoplasmic reticulum calcium ATPase activity, causing apoptosis in ovarian cancer cells but not in normal cells (Seo et al, 2016). Further, study disclosed that curcuma has potential to decrease the risk of ovarian cancer on dependent doses and it inhibit the production of TNF –  $\alpha$  (tumour necrosis factor –  $\alpha$ ) and PGE-2 (prostaglandins) (Mohebbati et al, 2017) and induce protective autophagy by inhibiting the AKT/mTOR/p70S6K pathway, and help to eliminate epithelial ovarian cancer (Liu et al, 2019). AKT/mTOR/p70S6K pathway has been



recognized for its roles in regulating neoangiogenesis (formation of blood vessel to tumour tissue)(Li et al, 2008)

### **Animal model studies**

A hen model study reported that daily curcumin intake leads to a considerable and dose dependent reduction in spontaneous ovarian cancer incidence, and growth of the tumour (Sahin et al, 2018). In another study, a group of mice with multidrug-resistant tumor underwent the treatment with curcumin alone or combined with docetaxel, a chemotherapy medication. This study showed significant reduction in tumour growth in both treatments (Lin et al, 2007).

### **Human based studies**

A study concluded as saying that 'curcumin is safe even in long-term intervention due to its excellent profile and side effects free nature. Further the author recommended to consider the curcumin as a beneficial support in ovarian cancer treatment strategies, especially in patients with platinum-resistant primary epithelial recurrent ovarian cancer or multidrug resistant disease condition(Terlikowska et al, 2014).

### **Anti – Osteoarthritis**

Curcumin had shown its potentiality to inhibit the expression of MMP3 and alleviate inflammation of OA(Zeng et al, 2019). Further, studies exposed that curcumin inhibits NF- $\kappa$ B signaling and regulate type II collagen, MMP-13 as a therapy for OA (Wanget al, 2017). Some studies revealed that turmerosaccharides from the extract of *Curcuma longa* showed the anti-arthritic effect in rats (Bethapudiet al, 2017).

### **Animal Study**

Ovariectomized obese rats were induced OA and introduced interventions varying for different arms including curcumin and tetrahydrocurcumin etc (tetrahydrocurcumin is a major metabolite of curcumin). Study concluded that curcumin and tetrahydrocurcumin are effective for treating postmenopausal and osteoarthritis symptoms in Ovariectomized rats. The authors suggested that it would be potential for menopausal and OA symptoms in human too (Park et al, 2016). In another animal model study revealed that curcumin significantly slows the OA disease progression and gives a comforting effect. Here, the authors discovered that topical application of curcumin nanoparticles relieved OA-related pain and improved locomotor behavior than oral curcumin consumption(Zhang et al, 2016).

### **Human Study**

A meta-analysis of RCT study revealed that RCTs provided scientific evidence that supports the efficacy of turmeric extract (about 1000 mg/day of curcumin) in the treatment of arthritis and with that authors suggested to conduct larger studies to draw a proper conclusion (Daily et al, 2016). A randomized, double blind placebo-controlled trial for 12 weeks was conducted oral interventions between 3 groups using two different kinds of capsules, CuraMed ® 500 mg capsules (contains 333 mg curcuminoids), Curamin ® 500 mg capsules (contains 350 mg curcuminoids and 150

mg boswellic acid) with placebo. OA physical function test was used to find the effectiveness of the drug. Authors concluded that, when the treated groups were compared with placebo group, capsules which contains curcumin in combination with boswellic acid is more effective than others (Haroyan et al, 2018).

### **Anti -Osteoporosis**

Some studies revealed that curcumin could reverse the downregulation of miR-365 (Li et al, 2015) and improve the bone micro-architecture (Feng et al, 2018). Kim et al exposed that turmeric inhibits the bone loss (Kim et al, 2012). A high dose (50 mg /Kg) curcumin intervention showed its effectiveness more than low dose (10 mg / Kg) curcumin intervention in anti-resorptive effect on bone remodeling and improving bone mechanical strength (Cho et al, 2013).

### **Animal based study**

Chen et al conducted an intervention study of curcumin (100 mg/kg/day) for 60 days on dexamethasone (DXM)-induced osteoporosis rats. Pathophysiological changes on the bone and biomarkers of bone metabolism were assessed and concluded that even though DXM inhibits the Wnt signaling pathway, curcumin potentiate to re-activate this signaling pathway and showed its effectivity of restoring the bone mineral density (BMD) and improving the bone metabolic biomarkers (Chen et al, 2016). A mice model study found that curcumin was equally effective in most of the all bone parameters as Premarin and curcumin was effective than Premarin in bone volume (Hussan et al, 2012).

### **Anti-Rheumatic**

Curcumin inhibits the increased levels of proinflammatory cytokines, and alleviates inflammation, synovial hyperplasia, and the other features found in the pathogenesis of collagen –induced arthritis (CIA) through the mTOR pathway (Dai et al, 2018). Curcumin analog (FM0807) inhibit inflammatory responses and joint destruction through modulating NF- $\kappa$ B and MAPK pathways (Zhang et al, 2019). Further, curcumin inhibits osteoclastogenic potential via the suppression of MAPK/RANK/c-Fos/NFATc1 signaling pathways (Shang et al, 2016) and inhibiting the activity on Th17 pro-inflammatory responses and promotion of regulatory T cells, thus suppressing autoimmunity (immunosuppressant) (Asteriou et al, 2018).

### **Animal model study:**

A collagen –induced arthritis rat model study compared the curcumin intervention (110 mg/ml/kg body weight) with betamethasone (0.5 mg/ml/kg body weight) intervention daily for two weeks. Authors concluded that the curcumin supplementation successfully suppressed the pannus formation process in the articular cartilage and showed the protective effect on the joints of CIA rats as like betamethasone (Kamarudin et al, 2012). Study found combined prednisolone with curcumin nanoparticle showed higher therapeutic efficacy for RA than single-loaded nanoparticles (Yan et al, 2019).

**Human based study:**

A double blind, RCT study was conducted on RA patients (n= 24) in three groups. Patients received 250 mg or 500 mg CuroWhite™ or placebo, one capsule a day, for three months (Jacob et al, 2018). CuroWhite™, a capsule contains not less than 25% hydrogenated curcuminoid (Ravikumar et al, 2018) and the above study confirmed that CuroWhite™ intervention improved the biomarkers of ESR, CRP, VAS, RF, DAS-28 and better resulted in American College of Rheumatology (ACR) criteria for RA (Jacob et al, 2018).

**Anti-androgenic**

Curcumin showed its protective effect on the reproductive system function and improved the secretion of reproductive hormones (testosterone, FSH, LH) caused by repeated exposure of chronic stress on rats (Mohamadpour et al, 2017).

**Animal study**

In a rat model study testicular atrophy (along with troubled spermatogenesis including decreased reproductive performance) was induced then curcumin and nano curcumin were considered for the efficacy on reproductive performance. Authors found that ingestion of curcumin (50 mg/kg) and curcumin nano-emulsion (2.5 and 5 mg/kg) corrected the effects and improved sperm spermatogenesis, sperm motility etc (Ahmed-Farid et al, 2017). Single and combined therapy with curcumin and quercetin significantly ameliorated the adversely histo-architecture affected testes in rats by exposure to synthetic pyrethroid insecticides, cypermethrin and deltamethrin (Sharma et al, 2018).

**Human studies**

An herbal formula KBMSI-2, consisting of Ginseng Radix Rubra, Dioscorea tenuipes, Cornus officinalis Sieb. et Zucc., Lycium chinense Mill, and Curcumin was studied for the treatment of erectile dysfunction on patients. The authors found that the intervention of 6 g KBMSI-2 twice a day for 8 weeks improved the baseline erectile function (EF) domain scores of the International Index of Erectile Function (IIEF) in 8 weeks compared to the placebo group (Park et al, 2019).

**Conclusion**

Curcumin has the potential in preventing and reducing cardio-reno-hepato and neurological ailments. Further it has anti-atherogenic, anti-ovarian cancer, anti-rheumatic and osteo arthritis, anti-osteoporosis and anti-androgenic activities. As the curcumin present in the turmeric powder that we use in our daily dish is very less and poorly absorbed by the gut it has very minimal therapeutic value. There are many curcumin products available with required strength for therapeutic actions. As the present generation is not aware the natural methods and products in preventing and curing the diseases they resort to easily available and quick relieving synthetic products even for minor ailments. Therefore, public awareness programmes on how to use natural products including Curcumin be carried to educate the people in order to lead a healthy, wealthy, happy and longer life.



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## EXPLORING LEADERSHIP STYLES AND EMPLOYEE EFFICIENCY IN SELECTED MANUFACTURING ORGANIZATIONS IN HIMACHAL PRADESH

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### Abstract

Leadership is key to a better performance of the employees in the organization which is an outcome of synchronization of human resource with the other resources in the organization. As business operations are intently quite intricate, therefore it requires an efficient involvement of the employees at all levels of the organizational structure. The purpose of this study was to witness the vital role of leadership styles in developing focus, teamwork, determination and motivation among the employees. A good leader not only motivates employees to increase their performance but also indirectly helps the organization to meet its aims and make it more profitable. The study adopted a mixed method approach and engages an exploratory survey design. Questionnaires were used to gather data from the employees of 15 manufacturing Industries selected from three districts of Himachal Pradesh. Simple and multiple Regression Analysis was used to determine whether a relationship exists between the independent and dependent variables. The study revealed that there is no perfect leadership style but according to this study the actual leadership style tends to be more transformational than transactional as the mean value for transformational leadership style (2.0612) is higher than mean value for transactional leadership style (1.8337). Hence, it can be said that the leaders in these industries encourage, motivate employees to innovate and create the change that helps to shape the future success of these industries.

**Keywords:** Employee, Efficiency, Leadership, Style, Transactional, Transformational.

### 1. Introduction

Leadership skill has always played a vital role in achieving goals, setting norms and creating a healthy business organization environment. Effective leadership is the ability to achieve organizational and societal goals which is an important part of the society and organizations. In the current years, leadership has engaged as a new effective approach for managing the employees and organization at large. The traditional concept of personnel administration has gradually substituted with the human resource management.

Tran (2010) suggested that leadership styles affect the financial efficiency ratio. Today leaders face the challenge of recruiting and holding on to competent employees in organizations.

Bass and Avolio (2000) inferred that Transformational leadership influences the essential attitudes and conventions of an organization's members, creating a common mentality to achieve organizational goals, his leadership style usually generates higher efficiency than transactional leadership. Leaders' acuties of these strategic variables are critical to motivating organizational efficiency. The leaders play a vital role in advising and molding these variables by determining the types of behavior anticipated and supported. Finally, transformational leadership usually affects innovative behavior. Through knowledgeable motivation and individualized consideration, transformational leaders generate different ways of thinking, seeking new opportunities or finding the solution to the problems, experimental thought processes to do better decision making for the organization and the employees.

Stogdill in (1974) proposed that many organizational and psychological research reports have shown that leadership is a multifaceted and complex. Leadership is a term which has been

into use from early 1300s but it came into awareness and got terminology which can be used frequently since 1700.

Bass B. M., in 1985 has opined in the research work that leadership did not begin to get used even till the late nineteenth century. There has been a lot of crucial search about this topic over the period of last 50 years. It has been examined in every possible aspect such as traits, behavioral styles, situationally and as acknowledged cognitive process. A very less amount of knowledge has been gathered even after so much of research work with stated theories in evidence to it. The prior attention has been shifted from the realistic situation and only survey-based questionnaire have been put in to analysis to define the leadership concept.

Davis and Luthans in (1979) proposed in their study that many of the terms contained leadership questionnaire may describe commonly held feelings of leaders and employees, nonetheless behavioral exigencies are monitored by the efficiency outcomes.

Bennis in (1959) has stated that out of all the obscure and perplexing areas in social psychology is the top contender undoubtedly and paradoxically, it is found that more less is known about leadership whereas volumes have been written about it, than any other topic in behavioral sciences (p 259).

In society today, thousands of individuals are appointed or elected to shoulder the role and responsibilities of leadership. Leadership is practiced in schools and colleges, factories and farms, business enterprises, dispensaries and hospitals, in the civil and military organizations of a country and public life, at all levels, in short in every walk of life.

Thomas, K. W., & Velthouse, B. A. (1990) said that leaders should promote unity, harmony, strength, prosperity and happiness in society. The increasing level of uncertainty in business environment has put the many organizations on toe to survive the demanding competition.

Cummings and Schwab in (1973) stated that Leadership is perhaps the most thoroughly investigated organizational variable that has a potential impact on employee efficiency. As all the decisions made by the leader defines the success and failure of any business organization it becomes a very vital and crucial issue of study and decision making. It has been found prominently that effective business requires effective leadership and effective leadership requires effective work by employees.

Bass (1988) has explained the leadership model which has been taken as the basis for this study.

The research methodology used, the instruments used to measure the leadership style, the validity of the tool, data collection procedure and stated hypothesis has been mentioned.

## **2. Review of Literature**

The relationship of different leadership styles to name a few like transformational, transactional and Laissez Faire leadership with employee efficiency, which has been studied by different authors has been found below:

### **2.1. Laissez Faire Leadership Style and Employees Efficiency:**

The leader has full trust on his employees for performing their work to the best of their ability and just focusses on intellectual. He just concentrates on the intellectual logical or rational working of the employees. For the organizations best interest ideas, suggestions, views of the employees are whole heartedly welcomed.

Mullins 2006, in his work described laissez-faire style as genuine and it is where the manager observes employees perform their task on their own. This style is marked by indecision on, uncertainty and indifference the leader no doubt is very clear about the organizational goals but he will not develop any separate policy. He allows complete freedom to the group to work freely without interference and its individual members to do as they wish, but is readily available where help is needed. This is proposed to be a style where the leader does not take any action or

initiative to guide, control or motivate the employees as an individual or in as a team or group. As mentioned by Mullins the word 'genuine' is greatly emphasized because it is to be The word "genuine" as use in the description above by Mullins is emphasized because it is to be analogized with a manger who doesn't bother or perpetually keeps himself away from such situations and never bothers to get involved. Furthermore, the manager allows employees to get on with their work at hand, and again they are left to face decisions which rightly belong to the manager.

Webb (2003) purposed in a study that he conducted on president leadership style which was associated with the follower's motivation, extra effort, satisfaction and with the higher level of management. He surveys 315 chief student affair officers and chief academician and financial authorities who were chosen from 105 members organization of the council of Christian universities along with colleges using Multi leadership questionnaire (MLQ), out of which 223 participants returned the questionnaire and the results were evaluated using descriptive analysis and sample mean and standard deviations were described. In their research they found that laissezz is significantly negatively correlated to motivation and extra work.

Judge and Piccolo (2004) collected data through literature search from chapters, articles, books, dissertations, other published and unpublished report found from the years 1887 – 2003. They used a meta analytic procedure and then divided the studies moderator analysis, they then final regression analysis and got through meta-analysis. As result they found that laissez faire in negatively correlated with follower motivation.

A survey was conducted by administering questionnaires to 400 correspondents in the banking sector in Bangkok. The result show that most of the bank employees mostly the females between 20 and 39years old are neither satisfied nor dissatisfied and are ambivalent. The results showed that transformational leadership was having a positive correlation with employee job satisfaction. Laissez fare and transactional leadership were also seen to have a positive relation on different facets of employee

job satisfaction.

Transformational leadership style, transactional leadership style and work motivation directly effects on employee efficiency.

Yukl, 1998 in his consistency with Bass theory found that in order to motivate the employees beyond their expectation transformational leadership is the only means to get the best out the employees

David (2002) also similarly stated that one of key factors that affecting employee efficiency is work motivation. Employees with high work motivation and transformational leadership style affect to improve employee efficiency. Therefore, work motivation positively and significantly may mediate the relationship between transformational leadership styles on employee efficiency. On other hand, basically transactional leaders emphasize that a leader needs to determine what needs to be done by employees to achieve organizational goals. Whereas additionally transactional leader focuses also on getting organizational tasks completed.

Luthans, 2006:270 has profoundly sad that reward and punishment act as motivational agents to employees. Motivation is definitely a result of constant encouragement to the employees to fulfil their desires and improve organizational efficiency.

Efficiency is result of work accomplished during a given period that requires ability through effort, skill and motivation fulfillment through a leadership style from leader. This is in line with opinion of Robbins (2008: 218) who says that employee's efficiency is a function of interaction between ability and motivation, if not adequate, efficiency will be negatively affected. Intelligence and skills also should be considered in addition to motivational abilities.

In terms of employee efficiency, Bernardin and Rusel (Ruky, 2004:340) suggests five primary criteria that can be used to measure efficiency, namely:

- (a) Work quality,



- (b) Work quantity,
- (c) Timeliness,
- (d) Work independence and
- (e) Individual relationships.

## **2.2. Transactional leadership effect on employee efficiency.**

Bass and Burns 2005 further investigated in their study an exchange relationship between transactional leadership, where the employees are expected to offer efficiency or effectiveness to their leader as for in this case the form of transaction, employer will offer the employee an abstract reward of trust, respect, commitment and real rewards which can be in form of remuneration or fee. Transaction process between leaders and employees directed to produce a satisfactory efficiency.

Bass and Avolio (2003) also found that transactional leadership style effect on employee efficiency. Transactional leadership styles can affect positively or negatively on efficiency. It depends on employee assessment if any positive effect or negative impact can occur the employee will assess the transactional leadership positively, because they consider that transactional leadership style cannot be trusted as they cannot keep promises.

Haryadi (2003) has conducted a study to find the effects of, transactional leadership on efficiency, which explains that transactional leadership style has positive and significant effect on employee efficiency.

The effect of the theory transformational leadership on efficiency is proposed by Butler (1999) that a transformational leader encourages employees to have vision, mission and organization goals, encouraging and motivating to show maximum efficiency, stimulates employees to act critically and to solve problems in new ways and treat employees individually. As a consequence, employees will reciprocate by showing maximum work. It is similar with Haryadi et.al. (2003) study conclusion that there is a significant relationship between transformational leadership on employee efficiency. As the leader provides good motivation and sets good examples in front of the employees so the leader follows more of transformational leadership style.

Suharto (2005) has also suggested that if transformational leadership styles are frequent then it will bring a significant positive result and improve the psychological quality of employees because a transformational leaders focuses on individual needs and creates an environment of understanding through he is able to direct vision and mission of the organization by providing employees with emotional support and creating innovative ways of working. It proved instrumental to employee psychological empowerment.

Suharto et al (2005) revealed that transformational leadership styles such as charisma, idealistic influence, inspirational motivation, intellectual stimulation and individual consideration have a significant effect on employee efficiency, because by time is sometimes affected by transformational leadership style. Similarly, Koh et al. (1995) showed that there was significant relationship between transformational and transactional leadership with efficiency.

## **2.3. Employee Efficiency outcomes:**

To understand the relationship of leadership style and employee efficiency more effectively it is necessary to study the relationship of employee efficiency outcomes and leadership styles

### **2.3.1. Employee's Job Satisfaction**

Employee's job satisfaction is defined as the happiness and pleasure which is acquired while performing a job. Supervisors face a major challenge in ensuring that their employees are satisfied with their jobs.

Haque, M., TitiAmayah, A., & Liu, L. 2016 found in their study that a satisfied worker is more efficient and effective in an organization.

Aziri,2011; Haque, Faizan & Cockrill,2017 sated that employees will be more satisfied if they are treated well. Individuals' job satisfaction level is visible from their attitude towards them work.

### **2.3.2. Employee extra effort**

In the context of the workplace, extra effort takes on a more specific meaning as within the organization this interaction are evident in themselves in the contract of the employees where the employee pledges to the serve his employer, undertake all the obligations of an employee and commit themselves to the working of their job. Employees will embrace the working of the organization by investing their energies for the task of the organization which are meant to benefit the organizational goals. As in return the employees become absorbed and attached to their working roles perform their tasks willingly. When the employees will be emotionally, mentally, whole heartedly involved in the organization they will produce endeavoring results for the organization.

Organizations have recently begun focusing on the level of extra effort of their employees in an effort to understand the underlying factors of employee motivation and efficiency (Gallup, 2006). Extra effort with one's work is important, given that work is a pervasive and influential part of an individual's well-being, affecting not only the quality of an individual's life but one's mental and physical health as well (Wrzesniewski, Rozin, & Bennett, 2002). Many a times people work for earning and living as a result working becomes more of an obligation then a choice.

Hulin, 2002 is studies said that even though due to this lack of choices individual experiences with work are quite different, ranging from work as a monotonous grind to work as an expression of one's identity and this level of employee extra effort is a predictor of both individual and organizational performance.

## **3. Objectives of the Study:**

The proposed study includes following objectives:

1. To review the relationship of employee organizational commitment with the professed leadership style.
2. To analyze the relationship of employee extra effort and professed leadership style.
3. To examine the relationship of employee efficiency and supposed leadership style.
4. To investigate the relationship employee satisfaction with supposed leadership style.
5. To identify the relationship between leadership styles and organizational efficiency.

### **3.1. Hypotheses**

The following hypotheses are proposed to be formulated in line with above objectives for the study:

Hypothesis 1: There is no association between organizational efficiency and leadership style.

Hypothesis 2: There is no relationship between employee organizational commitment and leadership styles.

Hypothesis 3: There is no relationship between employee efficiency and leadership styles.

Hypothesis 4: There is no relationship between employee extra effort and leadership styles.

Hypothesis 5: There is no relationship between employee satisfaction and leadership styles.

### **3.2. Research Desig and Sampling**

Fifteen independent samples were used to have an exploratory study to find out the relationship between, three leadership styles stated transactional, transformational and laissez-faire leadership style with organizational efficiency, employee organizational commitment,



employee satisfaction, employee extra effort and employee efficiency. This study is a correlation study therefore relationship between independent variables idealized influence - attributed, idealized influence - behavior, individual consideration, inspirational motivation, intellectual stimulation, contingent reward, management by exception - active, management by exception - passive with dependent variables employee organizational commitment, extra effort, efficiency, and satisfaction is study in this research.

The three dependent variables are:

1. transactional leadership
2. transformational leadership,
3. laissez-faire leadership.

Whereas, the five dependent variables are:

1. employee organizational commitment
2. employee extra effort
3. employee efficiency
4. employee satisfaction.
5. Organizational efficiency.

This investigational study has tried to find out the relationship between these independent and dependent variables.

For this research fifteen different manufacturing industries of Himachal Pradesh were selected. As the managers and workers working in these industries were participants for this research, they play a crucial role for the development of these respective organizations, which help employees to efficient and results in overall growth of the organization.

### **3.3. Scope of Study**

Multifactor Leadership and Organizational Commitment questionnaire were used to collect data from these fifteen samples. The researcher had keen interest to understand about the kind of relationship these leadership styles have with the employees at different status which could be collected from different samples. To evaluate the dynamism of the correlation with these variables eight samples were selected from plastic industry, one sample from food & beverage and six from pharmaceutical industry. This kind of activity or segregation was done to investigate whether there is any relationship of difference or similarity between the variables and employee outcomes.

The researcher collected responses of 357 employees from plastic industry were taken out of which 12 were managers and 345 workers. 238 respondents from pharmaceutical industry were taken out of which 6 were managers and 232 were workers. From food and beverage industry total 32 respondents were questioned out of which 1 was manger and 31 were workers.

### **3.4. Measuring Instruments**

The two reliable measuring tools used by the research are:

#### **3.4.1. Multifactor Leadership Questionnaire – Form 5X**

Burns (1978) had introduced the paradigms of transformational and transactional leadership at a single gamut where both of these are present at extreme ends. In the past studies it was found that both these leadership styles should be investigated differently.

Bass & Avolio, 1993 proposed that the best leaders typically displayed both transactional and transformational leadership style.

Bass (1985) has established that transformational and transactional leadership can be summed up with help of seven leadership traits or elements:



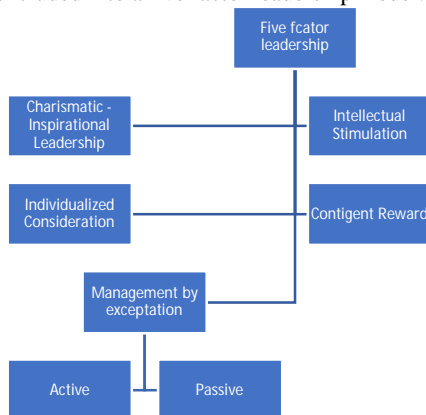
**Figure 1 seven factors of Transformational and transactional leadership**

Bass B., et al 1988 has even further investigated and stated that inspirational and charismatic leadership are different from each other but they might not be substantially different, as a result the factors got reduced to six.

With passage of time researchers have been addressing many issues that could come into focus with the multifactor leadership questionnaire such as terminology used, concern of validity and whether behavior and attributes should be brought into same scale. The concerned got so relevant that need of revision of MLQ was also brought up so that a more stable and reliable factors can be incorporated.

Surveying 198 US army field grade officer where the base for the six-factor model who all were primarily using MLQ (form1). The six factors could extract two transactional, three transformational and single laissez factor/passive avoidant by analyzing the principle components through orthogonal rotation.

Bass 1985 has concluded into a five factor leadership model:



**Figure 2 Five Factor Leadership Model**

Hater & Bass (1988) offered refinements of MLQ survey by stating that management by expectation could be split further into sub factors as passive and active. But still the researches were confused and anticipated that elements of transformational leadership should have contingent reward as its factor or it should considered as an individual factor.

Bass and Burns (1988) had framed the overall structure of the multifactor leadership questionnaire. For this they survey 78 top managers who were asked to give a description of any such leader who had encouraged or motivated them and were the key seekers to the employees for getting the work done without any self motive.

Bass B. M.,1985 further analyzed their rating using factor analysis and analyzed the principle components into three categories of transactional, avoidant/laissez faire and finally transformational leadership styles.

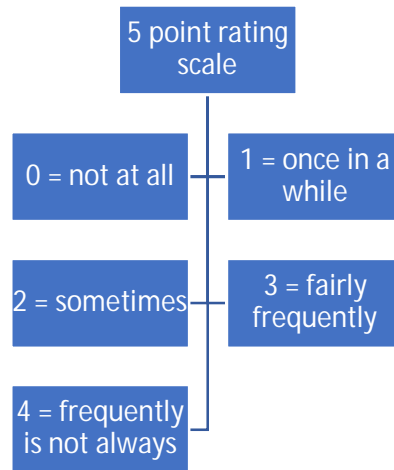
Hater & Bass (1988) further conducted a factor analysis a proposed a revised version of MLQ (form 4R) in which management by expectation was further divided into two sub parts active and passive, whereas Charismatic and Inspirational leadership were submerged. They further advocated and brought out results to even differentiate attributes from behavior and developed a rating and measuring scale for behavior.

Charismatic scale has not been taken into consideration in this study whereas all other factors have been studied at all scales.

Bass & Avolio, 1997; Avolio, Bass, & Jung, 1999 have validity the measuring tool MLQ – Form 5X which consists of 45 questions to be evaluated on a 5 – point Likert Scale.

**Figure 3distribution of questions of MLQ**

A 5-point rating scale is used to measure the frequency of each statement fitting the person that one is describing in an MLQ – Form 5X.



**Figure 4 5point rating scale**

The MLQ – Form 5X assesses leadership style by averaging the scores for each leadership scale. The MLQ – Form 5X evaluates leadership in both atmospheres be it business oriented or non-business oriented for this it is needed to be surveyed among the employees of a certain manager whose leadership styles is to be studied. The results that show a certain leadership style with the most dominating scoring is the one leadership style professed by that leader whose employees are being surveyed.

Avolio, Bass, & Jung, 1999) have profoundly sated that MLQ – Form 5X is much better and upgraded model which can be used to drive the data for transformational, transactional and employee outcomes. Adding on even the individual factors and there relation with the employee outcome can also be further studied.

Avolio, Bass, & Jung (1999) has elaborated the five major elements of Transformational Leadership:

(i) Components of Transformational leadership style:

(1) Idealized Influence (Attributes andBehaviors):

Leader and the employee share mutual understanding and trust amongst each other. The employees value the decision of leader and the leader is also willing to risk for his employees.

Idealized influence	Questions
Attribute	10, 18, 21, 25
Behavior	6, 14, 23, 34

(2) InspirationalMotivation:

Leaders in this category will do there best to motivate the employees to go beyond their horizon and will bring confidence in them to achieve un attainable goals.

Inspirational motivation	Questions - 9, 13, 26, and 36
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(3) IntellectualStimulation:

In this the leader will create such an atmosphere where the leader inspires the employees to challenge the existing culture and bring in a new dimension to improve the team and also affect the organizational growth positively.



Intellectual Stimulation	Questions - 2, 8, 30, and 32
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(4) Individual Consideration:

In this leader understand the fact that each and every employee is an individual character and each need to be valued and accessed differently from the others.

Even being part of the group the leader values individual thoughts and gives them impace space to take part in decision making as a whole or individual.

Individual Consideration	Questions - 15, 19, 29, and 31
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(ii) Components of Transactional Leadership style:

1. Contingent Reward:

This factor focusses on learning and doing. An impace scope for learning is given in form of trainings to develop the qualities of the employee. This style also provided basis for exchange of views between leader and employee of what has to be done and how it has to be done. Exchange of responsibilities and authorities creates an atmosphere of trustworthiness and the employees feel dedicated towards the organizational goals. Recognition for the work done can be positive and negative depending on the results of decision making.

Contingent reward	Questions - 1, 11, 16, and 35
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(5) Management- by-Exception –Active:

In this the leader assesses the performance of the employees and provides corrective measures whenever possible. Any disturbances of failures or irregularities which have occurred or might tend to occur are also accessed by the leader.

Management – by – expectation - Active	Questions - 4, 22, 24, and 27
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(6) Management by Exception – Passive:

In this leader fortifies things by direct criticism and giving a negative feedback.

Management – by – expectation – Passive	Questions - 3, 12, 17, and 20
---	-------------------------------

(7) Laissez-faire:

In this leader will be completely a non invoving entity and will not participate in any kind of decision making, and will not do anything to get the employees in high spirits.

Laissez – faire	Questions - 5, 7, 28, and 33
-----------------	------------------------------

The non-leadership factors measured by the MLQ are described below:

(a) Employee ExtraEffort:

Here the employees put in their heart and soul to achieve their targets. They are strong willed and are expected to do more than what is desired.

Employee Extra Effort	Questions - 39, 42, 44
-----------------------	------------------------

(b) Employee Efficiency:

Here the employees are valued for the work performance. The work oriented targets are met.



The leader also adheres the performance of the team mates to the higher authority and helps them to improve their proficiency.

Employee Efficiency	Questions - 37, 40, 43, and 45
---------------------	--------------------------------

(c) Employee Satisfaction:

The leader satisfies the needs of the employees with his approaches and in return the employees also feels satisfied for the what the leader does for them.

Employee Satisfaction	Questions - 38 and 41
-----------------------	-----------------------

iii) Legitimacy & Trustworthiness of Multifactor Leadership Questionnaire – Form 5X

Bass & Avolio, 1997; Avolio, Bass, & Jung, 1999 have stated in their studies the validity of MLQ Form 5X.

Bass & Avolio (1995) coined that the results of the assessment of this questionnaire have highly reliable as 9 empirical studies have proof of its reliability.

Lowe, Kroeck, & Sivasubramaniam (1996) have coined a vital relationship between transformational and transactional leadership and as well as the individual leadership factors.

Avolio, Bass, & Jung (1999) claimed that each individual factor ranges between 0.74 and 0.94 in goodness to fit index.

The Cronbach's alpha ranged for each individual factor between 0.67 and 0.93 which means the factors are highly reliable.

For the study it was observed that the value of Cronbach's is 0.896 which meets the reliability conditions.

Therefore, it can be concluded that MLQ Form 5X is reliable and valid for the current study.

### 3.5. Limitation of Proposed Study

The correlation of perceived leadership styles with five variables which were employee extra effort, employee satisfaction, employee organizational commitment and organizational efficiency.

In the process of data collection, a lot of hurdles were faced.

1. Most of the food and beverage industries didn't let to collect the data and refused to participate in it at any condition. The condition of secrecy was not even adhered.
2. The pharmaceutical industry did participate but on the condition of secrecy.
3. Most of the employee especially the blue collars were uneducated and it became very difficult to undertake them the survey questionnaire.
4. Most of the employees were scared that if they gave any negative feedback about the manager it could result in them to loose their job so they refused to participate in the survey.
5. It is believed that the responses of the employees are authentic and trustworthy.

### 3.6. Data Collection Procedure

Each and every industry was personally visited by the researcher and the managers of each industries were taken into confidence and were explained in detail the worth performing the survey and research which will help the industries to take necessary measures to rectify there leadership styles to get improved results to help the industries to grow. The managers felt confident and were immediately convinced to support the survey. They circulated the questionnaires to the employees to get the required responses. The research and manager both personally observed the process of questionnaire fulfilling with every employee.

Three set of questionnaires were used by the research to understand the correlation of leadership and employee outcomes, namely:

- a. MLQ Form 5X
- b. Organizational commitment questionnaire
- c. Organizational efficiency questionnaire



In all together 675 responses were received out of which 36 were of the managers and others of employees. Were collected from 15 manufacturing industries. Conventional sampling is used as the nature of data is exploratory.

The results of this study will help these industries to rectify their problems in administration and if no problem is discovered it will act as a motivating agent for them to maintain the same practice.

Employees across various peripheries and at different status have been taken as the target population.

The researcher adopted expediency built critical sampling from 15 different manufacturing industries.

NATURE OF THE SAMPLE							
N O	U. NAME	PL ACE	T EMP	MAN AGERS	SA MPLE SIZE	L ABO UR	SA MPLE SIZE
	MANJUSHREE PLASTIC INDUSTRY	BA DDI	1 30	10	2	1 20	39
	SHIVALIK INDUSTRY	PA RWAN OO	3 90	70	15	3 20	146
	SHIVALIK PACKAGING INDUSTRY	KA LA AMB	1 00	15	3	8 5	28
	JP INDUSTRIES (PAPER CUP)	PA RWAN OO	1 05	10	3	9 5	31
	DEEPSHIKHA INDUSTRIES(EQUIPMENT)	BA DDI	1 10	15	3	9 5	31
	UNIQUE PLASIC INDUSTRY	SO LAN	1 00	5	1	9 5	31
	SINTEX INDUSTRIES	SO LAN	1 00	5	1	9 5	31
	MAA MANSA MATA TILE INDUSTRIES	UN A	1 25	5	1	1 20	39
	MARS BOTTLERS	UN A	1 00	5	1	9 5	31
0	CHIMAK HEATH CARE (PHARMACEUTICAL)	SO LAN	1 15	5	1	1 10	36
1	PHARMA CHEMICO LABRORATORIES	SO LAN	1 05	5	1	1 00	33
2	ACCENT PHARMCEUTICAL	SO LAN	1 35	5	1	1 30	42
3	ALCHEMIST PHARMACEUTICAL	SO LAN	1 20	5	1	1 15	38
4	PANTH STEEL INDUSTRY	SO LAN	1 25	5	1	1 20	39
5	SHIVALIK BIMETAL CONTROLS	SO LAN	1 40	5	1	1 35	44
			2 000	170	36	1 830	639
				TOTA L SAMPLE	675		

Table 1 SAMPLE REPRESENTATION

### 3.7. Demographics:

\*Scale Description is given below for each parameter:

1. Gender	a. Male b. Female
2. Age	a. 20 – 26 years b. 26 – 35 years c. 35 – 46 years d. Over 46 years
3. Educational qualifications	a. High School b. Bachelor's Degree c. Master's Degree d. PhD
4. Experience	a. Less Than a year b. 1 – 3 years c. 3 – 6 years d. More than 6 years
5. Current Position	a. Managers b. Engineers c. Workers

**Table 2 Demographics**

### 3.8. Steps of Analysis.

The test of ANOVA was applied to understand the statistical closeness of scores for independent and dependent variables for different samples. Multiple regression from 15 different manufacturing industries were taken.

INDEPENDENT VARIABLES LEVEL 1	INDEPENDENT VARIABLES LEVEL 2	DEPENDENT VARIABLES
Idealized Influence – Attributed Idealized Influence – Behavior Inspirational Motivation Intellectual Stimulation Individual Consideration	Transformational Leadership	Employee Extra Effort Employee Effectiveness Employee Satisfaction Organizational efficiency
Contingent Reward Management by Exception – Active Management by Exception – Passive	Transactional Leadership	Employee Organizational Commitment. Organizational efficiency
Laissez Faire Leadership	Laissez Faire Leadership	Organizational efficiency

**Table 3 Independent and dependent variables.**

### Two step analysis

Step	Description	Method
Step 1: For 36 Managers and 639 workers	1. Correlation analysis for Independent Variables (level 1) with Dependent variables. 2. Correlation analysis for Independent Variables (level 2) with Dependent variables.	Pearson Correlation Multiple Regression Analysis
Step 2: For each sample representation independently	6. Correlation Analysis for Independent Variables (Level 1) with Dependent Variables. 7. Correlation Analysis for Independent Variables (Level 2) with Dependent Variables	Pearson Correlation Multiple Regression Analysis

**Table 4 Steps**

### 4. Analysis of Relationship Between Leadership Style and Employee Efficiency.

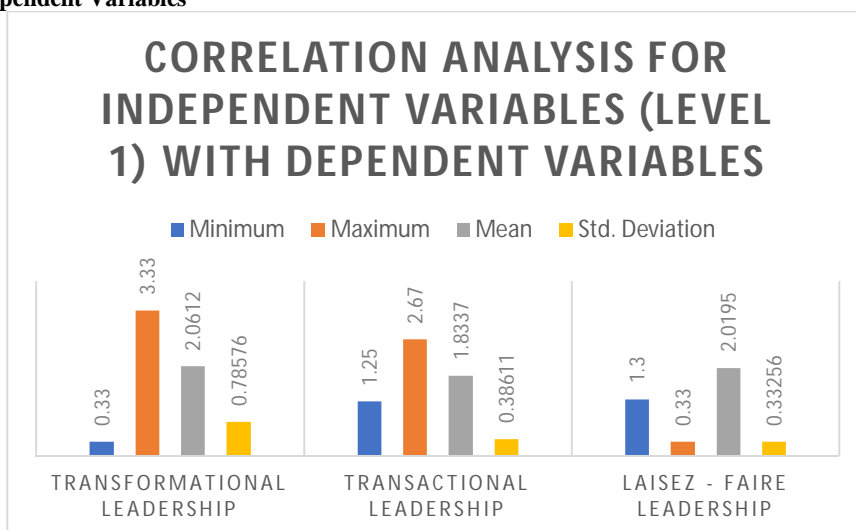


To better understand the relationship between leadership style and employee efficiency correlation analysis between independent variable (level1) and dependent variables as mentioned in chapter – 3, descriptive analysis has been done.

#### 4.1 Descriptive Analysis for Independent Variables (Level 1) with Dependent Variables

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
TRANSFORMATIONAL LEADERSHIP	675	.33	3.33	2.0612	.78576
TRANSACTIONAL LEADERSHIP	675	1.25	2.67	1.8337	.38611
LAISSEZ - FAIRE LEADERSHIP	675	1.30	.33	2.0195	.33256
Valid N (listwise)	675				

**Table 5 Step 1 Correlation Analysis for Independent Variables (Level 1) with Dependent Variables**



From the above table it can be opined that, the mean value for transformational leadership style (2.0612) is higher than mean value for transactional leadership style (1.8337). From the above data, it can be said that the actual leadership style tends to be more transformational than transactional.

#### 4.1. PEARSON CORRELATION FOR LEADERSHIP STYLES WITH DEPENDENT VARIABLES

	EMPLOYEE EXTRA EFFORT	EMPLOYEE EFFICIENCY	EMPLOYEE SATISFACTION
TRANSFORMATIONAL LEADERSHIP	.207**	.313**	.313**
TRANSACTIONAL LEADERSHIP	.408**	.103**	.103**
LAISSEZ - FAIRE LEADERSHIP	.177**	-.215**	-.215**
**. Correlation is significant at the 0.01 level (2-tailed).			
*. Correlation is significant at the 0.05 level (2-tailed).			

**Table 6 PEARSON CORRELATION FOR LEADERSHIP STYLES WITH DEPENDENT VARIABLES**

Result: The above table show us that transformational leadership is having very less

correlation with employee extra effort (0.207) and having a moderate correlation with employee efficiency (0.313) and employee satisfaction (0.313). Transactional leadership is having a moderate correlation with employee extra effort and is having very less degree of correlation with employee efficiency (0.103) and employee satisfaction (0.103) whereas Laissez faire leadership is negatively correlated with employee efficiency (-0.215) and employee satisfaction (-0.215) were as a low degree correlation with employee extra effort.

Interpretation:

It can be concluded that transactional leadership has a significant impact on employee extra effort whereas transformational leadership has a moderate relationship with the employee extra effort, employee efficiency and employee satisfaction.

#### 4.1.1. Leadership Style and Employee Extra Effort

**Table 7 Leadership Style and Employee Extra Effort (ANOVA)**

Coefficients <sup>a</sup>					
Model		Unstandardized Coefficients		Standardized Coefficients	T
		B	Std. Error	Beta	
1	(Constant)	2.431	.150		16.244
	TRANSFORMATIONAL LEADERSHIP	.498	.046	.659	10.752
	TRANSACTIONAL LEADERSHIP	-.129	.061	-.093	-2.136
	LAISSEZ - FAIRE LEADERSHIP	-.148	.028	-.280	-5.308

a. Dependent Variable: EMPLOYEE EXTRA EFFORT

**Table 8 EQUATION 1 EE = 2.43 – 0.129 transformational +0.498 transactional – 0.148 LFL**

Results:

From above table, it is found that transformational (0.00) and laissez faire (0.00) leadership are significant impact on employee extra effort, whereas transactional leadership (0.033) is not having a significant impact on employee extra effort. Multiple regression method is used to evaluate the correlation between dependent and independent variables. The relationship of distinguished samples can be found with F value and is significance.

The analysis bellow describes the relationship of dependent and independent variables:

#### Regression

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.560 <sup>a</sup>	.314	.311	.49245

a. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, TRANSACTIONAL LEADERSHIP, TRANSFORMATIONAL LEADERSHIP

**Table 9 MULTIPLE REGRESSION FOR LEADERSHIP STYLES & EMPLOYEE EXTRA EFFORT**

ANOVA <sup>a</sup>					
Model		Sum of Squares	Df	Mean Square	F
1	Regression	74.471	3	24.824	62.361
	Residual	162.723	671	.243	
	Total	237.194	674		

a. Dependent Variable: EMPLOYEE EXTRA EFFORT

b. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, TRANSACTIONAL LEADERSHIP, TRANSFORMATIONAL LEADERSHIP

**Table 10 Regression - leadership style and Employee Extra Effort**

Model		Unstandardized Coefficients		Standard ized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.512	.135		11.170	.000
	TRANSFORMATIONAL LEADERSHIP	.214	.122	.120	1.756	.000
	TRANSACTIONAL LEADERSHIP	.168	.094	.110	1.797	.000
	LAISSEZ - FAIRE LEADERSHIP	.432	.040	.572	10.694	.073

**Table 11 EQUATION 2**  $EE = 1.512 \text{ constant} + 0.432 \text{ LFL} + 0.168 \text{ TRANSACTIONAL} + 0.214 \text{ TRANSFORMATIONAL}$

31 % of the variance of employee extra effort can be observed from the regression analysis of the three independent variables which are transactional, transformational and laissez faire. The adjusted  $R^2$  indicates no over-fitting of the model and that the results should be generalizable from the perspective of the ratio of observations to variables in the equation. Also, the standard error of estimate has been reduced to 0.49245, the calculated F value of 62.361 is far above 1.00 ( $\alpha = 0.05$ ), it shows that the regression as a whole is highly significant. The same conclusion can be incurred by noting that the output tells us that “p” is 0.000 as this probability value is less than the significant level of  $\alpha = 0.05$ , it is concluded that the regression as a whole is significant.

#### 4.1.1.1. Interpretation

It is observed from table 17 that laissez-faire leadership style is not a significant explanatory variable for employee extra effort. Therefore, it can be concluded that laissez-faire leadership style ( $p=0.073$ ) is not explanatory variable for employee extra effort, whereas transactional (0.000) and transformational (0.000) styles are explanatory variables for employee extra effort.

Therefore, it can be concluded that these manufacturing industries follow transactional and transformational leadership styles and have a positive impact on the employee extra effort.

#### 1.1.1. Leadership Style and Employee Efficiency

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	2.431	.150		16.244	.000

TRANSFORMATIONAL LEADERSHIP	.498	.046	.659	10.752	.000
TRANSACTIONAL LEADERSHIP	-.148	.028	-.280	-5.308	.000
LAISSEZ - FAIRE LEADERSHIP	-.129	.061	-.093	-2.136	.033
a. Dependent Variable: EMPLOYEE EFFICIENCY					

**Table 12 EQUATION 1**  $EE = 2.43 - 0.129 \text{ transformational} + 0.498 \text{ transactional} - 0.148 \text{ LFL}$

Results:

From above table, it is found that transformational (0.00) and transactional (0.00) leadership are significant impact on employee extra effort, whereas Laissez faire leadership (0.033) is not having a significant impact on employee extra efficiency.

Multiple regression method is used to understand the relationship of each independent variable with dependent variables. With F value and its significance, the relationship for different samples can be found. The following section explains the relationship of independent variables and their relationships with dependent variables.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.462 <sup>a</sup>	.214	.210	.08368
a. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, TRANSFORMATIONAL LEADERSHIP, TRANSACTIONAL LEADERSHIP				

**Table 13 MULTIPLE REGRESSION FOR LEADERSHIP STYLES & EMPLOYEE EFFICIENCY**

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.277	3	.426	60.795	.000 <sup>b</sup>
	Residual	4.699	671	.007		
	Total	5.976	674			
a. Dependent Variable: EMPLOYEE EFFICIENCY						
b. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, TRANSFORMATIONAL LEADERSHIP, TRANSACTIONAL LEADERSHIP						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	2.284	.071		32.141	.000
	TRANSFORMATIONAL LEADERSHIP	.146	.029	.218	5.076	.000
	TRANSACTIONAL LEADERSHIP	.128	.022	.352	5.795	.000
	LAISSEZ - FAIRE LEADERSHIP	-.128	.013	-.508	-9.705	.000

a. Dependent Variable: EMPLOYEE EFFICIENCY

**Table 14 EQUATION 3**  $EFF = 2.284 + 0.146 \text{ transformational} + 0.128 \text{ transactional} - 0.128 \text{ LFL}$

The final regression model with three independent variables(transactional, transformational and laissez-faire leadership style) explains 21 percent of the variance of employee efficiency. The adjusted  $R^2$  indicates no over-fitting of the model and that the results should be generalizable from the perspective of the ratio of observations to variables in the equation. Also, the standard error of estimate has been reduced to 0.08368. the calculated F value of 60.795 is far above 1.00 ( $\alpha = 0.05$ ), it shows that the regression as a whole is highly significant. The same conclusion can be incurred by noting that the output tells us that “p” = is 0.000. The same conclusion can be incurred by noting that the output tells us that “p” is 0.000 as this probability value is less than the significant level of  $\alpha = 0.05$ , it can be summarized that the regression as a whole is significant.

#### 1.1.1.1. Interpretation

Referring to probability value from above table, it can be concluded that transactional leadership style ( $p=0.000$ ), laissez-faire (0.000) and transformational (0.000) styles all are explanatory variables for employee efficiency. Here, it shall be noted that the laissez-faire leadership style is negatively correlated with employee efficiency.

#### 1.1.1. Leadership Style and Employee Satisfaction.

**Table 15 Leadership Style and Employee Satisfaction (ANOVA)**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.431	.150		16.244	.000
	TRANSFORMATIONAL LEADERSHIP	.498	.046	.659	10.752	.000
	TRANSACTIONAL LEADERSHIP	-.129	.061	-.093	-2.136	.033
	LAISSEZ - FAIRE LEADERSHIP	-.148	.028	-.280	-5.308	.000

a. Dependent Variable: EMPLOYEE SATISFICATION

**Table 16 EQUATION 1**  $EE = 2.43 - 0.129 \text{ transactional} + 0.498 \text{ transformational} - 0.148 \text{ LFL}$

Results:

From above table, it is found that transformational (0.00) and laissez faire (0.00) leadership are significant impact on employee extra effort, whereas transactional leadership (0.033) is not having a significant impact on employee satisfaction. Multiple regression method is used to understand the relationship of each independent variable with dependent variables. With F value and its significance, the relationship for different samples can be found. The following section explains the relationship of independent variables and their relationships with dependent variables.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.462 <sup>a</sup>	.214	.210	.08368
a. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, TRANSFORMATIONAL LEADERSHIP, TRANSACTIONAL LEADERSHIP				

**Table 17 multiple regression for leadership styles & organizational commitment**

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.277	3	.426	60.795	.000 <sup>b</sup>
	Residual	4.699	671	.007		
	Total	5.976	674			
a. Dependent Variable: EMPLOYEE SATISFACTION						
b. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, TRANSFORMATIONAL LEADERSHIP, TRANSACTIONAL LEADERSHIP						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.284	.071		32.141	.000
	TRANSFORMATIONAL LEADERSHIP	.146	.029	.218	5.076	.000
	TRANSACTIONAL LEADERSHIP	.128	.022	.352	5.795	.000
	LAISSEZ - FAIRE LEADERSHIP	-.128	.013	-.508	-9.705	.000
a. Dependent Variable: Employee Satisfaction						

**Table 18 EQUATION 3**  $EFF = 2.284 + 0.146 \text{ transformational} + 0.128 \text{ transactional} - 0.128 \text{ LFL}$

The final regression model with three independent variables (transactional, transformational and laissez-faire leadership style) explains 21 percent

of the variance of employee efficiency. The adjusted  $R^2$  indicates no over-fitting of the model and that the results should be generalizable from the perspective of the ratio of observations to variables in the equation. Also, the standard error of estimate has been reduced to 0.08368. the calculated F value of 60.795 is far above 1.00 ( $\alpha = 0.05$ ), it shows that the regression as a whole is highly significant. The same conclusion can be incurred by noting that the output tells us that “p” = is 0.000. The same conclusion can be incurred by noting that the output tells us that “p” is 0.000 as this probability value is less than the significant level of  $\alpha = 0.05$ , it can be summarized that the regression as a whole is significant.

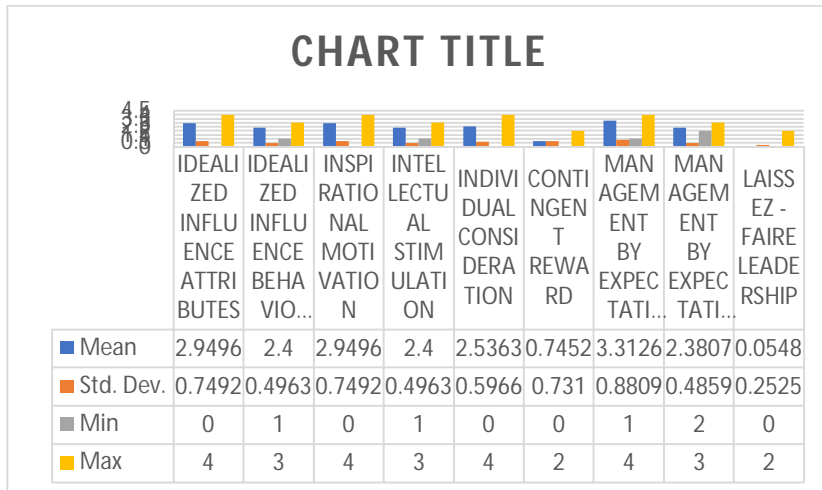
#### 1.1.1.1. Interpretation

Referring to probability value from above table, it can be concluded that transactional leadership style ( $p=0.000$ ), laissez-faire (0.000) and transformational (0.000) styles all are explanatory variables for employee efficiency. Here, it shall be noted that the laissez-faire leadership style is negatively correlated with employee satisfaction.

### 1.1. Descriptive Analysis for Independent Variables (Level 2) with Dependent Variables

**Table 19**

Variable	Obs	Mean	Std. Dev.	Min	Max
IDEALIZED INFLUENCE ATTRIBUTES	675	2.94963	0.74917 1	0	4
IDEALIZED INFLUENCE BEHAVIOUR	675	2.4	0.49627 7	1	3
INSPIRATIONAL MOTIVATION	675	2.94963	0.74917 1	0	4
INTELLECTUAL STIMULATION	675	2.4	0.49627 7	1	3
INDIVIDUAL CONSIDERATION	675	2.53629 6	0.59655 4	0	4
CONTINGENT REWARD	675	0.74518 5	0.73101 3	0	2
MANAGEMENT BY EXPECTATION ACTIVE	675	3.31259 3	0.88092 5	1	4
MANAGEMENT BY EXPECTATION PASSIVE	675	2.38074 1	0.48592 9	2	3
LAISSEZ - FAIRE LEADERSHIP	675	0.05481 5	0.2525	0	2



Referring to above table and chart, the mean value for leadership factors of Idealized Influence – attributes and inspirational motivation (2.9496) are same and higher than all other corresponding factors. Both of these leadership factors are part of transformational leadership style. Therefore, from the above data it can be said that actual leadership factors tend to show more of transformational leadership style.

To understand the relationship between independent variables (transactional, transformational and laissez-faire leadership style) with dependent variables (employee extra effort, efficiency, satisfaction and organizational commitment), Pearson correlation and multiple regression techniques have been used.

### 1.1. PEARSON CORRELATION BETWEEN LEADERSHIP FACTORS AND DEPENDENT VARIABLES

	EMPLOYEE EXTRA EFFORT	EMPLOYEE EFFICIENCY	EMPLOYEE SATISFACTION
IDEALIZED INFLUENCE ATTRIBUTES	.083*	.184**	.184**
IDEALIZED INFLUENCE BEHAVIOUR	-.066	.031	.031
INSPIRATIONAL MOTIVATION	.082*	.185**	.185**
INTELLECTUAL STIMULATION	-.066	.031	.031
INDIVIDUAL CONSIDERATION	.494**	.359**	.359**
CONTINGENT REWARD	.547**	.111**	.111**



MANAGEMENT BY EXPECTATION ACTIVE	.122**	.236**	.236**
MANAGEMENT BY EXPECTATION PASSIVE	.334**	-.042	-.042
LAISSEZ - FAIRE LEADERSHIP	.177**	-.215**	-.215**
**. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed).			

**Table 20 PEARSON CORRELATION BETWEEN LEADERSHIP FACTORS AND DEPENDENT VARIABLES**

From above table, it can be inferred that idealized influence behavior and intellectual stimulation are negatively correlated with employee extra effort. Management by expectation and Laissez Faire are also negatively correlated with employee efficiency and employee satisfaction. It can also be found that Idealized Influence attributes (0.083), laissez faire (0.177) and inspirational motivation (0.082) are having very low degree of correlation with employee extra effort where as individual consideration (0.494), management by expectation passive (0.334) have a significant moderate relation employee extra effort. Idealized influence attributes (0.184), idealized influence behavior (0.031), inspirational motivation (0.185) and contingent reward (0.11) are having significantly low degree of correlation with employee satisfaction, whereas management by expectation active (0.236) and individual consideration (0.359) have significantly moderate correlation with employee efficiency and employee satisfaction.

Interpretation:

It can be interpreted from the above results that, Individual consideration and contingent reward are the leadership factors that create impact on employee extra effort, employee efficiency and employee satisfaction.

Multiple regression method is applied to understand the relationship of each independent variable with dependent variables. With F value and its significance, the relationship of different samples can be inferred. The following section explains the relationship of independent variables and their relationships with dependent variables.

#### 1.1.1. LEADERSHIP FACTORS & EMPLOYEE EXTRA EFFORT

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.797 <sup>a</sup>	.635	.630	.11956
a. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION				

**Table 21 MULTIPLE REGRESSION FOR LEADERSHIP FACTORS & EMPLOYEE EXTRA EFFORT**

<b>ANOVA<sup>a</sup></b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.554	8	2.069	144.758	.000 <sup>b</sup>
	Residual	9.520	666	.014		
	Total	26.074	674			
a. Dependent Variable: EMPLOYEE EXTRA EFFORT						
b. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION						

<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.009	.112		17.965	.000
	IDEALIZED INFLUENCE ATTRIBUTES	.624	.346	1.032	1.802	.072
	INSPIRATIONAL MOTIVATION	-.423	.349	-.697	-1.214	.225
	INTELLECTUAL STIMULATION	-.198	.027	-.208	-7.271	.000
	INDIVIDUAL CONSIDERATION	.759	.037	.940	20.295	.000
	CONTINGENT REWARD	.325	.034	.486	9.618	.000
	MANAGEMENT BY EXPECTATION ACTIVE	-.630	.038	-.865	-16.426	.000
	MANAGEMENT BY EXPECTATION PASSIVE	-.167	.035	-.317	-4.825	.000
	LAISSEZ - FAIRE LEADERSHIP	.219	.024	.415	9.003	.000
a. Dependent Variable: EMPLOYEE EXTRA EFFORT						

Excluded Variables <sup>a</sup>						
Model		Bet a In	t	Sig	Partial Correlation	Collinea rity Statistics Tolerance
1	IDEALIZED INFLUENCE BEHAVIOUR	. <sup>b</sup>	.	.	.	.000
a. Dependent Variable: EMPLOYEE EXTRA EFFORT						
b. Predictors in the Model: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION						

**Table 22 Regression with independent variables and Employee extra effort.**

The final regression model with nine independent variables (individualized influence – attributed, individualized influence – behavior, inspirational motivation, intellectual stimulation, individual consideration, contingent reward, management-by-exception – active, management-by-exception – passive, laissez-faire leadership) explains 63 percent of the variance of employee extra effort. The adjusted  $R^2$  indicates no over-fitting of the model and that the results should be generalizable from the perspective of the ratio of observations to variables in the equation. Also, the standard error of estimate has been reduced to 0.11956. the calculated F value of 144.758 is far above 1.00 ( $\alpha = 0.05$ ), it shows that the regression as a whole is highly significant. The same conclusion can be incurred by noting that the output tells us that “p” - is 0.000 as this probability value is less than the significant level of  $\alpha = 0.05$ , therefore, it can be concluded that regression as a whole is significant. Referring to probability value from above table, it can be concluded that idealized influence attributes (0.072) and inspirational motivation (0.225) are not explanatory variables for employee extra effort. Whereas, idealized influence behavior (0.000), intellectual stimulation (0.000), individual consideration (0.000), contingent reward (0.000), management by expectation - active and passive (0.000) and Laissez faire (0.000) are explanatory variables for employee extra effort. Here, it shall be noted that inspirational motivation, intellectual stimulation and management by expectation – active and passive are negatively correlated with employee extra effort.

From table 24, it can be coined that the regression as a whole is significant. Referring to probability value from above table, it can be concluded that idealized influence attributes (0.072) and inspirational motivation (0.225) are not explanatory variables for employee extra effort. Whereas, idealized influence behavior (0.000), intellectual stimulation (0.000), individual consideration (0.000), contingent reward (0.000), management by expectation - active and passive (0.000) and Laissez faire (0.000) are explanatory variables for employee extra effort. Here, it shall be noted that inspirational motivation, intellectual stimulation and management by expectation – active and passive are negatively correlated with employee extra effort.

#### 1.1.1.1. Interpretation

From table 25, The same conclusion can be incurred by noting that the output tells us that “p” - is 0.000 as this probability value is less than the significant level of  $\alpha = 0.05$ , therefore, it can be concluded that regression as a whole is significant. Referring to probability value from the table, it can be concluded that idealized influence attributes (0.072) and inspirational motivation (0.225) are not explanatory variables for employee extra effort. Whereas, idealized influence behavior (0.000), intellectual stimulation (0.000), individual consideration (0.000),

contingent reward (0.000), management by expectation - active and passive (0.000) and Laissez faire (0.000) are explanatory variables for employee extra effort. Here, it shall be noted that inspirational motivation, intellectual stimulation and management by expectation – active and passive are negatively correlated with employee extra effort.

#### 1.1.1. LEADERSHIP FACTORS & EMPLOYEE EFFICIENCY

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.506 <sup>a</sup>	.256	.247	.08172
a. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION				

**Table 23 MULTIPLE REGRESSION FOR LEADERSHIP FACTORS & EMPLOYEE EFFICIENCY**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.528	8	.191	28.603	.000 <sup>b</sup>
	Residual	4.448	666	.007		
	Total	5.976	674			
a. Dependent Variable: EMPLOYEE EFFICIENCY						
b. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.222	.076		29.068	.000
	IDEALIZED INFLUENCE ATTRIBUTES	-.039	.237	-.134	-.164	.870
	INSPIRATIONAL MOTIVATION	.100	.238	.344	.420	.675
	INTELLECTUAL STIMULATION	.018	.019	.040	.976	.329
	INDIVIDUAL CONSIDERATION	.077	.026	.200	3.022	.003
	CONTINGENT REWARD	.098	.023	.307	4.259	.000
	MANAGEMENT BY EXPECTATION ACTIVE	.055	.026	.157	2.095	.037
	MANAGEMENT BY EXPECTATION PASSIVE	-.062	.024	-.248	-2.644	.008
	LAISSEZ - FAIRE	-.073	.017	-.289	-	.00

LEADERSHIP			4.382	0
a. Dependent Variable: EMPLOYEE EFFICIENCY				

Excluded Variables <sup>a</sup>						
Model	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics	Tolerance
1 IDEALIZED INFLUENCE BEHAVIOUR	. <sup>b</sup>	.	.	.		.000
a. Dependent Variable: EMPLOYEE EFFICIENCY						
b. Predictors in the Model: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION						

**Table 24Regression with independent variables and Employee Efficiency**

The final regression model with nine independent variables (individualized influence – attributed, individualized influence – behavior, inspirational motivation, intellectual stimulation, individual consideration, contingent reward, management-by-exception – active, management-by-exception – passive, laissez-faire leadership) explains 25 percent of the variance of employee efficiency. The adjusted  $R^2$  indicates no over-fitting of the model and that the results should be generalizable from the perspective of the ratio of observations to variables in the equation. Also, the standard error of estimate has been reduced to 0.08172. the calculated F value of 28.603 is far above 1.00 ( $\alpha = 0.05$ ), it shows that the regression as a whole is highly significant. The same conclusion can be incurred by noting that the output tells us that “p” - is 0.000 as this probability value is less than the significant level of  $\alpha = 0.05$ , therefore, it can be concluded that regression as a whole is significant.

#### 1.1.1.1. Interpretation

From Table 26, it was found that idealized influence attributes (0.870), inspirational motivation (0.675), intellectual stimulation (0.329), management by expectation – active (0.037), management by expectation – passive (0.008) are not explanatory variables for employee efficiency. Whereas, idealized influence behavior (0.000), individual consideration (0.003), contingent reward (0.000), management by expectation - passive (0.000) and Laissez faire (0.000) are explanatory variables for employee efficiency. Here, it shall be noted that idealized influence attributes, management by expectation – passive and Laissez faire are negatively correlated with employee efficiency.

#### 1.1.1. LEADERSHIP FACTORS & EMPLOYEE SATISFACTION

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.506 <sup>a</sup>	.256	.247	.08172
a. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION				



**Table 25 MULTIPLE REGRESSION FOR LEADERSHIP FACTORS & EMPLOYEE SATISFACTION**

<b>ANOVA<sup>a</sup></b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.528	8	.191	28.603	.000 <sup>b</sup>
	Residual	4.448	666	.007		
	Total	5.976	674			
a. Dependent Variable: EMPLOYEE SATISFACTION						
b. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION						

<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.222	.076		29.068	.000
	IDEALIZED INFLUENCE ATTRIBUTES	-.039	.237	-.134	-.164	.870
	INSPIRATIONAL MOTIVATION	.100	.238	.344	.420	.675
	INTELLECTUAL STIMULATION	.018	.019	.040	.976	.329
	INDIVIDUAL CONSIDERATION	.077	.026	.200	3.022	.003
	CONTINGENT REWARD	.098	.023	.307	4.259	.000
	MANAGEMENT BY EXPECTATION ACTIVE	.055	.026	.157	2.095	.037
	MANAGEMENT BY EXPECTATION PASSIVE	-.062	.024	-.248	-2.644	.008
	LAISSEZ - FAIRE LEADERSHIP	-.073	.017	-.289	-4.382	.000
a. Dependent Variable: EMPLOYEE SATISFACTION						

<b>Excluded Variables<sup>a</sup></b>						
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	IDEALIZED INFLUENCE BEHAVIOUR	. <sup>b</sup>	.	.	.	.000
a. Dependent Variable: EMPLOYEE SATISFACTION						
b. Predictors in the Model: (Constant), LAISSEZ - FAIRE LEADERSHIP,						

INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION

**Table 26 Regression with independent variables and Employee Satisfaction**

The final regression model with nine independent variables (individualized influence – attributed, individualized influence – behavior, inspirational motivation, intellectual stimulation, individual consideration, contingent reward, management-by-exception – active, management-by-exception – passive, laissez-faire leadership) explains 24 percent of the variance of employee satisfaction. The adjusted  $R^2$  indicates no over-fitting of the model and that the results should be generalizable from the perspective of the ratio of observations to variables in the equation. Also, the standard error of estimate has been reduced to 0.08172. the calculated F value of 28.603 is far above 1.00 ( $\alpha = 0.05$ ), it shows that the regression as a whole is highly significant. The same conclusion can be incurred by noting that the output tells us that “p” - is 0.000 as this probability value is less than the significant level of  $\alpha = 0.05$ , therefore, it can be concluded that regression as a whole is significant.

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.277	3	.426	60.795	.000 <sup>b</sup>
	Residual	4.699	671	.007		
	Total	5.976	674			
a. Dependent Variable: EMPLOYEE SATISFACTION						
b. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, TRANSFORMATIONAL LEADERSHIP, TRANSACTIONAL LEADERSHIP						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2.284	.071		32.141	.000
	TRANSFORMATIONAL LEADERSHIP	.146	.029	.218	5.076	.000
	TRANSACTIONAL LEADERSHIP	.128	.022	.352	5.795	.000
	LAISSEZ - FAIRE LEADERSHIP	-.128	.013	-.508	-9.705	.000
a. Dependent Variable: EMPLOYEE SATISFACTION						

**Table 27 EQUATION 4 ES = 2.284 + 0.146 transformational + 0.128 transactional – 0.128 LFL**

The final regression model with three independent variables (transactional, transformational and laissez-faire leadership style) explains 21 percent of the variance of employee satisfaction. The adjusted  $R^2$  indicates no over-fitting of the

model and that the results should be generalizable from the perspective of the ratio of observations to variables in the equation. Also, the standard error of estimate has been reduced to .08368. the calculated F value of 60.795 is far above 1.00 ( $\alpha = 0.05$ ), it shows that the regression as a whole is highly significant. The same conclusion can be incurred by noting that the output tells us that “p” = is 0.000. The same conclusion can be incurred by noting that the output tells us that “p” is 0.000 as this probability value is less than the significant level of  $\alpha = 0.05$ , therefore, it can be concluded that regression as a whole is significant.

#### 1.1.1.1. Interpretation

4.1.2. From table 27, that idealized influence attributes (0.870), inspirational motivation (0.675), intellectual stimulation (0.329), management by expectation – active (0.037), management by expectation – passive (0.008) are not explanatory variables for employee satisfaction. Whereas, idealized influence behavior (0.000), individual consideration (0.003), contingent reward (0.000), management by expectation - passive (0.000) and Laissez faire (0.000) are explanatory variables for employee extra satisfaction. Here, it shall be noted that idealized influence attributes, management by expectation – passive and Laissez faire are negatively correlated with employee satisfaction.

#### LEADERSHIP FACTORS & EMPLOYEE ORGANIZATIONAL COMMITMENT

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.506 <sup>a</sup>	.256	.247	.08172
a. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION				

**Table 28 MULTIPLE REGRESSION FOR LEADERSHIP FACTORS & EMPLOYEE EFFICIENCY**

ANOVA <sup>a</sup>					
Model		Sum of Squares	df	Mean Square	Sig.
1	Regression	1.528	8	.191	28.603
	Residual	4.448	666	.007	
	Total	5.976	674		
a. Dependent Variable: EMPLOYEE ORGAIZATIONAL COMMITMENT					
b. Predictors: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION					

Coefficients <sup>a</sup>					
Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	2.222	.076		29.



					068	00
	IDEALIZED INFLUENCE ATTRIBUTES	-.039	.237	-.134	-.164	.870
	INSPIRATIONAL MOTIVATION	.100	.238	.344	.420	.675
	INTELLECTUAL STIMULATION	.018	.019	.040	.976	.329
	INDIVIDUAL CONSIDERATION	.077	.026	.200	3.022	.003
	CONTINGENT REWARD	.098	.023	.307	4.259	.000
	MANAGEMENT BY EXPECTATION ACTIVE	.055	.026	.157	2.095	.037
	MANAGEMENT BY EXPECTATION PASSIVE	-.062	.024	-.248	-2.644	.008
	LAISSEZ - FAIRE LEADERSHIP	-.073	.017	-.289	-4.382	.000
a. Dependent Variable: EMPLOYEE ORGANIZATIONAL COMMITMENT						

Excluded Variables <sup>a</sup>						
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	IDEALIZED INFLUENCE BEHAVIOUR	<sup>b</sup>	.	.	.	.000
a. Dependent Variable: EMPLOYEE ORGANIZATIONAL COMMITMENT						
b. Predictors in the Model: (Constant), LAISSEZ - FAIRE LEADERSHIP, INTELLECTUAL STIMULATION, INDIVIDUAL CONSIDERATION, IDEALIZED INFLUENCE ATTRIBUTES, CONTINGENT REWARD, MANAGEMENT BY EXPECTATION ACTIVE, MANAGEMENT BY EXPECTATION PASSIVE, INSPIRATIONAL MOTIVATION						

**Table 29 Regression with independent variables and Employee Efficiency**

The final regression model with nine independent variables (individualized influence – attributed, individualized influence – behavior, inspirational motivation, intellectual stimulation, individual consideration, contingent reward, management-by-exception – active, management-by-exception – passive, laissez-faire leadership) explains 25 percent of the variance of employee efficiency. The adjusted  $R^2$  indicates no over-fitting of the model and that the results should be generalizable from the perspective of the ratio of observations to variables in the equation. Also, the standard error of estimate has been reduced to 0.08172. the calculated F value of 28.603 is far above 1.00 ( $\alpha = 0.05$ ), it shows that the regression as a whole is highly significant. The same conclusion can be incurred by noting that the output tells us that “p” - is 0.000 as this probability

value is less than the significant level of  $\alpha = 0.05$ , therefore, it can be concluded that regression as a whole is significant.

#### **4.1.2.1. Interpretation**

From Table 26, it was found that idealized influence attributes (0.870), inspirational motivation (0.675), intellectual stimulation (0.329), management by expectation – active (0.037), management by expectation – passive (0.008) are not explanatory variables for employee efficiency. Whereas, idealized influence behavior (0.000), individual consideration (0.003), contingent reward (0.000), management by expectation - passive (0.000) and Laissez faire (0.000) are explanatory variables for employee efficiency. Here, it shall be noted that idealized influence attributes, management by expectation – passive and Laissez faire are negatively correlated with employee organizational commitment.

### **5. Findings, conclusion and recommendation**

#### **5.1. Findings**

During the study, it was observed that transformational leadership style tends to create high employee extra effort, effectiveness and satisfaction than that of other two leadership styles. It was also observed that the transformational leadership style shown by leaders of different samples was different, and that was also reflected by significant difference in employee extra effort, effectiveness, and satisfaction found in different samples. The laissez-faire leadership style is found to be associated negatively with employee organizational commitment. Out of all leadership factors, inspirational motivation, intellectual stimulation and individual consideration tend to have greater impact on employee outcomes than that of other factors.

Findings:

5.1.1. Transactional leadership has a significant impact on employee extra effort whereas transformational leadership has a moderate relationship with the employee extra effort, employee efficiency and employee satisfaction.

5.1.2. that laissez-faire leadership is not explanatory variable for employee extra effort, whereas transactional and transformational styles are explanatory variables for employee extra effort.

5.1.3. transactional leadership style, laissez-faire and transformational styles all are explanatory variables for employee efficiency.

5.1.4. It was also noted that the laissez-faire leadership style is negatively correlated with employee efficiency.

5.1.5. transactional leadership style, laissez-faire and transformational leadership styles all are explanatory variables for employee efficiency. It was also found that that the laissez-faire leadership style is negatively correlated with employee satisfaction.

5.1.6. Individual consideration and contingent reward are the leadership factors that create impact on employee extra effort, employee efficiency and employee satisfaction.

5.1.7. idealized influence behavior, intellectual stimulation individual consideration, contingent reward, management by expectation - active and passive, and Laissez faire are explanatory variables for employee extra effort. Here, it shall be note that inspirational motivation, intellectual stimulation and management by expectation – active and passive are negatively correlated with employee extra effort.

idealized influence attributes, inspirational motivation, intellectual stimulation,

5.1.8. management by expectation – active, management by expectation – passive are not explanatory variables for employee efficiency. Whereas, idealized influence behavior, individual consideration, contingent reward, management by expectation - passive and Laissez faire are explanatory variables for employee efficiency.

5.1.9. It was also found that that idealized influence attributes, management by expectation – passive and Laissez faire are negatively correlated with employee efficiency.

5.1.10. idealized influence attributes, inspirational motivation, intellectual

stimulation, management by expectation – active, management by expectation – passive are not explanatory variables for employee satisfaction. Whereas, idealized influence behavior, individual consideration, contingent reward, management by expectation - passive and Laissez faire are explanatory variables for employee extra satisfaction. Here, it shall be note that idealized influence attributes, management by expectation – passive and Laissez faire are negatively correlated with employee satisfaction.

5.1.11. transactional leadership has a significant impact on organizational commitment and organizational efficiency.

5.1.12. that transactional leadership style, laissez-faire are not explanatory variables of organizational efficiency. But transformational style is an explanatory variable for organizational. Here, it shall be noted that the all three leadership styles positively correlated with organizational efficiency.

5.1.13. all three leadership styles positively correlated with organizational commitment.

5.1.14. idealized influence attributes, idealized influence behavior, inspirational motivation and intellectual stimulation are not explanatory variables for organizational efficiency. Whereas, individual consideration, contingent reward, management by expectation – active and passive and Laissez faire are explanatory variables for organizational efficiency Here, it shall be noted that

5.1.15. intellectual stimulation and contingent reward are negatively correlated with organizational efficiency.

5.1.16. idealized influence attributes, idealized influence behavior, inspirational motivation, intellectual stimulation (0.361), individual consideration, Laissez Faire and Management by expectation active are not explanatory variables for organizational commitment. Whereas, contingent reward and management by expectation passive and Laissez faire are explanatory variables for organizational commitment. Here, it shall be noted that

5.1.17. intellectual stimulation, individual consideration and contingent reward are negatively correlated with organizational commitment

## **5.2. Recommendations:**

In this rapid changing business environment, leadership development has become a fad. Many organizations implement leadership development programs. Workshops, course, and structured activities have their places in the process of building leaders. There are many facets of leadership development within the organizations. Each facet represents different outlook, which leads to various implications for subordinate-employer relationships.

This study can be helpful to decision makers, who plan to develop leaders within organization. More importantly, this study highlights leadership factors, and their relationship with employee outcome. Not all the leadership factors may be of organizational interest at any particular time. It becomes imperative for decision makers to identify those leadership factors which can be of much help for leaders to generate specific results for organization.

Even, the degree to association may vary depending on the organization, its life stage, structure, and organizational policies. That can be further researched within specific context of the organization.

Through this study, researcher made an attempt to study the relationship of leadership styles with subordinate organizational commitment, extra effort, effectiveness, and satisfaction. This was done with 15 different industries of Himachal Pradesh. As the study was limited to these specific samples, further research can be done with increasing data coverage, collecting responses from various samples.

The data can also be evaluated further for inter-sample analysis, comparing leadership styles and subordinate outcome for multiplesamples.



**5.2.1. The study can be extended further in following ways:**

- 5.2.1.1. By selecting more heterogeneous samples from different industry.
- 5.2.1.2. By considering other organizational parameters like organization size, leader's position, dyadic relationship with followers, technical versus non-technical profiles etc.
- 5.2.1.3. By considering quantifiable parameters like sales figures, direct measurable results etc.

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## REFLECTION OF ASSAMESE SOCIAL LIFE IN THE 'BIHU' SONGS: AN ANALYSIS

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### **Abstract**

Folk literature celebrates a classical existence in the society since the ancient period. It has been delivered orally from generation to generation that gives voice to the sorrows and happiness, faith and beliefs, feelings and emotions, hopes and expectations of the common people. Bihu is an indispensable part of Assamese folk literature. Attempt was made to analyze the bihu songs, which reflect the images of the Assamese social life and utters romance for folks. The study was based on the literature available on Bihu songs and interview with few folk artists. Over time it has been observed that the old bihu songs are being abandoned with the progressing era. Therefore, it is utmost necessary to recollect and preserve the old bihu songs as they are the milestone of Assamese folk culture and they hold identity to Assamese people.

**Keywords:** Assamese, Bihu songs, Folk culture, Social life.

### **1. Introduction**

Folk literature is the common creation by the people of a society. It is passing generation after generation by words of mouth that people have forgotten its ingenuity. Therefore, the authors of the folk literature are not known. As soon as human civilization began, folk literature made its appearance. Ever since those days, it has existed traditionally from one generation to another. Initially it began from the mouth of some individuals, but with the advancement of time it became common resources of the societies. Though the authors of this kind of literature were not institutionally trained persons but they were of great knowledge. Encyclopædia Britannica (2017) says –

“Folk literature, also called folklore or oral tradition, the lore (traditional knowledge and beliefs) of cultures having no written language. It is transmitted by word of mouth and consists, as does written literature, of both prose and verse narratives, poems and songs, myths, dramas, rituals, proverbs, riddles, and the like. Nearly all known peoples, now or in the past, have produced it.”

The seed of folk literature lied in the primitive society, when people lived in the heart of nature. They were much influenced by supernatural power. They knew that raining causes good harvest but did not know how it rained. So they

imagined a rain god, whom they believed to have same kind of emotions like anger, happiness and sorrow like human beings. Similarly people imagined wind god witnessing the destructions caused by heavy wind. They began to worship fire-god, god of forest etc. In the mean time, they composed some songs of prayer to draw blessings of those gods and goddesses. With time, these songs became the main assets of the folk literature.

Literature is the mirror of society. The image of the Assamese society is well reflected in 'Bihu' which is a key part of Assamese folk literature. 'Bihu', a festival of merriment and harmony is the state festival of Assam. It is the festival of glory, joy, enthusiasm and happiness and like soul to Assamese society. No other festival can match the joy of Assamese people that achieved while celebrating bihu. If Assamese culture is a floating ship, then Bihu is a vital part of the ship. This study aims to analyze the following points to study the reflection of Assamese social life in the bihu songs-

1. To study the reflection of nature in the traditional bihu songs of Assam.
2. To analyze the image of agriculture based society in the folk bihu songs.
3. To analyze the socio-cultural life in Assamese society based on bihu songs.

## **2. Origin of the Bihu**

Assam is situated in the north eastern part of India. The Assamese is a mixed community of the Aryans, Non-Aryans, Mongolians etc. with mixed kind of culture. The origin of the word "Bihu" has been defined by many scholars but a unanimous view is yet to come. Most of them opine that the word "Bihu" derives from the word "Bishub". Archeologist Rajmohan Nath says in the Sam Veda that songs are of two types – one is Gramya geyageet or Prakriti geet or Beya geet. These songs are sung by the villagers in the paddy fields as nature songs. An example of Prakriti geet can be cited as follows (Sarma, 2000):

Sorai hoi porim goi/sowora bilot oi  
Mas hoi porim goi jalot  
Gham hoi humam goi/tumare sorirot  
Makhi hoi suma dim galot...

### **English:**

Will fly to Suwora wetland as bird  
Will fall into the fishing net as fish  
Will enter in to your body as sweat  
Will kiss on your cheek as fly

Bihu was an agriculture based festival of the Austric and Mongols, who were related to cultivation. At the advent of the New Year, people celebrated this festivity wholeheartedly to with their works of cultivation, which in due course of time became a folk culture. An example of bihu song in this connection is as follows:



Durote nuruba bhui oi moina  
Durote oi nuruba bhui  
Jaute bikhabo kokal oi lahari  
Ahute bikhabo bhori...

**English:**

Don't implant paddy in a long distance dear (moina)  
Your waist will pain for going there  
And your legs when return

The Boro-Kachari tribes living in Assam celebrated Baishagi since the primitive time. "Bahag bihu" is also called Bish by the Chutia people, Bishu by Dimasa tribe and Bihu by the Boro community. According to the Boros 'bi' means 'to ask for' and 'hu' means 'to give' (diya). They believed that on the day of bihu, if they ask for blessings from their spiritual teachers (Guru) they blessed them with blessings. In the southern side of Assam, the Boro people call this 'Baisagi'. 'Bai' means 'year' and 'ga' means to 'born'. Hence they believe that on that day, the New Year takes birth. A boro geet in this connection can be cited as follows (Bordoloi, 1987):

Boisagu aayoi boisagu  
Botthotor gotjoma thanglaybay  
Botthotor gotdana phoilaybay...

**English:**

In a new year, in dewy 'Bohag'  
Curling the plants with blooming leaves  
Minds are frenzied  
Come, let's dance

From "Baisaga" came "baisag" and since transmitted orally it took the name of 'Bahag' in due course of time. The real meaning of the word 'Bihu' is happiness. Expressing happiness has been tremendously influenced by changing time, impact of religion and status of economy etc. The ultimate outcome of this influence upon the festivity of happiness can be called as bihu.

The festival bihu is based on nature. The non-Aryan race initially started cultivation in this land. People of different community and caste worshiped their respective gods and goddesses before honing the field. They sang, danced, and had lots of fun wholeheartedly. They believed the gods and goddesses of nature improved the fertility of their soil being pleased with their songs and dance. It is reflected in one song (Sarma, 2000) as -

Prothome Pronamu/devi saraswati  
Dwitiye pronamu hori  
Tritiye pronamu/gawor burha-metha  
Dhori jau namore guri...

**English:**



At first praying to Goddess Saraswati  
Secondly praying to God (Hori)  
Thirdly praying to the elders of village  
Will continue singing 'Naam'

Every tribe in Assam has its own agricultural festival yet Rangali bihu is the common festival of harmony and unity among all tribes living in Assam. Bihu tells us about the history of the past, changes of the present and about future. Folk-belief, folk-dance, folklore, folk-tradition etc have been carried on in the heart of bihu.

### **3. Image of nature**

The climate of Assam is neither too hot nor too cold. People of Assam can easily move everywhere in the paddy, hills, rivers, forest etc. for their livelihood all around the year. In the Baromahi geet<sup>1</sup> it has been described that every season or Assamese months adores the nature of Assam with spectacular beauty. In this connection, a Baromahi geet can be cited here as follows (Sarma, 1997):

Choitote sokuai kande u jagore rati  
Bohage binawe kuli ghone uthe mati  
Jethore khorote sukhei tiyohor jail  
Aharoro akashe meghe diye korotali  
Saune soghone kore boroshunor pani  
Bhadore barikhar bane ahe monojani  
Ahine sadori ane kuwolire rati  
Katir tulosire tole jali thake bati  
Aghune bihane tane pothorore mati  
Puhore sotalot subhe pokadhanor ati  
Maghore dinote ahe sesa baresati  
Phagunor porane uthe ulahote mati

#### **English:**

In 'Chot', Sokua (a bird) cries sleeplessly all the night  
The Cuckoo bawls in 'Bohag'  
Cucumber's buds get dried in torrid 'Jeth'  
The cloudy Ahar's sky cracks with lightening  
And frequent raining in 'Saun' month  
The flood comes willingly in 'Bhado'  
'Ahin' welcomes the foggy night  
Lamp lighting gladden the Tulshi in 'Kati'  
The morning of 'Aghun' drags us to the loom  
Ripe paddy decorates the courtyard in 'Puh'  
'Magh' comes with the freezing wind

Heart beats with joy in 'Phagun'

Illustrating the Bihu songs four elements of nature are found in them. They are rivers of Assam, the cattle, meadows, and the paddy fields. The people of Assam have a cordial relation with the hills of the soil. The fascinating sights of the hills have been attracting man for ages. This bihu songs show the attachments of the Assamese people with hills. An example in this regard can be cited here as follows (Sarma, 2000):

Parbate parbate /bogabo paru moi  
Lota bogabolo tan  
Bolia hatiku bolabo paru moi  
Tumak bolaboloi tan...

**English:**

I can climb mountain  
But, not the climbers  
I can tame the mad elephant  
But, difficult to convince you

Worshiping gods of the forest or worshiping trees is still prevailing in Assam. It's a customary ritual and belief not only among the tribal people of Assam but also among the people of the plains. Leaves of different trees are still used in the Pujas of gods and goddesses. Trees like Tulshi<sup>2</sup>, Bell, Bar<sup>3</sup> are worshiped as gods or goddess.

Assamese people's fascination for flowers is another example of their love for nature. Flowers are used not only in the rituals and Pujas but also to adorn women. Young girls are named after beautiful flowers to compare their beauty. Biya geet, Bihu geet etc. are sung with the names of different flowers.

The culture of a nation can't be built in a day or two. It comes up after going through a long period of time. Assamese culture is a rural culture. Village and village life are the basic component of Assamese culture. People of Assam still use bamboo and cane to build house and many other day to day useful things and tools. Instead of having a huge building, Assamese people like have Maral ghar, Sara ghar, Bat ghar, Guhali ghar etc. and different small houses for different purposes.

Assamese family is always fulfilled with father-mother, brother-sister, daughter, daughter-in-law as well with grandparents. In the villages of Assam mother-in-law never comes before son-in-law. Bihu geet are found that express this relationship between mother-in-law and son-in-law. Barua (2001) quoted a song in his book as-

Bahor tole tole bahitu bajalu  
Xahuye xunak buli.  
Xahu aiye xunile misikai hahile  
Juai dhemia buli...

**English:**

I was playing the flute under the bamboo  
To make mother in law hear  
Mother in law heard and smiled  
Surmised son in law is funny

Marriage is the most important festival among all other family ceremonies. Asking the hand of the lass or lad for their own son or daughter respectively is generally done by the parents. As soon as the talking between the two homes proceeds parents starts to match the horoscope of the couple. Then the Brahmin pundit fixes a date for their marriage. The month of Bohag is always considered to be the best time for marriage ceremony. Sometimes the couple elopes from the field of bihu and sing (Sarma, 2000) -

Bihu mari thakibor/mone oi lahari  
Bihu mari thakibor mon  
Bihu mari thakute/poluai niniba  
Bhoribo lagibo dhan...

**English:**

I wish to dance bihu forever my dear (Lahori)  
Don't run off (to get married) while dancing  
Or, you will be endowed with wealth

A loom which is a part of Assamese culture is broadly analyzed in the bihu songs. Clothes like Suria (a waist cloth), Sadar, Seleng (a thin cloth wrapped round the body), Gamucha etc. woven in the loom at home are the dresses of the Assamese tradition of which references are found in the bihu songs. Hasati<sup>4</sup> is a favorite piece of cloth among the young lad and lass and it is a symbol of love. One more example (Das, 2017) can be cited as follows:

Seleng sokothia/sadorkoi eria  
Boboloi koisilu tuk  
Aibar phagunot/nime biya korai  
Nejau buli nokobi muk...

**English:**

You were asked to weave  
'Seleng' using six stick along with 'Eri sador'  
Will marry you on this 'Phagun'  
Don't say 'no' to me

Assamese young girls wear ornaments like Biri, Gejera on the neck, on ear keru, Wristlets, Rings etc. references of all these things are found in the bihu songs. The principal foods of the Assamese people are rice, vegetable and fish and meat. Name of different types of rice like Maguri, Aamana, Jaha etc. have been mentioned in the bihu songs. The taste and deliciousness of the Kala Jaha is also mentioned in some bihu songs - apuni nakhai muloi xasisila kala jaha saulor

vat). Among the vehicles the name of boat is mentioned in the bihu geet. Mentioning of Hengulia Nao, Pansoi Nao, Sara Nao etc. shows the importance of boats in transporting system.

Wedding ceremony and the Bihu are the chief social festival of Assam. All people of the society irrespective of their class, young-old, rich-poor take active part in these festivals. If there is a wedding in a family all other families of the village do their share of work enthusiastically.

#### **4. Image of agriculture based society**

Ever since the primitive period the principal means of livelihood of the people of Assam is Agriculture. In this respect Assamese Culture is linked with the huge Indian Culture. The Assamese terms and words related to agriculture are basically found have derived from Aryan language.

The wide and open fields of Assam have not only been providing the living resources to its people, but also they enable the young couples to sow the seeds of their love for each other. The golden and everlasting moments of life of the young couples that arise in the fields have often been described in the bihu songs. In this context, Bardoloi (1991) quoted as-

Amoni dhanoke daboloi goisilu

Bauli botahe pale,

Kasi doli mari habite humalu

Uthote borole khale...

#### **English:**

Went to harvest 'Amoni' paddy

And met the wild wind

Entered into forest throwing the sickle

Wasp pierced on the lips

The ancient belief of the agriculture based societies that music enriches and increases production of the harvest has been scientifically proved to be true in this modern era of 21st century. The primitive people learnt this principle from nature itself. During the days of spring (especially in the month of Bohag) the people of the villages sang and danced with Dhool (Drum), Pepa (a special flute made of buffalo horn), Taka, Gagana (instruments made of bamboo) etc. expressing their profound joy. The Mother Nature abounded the fields with harvest as result of the songs and dance. The bihu songs also draw a sketch of poverty stricken people of Assam whose chief livelihood is agriculture.

Bihu is an agriculture based festival. Bhogali bihu and Rangali bihu are mainly observed expecting hike in production in their paddy fields. When the primitive people started cultivation they were not aware of the methods and means how to increase the productivity in their fields, so they began to sing some talismanic verse accompanied with homemade instruments. They believed their hymens

had magical influence on the fields for which they succeeded to increase their productivity.

The aristocratic people of the society hesitated to pay due respect to Bihu as it was a festival of the working class people, especially the farmers. That is why references of Bihu are not abundant in the history of Assam which depicts the Ancient and Medieval periods. On the other hand, the Ahom<sup>5</sup> had to be in close touch with the working class in the initial stage of their establishment of Kingdom in Assam, so they had to pay Bihu its social value and dignity. A song in this connection is as follow (Das, 2015):

Ronggharar bakorit/tahanir dinote

Rongore partisil mela

Mohu jujaisil/konua jujaisil

Rongore patisil mela...

**English:**

At that time on the ground of 'Rangghar'

There was merriment

The buffalo and the Konua<sup>6</sup> brawls

Moment was celebrated

## 5. Image of love

Physical description of the young boys and girls are found in the Bihu songs. The thoughts and concern of the Assamese people about human beauty. Happy mind, achieving happiness amidst nature, artistic mind, simplicity of life, utmost belief on destiny, social harmony are the characteristic features of Assamese society.

Bihu songs are the expressions of young lovers to their counter parts. That is why words and expressions of the bihu songs are mostly symbolic. Every society runs through its basic rules and principles; no human being of his respective society can ignore those rules and principles. Though lusty love of young couples is often described in the Bihu songs it has never gone beyond the limits of social bindings. Social loyalty and responsibility are heard in the mouth of the young maiden. In this context, Sarma (1994) quoted as-

Kali maj nikha/keloi kandisila

Pisphalor piralit bohi

Tumi konda huni/moiyu kandisilu

Hua garu haboti dhor...

**English:**

Why did you cry in the mid last night?

Sitting in the backyard

Hearing your cry, I too cried

Hugging the pillow, the time swept

Bihu dance came to exist along with Bihu geets. Dances specially performed during the month of Bohag based on the romantic feelings and emotions can be called as Bihu dance. Expressions of the dance through different movements of the parts of the body expresses sexuality of the young people.

## **6. Conclusion**

Bihu songs and bihu dance are endowed cultural treasure to the people of Assam. These are like mirrors that reflect the art and socio-cultural scenario of Assam. In due course of time, the bihu dance and bihu songs are evolving with perceptible changes such like the motif of bihu dance or melody of songs. The old bihu songs are losing their admiration in this modern era and their pure existence seems to be vagued as the original melody is been compromised in the modern bihu songs for the purpose of scoring popularity. It is an utmost necessity to recollect and conserve the old bihu songs and create a fashion for the primal bihu dance as they grasp the identity of Assamese folk culture.

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## **Endnotes**

<sup>1</sup> Baromahi geet – folk songs describing the nature related phenomena occurs in each Assamese month.

<sup>2</sup> Tulshi tree – plant worshipped during the month of Kati starting from the Pusha Sankranti (the last day the month).



<sup>3</sup> Bar gas – the English name is Ficus under which bihu dance was performed apart from worshipping.

<sup>4</sup> Hasati – a small narrow cloth for holding betel nuts.

<sup>5</sup> Ahom – the kingdom originated in Assam, well known for maintaining its sovereignty for about 600 years.

<sup>6</sup> Konua – Assamese name of a bird: Asian Openbill Stork (Anastomus oscitans).



## DEVELOPMENT, CHARACTERIZATION OF SOLID DISPERSION OF IRINOTECAN BY SOLVENT EVAPORATION METHOD

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### Abstract

The present study was carried out on Irinotecan by employing solid dispersion technique. The  $\lambda_{\max}$  of phosphate buffer pH 6.8 of Irinotecan were found to be at 247nm. The pure drug the optimized Solid dispersion formulations were subjected to FTIR studies. The results were showed that there is no interaction between the drug and excipients. The micrometric properties of blend of Irinotecan solid dispersion were characterized with respect to Angle of repose, bulk density, tapped density, Carr's index and Hausner's ratio. Angle of repose was less than  $28^{\circ}$ , Carr's index values were 10 to 17 for the pre compression blend of all the batches indicating good to fair flow ability and compressibility. Hausner's ratio was less than 1.2 for all the batches indicating good flow properties. All the tablets of different batches complied with the official requirement of weight variation as their weight variation passes the limits. The hardness of the tablets ranged from 2 to 3 kg/cm<sup>2</sup> and the friability values were less than 1% indicating that the tablets were compact and hard. The thickness of the tablets ranged between 3.1 to 3.8 mm. All the formulations satisfied the content of the drug as they contained 96-100% of Irinotecan and good uniformity in drug content was observed. Thus all the physical attributes of the prepared tablets were found to be practically within control limits.

The dissolution profile of Irinotecan tablets were compared between solid dispersion tablets. The Irinotecan solid dispersion tablets showed better release in phosphate buffer pH 6.8, in that F2 showed good drug release i.e., 99.89 at 15 minutes. F2 formulation was taken as optimised formulation.

**Key Words:** Irinotecan, solid dispersion tablets

### Introduction:

The oral route of drug administration is the most common and preferred method of delivery due to its convenience and ease of ingestion and it is probable that at least 90% of all drugs used to produce systemic effects administered by oral route. A solid dosage form is a drug delivery system that includes tablets, capsules, sachets, and pills, as well as bulk or unit-dose powders and granules. Among them tablets and capsules are most



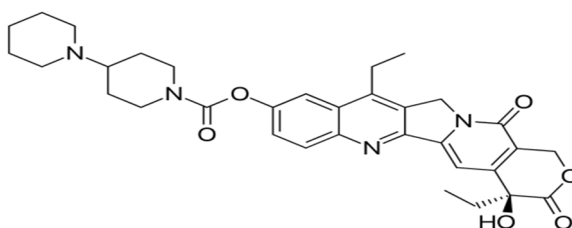
frequently given by this route. From a patient's perspective, swallowing a dosage form is far more comfortable and a familiar means of taking medication than getting injected. Oral drug administration still continues to be the most preferred route of drug delivery due to its manifold advantages including non-invasiveness, versatility and most important patient compliance. The long and continuing history of the development of new technologies for administration of drugs, the tablet form remains the most commonly used dosage form due to ease of production, inexpensive and patient friendly.<sup>[1]</sup>

The poor water solubility of many drugs is the major obstruction for the development of highly potent pharmaceuticals. Low water solubility tends to the limited bioavailability and absorption of these agents. The developments of a suitable oral formulation for some drugs have always problems, which have very low water solubility.<sup>2</sup>

Irinotecan is a sparingly water soluble drug. The aim of the present study is to enhance the solubility of Irinotecan using different solid dispersion techniques with various carriers, which may results in increase absorption and thereby improved bioavailability.

Irinotecan is an antineoplastic enzyme inhibitor primarily used in the treatment of colorectal cancer. It is a derivative of camptothecin that inhibits the action of topoisomerase I. Irinotecan prevents religation of the DNA strand by binding to topoisomerase I-DNA complex, and causes double-strand DNA breakage and cell death. It is a derivative of camptothecin. Irinotecan was approved for the treatment of advanced pancreatic cancer in October, 2015 (irinotecan liposome injection, trade name Onivyde).<sup>3</sup>

The literature review reveals that solubility of some drugs enhanced by using PEG 6000-PVP K 30 combination carrier<sup>4</sup>, using Avicel 200 and Sylysia 350 as polymers<sup>5</sup>, hydroxypropyl- $\beta$ -cyclodextrin (HP- $\beta$ -CD) and dioctylsulfosuccinate (DOSS)<sup>6</sup>, Eudragit E100 or PVP-VA<sup>7</sup>.



**Fig:1 structure of Irinotecan**

## 2. Materials & methods:

Irinotecan was Procured from CIPLA Pharma, Provided by Sura Labs. And polymers PEG 4000, polaxomer, camphor, Mannitol, purchased from Nihar traders pvt Ltd magnesium stearate, Explotab purchased from Himedia laboratories. Polyplasdone XL from Finar chemicals Ltd, SSG from nice chemicals,

### Instruments:

Weighing balance (Sartorius), tablet compression machine -multi station (Lab Press Limited, India), hardness tester (Monsanto, Mumbai, India), vernier calipers (Mutoyo, Japan), Roche friabilator (Lab India, Mumbai, India), dissolution apparatus (Lab India, Mumbai, India), UV-Visible spectrophotometer (Lab India, Mumbai, India), pH meter (Lab India, Mumbai, India), FT-IR Spectrophotometer (Bruker, Germany)

### 2.1 Analytical method development for Irinotecan:

#### A) Determination of Wavelength:

10 mg of pure drug was dissolved in 10 ml methanol (primary stock solution - 1000 µg/ml). From this primary stock solution 1 ml was pipette out into 10 ml volumetric flask and made it up to 10 ml with the media (Secondary stock solution - 100 µg/ml). From secondary stock solution again 1 ml was taken in it to another volumetric flask and made it up to 10 ml with media (working solution - 10 µg/ml). The working solution was taken for determining the wavelength.

#### b) Determination of Calibration Curve:

10 mg of pure drug was dissolved in 10 ml methanol (primary stock solution - 1000 µg/ml). From this primary stock solution 1 ml was pipette out into 10 ml volumetric flask and made it up to 10 ml with the media (Secondary stock solution - 100 µg/ml). From secondary stock solution required concentrations were prepared (shown in Table) and those concentrations absorbance were found out at required wavelength.

### 2.2 Fourier Transform Infrared (FTIR) spectroscopy:

The formulations were subjected to FTIR studies to find out the possible interaction between the drug and the excipients during the time of preparation. FT IR analysis of the Pure drug and optimised formulation were carried out using an FT IR spectrophotometer (Bruker FT-IR - GERMANY).

### 2.3 Formulation development for solid dispersion:

Solid dispersions were prepared by solvent evaporation method. Methanol was used as solvent. Irinotecan and Water soluble polymers such as Polaxomer and PEG 4000 were selected as carriers. Drug and polymers were taken in 1:1 ratio stated in the formulation chart (Table). The prepared solid dispersions were passed through the sieve no 20 to get uniform sized particles. The solid

dipersions were mixed with required quantities of super disintegrants, diluent, lubricant and glidant (shown in Table 6.2). The blend was evaluated for precompression parameters.

**Table 1: Formulation of solid dispersion showing various compositions (Ratios only)**

	SD1	SD2	SD3	SD4	SD5
Drug	1	1	1	1	1
Polaxomer	1	2	--	--	1
PEG 4000	--	--	1	2	1

**Table 2: Formulation of tablet by using solid dispersion**

INGREDIENTS	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Equivalent to 10mg	SD1 (40mg)	SD1 (40mg)	SD1 (40mg)	SD1 (40mg)	SD1 (40mg)	SD1 (40mg)	SD1 (40mg)	SD1 (40mg)	SD1 (40mg)	SD1 (40mg)
sodium starch glycolate	20	20	20	20	20	-	-	-	-	-
Crosspovidone	-	-	-	-	-	15	15	15	15	15
Mg.stearate	5	5	5	5	5	5	5	5	5	5
Aerosil	5	5	5	5	5	5	5	5	5	5
Mannitol	80	80	80	80	80	85	85	85	85	85
Total weight	150	150	150	150	150	150	150	150	150	150

### 3. Results& Discussion:

#### 3.1. Analytical Method

##### a. Determination of absorption maxima

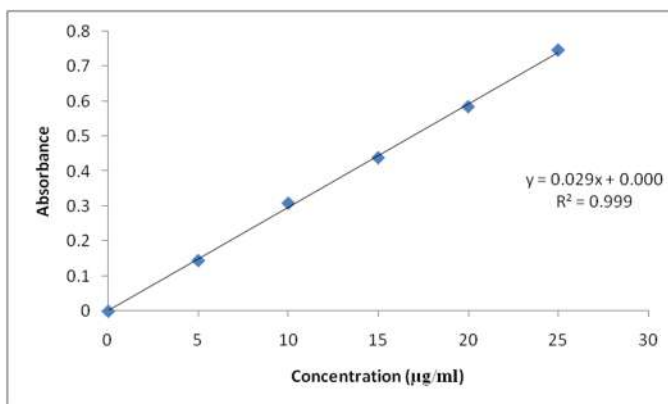
The standard curve is based on the spectrophotometry. The maximum absorption was observed at 247 nm.

##### b. Calibration curve

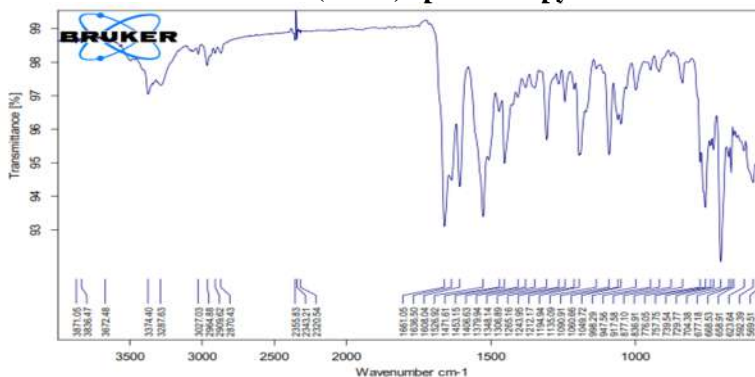
Graphs of Irinotecan were taken in phosphate buffer(pH 6.8)

**Table 3: Observations for graph of Allopurinolphosphate buffer (pH 6.8)**

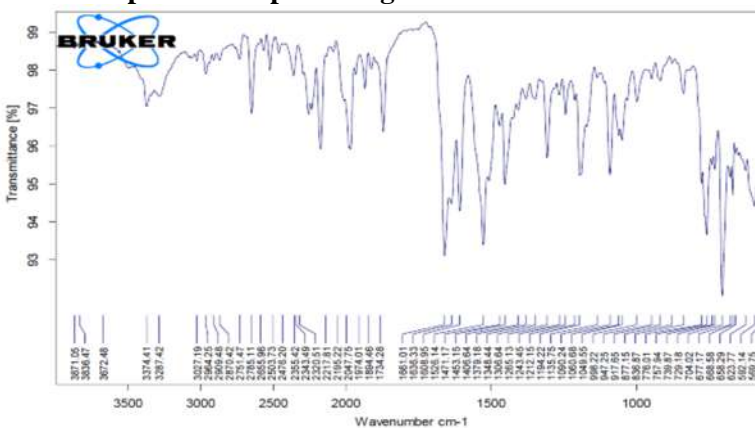
Concentration( $\mu\text{g/mL}$ )	Absorbance
0	0
5	0.145
10	0.309
15	0.439
20	0.585
25	0.747



**Fig No 2: Calibration curve of Irinotecan in phosphate buffer pH 6.8**



**Figure 3: FTIR Spectrum of pure drug**



**Fig 4: FTIR Spectrum of optimized formulation (F2)**

### 3.3 Preformulation parameters of powder blend:

Tablet powder blend was subjected to various pre-formulation parameters. The angle of repose values indicates that the powder blend has good flow properties.

**Table 4: Pre-formulation parameters of blend**

Formulation Code	Angle of repose(°)	Bulk density (gm/cc)	Tapped density (gm/cc)	Carr's index	Hausner ratio
F1	25.74	0.39	0.48	18.75	1.23
F2	26.03	0.32	0.38	15.78	1.18
F3	25.73	0.35	0.42	16.66	1.20
F4	27.14	0.36	0.43	16.27	1.19
F5	24.63	0.38	0.46	17.39	1.21
F6	24.74	0.32	0.41	12.12	1.25
F7	26.03	0.33	0.41	15.5	1.24
F8	25.73	0.35	0.40	22.2	1.14
F9	26.63	0.35	0.41	13.19	1.17
F10	25.31	0.56	0.62	9.67	1.2

### 3.4 Quality Control Parameters For tablets:

**Table: 5 In vitro quality control parameters**

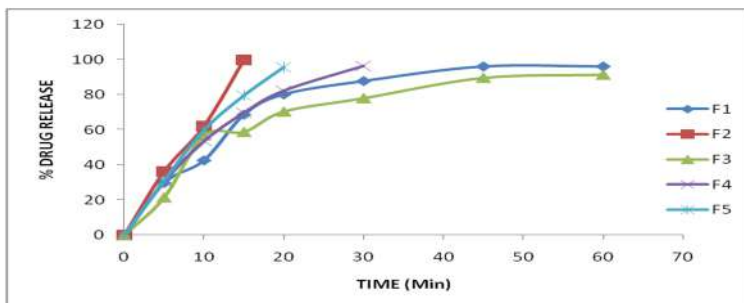
Formulation code	Average Weight (mg)	Thickness (mm)	Hardness (kg/cm <sup>2</sup> )	Friability (%loss)	Disintegration time (sec)	Content uniformity (%)
F1	98	3.2	2.5	0.39	18	96.31
F2	99	3.1	2.1	0.29	14	98.34
F3	101	3.4	2.7	0.32	17	97.36
F4	99.8	3.6	2.4	0.41	16	96.42
F5	102	3.8	2.6	0.26	18	96.59
F6	101	3.3	2.7	0.28	19	99.33
F7	100	3.5	2.2	0.37	20	99.45
F8	102	3.2	2.3	0.48	22	99.56
F9	101	3.2	2.8	0.54	24	98.96
F10	101	3.4	2.2	0.65	23	98.78

### 3.5. In Vitro Drug Release Studies

**Table no:6 In vitro dissolution studies of formulated solid dispersion tablets by using Explotab/sodium starch glycolate as super disintegrant**

Time(min)	F1	F2	F3	F4	F5
0	0	0	0	0	0
5	29.86	36.33	21.5	30.48	31.06

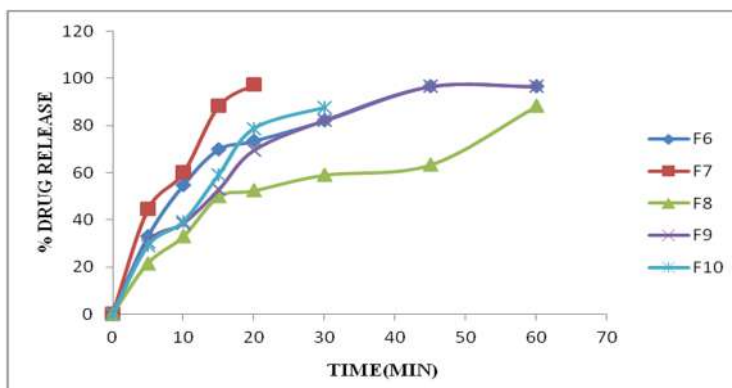
10	42.72	62.18	56.8	53.61	59.88
15	68.75	99.89	58.75	69.83	79.52
20	80.35		70.35	82.41	95.64
30	87.94		77.94	96.54	
45	96.24		89.5		
60	96.24		91.3		



**Figure no:5**In vitro dissolution studies of formulated solid dispersion tablets by using Explotab/sodium starch glycolate as super disintegrant

**Table no:7**In vitro dissolution studies of formulated solid dispersion tablets by using Crosspovidone as super disintegrant

Time(min)	F6	F7	F8	F9	F10
0	0	0	0	0	0
5	32.86	44.33	21.5	30.47	28.96
10	54.56	59.89	32.8	38.48	39.16
15	69.75	88.2	49.75	52.68	58.97
20	73.34	97.2	52.32	69.46	78.65
30	81.94		58.94	82.17	87.53
45	96.5		63.28	96.58	
60	96.5		88.14	96.58	



**Figure no:6 In vitro dissolution studies of formulated solid dispersion tablets by using Crosspovidone as super disintegrant**

### 3.6 Discussion and Conclusion

The present study was carried out on Irinotecan by employing solid dispersion technique. The  $\lambda_{\max}$  of phosphate buffer pH 6.8 of Irinotecan were found to be at 247 nm. Standard graph of Irinotecan in phosphate buffer pH 6.8 was plotted. Good linearity was observed with concentration versus absorbance. Its  $R^2$  value in phosphate buffer pH 6.8 was 0.999 which were very nearer to '1' and so obeys "Beer -Lambert" law.

The pure drug the optimized Solid dispersion formulations were subjected to FTIR studies. The results were showed that there is no interaction between the drug and excipients. The micrometric properties of blend of Irinotecan solid dispersion were characterized with respect to angle of repose, bulk density, tapped density, Carr's index and Hausner's ratio. Angle of repose was less than  $28^\circ$ , Carr's index values were 10 to 17 for the pre compression blend of all the batches indicating good to fair flowability and compressibility. Hausner's ratio was less than 1.2 for all the batches indicating good flow properties.

The results of the weight variation, hardness, thickness, friability, and drug content of the solid dispersion tablets were given in Table. All the tablets of different batches complied with the official requirement of weight variation as their weight variation passes the limits. The hardness of the tablets ranged from 2 to 3 kg/cm<sup>2</sup> and the friability values were less than 1% indicating that the tablets were compact and hard. The thickness of the tablets ranged between 3.1 to 3.8 mm. All the formulations satisfied the content of the drug as they contained 96-100% of Irinotecan and good uniformity in drug content was observed. Thus all the physical attributes of the prepared tablets were found to be practically within control limits.

All the solid dispersion formulations of Irinotecan were subjected to in vitro dissolution studies, these studies were carried out using phosphate buffer pH 6.8 by using dissolution apparatus type II.

The dissolution profile of Irinotecan tablets were compared between solid dispersion tablets. The Irinotecan solid dispersion tablets showed better release in phosphate buffer pH 6.8, in that F2 showed good drug release i.e., 99.89 at 15 minutes. F2 formulation was taken as optimised formulation.

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## THE RELATIONSHIP BETWEEN SOCIAL MATURITY AND PERCEPTION OF HOME ENVIRONMENT AMONG ADOLESCENTS

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### Abstract

The objective of the study was to assess the relationship between social maturity and perception of home environment among adolescents and to find if the expressed level of social maturity and perception of home environment were influenced by their age, gender, class and number of siblings. The study was descriptive in nature and used the Rao's social maturity scale (1998) and Home Environment inventory developed by Dr. KarunaShanker Mishra (2004). A total of 450 adolescents studying in government aided and private schools were randomly selected for the study. The study concluded that there existed a significant relationship between social maturity and perception of home environment among adolescents. The study also revealed that adolescents possess high levels of social maturity and strong perceptions of their home environment

**Key words:** Adolescents, Social Maturity Home Environment

### Introduction

#### Social Maturity

The compelling need for a practical measure to assess the maturity outcomes of school going population can best be estimated in the light of paucity of such essential measuring instruments. The social maturity scale was developed with a view to achieve two practical goals. The first was to attain a theoretical backdrop which has the prospect of ensuring an operational concept of social maturity with its social and individual relevance. The second and the more pragmatic goal was to evolve a precise and dependable measure of social maturity applicable to the normal school child. Vineland social maturity scale (7) and Napery Adaptation by Malin (19) are one of the earliest attempts in this

direction and have been designed for clinical purposes. The second cause therefore was derived more out of the specific need for identifying this phenomena of social maturity more as a natural and an inevitably essential outcome of child growth and development rather than a mere pathological symptom.

### **Home Environment**

The new oxford illustrated Dictionary defined (i) home as a “dwelling place, fixed residence of family or household member of family collectively”. The Home refers to people who live in one house or under one roof, including parents, children, domestic help etc. Home is also understood as the ground consisting of parents and their children whether living together or not. Webster’s New Reference Library (1984) defines environment as the combinations of external or extrinsic conditions that affect the growth and development of an organization. The new LexicanWebsters Dictionary (1988) defines it as follows “environment means the surroundings especially the material and spiritual influences which affect the growth development and existence of a living being”. Environment consists of the sum total of the stimulation that the individual receives from conception until death. It covers all those circumstances which assert their influence on the individual since conception until death.

### **Objectives of the Study**

1. To study the significant relationship, if any, between social maturity and perception of home environment among adolescents.
2. To study the significance of the difference with respect to social maturity, if any between
  - a. Age - Below 15 years / 15- 16 years/ 16-17 years/17-18 years and above 18 years Adolescents
  - b. Class – IX / X / XI / XII
  - c. Male and Female adolescents
  - d. Number of siblings-none and others
3. To study the significance of the difference with respect to perception of home environment, if any between
  - a. Age - Below 15 years / 15- 16 years/ 16-17 years/17-18 years and above 18 years Adolescents
  - b. Class – IX / X / XI / XII
  - c. Male and Female adolescents
  - d. Number of siblings-none and others



### **Hypothesis of the Study**

1. There is no significant relationship, if any, between social maturity and perception home environment among adolescents.
2. There is no significant difference with respect to social maturity, between
  - e. Age - Below 15 years / 15- 16 years/ 16-17 years/17-18 years and above 18 years Adolescents
  - f. Class – IX / X / XI / XII
  - g. Male and Female adolescents
  - h. Number of siblings-none and others
3. There is no significant difference with respect to perception of home environment, between
  - a. Age - Below 15 years / 15- 16 years/ 16-17 years/17-18 years and above 18 years Adolescents
  - b. Class – IX / X / XI / XII
  - c. Male and Female adolescents
  - d. Number of siblings-none and others

### **Methodology**

In the present study, the investigator adopted the normative survey method. The normative survey method describes and interprets what exists at present.

### **Location of the Study**

The investigator collected data from Adolescents studying in schools at Bangalore district of Karnataka state. The study was conducted across 450 Adolescents.

### **Sample**

The present study consists of 450 Adolescents studying in schools of Bangalore district of Karnataka State. The sample was selected by using simple random sampling technique. The sample forms a representative sample of the entire population.

### **Tool Used**

- i. Rao's social maturity scale (1998) and
- ii. Home Environment inventory developed by Dr. Karuna Shanker Mishra 2004.

### **Statistical Techniques Used**

For the analysis of the data, the following statistical techniques had been used. (t-test, ANOVA and Correlation).

## Results

Table -1

**Co-Efficient of correlation between Social Maturity and Perception of Home Environment among adolescents**

Variables	N	r calculated value	Significant at 0.05 level
Social Maturity	450	-.177**	S
Home Environment			

Significant at 0.01 level S – Significant

Table 1 show that the coefficient of correlation between social maturity and perception of home environment of adolescents is -.177, which is negative and significant at 0.01 level. Hence, social maturity and perception of home environment among adolescents are negatively correlated. Therefore, Hypothesis 1: there exists no significant relationship between social maturity and home environment of adolescents stands rejected.

Table – 2

**Analysis and Interpretation of data in Social Maturity of Adolescents**

Sl.No.	Variable	Sample	N	Mean	S.D.	CR Value	LS
1	Entire Sample		450	301.81	30.375		
1	Age	Below 15 years	80	300.65	25.938	1.905	Not Significant
		15- 16 years	85	300.80	36.102		
		16-17 years	122	306.71	24.952		
		17-18 years	99	295.92	35.399		
		above 18 years	64	304.34	27.176		
2	Class	IX	96	298.98	25.918	1.176	Not Significant
		X	133	301.23	34.042		
		XI	116	306.16	27.396		
		XII	105	300.30	32.214		
3	Gender	Male	209	306.71	24.952	2.012	Significant
		Female	241	302.93	28.127		
4	Number of siblings	None	167	304.21	33.153	1.242	Not Significant
		Others	283	300.39	28.576		

## Differential Analysis

Independent Sample F, and 't' test

## Interpretation

From the Table 2 the following statistical information has been derived.

### Level of Social Maturity

The calculated mean score of entire sample is found to be 301.81 and the Standard deviation value is 30.375. Hence, it is inferred that the adolescents have high level of Social Maturity.

### Difference between Ages of Adolescents

The calculated "F" value is found to be 1.905, which is not significant at 0.05 level. Hence, it is inferred that the ages of adolescents do not cause a significant change in their Social Maturity.

### Difference based on the Class in which the Adolescent is Studying

The calculated "F" value is found to be 1.176, which is not significant at 0.05 level. Hence, it is inferred that the class in which the adolescent studies does not impact their social maturity.

### Difference between Male and Female Adolescents

The calculated "t" value is found to be 2.012, which is significant at 0.05 level. Hence, it is inferred that gender influence social maturity and male and female adolescents differ significantly in their Social Maturity.

### Difference between Adolescents with and without Siblings

The calculated "t" value is found to be 1.242, which is not significant at 0.05 level. Hence, it is inferred that birth order and presence or absence of siblings does not significantly influence their Social Maturity.

**Table – 3**

**Analysis and Interpretation of data in Home Environment of Adolescents**

Sl.No.	Variable	Sample	N	Mean	S.D.	CR Value	LS
1	Entire Sample		450	201.99	27.351		
1	Age	Below 15 years	80	196.54	21.497	4.094	Significant
		15- 16 years	85	205.96	27.107		
		16-17 years	122	199.87	29.621		
		17-18 years	99	209.39	31.136		
		above 18 years	64	196.06	19.742		
2	Class	IX	96	197.32	22.106	1.811	Not Significant
		X	133	201.95	30.206		
		XI	116	206.09	28.273		
		XII	105	201.76	26.502		
3	Gender	Male	209	201.57	25.904	3.303	Significant



		Female	241	209.35	26.595		
4	Number of siblings	None	167	203.66	26.235	1.017	Not Significant
		Others	283	201.00	27.986		

### Interpretation

From the Table 3 the following statistical information has been derived.

### Level of Home Environment

The calculated mean score of entire sample is found to be 201.99 and the Standard deviation value is 27.351. Hence, it is inferred that the adolescents have positive perception of the Home Environment.

### Difference between Ages of adolescents

The calculated 'F' value is found to be 4.094, which is significant at 0.05 level. Hence, it is inferred that age has a significant impact on the perception of home environment among adolescents.

### Difference based on the Class in which the Adolescent is Studying

The calculated 'F' value is found to be 1.811, which is not significant at 0.05 level. Hence, it is inferred that the class in which the adolescent is studying does not influence their perception of Home Environment.

### Difference between Male and Female Adolescents

The calculated 't' value is found to be 3.303, which is significant at 0.05 level. Hence, it is inferred that the male and female adolescents differ significantly in their perception of Home Environment.

### Difference between Adolescents with and without Siblings

The calculated 't' value is found to be 1.017, which is not significant at 0.05 level. Hence, it is inferred that birth order and presence or absence of siblings has no significant influence on perception of Home Environment.

### Findings of the Study

- ❖ Result inferred that adolescents have high levels of Social Maturity.
- ❖ Result found that the adolescents have positive perception of Home Environment.
- ❖ Result shows that the age, class and birth order of adolescents do not significantly impact their Social Maturity.
- ❖ Result shows that the gender of adolescents significantly impacts their Social Maturity.



- ❖ Result shows that the age, gender and birth order of adolescents significantly influence their perception of home environment.
- ❖ Result found that the class in which the adolescent is studying does not significantly impact their perception of Home Environment.

### **Conclusion**

Social maturity among adolescents is an important issue in their perception of the home environment. It is an inescapable part of life - a natural and inevitable factor of life. Social Maturity can create problems in performance and affect the health and wellbeing of the adolescents. A successful Environment not only depends on the personality characteristics of the individual but also on their ability to realistically appraise the situation. Both these facets when observed and targeted collaboratively help develop well groomed adolescents.

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## ROLE OF BODY IMAGE AND EMOTION REGULATION IN QUALITY OF LIFE OF ADOLESCENTS WITH ORTHOPEDIC DISABILITY

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### Abstract

Every individual deserves to experience a good quality of life(QOL) despite their physical status or physical well-being. QOL is not only affected by psychological and emotional states of individuals, but also by the image which they carry about their own body. The present study attempts to examine the relationship of emotion regulation (ER) and body image(BI) with QOL in a sample of female adolescents with orthopedic disability (N = 100). The sample was drawn from various schools and colleges of Varanasi. The age of participants ranged from 12 to 18 years. The participants were given the measures of ER, BI, and QOL. Analysis showed that positive ER strategies, appearance orientation (AO), and appearance evaluation (AE) were positively correlated with the perception of QOL. On the other hand, the negative cognition strategy (NEG COG) of ER was negatively correlated with the perceived QOL of these adolescents. Stepwise Regression method was used to bring out negative body (NEG BODY), positive ER strategies (POSERS), NEG COG and AO as major significant predictors of QOL in female adolescents with orthopedic disability.

**Keywords:** Adolescents; Body Image; Disability; Emotion- Regulation; Quality of Life

### Introduction

The stage of adolescence is marked by physical, social, intellectual and personality changes that adversely affect the physical as well as psychological functioning leading to certain disability conditions, stressful events and chronic



adversity even more. Adolescents are more susceptible to exhibit negative emotions (such as stress, anxiety and depression) compared to children. Thus, there is a need of effective regulation of wide range of emotions during the course of development (Rudolph, 2002). In majority of adolescents, physical appearance is a major concern, putting immense pressure to have an ideal image. This stage intensifies the need to evaluate physical appearance, the dissatisfaction with which leads to poor QOL (Ricciardelli & Yager, 2016). Females are generally at an increased risk of ill-health due to poor nutrition or inadequate medical support, which puts them at greater risk of disability (Surís, Parera, & Puig, 2016).

The process by which individuals influence which emotions they have, when they have them, and how they experience and express them is referred to as ER. It can be dynamic, automatic or controlled, conscious or unconscious that may change overtime, where an individual tries to increase positive and decrease negative emotions. Emotions can be regulated by antecedent-focused and response-focused strategies (Gross, 1998). Researches show that difficulty in regulation may lead to health, behavioral and interpersonal problems (Aldao & Tull, 2000).

QOL of adolescents with disabilities is a major concern. QOL is a multidimensional subjective evaluation which is embedded in a cultural, social and environmental context and comprises of satisfaction and happiness with life as a whole (Centers for Disease Control and Prevention [CDCP], 2000). Study indicates that females with disabilities may lack ER ability that leads to health complications, distorted understanding of self and others, and if emotional needs are ignored it generally disturbs their emotional control and response that negatively impacts their QOL (Cheung, Gardner, & Anderson, 2015).

Adolescents are prone to appearance and bodily changes and BI concern is common in both the genders (Grogan, 2016). Research reveals that as many as 70 per cent of girls and 50 per cent of boys are dissatisfied with their bodies (McCabe & Ricciardelli, 2004). Thus, BI is a complex construct, characterized by the perception, thoughts, feelings, and attitude about one's own body and appearance, and influenced by behavioral, social, environmental, and perceptual factors (Bardone et al., 2008). A positive BI enhances QOL but there is an increased likelihood of impairment in health and QOL of individuals who reported dissatisfaction with BI (Mond et al., 2013).

The perception of good health is a major predictor in enhancing psychological, environmental, and physical QOL. Finding suggests that dissatisfaction with BI in females with orthopedic disability led to decline in their physical, mental and social QOL (Thompson A, Kent, 2001). Disabilities with disfigurement and high visibility affected areas may introduce anxiety, stress, and suicidal thoughts, decrease self-esteem that further decrease QOL (World Bank, 2020).

About 15 per cent individuals worldwide have some or the other form of disability. In India, 2.21 per cent of the total population is disabled, out of which 44 per cent are females (Shumaker, Anderson, & Czajkowski, 1990). Despite the growing numbers and their needs, females are falling through the cracks because of the double discrimination in the fields of health care, education, professional training, and economic deprivation due to their gender and disability (Aldao, Nolen-Hoeksema, & Schweizer, 2010).

As symptom of disability and impairment appears and unfolds, females with orthopedic disability gradually develop a sense of dependence, lose self-reliance and receive criticism regarding their appearance from those around.

The way female adolescents with orthopedic disability express and feel are vital for psychosocial and physical well-being, but these emotions are not always adaptive. Therefore, it becomes necessary to regulate their emotions efficiently to cope with stressful events (Surís JC, Parera, & Puig, 1996). Most of the research into BI has focused on the disfiguring or rheumatoid conditions. Thus, the need is to investigate the relationship between and QOL in female adolescents with disability in Indian setting.

### **Objectives**

1. To examine the relationship between BI (AO, AE, BASS) and QOL (physical, psychological, social, environmental) in female adolescents with orthopedic disability.
2. To examine the relationship between ER (POSERS, NEG COG, SOC CONNEC and NEG COG) and QOL (physical, psychological, social, environmental) in female adolescents with orthopedic disability.

### **Hypotheses**

1. BI (AO, AE, BASS) would be positively correlated with psychological and social dimensions of QOL in female adolescents with orthopedic disability.
2. POSERS and SOC CONNEC would be positively correlated with psychological, social, environmental dimensions of QOL in female adolescents with orthopedic disability.

### **Materials and Method**

The study was conducted with female adolescents with orthopedic disability (N=100). The age of participants ranged from 12 to 18 years. The sample was drawn from various schools and educational institutes of Varanasi city. For collecting the data, written permission was taken from the head/director of the institution. The participants who fulfilled the criteria of having minimum of 40 per cent or more of orthopedic disability up to 75 per cent as certified by a medical authority were selected for the study. Those

having any type of sensory impairment, cognitive impairment and multiple disabilities were excluded from the study. Purposive sampling was employed for the present study. The participants were personally contacted and after taking their consent, questionnaires were administered. A correlational design was used for conducting the present study.

Adolescent Emotion Regulation Questionnaire (AERQ) by Kostiuk (2011) was used to measure the ER strategies in adolescents. It consists of total 48 items and has five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). It has four factors such as POSERS, NEG BODY, Social Connection (SOC CONNEC), and NEG COG and each demonstrate alpha coefficients ranging from 0.70 to 0.89.

Multidimensional Body Self-Relations Questionnaire-AS Version (MBSRQ-AS) by Keeton, Cash and Brown (1990) with 34 items for self-perception on body image was used. It has six subscales but only AE, AO, and BASS have been used for the study. It is a five point likert type scale with different response format for each sub scale. The internal consistency for AE was .63, for AO .76 and for BASS .78.

World Health Organization Quality of life (WHOQOL BREF) (1995) Hindi Adaptation by Agnihotri, Awasthi, Chandra, Singh and Thakur (2010) was used to assess the QOL. It has 26 items and is five point likert type scale ranging from 1 to 5, having different response types according to the item. The scale has four domains namely, physical health, social relationships, psychological states and environment. The Cronbach's alpha for physical is .66, .67 for psychological, .70 for social relations, and .82 for environment QOL

## Results

**Table 1: Mean and Intercorrelation of Scores of Female Adolescents with Orthopedic Disability on Various Measures of BI, ER and QOL**

	1	2	3	4	5	6	7	8	9	10	Mean	SD
Physical											87.65	8.26
Psychological	-.18										80.87	8.35
Environmental	.14	-.26**									117.25	11.5
Appearance Evaluation	.13**	.12*	.20*								21.40	2.45
Body Area Satisfaction	.21**	.16**	.13	.08							32.49	2.16
Appearance Orientation	.17	.12*	.20*	.19	.13						35.12	2.68
Positive ER Strategies	.28**	.07**	.11	.14	.29**	.24*					84.78	3.60
Negative Body	-.25*	-.26*	.21	-.11	.13	-.03	.05				25.76	2.24
Social Connection	.20**	.13*	.12	.20	-.33**	-.10	.51**	.16			34.60	2.75
Negative Cognition	-.12**	-.14*	.18	-.12	-.34**	.04	.34**	.23*	.57**		37.65	2.64

\*  $p < .05$ , \*\*  $p < .01$

Table 1 presents the mean and standard deviation scores of QOL, BI and ER. It also shows the values of intercorrelation of scores of BI and ER with QOL of female adolescents with orthopedic disability. The dimensions of BI i.e., AE was found to be positively correlated with physical ( $r=.13$ ;  $p<.01$ ), psychological ( $r=.12$ ;  $p<.05$ ), and environmental ( $r=.20$ ;  $p<.05$ ) dimensions of QOL. AO was positively correlated with environment ( $r=.20$ ;  $p<.05$ ), psychological ( $r=.12$ ;  $p<.05$ ), but the correlation coefficient was not significant for physical QOL. The BASS was positively correlated with physical ( $r=.21$ ;  $p<.01$ ), psychological ( $r=.63$ ;  $p<.01$ ), but correlation coefficient was not significant for environmental domain.

Result table also shows that POSERS was positively correlated with physical ( $r=.28$ ;  $p<.01$ ), psychological ( $r=.22$ ;  $p<.01$ ) QOL, but the correlation coefficient was not significant for environment. The NEG BODY was negative correlated with physical ( $r=-.25$ ;  $p<.05$ ), and psychological QOL ( $r=-.26$ ;  $p<.05$ ) and positively correlated with environment. SOC CONNEC was positively correlated with physical ( $r=.20$ ;  $p<.01$ ) psychological domain ( $r=.13$ ;  $p<.05$ ) but correlation was not significant for environment. The NEG COG was negatively correlated with physical ( $r=-.12$ ;  $p<.01$ ), psychological QOL ( $r=-.14$ ;  $p<.05$ ) but the correlation coefficient was not significant for environmental domain.

**Table 2: Stepwise Regression Analysis Predicting Physical, Psychological and Environmental Domains of QOL from ER and BI**

Serial No.	Predictor Variables	Multiple R	R <sup>2</sup>	R <sup>2</sup> Change	df	F	F-Change	Beta
<b>a. Physical</b>								
1.	Negative Body	.252	.063	.063	1, 103	6.970*	6.970	-.252
<b>b. Psychological</b>								
1.	Negative Body	.261	.068	.068	1, 102	7.536*	7.536	-.261
2.	Negative Cognition	.371	.137	.069	2, 103	8.126*	8.189	-.270
<b>c. Environment</b>								
1.	Positive ER Strategies	.219	.048	.048	1, 103	5.205*	5.205	.219
2.	Negative Body	.388	.151	.045	2, 101	5.980*	5.360	-.213
3.	Appearance Orientation	.325	.106	.058	3, 102	6.033*	6.579	.247

\* $p<.05$ , \*\* $p<.01$

Multiple regression analysis was carried out to evaluate how well ER and BI (predictor variables) predicted QOL (criterion variable) of adolescents with orthopedic disability. The result (Table 2) reveals that on the ER measure only NEG BODY strategies accounted for approximately 6.3 per cent of variance in the scores ( $F_{1,103}=6.97, p<.05$ ) on physical QOL measure and made a negative prediction (poor physical health).

On the psychological measure, NEG BODY and NEG COG contributed approximately 13.7 per cent of the variance in the scores ( $F_{2,102}, 8.12, p<.01$ ) in which NEG BODY contributed approximately 6.8 per cent to variance in the scores ( $F_{1,103}, 7.53, p<.01$ ). Both NEG BODY ( $b=-.261$ ) and NEG COG ( $b=-.270$ ) emerged as a negative predictor (reduced psychological QOL).

On the environmental measure POSERS, AO and NEG BODY accounted for approximately 15 per cent variance in the scores. POSERS explained approximately 4.8 percent of the variance in the scores ( $F_{1,103}, 5.20, p<.01$ ), NEG BODY contributed to about ( $F_{3,101}, 5.98, p<.01$ ) and AO contributed to 5.8 per cent variance in the scores ( $F_{2,102}, 6.03, p<.01$ ). POSERS ( $b=.219$ ) and AO ( $b=.247$ ) made positive predictions (enhanced environmental QOL) and negative body ( $b=-.213$ ) made negative prediction.

## **Discussion**

The objective of the present study was to bring out the association of BI and ER with QOL of female adolescents with orthopedic disability. AO domain of BI contributed maximum to environmentQOL. BASS and AE were positively and significantly correlated with physical and psychological QOL, but had no contribution. Females with orthopedic disability generally are not much satisfied with their looks. Disability disturbs the integrity, increases physical restriction, and pain lowers their physical and social activities (Wetterhahn, Hanson, & Levy, 2002). Therefore, they have negative body image, and struggle in conforming to the ideal body norm as people do not consider them attractive.

A better AE enhances one's ability to participate in recreational and interpersonal activities, and learning new life-skills. But disability such as polio or spinal cord injury results in distortion of their physical perception in females which adversely affects their psychological and physical health (Moin, Duvdevany, & Mazor, 2009).

Results show that AO is positively correlated with all the domains of QOL. The adolescents with disability usually do not invest much time, effort or engage in extensive grooming activities in order to look good. But they try to build other aspects related to their self-

concept in order to compensate for the physical condition. AO also emerged as a significant predictor for environmental QOL.

QOL and psycho-social functioning gets diminished in various musculoskeletal conditions (e.g., body pain, physical functioning). Disabilities being visible to the public, females are often considered flawed and undesirable leading to deprivation in financial and health care facilities. The pain and health status results in reduced employment opportunities, social interaction, social support, and pleasurable experience (Groce, & Kett, 2014).

The other objective of the study was to examine the relationship between ER and QOL of female adolescents with orthopedic disability. Results indicate that there is positive relationship between physical, social, psychological and environmental QOL with positive ER and social connection strategies. Also, there was negative relationship between physical, social, psychological and environmental QOL with negative body and negative connection strategies. This indicates that POSERS help in maintaining and enhancing the positive emotional experiences that influence relationships and behavior.

Negative body strategy of ER made significant contribution to physical, psychological and environmental QOL. Negative cognition strategy contributed to psychological QOL, whereas environmental was predicted by negative cognition, negative body and positive ER strategies. Positive ER facilitates social interaction and can affect our well-being whereas negative strategies can have detrimental effect. Females with orthopedic disability may have lower ability to perform daily and leisure activities, safety in daily life, lower bodily acceptance and satisfaction with personal relationship that results in feelings of isolation, depression and self-worthlessness (Smolak, 2004).

The study also indicates that negative cognition, which is responsible for creating and maintaining negative emotions, is negatively associated with physical, psychological and environmental QOL. Females usually blame themselves for negative events by using rumination or catastrophizing strategies. They often feel stressed, sad, stigmatized, and lack support in social relationships and work place, creating hindrance in their social and physical environment with low self-esteem than their peers without disabilities (Cicerone et al., 2008).

Females with orthopedic disability often have negative thoughts and feelings that enhance body distortion, misperception, and loss of control over body part. Due to certain life events during childhood or adolescence such as critiques by teachers and parents or death of loved ones

lead to the formation of negative beliefs. These thoughts and belief are the source of depression, anxiety (Nykliček, 2011).

The negative body ER strategy was negatively related with all the dimensions of QOL. This means that when the individual has negative emotional experiences related to the body and is maintained, the strategy



employed is negative body. Finding reveals that it is not necessary that improvement in physical, functional and cognitive aspects always correlate to better QOL. Those with negative perception and belief usually apply ER strategies that are negative and are not able to properly regulate their emotions (Struchen, Pappadis, Sander, Burrows,&Myszk, 2011).

Females go through negative experiences not only because of their disability but also wide range of factors such as negative attitudes by others, inappropriate facilities at work place, and huge lack of social support or those around. These factors may increase aggression and social anxiety, hence employing negative body strategy of ER (Kostiuk, 2011).

The present study showed that social connection ER is positively associated with all the domains of QOL in female adolescents with orthopedic disability. This indicates that social interaction and communication strategy helps in enhancing and maintaining positive experiences (e.g., an individual who has positive perceptions of self-worth, is likely to express more confidence during interactions with others) or reinforce positive or negative emotions during interaction. Conversely, inability to communicate effectively in society may lead to low social isolation, self-esteem, and loneliness. These factors can decrease opportunities for social interactions, which can adversely affect QOL (Smolak, 2004). Further, individuals ability of work, overall physical, social, emotional functioning gets affected due to change in affect and personality which plays and essential role in perceiving and understanding social interaction. Thus, impaired social connection strategy has been linked to decrease in frequency and quality of social contacts and relationships (World Bank, 2020).

### **Implications**

The results indicated that females with orthopedic disability generally have BI issues and problems with ER strategies which in turn influence their QOL. Thus, these areas need more attention so that adolescents can be better helped. Females are mostly scrutinized for the appearance and expected to be good in all the roles that she is ascribed. Thus, interventions involving support of parents, peers and faculty could be influential in resolving their BI issues Psychological approaches, such as modifying appearance-related thoughts, behaviors, and investment may help improve outcomes in these circumstances.

Another area that could receive increased attention is the importance ER strategies employed by female adolescents with orthopedic disability as they are under constant stress as an emerging adult resulting in maladaptive ER strategies. Thus, developing an intervention model focusing on enhancing skills

of regulating and handling emotions, can be integrated in adolescent's curriculum.

### **Limitations**

The findings of this study must be viewed in light of some important limitations. The sample consisted of females only, which did not allow any statistical comparison with males. Therefore, future research could include both the sexes and of equal number. Future studies should examine factors that contribute to positive BI development in this population including how feedback from parents and peers may contribute to BI perceptions and how BI and QOL change in response to surgical interventions. Participants were expected to give some sensitive information and the use of self-report measures might have led to social desirability and less honest response. The sample size was also not large enough to generalize the findings of the study

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## PHYSICAL FITNESS OF ACADEMIC AND PROFESSIONAL UNDERGRADUATE STUDENTS OF UNION TERRITORY OF JAMMU AND KASHMIR-A COMPARATIVE STUDY

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### Abstract

Present study was intended to explore the level of physical fitness of academic and professional undergraduate students. In the present study Academic Undergraduate Students (AUS) refers those respondents who are perusing Bachelor of Arts (BA) and Professional Undergraduate Students

Education (B. P. ed.) 600 respondents were selected within the age groups of 18-21 years. Initially the investigator framed the sampling list. Subsequently, whole data was selected by using Random Sampling Technique (RST). The Run test (Cooper Test), 10 meter agility shuttle test and Sit and reach test was used as measuring for measuring physical fitness of the respondents. The data was subjected to statistical treatment by using Mean, Standard Deviations and 't' value. The results indicate that there exists a significant difference between of academic and professional undergraduate student's on all the selected components of physical fitness, viz. Cardiovascular Endurance (CE) and agility. Professional undergraduate students were observed with high level of physical fitness as compared to non-professional undergraduate students.

**Key words:** Physical Fitness, Cardiovascular Endurance, Agility, Flexibility, Academic Undergraduate Students (AUS), Professional Undergraduate Students (PUGS)

### 1.1: Introduction

Physical fitness is to the human body what fine tuning is to an engine. It is basically an ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure time activities and meeting emergency demands. It is generally agreed that physical fitness is an important part of the normal growth and development of a child, a generic definition regarding the precise nature of physical fitness has not been universally accepted. Through research

and scholarly inquiry, it is clear that the multi-dimensional characteristics of physical fitness can be divided into two areas: health related physical fitness and skill related physical fitness. In connection to same, Clarke and Clarke (1989) found that physical fitness is not a static factor and it varies from individual to individual and in the same person from time to time depending on factors. Physical fitness is probably the most popular and frequently used term in physical education. The most important objective of physical educators is to develop physical fitness. Physical fitness of an individual is usually defined as an outcome measured with a fitness test, most commonly the fitness gram. Therefore, a physically individual is defined as one who meets criteria measured by one these two tests. There are below mentioned components of health related fitness. They are heart and lung endurance or cardiovascular endurance, muscular strength, muscular endurance, flexibility, and body composition.

- 1) **Cardiovascular endurance:** Heart and lung endurance or cardiovascular endurance is the ability to exercise the entire body for long periods of time. It requires a strong heart, healthy lungs, and clear blood vessels to supply the body with oxygen. Activities to improve fitness in this area include running, swimming and aerobic dance. A person must do the activity continuously for a minimum of 25 minutes within their target heart rate zone.
- 2) **Muscular Strength:** It is the amount of force an individual can put forth with his muscles. It is often measured by how much weight you can lift. People with strength have fewer problems with backaches and can carry out their daily tasks efficiently. Examples of muscular strength include push-ups, weight lifting heavy weight with few repetitions, and pull-ups. Fitness testing will be measured by doing push-ups.
- 3) **Muscular Endurance** is the ability to use the muscles, which are attached to the bones, many times without getting tired. People with good muscular endurance are likely to have better posture, have fewer back problems, and be better able to resist fatigue than people who lack muscular endurance.
- 4) **Flexibility:** Is the ability to use joints fully. An individual is flexible when the muscles are long enough and the joints are free enough to allow movement. People with good flexibility have fewer sore and injured muscles. Stretching before and after activities will help to improve flexibility. The sit-and-reach and the trunk lift are two tests used to measure flexibility.
- 5) **Agility:** The ability to perform a series of explosive power movements in rapid succession in opposing directions.
- 6) **Body Composition** is the percentage of body weight that is fat compared to other body tissue, such as bone and muscle. People who have a high percentage of fat are more likely to be ill and have a higher death rate than

lean people. Exercise and eating the right foods in the proper amounts can improve body composition. Body composition can be measured using an instrument called calipers, a specialized scale, or it can be calculated by using the body mass index (BMI) which uses height and weight to determine your BMI.

Indeed, large number of research studies has been conducted on physical fitness. The results of previous studies regarding physical fitness have been revealed in contrary approach. Some studies report that impact of locality is significant and some studies argued insignificant like; Tomik, R. (2008), Trudeau, F., and Shephard, R. J. (2008), Henning, B., Stark, T. (2001) and Rahil, A. G. (2013), Black, S. (1995), Blaydes, J. (2000), Booth, M. L. (2000), Bouchard, C. (1997), Devinder, K. K., (1996), Dutt, S. (2005), A. G. (2013), Wright, J. (1996). Accordingly, the investigator feels it pertinent to explore the level of physical fitness of the female respondents in relation to their type of school. The detailed statement of the problem is as under:

**1.2: RESEARCH PROBLEM:** The statement of the research problem is as under:

**“Physical Fitness of Academic and Professional Undergraduate Students of Union Territory Jammu and Kashmir-A Comparative Study”**

**1.3: OBJECTIVES OF THE STUDY:** The objectives of the present study are as under:

- a) **Objective-I:** To explore the level of “**Cardiovascular Fitness**” of Academic and Professional Undergraduate Students (A&PUGS).
- b) **Objective-II:** To explore the level of “**Agility**” of Academic and Professional Undergraduate Students (A&PUGS).

**1.4: HYPOTHESIS:** Following hypothesis has been framed for the present study:

- a) There exists no significant difference between Academic and Professional Undergraduate Students (A&PUGS) on their level of “**Cardiovascular Fitness**”.
- b) There exists no significant difference between Academic and Professional Undergraduate Students (A&PUGS) on their level of “**Agility**”.

**1.5: OPERATIONAL DEFINITION OF TERMS AND VARIABLES:** The operational definitions of terms and variables are as under:

- 1) **Physical Fitness:** Physical fitness in the present study refers the set of achievement obtained by respondents on Run test (Cooper Test), 10 meter agility shuttle test and Sit and reach test.
- 2) **Academic Undergraduate students (AUGS):** Academic Undergraduate Students (AUGS) in the present study refer those

respondents who are pursuing Bachelor of Arts in selected colleges of Union territory of Jammu and Kashmir.

- 3) **Professional Undergraduate students (PUGS):** Professional Undergraduate students (PUGS) in the present study refer those respondents who are pursuing Bachelor of Physical Education in selected higher educational institutions of Union territory of Jammu and Kashmir.

### **1.6: Research Limitations of the Study:**

The present study will be confined to the following aspects:

- A) The present study will be delimited Six Districts of Union Territory of Jammu and Kashmir.
- B) The study will be delimited to health related fitness of the respondents. Besides, it is imperative to mention here that only below mentioned three components of physical fitness were included in the study:
  - ❖ Cardiovascular fitness
  - ❖ Agility

**1.7: RATIONALE OF THE STUDY:** Keeping the feasibility and usability of the study under consideration, the researcher found it suitable to go through descriptive survey method. Accordingly, present study was carried with the help of descriptive method. The parameters involved in methodology and procedure are as under:

- ❖ **1.7.1: Sample:** 600 professional and academic respondents were selected with due representation of type of school. The age groups of the subjects were ranged 18-21 years. Whole data was selected for the present study.
- ❖ **Sampling technique:** Whole data was selected by using Random Sampling Technique (RST). The below mentioned table indicates the precise explanation of sample:

**Table:** 1.1: Showing the selection of sample with dichotomy representation.

Category	PUGS <sup>1</sup>	NPUGS <sup>2</sup>
Jammu Division	150	150
Kashmir Division	150	150
Total= 600		

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<sup>1</sup>PUGS= Professional Under Graduate Students.

<sup>2</sup>AUGS= Academic Under Graduate Students.

- ❖ **1. 7.2: Measuring Instruments:** All the three components were assessed separately the detailed analyses of these instruments is reported as under:

- A) **Cardiovascular fitness<sup>3</sup>:** Cardiovascular fitness was analysed with 12 minute Run test (Cooper Test).
- B) **Agility<sup>4</sup>:** Agility was assessed using 10 meter agility shuttle test. Mark two lines 10 meters apart using marking tape or cones. The two blocks was placed on the line opposite the line they was going to start at. On the signal "ready", the participant places their front foot behind the starting line. On the signal, "go!" the participant sprints to the opposite line, picks up a block of wood, runs back and places it on or beyond the starting line. Then turning without a rest, they run back to retrieve the second block and carry it back across the finish line. Two trials are performed.

**1.8: STATISTICAL TECHNIQUE EMPLOYED:** The intention behind the study was the make a comparative analysis of the respondents. In connection to same, collected data was put to suitable statistical treatment by using Mean, S. D. and 't' value. The detailed procedure of statistical treatment is analysed as under:

**Table: 1.2: Showing significance of difference between mean scores of professional and non-professional undergraduate students on cardiovascular component of physical fitness. (N=300 each)**

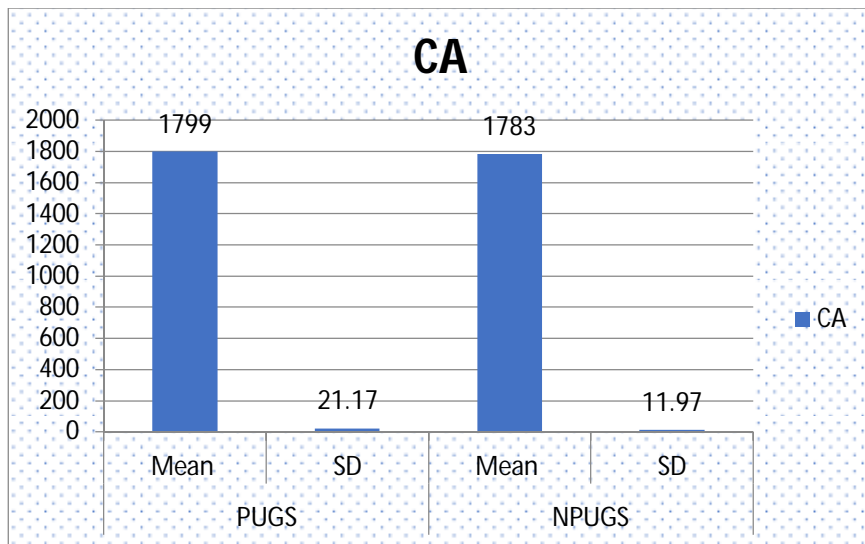
Category	PUGS		NPUGS		't' value
	Mean	SD	Mean	SD	
Cardiovascular Endurance	1799	21.17	1783	11.97	11.18**

<sup>3</sup>**Note:** Cardiovascular fitness was analysed with 12 minute Run test (Cooper Test). Place markers at set intervals around the track to aid in measuring the completed distance. Participants were runner for 12 minutes and the total distance covered is recorded. However, walking was allowed, though the participants must be encouraged to push themselves as hard as they can.

<sup>4</sup>**Note:** Agility was observed by using "10 meter agility shuttle test". Mark two lines 10 meters apart using marking tape or cones. The two blocks was placed on the line opposite the line they was going to start at. On the signal "**ready**", the participant places their front foot behind the starting line. On the signal, "go!" the participant sprints to the opposite line, picks up a block of wood, runs back and places it on or beyond the starting line. Then turning without a rest, they run back to retrieve the second block and carry it back across the finish line. Two trials are performed.

**Index:**

- PUGS= Professional Undergraduate Students
- NPUGS = Non-professional Undergraduate Students
- \*\*= Significant at 0.5 level of confidence.



**Index:**

- PUGS = Professional Undergraduate Students
- NPUGS = Non-professional Undergraduate Students

**Fig: 1.2: Showing significance of graphical representation of professional and non-professional undergraduate students on cardiovascular component of physical fitness.**

**Table: 1.3: Showing significance of difference between mean scores of professional and non-professional undergraduate students on agility component of physical fitness. (N=300 each)**

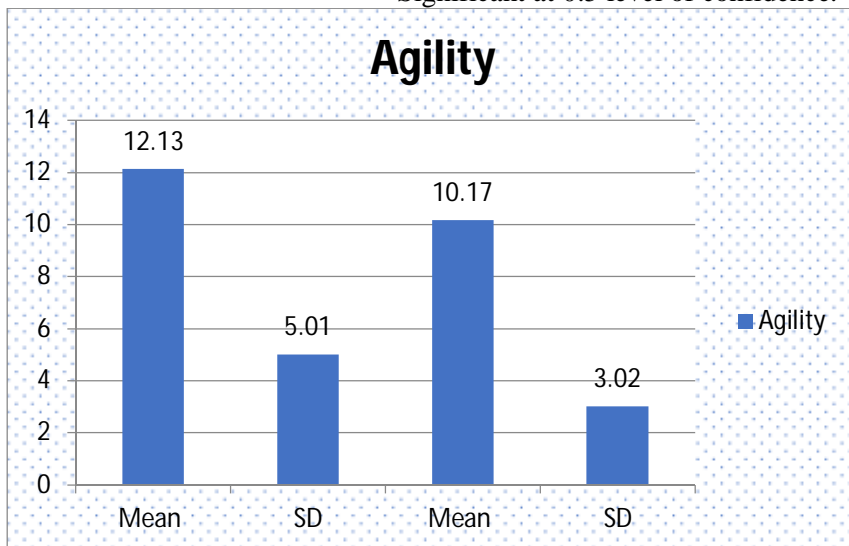
Category	PUGS		NPUGS		't' value
	Mean	SD	Mean	SD	
Agility	12.13	5.01	10.17	3.02	5.93**

**Index:**

- PUGS = Professional Undergraduate Students
- NPUGS = Non-professional Undergraduate Students



- \*\*= Significant at 0.5 level of confidence.



Index:

- PUGS = Professional Undergraduate Students
- NPUGS = Non-professional Undergraduate Students

**Fig: 1.3: Showing significance of graphical representation of professional and non-professional undergraduate students on flexibility component of physical fitness.**

**1.9:INTERPRETATION OF THE RESULTS:** The statistical results reported in above mentioned table are interpreted and discussed as under:

The perusal of the table 1.2 (Please Refer Fig. 1.2, Item No. 1.8), indicates the, mean significant difference between professional and academic undergraduate students on Cardiovascular Endurance component of physical fitness. The results indicate there is significant mean difference between professional and academic undergraduate students. Coming towards the calculated values, the mean score professional respondents was observed higher (M=12.13) as compared to non-professional undergraduate students (M=10.17). The calculated 't' value came out to be 11.18, which is significant at 0.01 level of confidence, thus from the above reported, it can be inferred that there exists significant difference between the two group of respondents under discussion (Professional and non-professional undergraduate students). However, the mean significant difference goes in favour of professional undergraduate students. Thus, from the above results the researcher can inferred that impact of



type of subject stream opted by respondents is significant on the level of “Cardiovascular Endurance” of the respondents. In the light of the results reported above the status of the hypothesis reported in item 1.4 (Please Refer Item No: 1.4) is indicated as under:

- ❖ **“HYPOTHESIS (H<sub>1</sub>)** (itemised in item 1.4): “There exists no significant difference between Academic and Professional Undergraduate Students (A&PUGS) on their level of **“Cardiovascular Fitness”**.

**.....Status: (Rejected)**

The perusal of the table 1.3 (Please Refer Fig. 1.3, Item No. 1.8), indicates the, mean significant difference between professional and academic undergraduate students on their level of agility. The results indicate there is significant mean difference between professional and academic undergraduate students. Coming towards the calculated values, the mean score professional respondents was observed higher (M=12.13) as compared to non-professional undergraduate students (M=10.17). The calculated ‘t’ value came out to be 5.93, which is significant at 0.01 level of confidence. Thus, from the above reported, it can be inferred that there exists significant difference between the two group of respondents under discussion (Professional and non-professional undergraduate students). However, the mean significant difference goes in favour of professional undergraduate students. Thus, from the above results the researcher can infer that impact of type of subject stream is significant on the level of **“Agility”** of the respondents. In the light of the results reported above the status of the hypothesis reported in item 1.4 (Please Refer Item No: 1.4) is indicated as under:

- ❖ **“HYPOTHESIS (H<sub>2</sub>)** (itemised in item 1.4): “There exists no significant difference between Academic and Professional Undergraduate Students (A&PUGS) on their level of **“Agility”**.

**.....Status: (Rejected)**

**1.10: CONCLUSIONS OF THE STUDY:** The study was intended to explore the level of physical fitness of undergraduate students with special reference to their type of course. In connection to same, it was found that there exists significant difference between rural and Academic and Professional Undergraduate Students (A&PUGS) on their level of Cardiovascular Endurance and agility. Professional adolescents were observed with high level of **“Cardiovascular Endurance and Agility”**. Thus, the research can infer that the type of stream opted by respondents have insignificant impact on the level of physical fitness of the respondents. The results are carried in consonance of host of the research like; Tomik, R. (2008), Trudeau, F., and Shephard, R. J. (2008), Henning, B., Stark, T. (2001) and Rahil, A. G. (2013), Black, S.



(1995), Blaydes, J. (2000), Booth, M. L. (2000), Bouchard, C. (1997), Devinder, K. K., (1996), Dutt, S. (2005).

**1.11: Suggestions:** The impact of type of subjects opted by respondents was observed significant. Accordingly, the researcher considers it pertinent to suggest that physical education should be made an integral part of our education system. So that students may receive ample opportunities to explore their maximum health related physical fitness. Besides, hygienic environment should be provided by the school administration in schools so that level of physical fitness may be enhanced. In addition to this “Khalo India” initiative should be adopted with true spirit. Efforts should be made by curriculum designer to adopt “activity centred curriculum”. Further, endurance/cardiovascular activity should be done a minimum of 3 days per week. Every other day is preferable. The mile or the pacer will measure fitness testing in this area.

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**PERCEPTION OF LITERATE AND ILLITERATE FARMERS  
TOWARDS KISSAN CREDIT CARD SCHEME IN BLACK  
WAVOORA OF DISTRICT KUPWARA (J&K)**

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**Abstract:** Present study was carried with the intention to analyses the economic, satisfaction and knowledge level of the Farmer Beneficiaries farmers towards existing Kissan Credit Card Scheme (KCCS) in block Wavoor of District Kupwara. Besides, the study aims to analyse the opinion of the beneficiaries towards constraints existing in Kissan Credit Card Scheme (KCCS) in block Wavoor of Kupwara District. A self-made “Kissan Credit Card Schedule (KCCS)” was used for data collection. Whole data was selected with the help of purposive cum snowball sampling technique. The collected data was subjected to statistical treatment by using Mean, Standard Deviation and ‘t’ test. The study revealed that there is significant difference between literate and illiterate beneficiaries. Literate beneficiaries were observed high level of satisfaction, knowledge and economic approach towards Kissan Credit card Scheme. Besides, literature beneficiaries perceive that existing Kissan credit card scheme possess least complexities as compared to their counterparts.

**Key words:** Level of perception, Literate Beneficiaries, Illiterate Beneficiaries, Kissan Credit Card Scheme.

**1.1: Introduction:** In Union Territory of Jammu and Kashmir agriculture is a dominant sector of economy and credit plays an important role in boasting agricultural production. Around 80 per cent population is directly or indirectly engaged in agriculture and related sector. Agriculture has significant contribution in GSDP and various other areas. Most of the important industries in the state find get their raw materials from agriculture sector like horticulture industries, jute and textile industries, sugar industries and food processing industries. Agriculture acts as a source of demand for various industrial manufactured products like fertilizers, digging machines, seeds, tractors, and various agricultural tools and equipment’s for facilitating this agricultural enhancement credit plays an important role. In context to same, Kissan Credit



Card (KCC) acts as a backbone for enhancing economic level of farmers throughout India. The Kissan Credit Card (KCC) scheme is a credit scheme introduced in August 1998 by Indian banks. This model scheme was prepared by the National Bank for Agriculture and Rural Development (NABARD) on the recommendations of R.V.GUPTA committee. The chief quality behind Kissan Credit Card Scheme (KCCS) is that it reduces the work load for branch staff by avoidance of repeat appraisal and processing of loan papers under Kissan Credit Card Scheme (KCCS). For availing this facility minimum paper work and simplification of documentation for drawl of funds from the bank is given priority. Kissan Credit Card Scheme (KCCS) has emerged as reduction in transaction cost to the banks and to some extent the banker customer relation has observed hassle free. The scheme is so effective that Over 8 crore Kissan Credit Cards have been issued to farmers till date from its inception in 1998. The disbursement procedures, satisfaction level of beneficiaries have remained under discussion since 1998. Agriculture, like any other economic activity, needs external financial assistance or credit for its survival in the said district. This becomes all the more important in the light of production rigidities, high dependence on natural or climatic factors, inelastic demand for agricultural products, perishability of produce and poverty stricken farming community. Thus, for the survival of the socio-economic equilibrium in the society all the stakeholders have to play their role in enhancing agricultural development. Financial institutions have to shoulder the responsibilities in providing financial assistance to farmers by availing the facilities of credit and debit system. The State Agriculture Policy (SAP) is, therefore, aimed at developing a road map that will seek to actualize the vast untapped growth potential of the agriculture, promote value addition, accelerate the growth of agri-business, create employment in rural areas, secure fair standard of living for the farmers and agricultural workers and their families, discourage migration to urban areas and face the challenges arising out of economic liberalization, globalization and climate change. In consonance to same in the Union Territory of Jammu and Kashmir different banks are playing vital role in providing the credit facilitates to farmers for enhancing their agricultural allied activities. The Banks have played a vital role in the mobilization of savings and Investment. Bank credit to productive sectors of the economy has a critical role in sustaining the growth process. Banking structure in Jammu & Kashmir state consists of Commercial Banks, Regional Rural Banks and Cooperative Banks. However, among all these financial institutions Jammu and Kashmir Bank occupies central position in Jammu and Kashmir State. Keeping in view Kissan Credit card is a valuable intuitive. Indeed, large number of studies has been conducted in the field of Kissan Credit Card. However, diversified results have been found. Notable studies are; “Lata, B. S (2014) Hume, A. D. (2010), Sahil, A. S. (2018), Ajay,

J. P. (2017), Samantara (2010), Nanda, T. (2005), Danish Faruqui (2001), Sharma Ankit (2008), Bhukta (2003), Bhat, A. S. , Dar, H. G (2012), Dashawant&Jayaprada (2007), Doshinge B. (2005), Jainuddin, S. M., G.M. Hiremath, Suresh S. Patil (2015), Dar, A. J. &Nisar, A. (2016), Biswas, D. & Dash H. (1997), Bhat, A. S.”. Therefore, the investigator found wide gap of research to explore the below mentioned research problem.

**1.2: RESEARCH PROBLEM:** The statement of problem for the present study is as under:

**“Perception of Literate and Illiterate Farmers towards Kissan Credit Card Scheme In Black Wavooraoof District Kupwara.”**

**1.3: OBJECTIVES OF THE STUDY:** The objectives of the present study are and under:

- ❖ **Objective-I:**To explore the impact of existing Kissan Credit Card Scheme (KCCS) on the level of economic enhancement of literate and illiterate farmer beneficiaries of Block Wavoorao.
- ❖ **Objective-II:** To explore the knowledge level of literate and illiterate farmer beneficiaries towards existing Kissan Credit Card Scheme (KCCS) of Block Wavoorao.
- ❖ **Objective-III:**To explore the level of satisfaction of literate and illiterate farmer beneficiaries towards existing Kissan Credit Card Scheme (KCCS) of Block Wavoorao.
- ❖ **Objective-IV:** To explore the perception of literate and illiterate farmer beneficiaries towards constraints existing in Kissan Credit Card Scheme (KCCS)of Block Wavoorao.

**1.4: HYPOTHESIS OF THE STUDY:** On the basis of richness background of the knowledge the investigator speculated the bellow mentioned hypothesis.

- ❖ **Hypothesis-I:**There exists no significant difference between literate and illiterate beneficiaries on their level of economic enhancement resulted due to existing Kissan Credit Card Scheme in block Wavoorao.
- ❖ **Hypothesis-II:**There exists no significant difference between literate and illiterate beneficiaries on their level of satisfaction towards Kissan Credit Card Scheme in block Wavoorao.
- ❖ **Hypothesis-III:**There exists no significant difference between literate and illiterate beneficiaries on their level of knowledge towards Kissan Credit Card Scheme in block Wavoorao.
- ❖ **Hypothesis-IV:**There exists no significant difference between literate and illiterate beneficiaries on their perception towards existingKissan Credit Card Scheme in block Wavoorao.



**1.5: OPERATIONAL DEFINITION OF TERMS AND VARIABLES:** The operational definitions of terms and variables are as under:

- 1) **Level of perception:** Level of perception in the present study refers the set of score obtained by respondents on Kissan Credit Card Schedule.
- 2) **Kissan Credit Card:** The Kissan Credit Card (KCC) scheme is a credit scheme introduced in August 1998 by Indian banks. This model scheme was prepared by the National Bank for Agriculture and Rural Development (NABARD) on the recommendations of R.V.GUPTA committee to provide term loans, capital investment and agricultural needs. However, in the present study Kissan Credit Card scheme refers the above mentioned scheme organised by Jammu and Kashmir Bank.
- 3) **Literate beneficiaries:** Literate beneficiaries in the present study refer those respondents who avail Kissan Credit Card scheme since last three years and possess level of education above 10<sup>th</sup> standard.
- 4) **Illiterate beneficiaries:** Illiterate beneficiaries in the present study refer those respondents who avail Kissan Credit Card scheme since last three years and cannot read and write, more evidently means those respondents who possess level of education zero.
- 5) **Block Wavoor:** Block Wavoor in the present study refers those respondents who are living in Block Wavoor of Kupwara District, delimited as per revenue record.

**1.6: DELIMITATIONS OF THE STUDY:** The present study will be confined to the following aspects:

- 1) The present study will be delimited to blocks Wavoor of Kupwara District.
- 2) The present study will be delimited to Kissan Credit Card Scheme availed in the selected areas provided by Jammu and Kashmir Banks only.
- 3) The present study will be delimited to those beneficiaries who availed Kissan Credit Card since last three years.
- 4) The present study will be delimited to literate and illiterate beneficiaries of Wavoor Block of Kupwara District.

**1.7: RATIONALE OF THE STUDY:** Keeping the practicability of the research problem under consideration, the descriptive method has been used by the researcher. The perimeters involved are reported as under:

- ❖ **Sampling procedure:** The whole sample was selected from Wavoor Blocks of Kupwara District. However, it is imperative to mention here, that 50 respondents were selected with due representation of level of education. Among 50 respondents 25 were illiterate beneficiaries and 25



were literate beneficiaries. In addition to this only those respondents were selected who avail Kissan Credit Card Scheme (KCCS) since last three years. Besides, keeping the nature and convenience of the research study under consideration; whole sample was selected by using purposive cum snowball sampling technique. The experience of the respondents was used to generate the snowball sampling networks.

- ❖ **Tool used:** The self-made Kissan Credit Card Scheme Schedule (KCCS) was used for data collection. The schedule consists of 31 item based four dimensions. The schedule is based on three point's ratings. The recorded responses of the scale are "yes" Undecided" and "No". The schedule intended to measure the agricultural enhancement, beneficiary's level of Satisfaction and beneficiary's level of knowledge about the existing Kissan credit card scheme. Apart from this, the schedule aims to analysis constraints existing in Kissan Credit Card Scheme (KCCS).

**1.8: ANALYSIS AND INTERPRETATION OF THE DATA:** The collected data was analysed and interpreted as under:

**Table:1.1: Showing the level of impact of respondents on different dimensions of Kissan Credit Card Schedule (KCC-S) in Block Wavoora District Kupwara. (N=25)**

Dimensions	LAE		MAE		HAE	
	F	%	F	%	F	%
<b>Agricultural Enhancement</b>	11	22	30	60	9	18
<b>Beneficiaries Level of Satisfaction</b>	<b>LS</b>		<b>AS</b>		<b>HS</b>	
	F	%	F	%	F	%
	21	42	25	50	04	08
<b>Beneficiaries Level of Knowledge</b>	<b>LLK</b>		<b>MLK</b>		<b>HLK</b>	
	F	%	F	%	F	%
	12	24	13	26	25	50
<b>Constraints Existing in KCC</b>	<b>CL</b>		<b>MC</b>		<b>HC</b>	
	F	%	F	%	F	%
	4	08	07	14	39	78

**Index:**

**LAE=** Low agricultural enhancement.

**MAE=** Moderate agricultural enhancement

**HAE=** High agricultural enhancement

**LS=** Low satisfaction

**AS=** Averages satisfaction

**HS=**High satisfaction

LLK=Low level knowledge  
MLK= Moderate level knowledge  
HLK= High level knowledge  
CL= Constraint less knowledge  
MC= Moderate Constraint  
HC= High Constraints

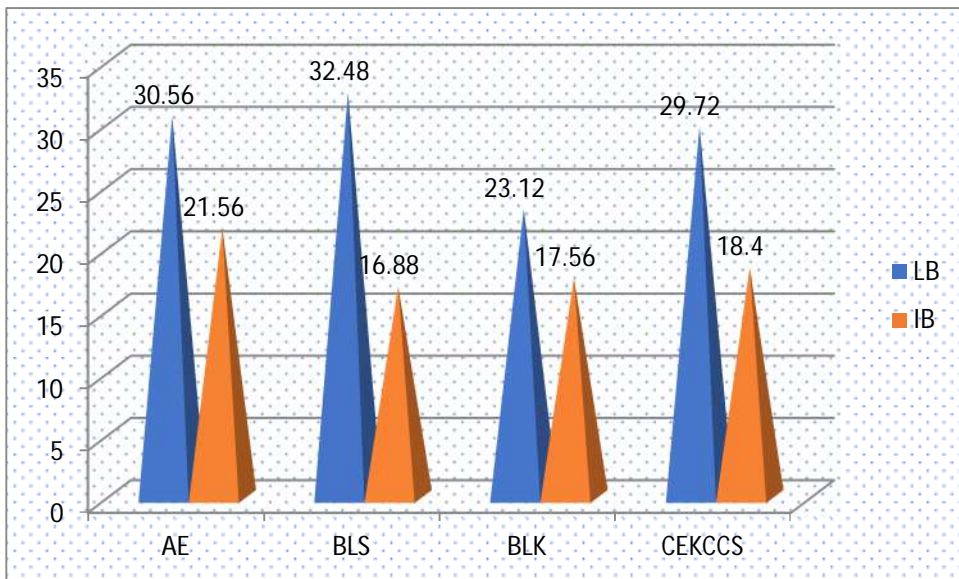
**1.8.1: INTERPRETATION OF TABLE 1.1:**The perusal of the **Table 1.1 (Please Refer Fig 1.1)** gives information about the frequency and percent wise distribution of beneficiaries on various levels of Kissan Credit Card Scheme (KCCS) in Block Wavoor of District Kupwara. The fleeting look on the first dimension “**Agricultural Enhancement**”, it has been observed that 22% (F=11) respondents perceive low impact of Kissan Credit Card Scheme (KCCS) on agricultural enhancement, 60% (F=30) beneficiaries perceive the impact of Kissan Credit Card Scheme (KCCS) as moderate on agricultural enhancement and 18% (F=09) beneficiaries feel that the impact of Kissan Credit Card Scheme (KCCS) on agricultural enhance is high. While observing the same respondents on the second dimension “**Beneficiaries level of Satisfaction**”, it has been observed that 42% (F=21) respondents were observed with low level of satisfaction towards existing Kissan Credit Card Scheme (KCCS). Additionally, 50% (F=25) beneficiaries were observed with average level of satisfaction and 08% (F=4) beneficiaries observed with high level satisfaction towards existing Kissan Credit Card Scheme (KCCS). While glancing towards the third dimension of Kissan Credit Card Scheme (KCCS) (**Beneficiaries Level of Knowledge**), it has been found that 24% (F=12) respondents possess low level of knowledge, 26% (F=13) possess moderator level knowledge and 50% (F=25) beneficiaries with high level of knowledge towardsexisting Kissan Credit Card Scheme (KCC). In pursuance to fourth dimension (**Constraints existing in KCCS**), it has been found that 08% (F=04) respondents feel existing Kissan Credit Card Scheme (KCCS) is constraint less, 14% (F=07) feel existing Kissan Credit Card Scheme (KCC) possess moderate constraints and 78% (F=39) perceive that high constraints are existing in Kissan Credit Card Scheme (KCCS).

**Table: 1.2: Showing significance of difference between mean scores of literate and illiterate beneficiaries on different dimension of Kissan Credit Card Schedule (KCC-S) in Block Wavoor of District Kupwara. (N=50 each)**

Dimensions	Literate Beneficiaries		Illiterate Beneficiaries		‘t’ value
	Mean	SD	Mean	SD	

<b>Agricultural Enhancement</b>	<b>30.56</b>	10.20	<b>21.56</b>	9.66	6.28@
<b>Beneficiaries Level of Satisfaction</b>	<b>32.48</b>	9.47	<b>16.88</b>	3.83	3.73@
<b>Beneficiaries Level of Knowledge</b>	<b>23.12</b>	6.74	<b>17.56</b>	3.16	7.44@
<b>Constraints Existing in KCCS</b>	<b>29.72</b>	6.83	<b>18.40</b>	6.67	3.02@

@= Significant at 0.01 level of confidence.



Index: AE= Agricultural enhancement 00

BLS= Beneficiaries level of satisfaction

BLK= Beneficiaries Level of Knowledge

CEKCC= Constraints existing in KCC

LB: Literate beneficiaries

IB: Illiterate beneficiaries

**Fig: 1.2:** Showing graphical representation of mean scores of literate and illiterate beneficiaries on different dimension of Kissan Credit Card Schedule (KCC-S) in Block Wavoor of District Kupwara.

**1.8.2: INTERPRETATION OF TABLE 1.2:**The literate and illiterate beneficiaries of block Wavoor has been comparatively analysed in **Table 4.26 (Fig. 4.26)**. (Please refer chapter-IV). A perusal of this table reveals a significant mean difference between the two groups of beneficiaries on all the four dimensions of Kissan Credit Card Schedule (KCCS). The analysis of the

first dimension (**Agricultural Enhancement**) reveals that both the groups of beneficiaries differ significantly with each other. The mean score in case of literate beneficiaries was reported to be higher ( $M=30.56$ ) as compared to illiterate beneficiaries ( $M=21.56$ ). The calculated 't' value came out to be 7.29, which is significant at 0.01 level of confidence. From these results, it may be said that literate beneficiaries perceive Kissan Credit Card scheme more useful for agricultural enhancement as compared to illiterate beneficiaries. Therefore, from the above discussion it can be inferred that literate beneficiaries perceive Kissan Credit Card Scheme (KCCS) is a beneficial scheme. They believe that due to Kissan Credit Card Scheme (KCCS) increase in their production took place. Apart from this, it was found that literate beneficiaries perceive that their assets and activities allied to agriculture has been enhancement after utilization of Kissan Credit Card Scheme (KCCS) and subsequently, they perceive that due to Kissan Credit Card Scheme (KCCS) influence the overall economic development of the farmer took place. In consonance to second dimension (**Beneficiaries level of Satisfaction**) of the Kissan Credit Card Scheme (KCCS) the two groups under discussion have been found significantly different from each other. The mean score of literate beneficiaries has been found to be 32.48 and in case of illiterate beneficiaries the mean score was observed to be 16.88. Thus the mean significant difference goes in favour of literate beneficiaries ( $M=32.48$ ). The calculated 't' value ( $t=3.73$ ) is reported to be significant at 0.01 level of confidence ( $p > 0.01$ ). Consequently, it can be discovered that literate beneficiaries are more satisfied with existing Kissan Credit card scheme as compared to illiterate beneficiaries. Therefore, from the above discussion it can be inferred that literate beneficiaries perceive Kissan Credit Card Scheme (KCCS) is a beneficial scheme. They feel that there is timely availability of credit from Kissan Credit Card Scheme (KCC). In addition to this they were observed satisfied with the credit limits provided in existing Kissan Credit Card Scheme (KCCS). Literate beneficiaries recognize that there is enough simplicity in annual renewing of Kissan Credit Card Scheme (KCC) limit and the procedure operated by Jammu and Kashmir bank is systematic rather than haphazard. While visualising the third dimension of Kissan Credit Card schedule (**Beneficiaries Level of Knowledge**) it has been observed that the mean score of literate beneficiaries has been reported to be higher ( $M=32.12$ ) as compared to the illiterate beneficiaries ( $M=17.56$ ). The obtained 't' value has been found to be significant at 0.05 level of confidence ( $t = 7.44$ ). In addition to this, it can be revealed that literate beneficiaries were observed fully aware with the procedure of availing Kissan Credit Card Scheme (KCCS). Besides, they knew that Kissan Credit Card Scheme (KCCS) helps in eradicating the existing burden of "Arti System" in Jammu and Kashmir. Literate beneficiaries recognize that Kissan Credit Card Scheme (KCCS) is a working capital for

maintenance of farm assets and activities allied to agriculture enhancement. Apart from this they were observed fully aware that Kissan Credit Card Scheme (KCC) is intended to erase the dependence on higher commission granting agents and agencies. Apart from this, reveals a significant mean difference between the two groups under discussion on the fourth dimension of Kissan Credit card Schedule (**Constraints existing in KCCS**). The mean score of literate beneficiaries was reported high ( $M=29.72$ ) as compared to illiterate beneficiaries ( $M=18.40$ ). The calculated 't' value came out to be 3.03, which is significant at 0.01 level of confidence. Additionally, it was found that literate beneficiaries were observed fully aware with the proper management and planning of Kissan Credit Card (KCC) organization as a result they fell least constraints in availing the benefits of Kissan Credit card scheme.

**1.9: CONCLUSIONS OF THE STUDY:** In the study it was revealed that maximum percentage favour to literate respondents. So literate respondents were observed more inclined towards all dimensions of Kissan Credit Card Schedule. In addition to this, significant difference was found between literate and illiterate beneficiaries. Literate beneficiaries were observed high level of satisfaction knowledge and awareness towards Kissan Credit card Scheme as compared to their counter parts in Block Wavoor of District Kupwara. Thus, the status of the hypothesis is reported as under:

- ❖ **“Hypothesis-I:** There exists no significant difference between literate and illiterate beneficiaries on their level of economic enhancement resulted due to existing Kissan Credit Card Scheme in block Wavoor .  
(.....**Rejected**)
- ❖ **Hypothesis-II:** There exists no significant difference between literate and illiterate beneficiaries on their level of satisfaction towards Kissan Credit Card Scheme in block Wavoor.(.....**Rejected**)
- ❖ **Hypothesis-III:** There exists no significant difference between literate and illiterate beneficiaries on their level of knowledge towards Kissan Credit Card Scheme in block Wavoor. (.....**Rejected**)
- ❖ **Hypothesis-IV:** There exists no significant difference between literate and illiterate beneficiaries on their perception towards existing Kissan Credit Card Scheme in block Wavoor. (.....**Rejected**)”.

“Indeed level of education of the respondents was observed significant impact of on selected variables of Kissan Credit Card Scheme (KCCS) Keeping the above results under consideration, it was observed that host of the researcher support the findings of the researcher like;

“Samantara (2010), Danish Faruqui (2001), Sharma Ankit (2008), Bhukta (2003), Bhat, A. S. , Dar, H. G (2012),

**Dashawant&Jayaprada (2007), Doshinge B. (2005), Jainuddin, S. M., G.M. Hiremath, Suresh S. Patil (2015), Dar, A. J. &Nisar, A. (2016), Biswas, D. & Dash H. (1997)”**

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## THE RITUALS OF IRULA TRIBES IN PONDICHERRY REGION: AN ANTHROPOLOGICAL STUDY

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### Abstract

This research paper entitled on the Rituals of Irulas tribes in Pondicherry Region: An Anthropological study. This study was mainly focused on ritualistic and performing arts tradition of Irula tribes certainly reserves its significance within the spheres of tribal studies on Irula tribes of Pondicherry and is expected to fill up the research gap that existed hitherto. India to address the tribal heritage protection and conservation proposed policies like Tribal Panchsheel Policy, the PESA act, and constitutional clause to protect and preserve the distinct cultural attributes of tribal societies and ensuring that both preservation and socio-economic development go hand in hand. However, tribal is also secluded for the same reason they are known for; their distinct cultural identity, which repels the mainstream cultural advances and also socio-economic advantages that brings with it. Tribal societies irrespective of their development stage still carry the traces of their ancestral antiquity in the form of arts, rituals, performance arts, traditional knowledge of medicine, political structure, etc. Irulas of Pondicherry are survivors of past with noticeable population in and around the union territory of Pondicherry. They value their ancestral practices which are reflected in their daily walk of life and care to existing parallel along with the mainstream culture without losing some of their archaic ritual practices and performances symbolizing the Irula identity. The current research addresses the problem of Irula ritual and performance arts and its deterioration in the wake of migration, urbanization and the passive imposition of mainstream culture.

**Key Note:** Tribes in India, Irula Tribe, Rituals of Irula Tribe in Pondicherry

### Introduction

Culture is a collective expression of the human society marked with traditional practices, idea, belief, and habit and value systems. Cultural Relativism and analysis of its findings is an important part of cultural anthropology to form cultural critique (Murdock, 1941). A tribe in the contemporary timeline implies a different set of culturally independent units of human societies (Biebuyck,



1966) migrated and settled in various parts of the world coming from the different racial and linguistic background. The anthropological definition of the word "tribe" is not intact, the parent Latin word "tribua" means a "political unit". The touchstone of such independent groups is their cultural radicalism. Classical anthropological work on tribes in India and across the globe was harbored in the perspective of tribal objectivism (Blaut, 1993). The colonial description of tribes is reminiscent of such deliberation which assumed such units and its members as "primates" "missing link" "ape" "savage" and "uncivilized". (Guha, 2011).

### **Tribe**

The word "tribe" originally comes from its Latin form "Tribus", was initially used in religious liturgy and most used in explaining the division of people in Biblical texts. A tribe is defined as "social group based on kinship and territorial in nature with importance on shared social coherence"(Britannica, 2011), "Human social organization in small groups having common descends and allied traditions, marked with political integration not limited to family level" (New Encyclopedia Britannica). WHR Rivers defined them as "a simple social group speaking common dialect under a single government acting as a common body for the welfare of the group", whereas Lucy Mair defined it as "as independent political faction of populace with common identity and its politics" and "a group singled under a common name who take great pride in their identity unlike their enemies – the outsiders" by GW Hunting ford. "Tribe is an assimilation of kins under a common name conversing a common dialect having or professing to have dominion over territory and its resources" (Imperial Gazetteer of India). The architect of Indian Constitution, Dr. B.R. Ambedkar put forth the term "Scheduled Tribe" as against the prevalent "Adivasi", he was instrumental in garnering safe rights for them by introducing policies and the legislation both under British and Indian government. The term 'Scheduled Tribes' first appeared in the Constitution of India. Article 366 (25) defined scheduled tribes as "such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are deemed under Article 342 to be Scheduled Tribes for the purposes of this constitution". Article 46 of the Indian Constitution protects the education and social protection of scheduled tribes which remains his contribution towards the betterment of the group. Article 342 also enlists the specification of tribes or tribal communities in parts or in a group or within tribes or tribal communities, these characteristics are strictly for legislation purpose not entirely based on ethnography or anthropological features,



### **Irular Tribe**

India is composed of robust demography encompassing people of various caste, creed, and religion, which are sometimes assigned with evolving civility and doxology but there exist parallel pockets of tribal groups who are habituating the territory since ancient of time, some are still unaware of modern world and most importantly its perception which may contradict their own self attesting elevated identity. Irulars are one of the tribal groups of India, forming the second largest tribal group of Tamil Nadu, they are mainly concentrated in the lower slopes of Western Ghat stretching in the state of Tamil Nadu and Kerala. Irulars speaks a form of rudimentary Tamil which also has influence from Kannada and Malayalam, it comes under the Dravidian linguistic group.

Irulas, traditionally known to have been hunter and gathering community became dependent on tea and coffee plantation as the mean of employment after the arrival of British. It can be said, the exploitation of Irula and their forest resources began in the colonial times (Anderson, 2000). At present, they along with an array of other tribes are on the brink of social deprivation. Post-Independence political transition and reformation in Forest laws have forced their migration from their traditional abode to other parts and set in motion cultural conflicts in micro-levels (Dharamarajan, 2007). Irulas of Nilgiris have moved to various cities across Tamil Nadu and neighboring state in search of better livelihood and employment, these former snake charmers depended on forest resources for their livelihood and most importantly their penchant and skill in taming snakes is legendary.

Irulas are part of PVTGs along with Paniyas, Todas, Kotas, Kurubas, Kattunayakans. Their traditional abode is situated in hilly areas like Attappady Valley in Palakkad in Kerala, Walayar, Kotagiri, Coonoor and Gudalur regions of Tamil Nadu. Irulas are sparsely distributed throughout eleven districts of Tamil Nadu namely Chennai, Salem, Namakkal, Vellore, Thiruvallur, Villupuram, Thiruvannamalai, Tiruchirapalli, Nilgiris, Kancheepuram, Coimbatore and in the union territory of Puducherry. Tribal groups of India maintain homogeneity within them and also remain distinct in terms of dialect, religion, beliefs and ritual practices. It is also observed that they also share a common trait of marginalization, lack of adequate political participation, weakened socio-economic profile and victims of urbanization and neo-colonialism (Thakar, 2008). India's varied culture, traditions, languages and tribal culture are confronting a massive deterioration in recent times. Tribal in India present a substantial grade of cultural and ethnic assortment, with its cultures-dialects, rituals and values, social structures (Bayer, 2005). The socio-cultural change among the tribal communities has no doubt empowered the tribal to some extent; however, their cultural identity is under severe stress. The commencing of the twentieth century has witnessed dire changes in tribal life;



the disintegration of their traditional life increased the rate of assimilation among them. Depletion of forest covers and external thrust constrained them to withdraw their historical lifestyle. Technological advances in construction engineering and communication have brought about deeper penetration into the tribal territory thereby diminishing the line of "non-contacted".

### **IrularTribe Settlements in Pondicherry**

Irula tribes are found in sparse proportion throughout Pondicherry city and Karaikal but not found in other parts of union territory viz: Mahe, Yanam. They mostly prefer to live near streams or ponds preferring water supplies from water bodies and not depend on modern source for supply of water. They are concentrated in villages located in Katterikuppam, IrularChantai, TN palayam found in small groups settled in their traditional secluded Irula hamlet. The present condition of the Irula tribe marked with the struggle for survival and in pursuit of social acceptance, identity, and empowerment. A major proportion of the tribal population lives below the poverty line and have zero to less access to educational and economic assets such as communication, technology, and transport. India in current times is also experiencing inter-state migration of marginalized and weaker sections namely the lower castes and tribal mainly in search of livelihood and protection. Irula was deprived of scheduled tribe status after the independence, the assumption that tribes lived only in hilly areas and that Pondicherry lacking such topography omitted chances of scheduled tribe concentration, although after relentless persuasion by academicians, tribal activists Irulas of Pondicherry were accorded the status of Scheduled Tribe in the year 2011. The effort of Dr.T. Sunbramaniam Naidu in preparing the Report on Identification of the scheduled tribes in Pondicherry helped in preparing a comprehensive critique on tribal population and its political assertion. Villi and Vettaikaran are the two Irula sub-group identified under anthropological studies.

### **Rituals of Irula in Pondicherry**

There has been numerous discourse to construct the concept of ritual. It is ascribed by as a mental concept for blueprint which inspires activity but itself is not an activity. Ritual and its study are perceived as an important path in understanding the evolution of religious beliefs and expression. Tribal societies around the world exhibit several layers of abstract and supernatural understanding of nature and human interaction. Since its inception during the early nineteenth century, research on rituals has followed a trajectory path (Brown, 2003). The subsequent research advances in ritual research have shown less trace of evolution rather it combines the archaic approaches, which raised the importance of understanding ritual as a social activity of humans in redeveloping, reshaping and amalgamating new and older cultural values. The



progression helps reinstate cultural identity and its continuum. Irulas are deeply religious and animist in nature, they have a distinct religious and belief systems tied with various traditions and rituals. Ritual is an important ladder to an individual to become a full-fledged part of the tribe, the social acceptance of an individual never reaches its zenith unless he fulfills the ritual obligation. This is witnessed in various forms in Irula society. It also becomes complicated since Irulas don't possess a predefined set of religious liturgy and its lack is satisfied with complex rituals performed during life cycle, life crisis, social ceremonies, religious ceremonies, annual festivals, and personal gratification. Irulas worship trees and stones representing their ancestors, they also believe in spirits both in good and bad who are responsible for good omen, afflictions, protection of sacred rocks and plants. Religion and beliefs seek to unravel the unknown and rituals is the physical manifestation of such process, religious belief systems, and their ritual is deeply intertwined. Every clan has their respective deities along with common Irula deities like Kannimaar, Muni, Ellaiamman, Kalamman, Maariamman. Irulas of Pondicherry place special emphasize on seven kannimaars, other Irulas hamlets within Pondicherry had three deities in their temple. This is common throughout Irula hamlet. Traditionally, the main deities for the Irula were ancestors, clan spirits, village spirits, the mother goddess, and spirits of disease and trees. It's been written that some Irulas still worship the tiger and its footprints, the sun, moon, rivers, and mountains. Each clan has a particular goddess who is worshipped in all rituals and lifestyle ceremonies. This goddess is considered to be the guardian or protector of the clan. She protects against evil spirits named Muni or Munikathu and Odi or Odikathu. According to the Irula, Muni affects all people while Odi only affects the Irula people. There are three types of Odis or Odiyans: Net Odiyans (tall ones), KuttiOdiyans (short ones), and Pee Odiyans (ugly ones). They attribute many difficulties and calamities such as failed hunts, weak harvests or honey collections, illness and death to these spirits. Presently, most Irula worship Siva, Vishnu, and Devi (Mother Goddess). Siva is worshipped in many different forms, while Vishnu is usually worshipped in the form of Rangaswami. Other regional Hindu deities include KarappuDheivan, PonnaiMariatha, Ellaiamma, Ezhunkanniamman, Mariamman, Veerakali, Bhadrakali, Magaliatha (Lakshmi), Bhumadevi, Perumal (Vishnu), and Murukkan (Subramaniam) Irula Rituals are expressed in various forms and circumstances, they can be classified as life cycle rituals, Life crisis rituals, Annual Temple Ritual, Thiruvizha Ritual MasiMaaham, MaatuPongal and social ceremonies.

## **Life Cycle Ritual of Pondicherry Irulas**

### **❖ Puberty ritual**

Puberty function is common throughout Tamil society where in the girl is made to realize of her biological state sensitizing her responsibility and also informing the kith and kin about the girl's marital alliance proposal. Irulas in Pondicherry don't necessarily imitate the traditional segregation ritual and strict adherence to pollution period. The girl is fed with nutritious food and specially fed with raw egg with the belief that she can have good fertility helping in giving birth to a healthy child. The function is conducted in a grand manner in the presence of relatives and friends.

### **❖ Marriage Ritual**

Irular marriage is conservative and community-centric. Love marriage instead of parents proposed marriage is very common among them and most marriages happen within their relatives. There is not much ritual process involved in marriage among Irulas of Pondicherry, the marriage is solemnized in the temple of Kanimaar with the presence of close relatives and friends. Priest officiates the marriage and marriage is symbolized with boy tying tali in the neck of the girl. Dowry in any form is not practiced, but the bride price is presented in the form of gifts and not necessarily.

### **❖ Seemantham ritual**

Seemanthan is generally practiced among Tamils with great enthusiasm, it is also followed with great zeal among the Irulas. The ritual is conducted on the seventh or eighth month of the pregnancy period. The girl is adorned and seated in the courtyard of the Kanimaar temple, the function is attended by her close relatives and friends. Prayers and offerings to the goddess for betterment of child and safe delivery are common prayer concerns. The girl is gifted with glass bangle by relatives and elders to bless the mother and her husband with prosperity.

### **❖ Naming the baby ritual**

The naming ritual starts with the pooja in the previous day in the kannimaar temple and names of the babies were normally after their god, Kanniamma in case of girl and Kanniyappan in case of a boy. The ritual happens amidst relatives and elders. This was the usual practice of Irulas until recent time. Since most childbirth happens in the hospital they prefer to give a name in the hospital without any ritual or spiritual aligning. The names and their inspiration have changed since they now usually prefer popular celebrity names and also keep a traditional name after visiting the Kanimaar Temple for a blessing.

❖ **Ear piercing**

Ear Piercing ritual like other rituals discussed before is found throughout Tamil communities, as a common practice children between the age 3-5 will have ear piercing function both boys and girls. The ritual is followed by offering hair to goddess Kanimaar, the entire procedure happens in the Kanimaar Temple. Irulas believe that ear-piercing will safeguard their children from diseases and bad omens. Usually, the piercing is worn by girls throughout their lifetime while boys will remove it after some days.

❖ **Death ritual**

After demise, the relatives are informed about the news, they arrive with flowers to pay respect to the dead. Female relatives sing laments and praise their deeds and achievements in their lifetime. The musical beating of drum accompanies throughout the lamentations, with men and women sporting their traditional tribal dance. The body is then led towards the burial ground through the final procession, they bury the dead in sitting posture with the head facing towards the south. They perform a karma ceremony on the 9th day to salvage the soul of the deceased.

❖ **Social rituals**

Social rituals are the touchstone of Irula activities and are an inevitable part of their ancestral culture. Kannimaar worship was prevalent among their ancestors in the rudimentary form which got a proper figurine recently. The consecration process is quite vivid and contains exaggerated accounts of supernatural occurrences, unlike other tribal and Hindu deities Kanimaar figurine is made of neem wood. Kannimaar is a part of seven gods called as —SapthaKannis", traditionally revered as the mother of all Irulas.

## **Conclusion**

Art is self-sufficient, non-referential, autotelic, autonomous and independent of any relations. (Abrams, 1981). Irula rituals are replete with artistic expression nurtured and preserved throughout their historical timeline. As all other rituals, Irula rituals are indeterminate nature. The rituals are followed by the newer generation reverentially without knowing or wanting to know the ulterior motives of such rituals. The passage becomes more effective since the mode of transmission is conducted using easily available components and a lack of complicated communicative methods like liturgical texts, inscriptions or complicated ballads. A research survey of Irulas revealed a rich legacy of the complex religious system, divination is an inevitable part of Irula's life. Irulas

living in Pondicherry and Tindivanam conduct an annual ritual to honor their boundary deity, the climax of the ritual is exuberant trance-like behavior of the pujari. The most important part is the manifestation of boundary god through the pujari, the supposed deity gives divination and consultation to anyone interested. The ritual asserts the Irulas of land authority and assurance from deities that they would be protected. Psychological findings assert that superstition practices abound in an environment challenged with conflicts, uncertainty, and lack of control and influence human behavior and choices (Vyse 1997).

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### ಜಾನಪದ ತತ್ವಗಳಲ್ಲಿ ಸ್ತ್ರೀ ನಿಂದನೆ ಗಾದೆಗಳು

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ಎಲ್ಲಾ ಗಾದೆಗಳಲ್ಲಿಯೂ ಸರ್ವಸಾಮಾನ್ಯ ಅಂಶಗಳಿದ್ದು ಅವೆಲ್ಲ ಒಂದು ಕಡೆ ಸೇರಬಹುದೇ ಎಂದು ಗಮನಿಸಲಾಗಿದೆ. ಹಾಗೆ ಮಾಡುವುದು ಕಷ್ಟಕರವಾದರೂ ಮನುಷ್ಯ ಸಂಬಂಧ ಹೇಳುವ, ಕಾವ್ಯ ಸಂಗತಿಗಳ ಬಗ್ಗೆ ಇರುವ ಅಂತರಂಗದ ಸತ್ಯ ಹೇಳುವ ಗಾದೆಗಳನ್ನು ಅರ್ಥ ಮಾಡಿಕೊಳ್ಳುವ ಪ್ರಯತ್ನವನ್ನು ಇಲ್ಲಿ ಮಾಡಲಾಗಿದೆ. 1977ರಲ್ಲಿ ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯದ ಪ್ರಸಾರಾಂಗವು ಕಾಳೇಗೌಡ ನಾಗವಾರ ಅವರ 'ಬೀದಿ ಮಕ್ಕಳು ಬೆಳದೋ' ಗಾದೆಗಳ ಸಂಕಲನವನ್ನು ಪ್ರಕಟಿಸಿರುತ್ತದೆ. 1400ಕ್ಕೂ ಮಿಕ್ಕು ಗಾದೆಗಳು ಸಂಗ್ರಹಗೊಂಡ ಈ ಸಂಕಲನಕ್ಕೆ ಪ್ರಸ್ತಾವನೆ ಬರೆಯುತ್ತ ನಾಗವಾರರು, ಅದರ ಆರಂಭದಲ್ಲಿ ಕನ್ನಡದ ಮಧ್ಯಕಾಲೀನ ಕವಿ ಕುಮಾರವ್ಯಾಸನ ಒಂದು ಪದ್ಯವನ್ನು ಉಲ್ಲೇಖಿಸಿರುತ್ತಾರೆ. 'ಅರಸು ರಾಕ್ಷಸ, ಮಂತ್ರಿಯೆಂಬವ ಮೊರೆವ ಹುಲಿ, ಪರಿವಾರ ಹದ್ದಿನ ನೆರವಿ, ಬಡವರ ಬಿನ್ನಪವನಿನ್ನಾರು ಕೇಳುವರು, ಉರಿವುರಿವುತಿರೆ ದೇಶ ನಾವಿನ್ನಿರಲು ಬಾರದೆನ್ನುತ್ತ, ಜನ ಬೇಸರಿನ ಬೇಗೆಯಲಿರದಲೇ ಭೂಪಾಲ ಕೇಳೆಂದ'. ಈ ಪದ್ಯದ ನಂತರದ ಪ್ರಸ್ತಾವನೆಯ ವಾಕ್ಯಗಳಲ್ಲಿ ಸಂಪಾದಕರು, 'ಇಂಥದೇ ಉಸಿರುಕಟ್ಟಿಸುವ ರಣಬೇಸಿಗೆಯಲ್ಲಿ ಬೆಂದ ಜನ' ತಮ್ಮ ಅನುಭವವನ್ನು ಗಾದೆಗಳ ವಿವಿಧ ಚಿತ್ರಗಳಲ್ಲಿ ಜೀವಂತವಾಗಿ ನುಡಿದಿದ್ದಾರೆ. ಇಲ್ಲಿಲ್ಲಾ ನೋವು ನೇರವಾಗಿ ಹೊರ ಹೊಮ್ಮುವುದರ ಜತೆಗೆ ನಿಟ್ಟೂಸಿರಾಗಿ ನಿಸ್ಸಹಾಯಕತೆಯ ಎಳೆಯಾಗಿ ನಿರಾಶೆಯ ನಡುವಣ ವ್ಯಂಗ್ಯವಾಗಿ ಕಂಡುಬಂದಿದೆ. ಇದೆಲ್ಲದರ ಜತೆಗೆ 'ಮಾತು ಇನ್ನೂ ಭಾರವಾಗಿ ನೋವಿನ ಆಳ ಹೆಚ್ಚಾದಾಗ ವಾಸ್ತವರೂಪಗಳನ್ನು ದಾಟಿ. ಅಸಂಗತ ಚಿತ್ರಗಳಲ್ಲಿ ಕಟ್ಟಿ ನಿಲ್ಲಿಸುವ ಕ್ರಿಯೆಯಾಗಿ ಗಾದೆಗಳ ರೂಪ ಸೃಷ್ಟಿಯಾಗಿರುತ್ತದೆ' ಎಂದಿದ್ದಾರೆ.

ಸಾಗರದಂಥ ದುಃಖದ ನಡುವೆ ಸಾಸಿವೆ ಕಾಳಿನಷ್ಟು ಗಾತ್ರ ಸುಖ ಕಂಡಾಗ ತನ್ನ ಹಾಳು ಸ್ಥಿತಿ ಇನ್ನು ಖಾತ್ರಿಯಾಗಿ ಹೆಣ್ಣಿಗೆ ತನ್ನ ಸುಖದ ದಿನಗಳು ಶೂನ್ಯವೆನ್ನಿಸಿ ಕಣ್ಣೀರು ಇಮ್ಮಡಿಸಿ ಏಕಾಂತದಲ್ಲಿ ಅತ್ತ ಬಗ್ಗೆ ವಿವರಗಳಿವೆ. ಅಂದರೆ ಗಾದೆಗಳಲ್ಲಿಯೇ ಈ ಬಗೆಯ ಸುಖದುಃಖದ ದಾಖಲೆಗಳಿವೆ ಎನ್ನುತ್ತಾರೆ ಸಂಪಾದಕರು. ಈ ಮಾತು ನಿಜ. ಬದುಕಿನ ಅನುಭವಗಳು ಮನುಷ್ಯನನ್ನು ಹಣ್ಣಾಗಿಬಿಡುತ್ತವೆ. ಆ ಸಂದರ್ಭದ ಸುಖವನ್ನೋ ದುಃಖವನ್ನೋ ಮನುಷ್ಯ ಹರಳುಗಟ್ಟಿಸಿಕೊಂಡು ಹೇಳಿಬಿಡುವುದುಂಟು. ಬದುಕಿನಲ್ಲಿ ಸಂತೋಷದ ಪ್ರಮಾಣಕ್ಕಿಂತ ದುಃಖದ ಭಾಗವೇ ಹೆಚ್ಚು. ಈ ದುಃಖವನ್ನು ಎಷ್ಟು ಮಾತುಗಳಲ್ಲಿ ಹೇಳಿಕೊಂಡರೂ ಅದು ಬಗೆಹರಿಯದು. ಹೇಳಬೇಕಾದುದನ್ನು ಒಂದೆರಡು ಮಾತಿನಲ್ಲಿ ಹೇಳಿ ಮುಗಿಸುವುದು ಅತ್ಯಗತ್ಯವೆನ್ನಿಸಿಬಿಡುತ್ತದೆ. ಅಂಥ ಸಂದರ್ಭಗಳಲ್ಲಿಯೇ ಗಾದೆ ಸೃಷ್ಟಿಯಾಗುವುದು.



ಬೀದಿಮಕ್ಕಳು ಬೆಳದೋ ಎನ್ನುವ ಗಾದೆಯೇ ಗಾದೆಯ ಲಕ್ಷಣವನ್ನು ಹೇಳುವಂತಿದೆ. ಗಾದೆಯೆಂಬುದು ಬೀದಿಯ ಜ್ಞಾನ ಎಂದು ಈಗಾಗಲೇ ಹೇಳಲಾಗಿದೆ. ವ್ಯವಸಾಯ ಜೀವನದ ನಡುವೆ ಹುಟ್ಟಿದ ಗಾದೆಗೆ ವಾರಸುದಾರರಿಲ್ಲ. ಅದನ್ನು ಬರೆದು ಇಟ್ಟವರೂ ಇಲ್ಲ. ಯಾವಾಗಲೋ ಯಾರಿಗೋ ಹುಟ್ಟಿದ ಗಾದೆ, ಇನ್ನಾರ ಬಾಯಿಯ ಮೂಲಕವೋ ಉಳಿದು ಬೆಳೆದುಕೊಂಡು ಬಂದಿದೆ. ಹೀಗೆ ಯಾವ ಮೂಲಕವೋ ಹುಟ್ಟಿ ಎಲ್ಲರ ಮನಮನೆಯಲ್ಲಿ ಉಳಿದಿರುವ ಗಾದೆಗಳು ಬೀದಿ ಮಕ್ಕಳಂತೆಯೇ ಆ ಬೀದಿಯ ಮಕ್ಕಳು ಎಲ್ಲರಿಗೂ ಸೇರಿದವರಾಗಿದ್ದರಿಂದ ಅವು ಚೆನ್ನಾಗಿಯೇ ಬೆಳೆದುಬಿಡುತ್ತವೆ. ಅವರು ತಮ್ಮ ಅನುಭವಗಳಿಂದ ಬುದ್ಧಿವಂತರೂ ಆಗಿಬಿಡುತ್ತಾರೆ. ಬದುಕಿನ ಅನುಭವವೇ ಅವರಿಗೆ ಪಾಠ ಕಲಿಸಿ, ಅವರನ್ನು ಜಾಣರನ್ನಾಗಿಸಿ ಬಿಟ್ಟಿರುತ್ತದೆ. ಮಾನಸಿಕವಾಗಿ ಗಟ್ಟಿಗರನ್ನಾಗಿ ಮಾಡಿಬಿಟ್ಟಿರುತ್ತದೆ. ಹೀಗೆ ಬೀದಿ ಮಕ್ಕಳು ಬೆಳದೋ ಎನ್ನುವ ಶೀಘ್ರಂಶಿಕೆಯೇ, ಬೀದಿ ಮಕ್ಕಳು ಬೆಳೆದ ಬಗೆಯನ್ನು ಹೇಳುವಂತೆ ಗಾದೆ ಹುಟ್ಟಿ ಬೆಳೆದು ಪ್ರಚಾರಗೊಂಡ ರೀತಿಯನ್ನು ಹೇಳುತ್ತಿದೆಯೆನೋ ಎನ್ನಿಸುತ್ತದೆ.

ಬೀದಿ ಮಕ್ಕಳು ಬೆಳದೋ ಎನ್ನುವಲ್ಲಿ ಕೂಡ ಅಪಾರವಾದ ಅನಾಥ ಪ್ರಜ್ಞೆಯು ಇರುವಂತೆ ವಾರಸುದಾರರಲ್ಲದ ಗಾದೆಯೂ ಕೂಡ ಅನೇಕ ಸಂದರ್ಭಗಳಲ್ಲಿ ಮನುಷ್ಯನ ಅನಾಥ ಪ್ರಜ್ಞೆಯನ್ನು ಬಿಂಬಿಸುತ್ತದೆ. 'ಕರುಣ ಬಂದರೆ ಕಾಯೋ ಮರನ ಬಂದರೆ ಒಯ್ಯೋ' ಎಂಬೊಂದು ಗಾದೆ ಮಾತು ಕಣ್ಣೊಟಕದಾದ್ಯಂತ ಪ್ರಚಾರದಲ್ಲಿದೆ. ಜನಪದರು ತಮ್ಮ ಬದುಕು ದೇವರ ಕರುಣೆಯ ಮೇಲೆ ನಡೆವಂಥದ್ದು ಎಂದು ನಂಬಿರುವವರು. ದೇವರ ಕರುಣೆಯನ್ನು ನಂಬಿರುವುದಷ್ಟೇ ಅಲ್ಲ. ಆತನ ಕರುಣೆ ತಮ್ಮ ಮೇಲೆ ಸದಾ ಇರಬೇಕೆಂದು ಬಯಸುವವರೂ ಕೂಡ. ಕರುಣೆಯ ಅನಿಶ್ಚಿತತೆಯನ್ನು ಎತ್ತಿ ಹಿಡಿಯುತ್ತ ಅದು ಇದ್ದರೆ ಆತ ಶಿಕ್ಷಿಸಲಿ, ಇಲ್ಲದಿದ್ದಲ್ಲಿ ಮರನ ಬರಲಿ ಎಂಬುದಾಗಿ ಹೇಳಿರುತ್ತಾರೆ. ದೈವದ ಕರುಣೆ ತಪ್ಪಿದ ಮೇಲೆ ಮನುಷ್ಯನ ಬದುಕು ಅಸಹನೀಯ, ಅದಕ್ಕಿಂತ ಮರಣವೇ ಸುಖಕರ ಕರುಣೆಯದ್ದಲ್ಲಿ ಬರುಕುವುದು, ಮರನ ಬಂದಲ್ಲಿ ಸಾಯುವುದು ಸೂಕ್ತ ಮಾರ್ಗವೆಂದು ಭಾವಿಸಿರಬೇಕು. ಹೀಗಾಗಿ ಜನಪದ ಲೋಕದಲ್ಲಿ ಅಥವಾ ಜನಪದ ಲೋಕ ಸೃಷ್ಟಿಸಿದ ಗಾದೆಗಳಲ್ಲಿ, ಗೀತೆಗಳಲ್ಲಿ ನಾನಾವಿಧದ ಭಕ್ತಿ, ಆಧ್ಯಾತ್ಮ, ತತ್ವ ಇವುಗಳಿಗೆ ಅವಕಾಶವೇ ಇಲ್ಲದೆ ಅವೆಲ್ಲ ಸಂಗತಿಗಳೂ ದೈವದ ಕರುಣೆ, ಇಲ್ಲವೇ ಮರನ ಎಂಬೆರಡು ಪುಟ್ಟ ವಾಕ್ಯಗಳಲ್ಲಿ ಜೀವನದ ಮರ್ಮವನ್ನು ಹೇಳಿ ಮುಗಿಸಿರುವಂತಿದೆ.

ಸ್ತ್ರೀಯರು ತಮ್ಮ ಅಂತರಂಗದ ನೋವುಗಳನ್ನು ಅರಿಯದಂತೆಯೇ ಬೇರೊಂದು ಬಗೆಯಲ್ಲಿ ಹೇಳಿಕೊಳ್ಳುವ ಗಾದೆಗಳ ಜತೆಗೆ ಗಂಡಸರೇ ಹೆಂಗಸರನ್ನು ಕೆಲವು ವಿಚಿತ್ರ ಸಂದರ್ಭಗಳಿಗೆ ಸಿಲುಕಿಸಿ, ನಿಂದಿಸುವ ಗಾದೆಗಳೂ ಇವೆ. 'ಓಡೋಗು ಬಡ್ಡಿ, ಹಾಲ್ಗಿಪ್ಪಾಕಳಿ' ಎಂದಿದ್ದರೆ ಮತ್ತೊಂದು ಗಾದೆ 'ಓಡೋಗು ಬಡ್ಡಿಗ್ಯಾಕೆ, ನೆಲಿನಮ್ಯಾಗಳ ಮೊಸರಿಗಾಸೆ' ಎಂದಿದೆ. ಎರಡೂ ಗಾದೆಗಳು ಒಂದೇ ಬಗೆಯ ಅಭಿಪ್ರಾಯ ವ್ಯಕ್ತಪಡಿಸುತ್ತಲಿವೆ. ಗಾದೆಗಳಲ್ಲಿ ಹೆಣ್ಣನ್ನು ನಿಂದಿಸುವ ಪದವಿದೆ. ಮಾವ, ಅತ್ತೆ, ಗಂಡನ ಹಿಂಸೆ ತಾಳದೆ ಓಡಿಹೋಗುತ್ತಿದ್ದಾಳೆಯೇ ಅಥವಾ ಅನುಕೂಲವಿದ್ದರೂ ತಾನು ಈ ಹಿಂದೆ ಪ್ರೀತಿಸಿದವನ ನೆನಪನ್ನು ತಾಳಲಾರದೆ ಕದ್ದು ಓಡಿಹೋಗುತ್ತಿದ್ದಾಳೆಯೇ? ಇಲ್ಲಿ ಓಡಿಹೋಗುವುದು ಯಾರಿಗೂ ಕಾಣದಂತೆ ಎಂಬ ಅರ್ಥದಲ್ಲಿದೆ. ನಿಂದನೆಯ ಕ್ರಮ ನೋಡಿದರೆ ಆಕೆ ಮಾವನ ಮನೆಯಿಂದಲೋ, ತಂದೆಯ ಮನೆಯಿಂದಲೋ ತಪ್ಪಿಸಿಕೊಂಡು ಹೋಗುತ್ತಿರುವಂತಿದೆ. ಬಹುಮಟ್ಟಿಗೆ ಈ ವಾಕ್ಯ ತಾಯಿಯ ಮನೆಯಿಂದ ತಪ್ಪಿಸಿಕೊಂಡು ಹೋಗುವ ಅರ್ಥದಲ್ಲಿಲ್ಲ. ಅಲ್ಲದೆ ಮನೆಗೆಲಸದ ವಿವರದ ಮೇಲೆ ಈ ಗಾದೆ ಇರುವುದರಿಂದ ಬಹುಶಃ ಹೆಂಗಸು ತನ್ನ ಜವಾಬ್ದಾರಿಯಿಂದ ತಪ್ಪಿಸಿಕೊಂಡು ಹೋಗುತ್ತಿರುವಂತೆ

ಈ ವಾಕ್ಯವಿದೆ. ತಪ್ಪಿಸಿಕೊಂಡು ಹೋಗಲು ಹೆಂಗಸು ಎಂಥ ತುತರ್ಲಿನ್ನದ್ದಾಳೆಂದರೆ, ಅದು ಗಾದೆ ಹೇಳುವ ಮಾತಿನ ಹಿನ್ನೆಲೆಯಿಂದಲೇ ಅರ್ಥವಾಗುತ್ತದೆ.

ಹಾಲಿಗೆ ಹೆಪ್ಪು ಹಾಕುವುದು ಒಂದು ಕ್ಷಣದ ಕೆಲಸವಷ್ಟೆ. ಆ ಒಂದು ಘಳಿಗೆಯ ಕೆಲಸದಲ್ಲಿಯೂ ಆಕೆಗೆ ಇಷ್ಟವಿಲ್ಲ. ಅದೊಂದು ಸಣ್ಣ ಕೆಲಸವೂ ಸಾಧ್ಯವಾಗುತ್ತಿಲ್ಲ ಎಂದರೆ ಮತ್ತಾವುದೇ ದೊಡ್ಡ ಕೆಲಸ ದೂರವೇ ಉಳಿಯಿತು. ಈ ಗಾದೆ ಹೆಂಗಸಿಗೆ ತಾನಿರುವ ಮನೆಯ ಬಗೆಗಿನ ತಿರಸ್ಕಾರವನ್ನು ಹೇಳುತ್ತಿದೆ. ಒಟ್ಟಿನಲ್ಲಿ ಗಾದೆ ಒಬ್ಬ ಹೆಂಗಸು ಮನೆಯಿಂದ ತಪ್ಪಿಸಿಕೊಂಡು ಹೋಗುವುದನ್ನೂ, ಆಕೆಯ ಅಂತರಂಗ ಸ್ಥಿತಿಯನ್ನೂ ಏಕಕಾಲಕ್ಕೆ ಹೇಳುತ್ತಿರುವಂತೆ ಕಾಣಿಸುತ್ತದೆ. ಈ ಗಾದೆ ಕೂಡ ಮನೆಬಿಟ್ಟು ತಪ್ಪಿಸಿಕೊಂಡು ಹೋಗುತ್ತಿರುವ ಹೆಂಗಸು ಮಡಕೆಯ ಮೊಸರಿನ ಬಗ್ಗೆ ಮೋಹ ಇರಿಸಿಕೊಂಡಿರುವುದುಂಟೆ ಎಂಬ ಪ್ರಶ್ನೆಯ ಮೂಲಕ ಗೃಹಬಂಧನದಿಂದ ಬಿಡುಗಡೆ ಬಯಸಬೇಕೆಂಬುದುಳ್ಳುತ್ತಿರುವವಳ ಆತಂಕ ಹೇಳುತ್ತದೆ.

380ನೇ ಸಂಖ್ಯೆ ಗಾದೆ ಕೂಡ ಒಬ್ಬ ಹೆಂಗಸು ತನಗೆ ತಾನೇ ಮಾತಾಡಿಕೊಳ್ಳುತ್ತಿರುವಂತೆ ಕಾಣಿಸುತ್ತದೆ. ಹಾಗೆ ತನಗೇ ಮಾತಾಡಿಕೊಳ್ಳುತ್ತಿರುವವಳು ತನ್ನನ್ನೇ ನಿಂದಿಸಿಕೊಳ್ಳುತ್ತಲೂ ಇದ್ದಾಳೆ. ಬಹುಶಃ ಆಕೆಯನ್ನು ಜನ ಗೃಹಿಣಿ ಎಂಬ ಪಟ್ಟದಿಂದ ತೆಗೆದು ಹಾಕಿ ಹೀನಾರ್ಥದಲ್ಲಿ ಗೃಹಿಸಿರುವಂತೆ ಕಂಡು, ಆಕೆ ಅದರಿಂದ ತಪ್ಪಿಸಿಕೊಳ್ಳಲು ಪ್ರಯತ್ನಿಸುವಂತೆ ತೋರುತ್ತಲಿದೆ. ಕಳೆದ ಶತಮಾನಗಳಲ್ಲಿ ಪುರುಷ ಪ್ರಧಾನ ಸಮಾಜ ಹೆಣ್ಣಿಗೆ ಒಂದು ಕಳಂಕವನ್ನು ಹೊರಿಸಿತೆಂದರೆ ಅದರಿಂದ ಆಕೆ ಹೊರಬಹುದಾದ ಸಾಧ್ಯವೇ ಇರುತ್ತಿರಲಿಲ್ಲ. ಒಬ್ಬ ಗೃಹಿಣಿ ತನ್ನ ಸುತ್ತಣ ನಾನಾ ಅಪವಾದಗಳಿಂದ ತಪ್ಪಿಸಿಕೊಂಡು ಬದುಕ ಬೇಕಾದರೆ ಆಕೆ ಗೃಹಬಂಧನದಲ್ಲಿಯೇ ಇರಬೇಕಿತ್ತು. ಹಾಗೆ ಹೊರಬಂದರೆ ಯಾವುದೇ ಬಗೆಯ ಅಪವಾದವಾದರೂ ಅವಳ ತಲೆಗೆ ಅಂಟಿಕೊಳ್ಳುತ್ತಲಿತ್ತು. ನೆಟ್ಟಗಿದ್ದ ಮನುಷ್ಯನೊಬ್ಬ ಅಪಘಾತದಿಂದ ಕುಂಟನೋ, ಕುರುಡನೋ ಆದರೆ ಅವನನ್ನು ಜನ ಆ ಅಂಗವಿಕಲತೆಯಿಂದಲೇ ಗುರುತಿಸುವುದುಂಟು. ಹಾಗೆಯೇ ಹೆಣ್ಣು ಹಾದಿಗೆಟ್ಟರೆ ಆಕೆಗೆ ಅಂಗವಿಕಲೆ ಎಂಬುದಕ್ಕಿಂತಲೂ ಕ್ರೂರವೆನಿಸುವ ಸ್ಥಾನವನ್ನು ಕೊಡಮಾಡಿಬಿಡುತ್ತದೆ ಸಮಾಜ. ಈ ಮುಂದಿನ ಗಾದೆಗಳಲ್ಲಿ ಒಬ್ಬ ಹೆಂಗಸು ತನಗೆ ಒದಗಿ ಬಂದಿರುವ ಅಪವಾದದಿಂದ ಬಿಡುಗಡೆ ಹೊಂದಲು ಒಡವೆ ವಸ್ತ್ರ ಅಭರಣಗಳಿಂದ ಪ್ರಯತ್ನಿಸುತ್ತಿದ್ದಾಳೆ. ಕರಿಮಣಿ ಸರ ನೀಲಮಣಿ ಸರ ಇವನ್ನೆಲ್ಲ ಕತ್ತಿಗೆ ಹಾಕಿಕೊಂಡು ಸಂತೆಗೆ ಹೋದರೆ ಅಲ್ಲಿನ ಜನ ತನ್ನನ್ನು ಗರತಿ ಎಂದು ತಿಳಿಯಬಹುದೇ ಎಂದು ಯೋಚಿಸುತ್ತಿದ್ದಾಳೆ. ಪ್ರಾಚೀನ ಸಮಜದಲ್ಲಿ ಒಬ್ಬ ಹೆಂಗಸಿಗೆ ಅಪವಾದ ಬಂದರೆ ಅನೇಕ ವೇಳೆ ಅವರು ಅದರಿಂದ ಮುಕ್ತರಾಗಲು ಊರನ್ನೇ ಬಿಡುತ್ತಿದ್ದುದುಂಟು ಅಥವಾ ತಂದೆತಾಯಿಗಳೇ ಹೆಣ್ಣುಮಗಳನ್ನು ನಿಕೃಷ್ಟವಾಗಿ ನೋಡಿ ಮನೆಯಾಚೆ, ಊರಾಚೆ ಕಳುಹಿಸುತ್ತಿದ್ದರು. ಆ ಹೆಣ್ಣು ಮಗಳು ಒಂಟಿಯಾಗಿ ಬದುಕಿ ಯಾವುದೋ ಬಗೆಯ ಮನೋವೈಕಲ್ಯಕ್ಕೆ ಒಳಗಾಗಿ ಬಿಡುತ್ತಿದ್ದಳು. ಆದರೆ ಮೇಲ್ಕಂಡ ಎಲ್ಲ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಇರುವ ಈ ಮುಂದಿನ ಗಾದೆಯ ಪಾತ್ರವಾಗಿರುವ ಹೆಂಗಸು ಮಾನಸಿಕವಾಗಿ ದೃಢವಾಗಿರುವಂತೆ ಕಾಣಿಸುತ್ತಾಳೆ. ಅದರಿಂದ ಆಕೆ ತನ್ನ ಹಿಂದಿನ ಅಪವಾದವನ್ನು ತಾನು ಹಾಕಿಕೊಳ್ಳುವ ಒಡವೆಗಳ ಮೂಲಕವಾಗಿಯಾದರೂ ಕಳೆದುಕೊಳ್ಳಬಹುದೇ ಎಂದು ನೋಡುತ್ತಿದ್ದಾಳೆ. 380ನೇ ಸಂಖ್ಯೆಯ ಆ ಗಾದೆ ಹೀಗಿದೆ:

ಕರ್ಮಣಿ ಕರಿಮಣಿ

ಅವು ಮೂರ್ ಸರ

ಅಲ್ ಮಣಿ ನೀಲಮಣಿ

ಅವು ಮೂರ್ ಸರ  
ಆರು ಸರಾನು ಹಾಕೋಂಡು  
ಆರುವಳ್ಳಿ ಸಂತೆಗೋದ್ರೆ  
ನನ್ನ ಹಾದರಗಿತ್ತಿ ಅಂದಾರೋ  
ಗತರ್ ಅಂದಾರೋ ಕಾಣೆ ಅಂದೂ

ಒಬ್ಬಳು ಹೆಣ್ಣು ಅಂದದ್ದನ್ನು ಇನ್ನೊಬ್ಬ ಹೆಣ್ಣೋ ಅಥವಾ ಗಂಡೋ ಪುನರಾವರ್ತನೆ ಮಾಡಿ ಹೇಳುವಂತೆ ಈ ಮೇಲಿನ ಗಾದೆಯ ವಾಕ್ಯಗಳು ತೋರುತ್ತಿವೆ. ಇದೇನೇ ಇರಲಿ ಹೆಂಗಸೊಬ್ಬಳು ಬಹಿರಂಗ ಅಲಂಕಾರದ ಮೂಲಕ ತನ್ನ ಮೇಲಿನ ಅಪವಾದವನ್ನು ಬಗೆಹರಿಸಿಕೊಳ್ಳಲು ನೋಡುತ್ತಾ, ಹಾಗೆ ಅದು ಸಾಧ್ಯವಾಗುವುದೇ ಎಂಬ ಭಾವನೆಯನ್ನೂ ಆಕೆ ವ್ಯಕ್ತಪಡಿಸಿರುವಂತೆ ಇದೆ. ಅನುಮಾನ ವ್ಯಕ್ತಪಡಿಸುವಲ್ಲಿಯೇ ಹಾದರಗಿತ್ತಿಯಾದವಳು ಗರತಿಯಾಗುವುದು ಸಾಧ್ಯವಿಲ್ಲ ಎಂಬ ಭಾವನೆಯೂ ಬಲವಾಗುತ್ತಾ ಬರುತ್ತದೆ.

ಮುಂದಿನ ಗಾದೆಯೂ ಕೂಡ ಹೆಣ್ಣಿನ ಎರಡು ಬಗೆಯ ಗುಣಗಳನ್ನು ಹೇಳುತ್ತದೆ: 'ಕಟ್ಟೋಂಡೋಳು ಕಡೇಗಂಟ, ಕಕರ್ ಲಿಂಬಂದೋಳು ಇರೋಗಂಟ' ಎಂಬುದು ಗಾದೆ. ವೈವಾಹಿಕ ಬಂಧನದ ಘನೈಯನ್ನು, ಅನಧಿಕೃತವಾಗಿ ಸೇರಿದ ಹೆಣ್ಣು ಗಂಡಿಗಿರುವ ಸಂಬಂಧದ ಅತ್ಪ್ರೀತಿಯನ್ನೂ ಈ ಗಾದೆ ಹೇಳುತ್ತದೆ. ಭಾರತೀಯ ಬದುಕಿನ ಕ್ರಮದಲ್ಲಿ ವಿವಾಹದ ಬಹು ಮುಖ್ಯ ಆಚರಣೆಯೊಂದು ಬಹು ಹಿಂದಿನಿಂದಲೂ ಬೆಳೆದು ಬಂದಿದೆ. ಅದರಡಿಯಲ್ಲಿ ಒಂದಾದ ಗಂಡುಹೆಣ್ಣು ಸಂಸಾರ ಜೀವನ ನಿರ್ವಹಿಸಬಹುದೆಂದು ಮಾನ್ಯತೆ ಪಡೆಯುತ್ತದೆ. ಹಾಗೆ ಸಾರ್ವಜನಿಕರ ಸಮಕ್ಷಮ ಅಧಿಕೃತ ಮದ್ಯೆ ಪಡೆಯದ ಹೆಣ್ಣುಗಂಡಿನ ಸಂಬಂಧ ಅನುಜರ್ತವೆಂದು ತಿಳಿಯಲಾಗುತ್ತದೆ. ಹಿರಿಯರ ಸಮ್ಮುಖದಲ್ಲಿ ನಡೆಯುವ ವಿವಾಹಗಳಿಗೆ ಹಿರಿಯರೇ ಜವಾಬ್ದಾರರಾಗಿ, ಅವರ ಎಲ್ಲ ಕಷ್ಟನಿಷ್ಕರಗಳಲ್ಲಿಯೂ ಭಾಗಿಯಾಗುತ್ತಾರೆ. ವಿವಾಹ ವಿಚಾರದಲ್ಲಿ ತಂದೆತಾಯಿಗಳ ಪಾತ್ರವಂತೂ ನಿರ್ಣಾಯಕವಾದುದು. ಇದೆಲ್ಲವೂ ಭಾರತೀಯ ಸಂಸ್ಕೃತಿಗಳೇ ವಿಶೇಷವಾಗಿ ಸೇರಿದ್ದು. ತಂದೆ ತಾಯಿಗಳ ಮುಂದೆ ಮಕ್ಕಳು ಎಷ್ಟೇ ಬೆಳೆದರೂ, ಬುದ್ಧಿವಂತರೆನಿಸಿಕೊಂಡರೂ ತಂದೆತಾಯಿಗಳ ಮುಂದೆ ಅವರು ಚಿಕ್ಕವರೇ ಎಂದೆನಿಸಿಕೊಳ್ಳುತ್ತಾರೆ. ಬಂಧು ಬಳಗದವರ ಸಮ್ಮುಖದಲ್ಲಿ ತಂದೆತಾಯಿಗಳೇ ಮಕ್ಕಳ ಮದುವೆಯನ್ನು ನೆರವೇರಿಸಿದ ಮೇಲೂ ಮಗ ಸೊಸೆಯ ಮೇಲೆ ತಾಯಿತ ಅಧಿಕಾರ ಇದ್ದೇ ಇರುತ್ತದೆ. ಮಗನಾಗಲಿ, ಮನೆಗೆ ಬಂದ ಸೊಸೆಯಾಗಲಿ ಎಲ್ಲಿಯೂ ನಡೆ ತಪ್ಪದಂತೆ ಎಚ್ಚರಿಗೆ ವಹಿಸುತ್ತಾರೆ. ಅದರಲ್ಲೂ ಅತ್ತೆಗೆ ಸೊಸೆಯ ಮೇಲಿನ ನಿರ್ಬಂಧ ಹೆಚ್ಚು ಇರುತ್ತದೆ. ಸೊಸೆಯಾದವಳು ಪ್ರತಿನಿತ್ಯ ಕಲಿಯಬೇಕಾದ ಪಾಠ ಪಾಠವಿತ್ತದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಇರುತ್ತದೆ. ಯಾವುದೇ ಸಂದರ್ಭದಲ್ಲಿ ವಿವಾಹವಾದ ಗಂಡನನ್ನು ಹೆಣ್ಣು ತ್ಯಜಿಸಲಾಗದು. ಎಲ್ಲರ ನಡುವೆ ಹೆಣ್ಣುಮಗಳು ಬಹು ಎಚ್ಚರಿಕೆಯಿಂದಲೇ ಬದುಕಬೇಕಾಗುತ್ತದೆ.

ಆದರೆ ಯಾವ ಹೆಂಗಸು ವೈವಾಹಿಕ ಬಂಧನಕ್ಕೆ ನಿಲುಕದೆ, ಗಂಡಿನ ಸಂಬಂಧವನ್ನು ಹೊಂದಿರುತ್ತಾಳೋ ಆಕೆ ತಾನು ಯಾರ ಜತೆಯು ಬಹಳ ಕಾಲ ಇರಬೇಕಾದ ಅಗತ್ಯವಿರುವುದಿಲ್ಲ. ಹಾಗೆ ಅವಳು ಅವನನ್ನು ಒಲ್ಲದೇ ಕೈಕೊಟ್ಟು ಹೋದಲ್ಲಿ ಬಂಧುಬಳಗದವರ ಜವಾಬ್ದಾರರಾಗಿರುವುದಿಲ್ಲ. ಅವಧಿಕೃತ ಹೆಣ್ಣು ಗಂಡಿನ ಸಂಬಂಧ ಬಂಧುಬಳಗದವರ ಜವಾಬ್ದಾರರಾಗಿರುವುದಿಲ್ಲ. ಅವಧಿಕೃತ ಹೆಣ್ಣು ಗಂಡಿನ ಸಂಬಂಧ ಮುರಿದುಬಿದ್ದರೆ ಅದಕ್ಕೆ ಅವರಿಬ್ಬರೂ ಕಾರನರಿರುತ್ತಾರೆಯೇ ಹೊರತು ಸಂಬಂಧಿಕರು, ಬಂಧು

ಬಳಗದವರಾರು ಕಾರನಿರುವುದಿಲ್ಲ. ಎಲ್ಲರ ಸಮ್ಮುಖದಿಲ್ಲ ವಿವಾಹವಾದವರಾದರೆ, ಅವರು ದಿಕ್ಕು ತಪ್ಪಿದವರಾದರೆ ತಿದ್ದುವ, ಬುದ್ಧಿ ಹೇಳುವ ಹಕ್ಕು ಎಲ್ಲಿಯೂ ಇರುತ್ತದೆ. ಅನಧಿಕೃತ ಸಂಬಂಧ ಕುರಿತು ಯಾರಿಗೂ ನ್ಯಾಯ ಹೇಳುವ ಶಕ್ತಿಯಿರುವುದಿಲ್ಲ. ಅನಧಿಕೃತವಾಗಿ ಗಂಡನ್ನು ಕೂಡಿದ ಹೆಣ್ಣು ಅವನನ್ನು ಬಿಟ್ಟು ಬೇರೆಯವರನ್ನು ಕೂಡಿಕೊಳ್ಳಬಹುದು. ಇಂಥ ಘಟನೆಗಳು ಗ್ರಾಮ ಪ್ರದೇಶಗಳಲ್ಲಿ ನಡೆದುಬಿಟ್ಟಿವೆ. ಹೀಗಾಗಿ ಮದುವೆಗಿರುವ ಪಾವಿತ್ರ ಬಂಧನವನ್ನೂ ಅದರ ಮೇಲೆ ಬಂಧುಬಳಗದವರಿಗಿರುವ ಅಧಿಕಾರವನ್ನೂ, ಅನಧಿಕೃತ ಸಂಬಂಧಕ್ಕೆ ಯಾವ ಸಹಭಾಗಿತ್ವವೂ ಇಲ್ಲದಿರುವುದನ್ನು 387ನೇ ಸಂಖ್ಯೆಯ ಗಾದೆ ಸಮರ್ಪಕವಾಗಿ ಹೇಳುತ್ತದೆ.

426ನೇ ಸಂಖ್ಯೆಯ ಗಾದೆ ಕೂಡ ಅರ್ಥಪೂರ್ಣ ಉಕ್ತಿಯಾಗಿರುತ್ತದೆ. ಗಾದೆ 'ಕಂಡೋರ ಮನೆ ಕದ ನೆಚ್ಚೊಂಡು, ಬೆಳಗಾನ ನಾಯಿ ಹೊಡೆದುದು' ಎಂದಿದೆ. ಒಬ್ಬ ಹೆಂಗಸು ಬೇರೆಯವರ ಮನೆಯ ಬಾಗಿಲು ತೆಗೆಯುವುದನ್ನು ಕಾಯುತ್ತ ಕೂತಿದ್ದಾಳೆ. ಆದರೆ ಬಾಗಿಲು ತೆಗೆಯುತ್ತಿಲ್ಲ. ಆ ಸಿಟ್ಟಿಗೆ ತನ್ನ ಮನೆಯ ಮುಂದಿನ ನಾಯಿಯನ್ನು ಹೊಡೆಯುತ್ತಿದ್ದಾಳೆ. ಸ್ತ್ರೀಯ ನಿಂದನೆಯೇ ಅಲ್ಲದೆ ಆಕೆಯ ಮನಸ್ಸಿನಾಳದ, ಈಡೇರದ ಬಯಕೆಯನ್ನು ಈ ಗಾದೆ ಹೇಳುತ್ತಿರಬಹುದೇ ಎಂದೆನಿಸುತ್ತದೆ. ಈ ಗಾದೆ ಒಂದು ಘಟನೆಯನ್ನು ಆಧರಿಸಿಯೂ ಹೇಳಿದಂತಿದೆ. ಯಾರದೋ ಮನೆಯ ಯಾರೋ ಗೆಣಿಕಾರನನ್ನು ಇಲ್ಲಿ ನಿರೀಕ್ಷಿಸುತ್ತಿರುವ ಹೆಂಗಸಿಗೆ ಸಹನೆ ಮೀರುತ್ತಿದೆ. ಸಹನೆ ಮೀರುತ್ತಿದೆಯೆಂದು ಆಕೆ ತನ್ನ ಅಸಮಾಧಾನವನ್ನು ಯಾರ ಮೇಲೂ ತೀರಿಸಿಕೊಳ್ಳುವಂತಿಲ್ಲ. ಬಡಪ್ರಾಣಿಯೊಂದು ಮನೆಯ ಮುಂದೆ ಮಲಗಿದೆ. ಅದನ್ನು ಹೊಡೆಯುತ್ತ ಅವಳು ತಾನು ನಿರೀಕ್ಷಿಸಿದ್ದು ದೊರಕದೇ ಹೋದುದರ ಅಸಮಾಧಾನವನ್ನು ತೋಡಿಕೊಳ್ಳುತ್ತಿದ್ದಾಳೆ. ಗಾದೆಯ ಮಹತ್ವವಿರುವುದೇ ಇಂಥ ಸಂಗತಿಗಳಲ್ಲಿ. ಯಾವುದೇ ವೈಯಕ್ತಿಕ ಸಂಗತಿ ಗಾದೆ ಮಾತಾಗಿ ಹೊರಬರುತ್ತಲೇ ಅದು ಅತ್ಯಂತ ಸಾರ್ವತ್ರಿಕ ಸಂಗತಿಯಾಗಿ ಬಿಡುತ್ತದೆ. ಇದೇ ಬಗೆಯ ಗಾದೆ 'ಅತ್ತೆ ಮೇಲಿನ ಕೋಪ ಕೊತ್ತಿಯ ಮೇಲೆ ತೀರಿಸಿಕೊಂಡಳು' ಎಂದಿದೆ ಅತ್ತೆಯ ಹಿಂಸೆಯನ್ನು ತಡೆಯಲಾಗುತ್ತಿಲ್ಲ. ಅವಳು ಕೊಡುತ್ತಿರುವ ತೊಂದರೆಯ ಬಗ್ಗೆ ಸಿಟ್ಟು ಇದೆ. ಆ ಸಿಟ್ಟನ್ನು ತೀರಿಸಿಕೊಳ್ಳಲೇ ಬೇಕು. ತಲೆ ಕೂದಲು ಕಿತ್ತುಕೊಳ್ಳಲಾಗದು. ತನ್ನನ್ನೇ ತಾನು ದಂಡಿಸಿಕೊಳ್ಳುವುದೂ ಸಾಧ್ಯವಿಲ್ಲ. ಈ ಸಿಟ್ಟನ್ನು ಸೊಸೆ ಮನೆಯಲ್ಲಿ ಒಡಾಡುವ ಬೆಕ್ಕಿನ ಮೇಲೆ ತೀರಿಸಿಕೊಳ್ಳುತ್ತಾಳೆ, ಹೀಗೆ ಹೆಣ್ಣು ತನ್ನ ಮೇಲಿನ ನಿಂದನೆ ಮತ್ತು ಹಿಂಸೆಯನ್ನು ತಡೆಯಲಾರದೆ ಬೇರೊಂದು ಜೀವಂತ ವಸ್ತುವಿನ ಕಡೆಗೆ ಅದನ್ನು ತಿರುಗಿಸುವುದು, ಹೆಣ್ಣು ಮಕ್ಕಳು ತಮ್ಮ ಸಿಟ್ಟನ್ನು ಕಳೆದುಕೊಳ್ಳುವಿಕೆಯ ಒಂದು ಬಗೆಯನ್ನು ಗಾದೆ ಹೇಳುತ್ತದೆ.

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## HIGHER EDUCATIONAL STATUS IN NORTH EAST REGION OF INDIA

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### **Abstract**

Education is considered to be an important element in developing individuals in a sustainable manner, exposing them to greater awareness, better compensation of their socio-cultural environment and improving socio-economic conditions through higher education. Education has also helped the Scheduled Tribes in India to improve their socio- economic status in the country. This paper focuses mainly with the status of higher education in North East Region of India, emphasizing on the problems, policies and programmes at the same time.

### **Introduction:**

The Constitution of India has identified certain ethnic minority groups by giving them special considerations, and these groups are traditionally named as the Scheduled Tribes (STs). They constitute around 8 per cent of the total population of the country. According to Census 2011, there are 573 Scheduled Tribes residing in different parts of the country<sup>1</sup>, most of them having their own languages different from the language spoken in the state where they are located, of which there are 270 such languages found in the country(Sahoo 2019). The tribal languages in India have predominantly originated from major language families like the Austric, Tibeto-Chinese, Dravidian, etc.

Majority of the Scheduled Tribes live in scattered habitations located in interior, remote and inaccessible hilly and forest areas of the country. Almost 22 per cent of tribal inhabitations have less than 100 population and more than 40 per cent have less than 100 to 300 people, while others have less than 500 people(Sujatha 2000). Despite the fact that, the tribal community constitute only 8 per cent of the total Indian population, they are in majority in several states and union states. They form an overwhelming majority in states such as Mizoram (94.75 per cent), Lakshadweep (93.15 per cent), Nagaland (87.70 per cent). However, Madhya Pradesh, Odisha, Bihar, West Bengal, Maharashtra,

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<sup>1</sup>[https://censusindia.gov.in/Census\\_And\\_You/scheduled\\_castes\\_and\\_scheduled\\_tribes.aspx](https://censusindia.gov.in/Census_And_You/scheduled_castes_and_scheduled_tribes.aspx)



Andhra Pradesh, Gujarat and Rajasthan constitute for 83 per cent of the total tribal population, even though the fact that non tribal population form the majority in these states(Census 2011).

### **Literacy Rate of Total SC and ST (1961-2011):**

Literacy rate is defined as the percentage of literates among the population aged seven years and above (Census 1991).Although the literacy levels of STs have improved over the years, the difference between the literacy level of male and female has not been bridged yet. The Scheduled Tribe population of India has risen from 28.30 per cent in 1961 to 72.99 per cent in 2011, while the literacy level amongst the STs has risen from 8.53 percent in 1961 to 58.96 per cent in 2011<sup>2</sup>. However, the literacy rate of both men and women of STs has all along been lower when compared to SCs and total population. The male-female gap in literacy rate for the STs has decreased from 24.41 percentage points in 2001 to 19.81 percentage points in 2011.

India has an average literacy rate of 58.96 per cent for ST population. Among states, the highest literacy rate for STs is found in Mizoram and Lakshadweep, whereas the lowest is found in Andhra Pradesh and Madhya Pradesh (Census 2011).Throughout the country, out of 152 districts (with more than 25 percent of ST population), 28 districts have ST literacy below 50 percent and 9 districts have female ST literacy rate below 30 percent (Statistics of School Education 2010-2011 2012).

### **Policies and Programmes:**

In the race of development, the STs have not been able to keep up with the pace of other communities due to which they are amongst the most deprived and marginalized sections of the society. Thus, in order to achieve a comprehensive development of the scheduled tribes, the central government of India has planned out a varied range of public welfare and developmental activities. The tribal sub-Plan approach has been taken into consideration for the development of the tribes which emerged as the main strategy from the Fifth Five Year Plan.According to the sub-Plan approach, priority has been given to the education sector.

The Elementary Education has been given priority as it is an important input for the overall growth and development of tribal communities, majorly to boost their confidence so that they can deal with the non-tribal community on equal terms. Since Elementary education was accorded priority, a detailed and broad policy framework for higher education has to be adopted in the North East

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<sup>2</sup>[https://censusindia.gov.in/Census\\_And\\_You/scheduled\\_castes\\_and\\_scheduled\\_tribes.aspx](https://censusindia.gov.in/Census_And_You/scheduled_castes_and_scheduled_tribes.aspx)



Region, which would ensure equal importance to quantitative and qualitative aspects of education.

Another development in the policy of tribal education came with the recommendations of the National Policy on Education (NPE) in 1986 (National Policy of Education, 1986, Ministry of Human Resource Development, GOI). According to the policy, the following provisions are included:

- Priority to be given to setting up of new primary tribal schools in tribal areas
- Curriculum and devise instructional material in the tribal languages needs to be developed in the early stages with provisions for converting into regional languages.
- Encouraging the youths belonging to the ST category to take up teaching in the tribal areas. This would be very beneficial for the tribal community as it will ensure development to the tribal youth as well as educational facilities to the children of the backward classes.
- Establishing large number of residential schools in tribal areas for facilitating comprehensive education for the children. This would encourage their families to send their children to school.
- Certain specific incentive schemes will be formulated keeping in view the needs and wants of the Scheduled Tribes, so as to help them lead a decent life.

The policy recognised the heterogeneity and diversity of the tribal areas and demanded to remodel the traditional framework of primary education while focusing on improving access in tribal areas. The policy also focused on instructing in the mother tongue for effective teaching and emphasized on incorporating content and curriculum that are relevant to local. Moreover, it also demanded of production of books in local dialects. As per these recommendations, the guidelines for setting up of schools in tribal areas were modified so as to cater to the accessibility to education for everyone. For example, Madhya Pradesh has slowly decreased the population size in order to open schools in habitations with 200 population (Sahoo 2019). Similarly, the government of Andhra Pradesh has established schools in areas where there are even twenty school-age children. However, despite the government implementing such relaxation of norms, many tribal areas do not meet the prescribed criteria and are thus, devoid of schools and education.

### **Progress in Literacy:**

Literacy is considered to be a vital and fundamental parameter of educational development. The data on literacy from 1971 to 2011 show that literacy rate for STs has increased from a low of 11.30 in 1971 to as high as 58.96 in 2011 (Registrar Census of India 2010-11). However, this increase in the literacy

rate does not insinuate the holistic growth of educational standards. Over the years, the gap between STs and non-STs has also increased. Despite states like Kerala, Karnataka and Tamil Nadu being educationally developed and having higher general literacy rates, they are lacking behind in the smaller and tribal-concentrated states in terms of tribal literacy rates. Disparity among various states in terms of tribal literacy rates is very high, ranging between 82.27 per cent Mizoram and 17.16 percent in Andhra Pradesh (Statistics of School Education 2010-2011 2012). The data reveal that the degree and level of educational development have been quite uneven among various states and among different sections of population within any given state. The data further reveals that north-eastern states like Mizoram, Nagaland and Meghalaya who have a higher concentration of tribal in relation to their total population have done exceptionally well in terms of higher literacy rate. But in mainland states such as Madhya Pradesh, Odisha, Rajasthan and Andhra Pradesh which are inhabited by a overwhelming number of tribal when compared to the north-eastern states, the tribal literacy is recorded to be very low. The growth of literacy rate between 1971 and 1991 was steady but it increased significantly post 1991 and now stands at 58.96 per cent. As per 2011 Census, the literacy rate is highest in Mizoram (91.33) followed by Tripura (87.22) and Sikkim (81.42).

**Table 1. Educational Status in North East Region**

State	Population	Male	Female	Sex Ratio	Literacy
1	2	3	4	5	6
Arunachal Pradesh	1,383,727	713,912	669,815	938	65.38
Assam	31,205,576	15,939,443	15,266,133	958	72.19
Manipur	2,570,390	1,290,171	1,280,219	992	79.21
Meghalaya	2,966,889	1,491,832	1,475,057	989	74.43
Mizoram	1,097,206	555,339	541,867	976	91.33
Nagaland	1,978,502	1,024,649	953,853	931	79.55
Sikkim	610,577	323,070	287,507	890	81.42
Tripura	3,673,917	1,874,376	1,799,541	960	87.22

**Source: Census of India 2011**

### **Higher Education in North East Region:**

The Northeast Region of India comprises of the former British province of Assam and part or all of the former princely states of Manipur, Tripura and Sikkim. There are plain areas in the modern State of Assam, but otherwise the



region is mostly hilly or mountainous. This region is home to a wide range of tribes and has the largest proportion of scheduled tribes in the country (Ali and Das 2003).

The population of Northeast India is 46 million with 68 percent of that living in Assam alone. Assam also has a higher population density of 397 persons per km<sup>2</sup> than the national average of 382 persons per km<sup>2</sup> (Secretariat 2015). The literacy rates in the states of the Northeast region, except those in Arunachal Pradesh and Assam, are higher than the national average of 74 percent. As per 2011 census, Meghalaya recorded the highest population growth of 27.8 percent<sup>3</sup> among all the states of the region, higher than the national average at 17.64 percent; while Nagaland recorded the lowest in the entire country with a negative 0.5 percent.

**Table 2. Enrolment Level in Higher Education in NER**

States	Phd Male	Phd Female	Ph D Total	PG Male	PG Female	PG Total	UG Male	UG Female	UG Total
Arunachal Pradesh	773	278	1051	2740	1906	4648	21215	16551	37766
Assam	1162	721	1883	19331	21697	41028	232534	232623	465151
Manipur	429	375	804	3042	2170	5212	43715	49276	92993
Meghalaya	355	413	768	2120	2675	4695	21255	27302	48557
Mizoram	57	71	128	1873	1606	3479	11805	10393	22198
Nagaland	75	110	185	9554	1416	10970	17475	15443	32928
Sikkim	0	0	0	3983	1274	5257	8036	7780	15816
Tripura	128	104	232	4702	3668	8370	24147	15637	39784
NER Total	2979	2072	5051	47345	36312	83657	380182	375007	755189
All India	51362	33143	84505	1841695	1539304	3380999	12257778	10297064	22554842

**Source: All India Survey on Higher Education, 2011-12 Population Department of Higher Education, Ministry of Human Resource Development, Govt of India**

The total Gross Enrolment Ratio is higher than the All India average (19.4) except Assam (13.4), Meghalaya (17.5) and Tripura (13.6). Similarly, all States except Tripura (6.3), the ST Gross Enrolment Ratio is higher than the all India average (11.2).

<sup>3</sup><https://www.dharmadispatch.in/history/insurgencies-of-the-north-east-introduction>

**Table.3 Gross Enrolment Rate in Higher Education (18-23 years) in NER 2011-12**

State	Male	Female	Total	SC Male	SC Female	Total SC	ST Male	ST Female	Total ST
Arunachal Pradesh	33.6	19.5	26.9	100.0	66.0	100.0	24.3	16.1	20.1
Assam	13.3	13.4	13.4	10.4	12.2	11.2	13.5	13.2	13.4
Manipur	38.5	33.3	35.9	100.0	100.0	100.0	44.6	34.4	39.5
Meghalaya	15.3	19.6	17.5	35.3	32.1	33.9	12.9	17.2	15.1
Mizoram	22.0	21.1	21.6	100.0	100.0	100.0	21.4	19.5	20.4
Nagaland	25.8	16.9	21.5	-	-	-	15.9	15.6	15.8
Sikkim	26.0	22.2	24.2	12.4	11.3	11.8	16.4	22.2	19.3
Tripura	16.0	11.0	13.6	11.7	8.4	10.1	7.9	4.9	6.3
All India	20.8	17.9	19.4	14.6	12.3	13.5	12.9	9.5	11.2

**Source: All India Survey on Higher Education, 2011-12 Population Department of Higher Education, Ministry of Human Resource Development, Govt of India**

### **Problems of Tribal Education:**

Although several guarantees by the government and persistent efforts, the tribal communities of the country, especially in the north east continue to lag behind the non-tribal population in education. The reasons are internal, external, socio-economic and psychological, some of which have been described briefly below:

#### **External Constraints:**

The policies adopted for the development of education among the tribal communities are not adequate enough to fight against the disadvantages typical to the tribal population. For example, the population and distance norms that the government had initiated have proved to be futile for the tribal areas because of their sparse population and isolated residential patterns. Moreover, both the tribal welfare department and the educational department failed to understand the complex realities of tribal life and the expectations of tribal from the system while formulating the policies and programmes for tribal education. The kind of policy and guidelines that have been planned out for the North east have not worked out in their favour. Secondly, the governing bodies have adopted a dual system of administration as far as planning is concerned. The department of Tribal Welfare looks into tribal life and culture and governs the developmental work at the local level, including education. But the tribal welfare department does not possess the expertise in planning and administration of education and academic supervision. But on the other hand, the Education department essentially deals with the planning of education development in the state level. It incorporates the instructions and guidelines related to curriculum, textbooks, appointment of teachers, etc. This department prepares uniform policies for the



entire state. To take the example of school calendar, where the holidays are prepared and adjusted according to the formal school set up in a non-tribal context, with very little consideration for the locals and their festivals.

### **Socio-Economic and Cultural Constraints:**

The central cause of lack of educational development amongst the tribal can be attributed to their poor economic conditions. So, factors such as social customs, poor economic conditions, lack of awareness for the value of formal education, cultural ethos, etc have played a significant role in shaping their socio-cultural status. The main occupation of tribal is agriculture, done either by shifting cultivation or terrace farming, which has low productivity.

### **Conclusion:**

Short term policies entirely will not furnish the purpose of the educational development of the North East region. It is equally important to incorporate long term plans that would involve a morerobust meaningful policy framework. The primary focus should be more on quality and equity as in providing quality higher education that would make them efficient and independent in the long run. Second, the school curriculum and calendar should be formedas per the requirements of the local communities in the tribal context. This would make the local communities develop a sense of belongingness resulting in more participation in the higher education Process. Third, provisions to provide locally relevant materials to tribal students should be incorporated. Moreover, building a partnership between the community and the government would make education a lot more effective and sustainable. Such a partnership would also ensure supervision and monitoring of educational development. And lastly, measures to develop skill, competency and teachers' motivation are required for strengthening and sustaining the higher education system in the North East region.

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## COMMUNITY DEVELOPMENT THROUGH CSR AND SUSTAINABILITY OF THE ORGANIZATION-A STUDY ON LARGE ENTERPRISES ODISHA

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### Abstract

Corporate Social Responsibility is a commitment of modern business after the statutory provisions in the Company Act 1956. The Act provides for spending at least 2% of its average net profit in CSR activities. The article examines the CSR practices followed in large enterprises of Odisha. It is observed that there is a positive relationship between the efforts of community development pertaining to health and sustainability. In addition, it tries to verify the relationship between the efforts of community development such standard of living, life style and sustainability. The study reveals that the CSR initiative is focused to organize health projects, medical camps and providing clean drinking water in the community residing in the periphery of large organizations located in the state. It is a matter of regret that the large scale companies of the state are not extending their helping hand to the victims of natural calamities namely flood, fire and cyclone. In addition CSR initiatives are also not extended to the farmers for the purchase of agricultural implements by the large organizations. Thus, CSR initiative in Odisha is partial in its approach and contents.

**Key words:** CSR initiatives, Large Scale Organization, Community Development, Organizational Sustainability, standard of living and life style

### Introduction

Corporate Social responsibility is a socioeconomic intervention for development in the periphery of industrial enterprises. The concept has got momentum after the statutory provisions in the Companies Act, 1956. As a result, the industrial enterprises are duty bound to undertake CSR activities in the community located and around their establishment as per the provisions of law. CSR is a matter of policy and practice. CSR is also a branding initiative of corporate house. CSR attempts to the social issues of the community. It is considered as a panacea to cure the social ills. Community development is an objective of CSR initiatives. The stakeholders of enterprises get the advantages of CSR initiative. The policy and practice of CSR propels the wheels of

community development. Some industries are not complying the norms of CSR. Both print and electronic media are covering the news widely forming negative public opinion on CSR practices adopted by the enterprises. Market parameters have been broadened and extended after the adoption of CSR. The relationship between consumer and company has changed dramatically (Carroll, 1998). CSR is particularly important in a globalizing world because the perceptions and ideas appeal higher values. CSR is a means to match corporate business with stakeholder values. CSR is described as one of the best approach is to business (Dirk Matten, 2003). CSR tends to move deeper into all aspects of operations of a business. Modern business is committed to CSR.

#### Statement of Problem

There prevails a gap between the CSR Policy and CSR Practice. The Company Act provides for spending at least 2% of its average net profit on CSR. Schedule VII of Company Bill 2013, compels the organizations that are registered under the companies law or any previous laws (Section 1) of (Section-135) having net value of rupees 500 crore or more or turnover of rupees 1000 crore or more or net profit of rupees 5 crore or more during any fiscal year to take on the corporate social responsibility compulsorily. The companies have to at least spend 2% of its average net profit made during the three immediately preceding fiscal years on CSR.

#### Review of literature:

The concept of Corporate Social Responsibility (CSR) has attracted the attention of scholar's entrepreneur & professionals. The concept of CSR is one of the key ethical and moral problems and behavioral pattern in decision-making profile and behavior of corporate houses. (Branco and Rodrigues 2006).

The critical incidents in security provide expenses to the CSR practices. Such expenses provides premise for companies CSR activities. The findings of the study revealed that CSR should be managed by handling unexpected incidents. The CSR initiative is meant to reduce the gap between stakeholders expectations and company performance which will eventually result in maintaining relationship with society through the inter play of actor resources and activities.

In article published in "Corporate Social Responsibility in the food sector" in European Review of Agriculture Economics Journal the importance of CSR in food sector, having high brand value has been over emphasized (Hartman,2011). The framework of CSR action is provided in the study depicting different agendas of CSR (Agunis, glovas ,2012)

The paper also adds to the knowledge pertaining to the need and outcome of CSR initiatives. The measurement of CSR initiative also suggested in the study.

Mallen(2012),in the article unfolded the trends of CSR. There is a considerable change in the CSR protocol. Such change has affected both the society and business at large. In a function of ASSCH former president Dr A P J Abdul Kalam emphasized on sharing profit for social welfare. Corporate Social Responsibility is building the life of citizens living in the periphery of the industrial house.

Bhattacharyya & Chaturvedi (2012 in their article entitled mentioned that CSR looks set to emerge as an independent stream with measurable output. He also maintained that the proposed bill of CSR will considerably influence the policy of the company. CSR is the face of an industry and prelude of its trade. It is also pointed out that CSR is in a low profile because of the greed of corporate houses. There are many gray areas namely mainstreaming of child labour, problem of falling level of ground water, food, education and employment. The corporate houses must address these issues as matter of CSR policy and practice. (Bibhus Prasad-2012)

Bansal, Parida ,Kumar(2012) in their paper entitled“ Emerging trends of Corporate Social Responsibility in India” pointed out that the companies now realized the significance of being social friendly to the communities residing in the periphery of an organization.

The frontline companies and identified with the organization, employee-customer identification is one of the outcomes of CSR activity. The employees recognise management and customers to support the CSR activities of an organization. (Daniel Korschun, C.B.Bhattacharya, & Scott D. Swain (2014))

CSR activity is perceived as a developmental tool for the economic development of the country (Marg,2004).

The benefit of CSR has tangible effect on the society (Sood & Arora,2006)

Jonung, Malhotra,(2007),made a heoretical and empirical study attitude toward sustainable development and corporate social responsibility. The findings of research revealed that general beliefs on sustainable development of CSR initiative are as expected found positive.

Public sector has identified CSR as a driving force for the transformation of the society - Dalia and Rosa, (2009)

Raman, (2006),made a theoretical study, corporate social responsibility is a social obligation of the corporate houses.

Sharma,(2011), studied perception of the Indian society toward corporate social responsibility. Sample respondents were from Northern India. The findings revealed that in a market-led economy, society took skeptic view of CSR with an ethical and responsible behavior for corporate houses

### Objectives of the Study

The present study has been framed with the following objectives

- 1 To study the organizational efforts for CSR practices followed by Large Enterprises in Odisha.
- 2 To study the relationship between efforts for Community development through CSR sustainability of the organization.

### Hypothesis

H1: There is a positive relationship between efforts for Community development( Health) & the sustainability.

H2: There is a positive relationship between efforts for Community development( Standard of Living and Life style) & sustainability.

### Methodology:

The study is descriptive as well as explanatory in its nature. It is descriptive because descriptive data were collected through detailed customer survey and interviews. In pursuance of the objectives, following methodology is adopted for conducting the present study. The research design adopted for the study is analytical in nature and conducted in two stages. In explorative stage of the study, a review of some related literature was undertaken to familiarize with the various aspects of CSR of large industries, to evolve appropriate methodology and to formulate a conceptual framework for the study. Subsequently the data collected was analyzed and reported for the purpose of study.

#### Universe for the study

Sample : Employees working in Large scale industries

Jurisdiction : Odisha

Period of study : 2019

#### Sample design:

For the purpose of the study and to measure the effectiveness and to review the strategies adopted for CSR, employees from large scale industries in Odisha were interviewed at random. Judgmental sampling 200 numbers was adopted in the selection of large scale industries active in CSR.

#### Survey method used

The researcher has personally visited the sample companies namely National Aluminium Company Limited , Neelachal Ispat Nigam Limited, Rourkela Steel Plant and the data were collected through questionnaire was followed to analyses and interpret the date .

#### Statistical Tools and Techniques Used:

While analyzing the data, simple averages have been used and computed. Statistical tools like ANOVA, regression analysis etc. are used in the study.



### Data Analysis and Findings

In order to verify the hypotheses and fill in the research gap generated from literature review and based on the selected personal profile of the respondents as independent variables, empirical analysis for the study is performed.

#### Efforts for Community development( Health)

Data presented in the table below represents the benefits and the support that the society get from the Large Organization for making development corresponding to health. The below table explains the responses of the employees of large organization

**Table-1, Efforts for Community development( Health)**

S.No	Items	N	Min	Max	Mean	Std. Deviation
x1b	Clean drinking water is provided to the people of the local community by our company	352	1	5	3.99	1.163
x2b	Our company is sponsoring public health projects/medical camps( eye, general health, cancer awareness etc)	352	1	5	4.2	1.056
x3b	Our company extends help to the victims of natural calamities( Earthquake, flood, fire, cyclone)	352	1	5	3.18	1.278
x4b	Our company has established old age homes/ Orphanages as a part of its CSR activity	352	1	5	4.46	0.863
x5b	Livelihood support programs are run by our company for community development	352	1	5	3.58	1.287
x6b	Our company contributes for the development of hospitals, health centres etc.	352	1	5	3.99	1.163

Source: Field Study



Data presented in the table above represents the response obtained from the sample respondents in regard to the effort extended by their organizations to facilitate community development by improving health care facility through the CSR activity. In term of mean score corresponding to every variable, it can be revealed that “Our company has established old age homes/ Orphanages as a part of its CSR activity” has scored highest i.e., 4.46, followed by “Our company is sponsoring public health projects/medical camps (eye, general health, cancer awareness etc)” with a mean score of 4.2, “Clean drinking water is provided to the people of the local community by our company” and “Our company contributes for the development of hospitals, health centres etc.” scored similar mean score of 3.99. Similarly, the dimension namely “Our company extends help to the victims of natural calamities (Earthquake, flood, fire, cyclone)” came up with a lowest mean score of 3.18. Thus, from the above analysis it can be inferred that to facilitate community development through the promotion of health, the large scale organizations are performing well in terms of establishing old age homes/Orphanages and sponsoring public health projects/medical camps as a part of its CSR activity and by providing clean drinking water in the community. But unfortunately, in terms of extending help to the victims of natural calamities (Earthquake, flood, fire, cyclone) in the local community these large scale companies are not performing well.

Similarly, the standard deviation corresponding to every dimension represents the variability in the response of the respondents. Again the variability corresponding to the opinion on “Our Company has established old age homes/ Orphanages as a part of its CSR activity” is lowest and highest with respect to “Livelihood support programs are run by our company for community development” as the computed standard deviation against them is 0.86 and 1.28 respectively.

Efforts for Community development (Standard of Living and Life style)

Table-2, Efforts for Community development (Standard of Living and Life style)

S.No	Items	N	Min	Max	Mean	Std. Deviation
x1c	Our company contributes for the development of roads, parks, bridges etc.	352	1	5	2.98	1.155
x2c	Our company is generating employment for disables	352	1	5	3.7	1.231
x3c	Our company contributes for the development of homes for destitute.	352	1	5	3.14	1.231
x4c	Our company adopts slums and villages and supports for its development	352	1	5	4.26	0.978

x5c	Our company builds public toilets in rural/tribal area	352	1	5	3.59	1.271
x6c	Our company takes steps for poverty eradication	352	1	5	3.8	1.166
x7c	Our company conducts vocational training programmes for self employment of rural youths	352	1	5	3.42	1.152
x8c	Our company provides agricultural implements and assistance to rural people	352	1	5	2.8	1.088

Source: Field Data



Data presented in the table above represents the response obtained from the sample respondents in regard to the effort extended by their organizations to facilitate community development by improving standard of living and lifestyle in the community through the CSR activity. In term of mean score corresponding to every variable, it can be revealed that “Our company adopts slums and villages and supports for its development” has scored highest i.e., 4.26, followed by “Our company takes steps for poverty eradication” with a mean score of 3.8 and “Our company builds public toilets in rural/tribal area” scored similar mean score of 3.59. Similarly, the dimension namely “Our company provides agricultural implements and assistance to rural people” came

up with a lowest mean score of 2.8. Thus, from the above analysis it can be inferred that to facilitate community development through the promotion improving standard of living, the large scale organizations are performing well in terms of adopting slums and villages and supports for its development as a part of its CSR activity and by taking necessary steps for eradicating poverty from the community. But unfortunately, in terms of providing agricultural implements and assistance to rural people in the local community these large scale companies are not performing well. As agriculture is the primary source of income for the people of rural Odisha, the officials of large scale organizations should emphasize to strengthen it which will in turn substantially improve the standard of living of the people living in a rural community.

Similarly, the standard deviation corresponding to every dimension represents the variability in the response of the respondents. Again the variability corresponding to the opinion on “Our company adopts slums and villages and supports for its development” is lowest and highest with respect to “Our company builds public toilets in rural/tribal area” as the computed standard deviation against them is 0.97 and 1.27 respectively.

Impact of Organizational Efforts for Community Development On Organizational Sustainability

H1: Organizational Efforts For Community Development (Health) have significant impact on organizational sustainability.

Model for multiple regression analysis:

$$OS = \alpha + \beta_1 X_1 + e$$

OS = organizational sustainability

X1= Organizational Efforts For Community Development ( Health),

In this model “ $\alpha$ ” is a constant and  $\beta$  is the coefficients whose Worth will be estimated and ‘e’ refers to the error. Here organizational sustainability is the dependent variable Organizational Efforts For Community Development ( Health)is independent variable.

Table- 3

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.663 <sup>a</sup>	.439	.420	.51605

a. Predictors: (Constant), Organizational Efforts For Community Development ( Education)

The overall predictability of the model is shown in table- where the adjusted R2value of 0.439 indicates that 43.9% of the variation in the dependent variable is explained by independent variable.

Table-4 : Analysis of Variance

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.703	1	3.703	47.139	.000
	Residual	27.492	350	0.079		
	Total	31.195	351			
a. Predictors: (Constant), Organizational Efforts For Community Development (Health)						
b. Dependent Variable: organizational sustainability						

From the ANOVA table, the F-test statistic is 47.139 with p-value of 0.000. Since the p-value is less than 0.05 the researcher concludes there is a statistical significance between Organizational Efforts For Community Development (Health) and organizational sustainability. Thus CSR Efforts taken by Large Enterprises in Odisha for Community Development (Health) have significant impact on organizational sustainability. Thus the hypothesis H1 is accepted.

Table-5 : Regression Coefficients

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			Std. Error	Beta		
1	(Constant)	3.112	0.156		12.642	0
	Efforts taken by Large Enterprises in Odisha for Community Development (Health)	0.451	0.048	0.501	7.003	0
a. Dependent Variable: organizational sustainability						

## OVERALL TEST OF SIGNIFICANCE OF THE REGRESSION PARAMETERS

The coefficients for each of the variables indicates the amount of change one could expect in organizational sustainability will give a one-unit change in the value of that variable, given that all other variables in the model are held constant. To explain further, consider the variable efforts taken by Large Enterprises in Odisha for Community Development (health) in the above table which has given a un-standardized coefficient as 0.451 which is a positive value that means we would expect an increase of 0.451 of organizational sustainability the company measures on society benefits for every one unit

increase in the CSR efforts put up assuming that all other variables in the model are held constant.

In order to compare the strength of one variable coefficient say efforts taken by Large Enterprises in Odisha for Community Development ( health) to the coefficient for another variable organizational sustainability , we can refer to the column of Beta coefficients, also known as standardized regression coefficients. The beta coefficients are used by the researchers to compare the relative strength of the various predictors within the model. In the above case, the Beta coefficient of efforts taken by Large Enterprises in Odisha for Community Development ( health) is 0.501, thus, a one standard deviation increase in efforts taken by Large Enterprises in Odisha for Community Development ( health) leads to a 0.501 standard deviation increase in predicted organizational sustainability, with the other variables held constant.

H2: Organizational Efforts For Community Development ( Standard of living) have significant impact on organizational sustainability.

Model for multiple regression analysis:

$$OS = \alpha + \beta_1 X_1 + e$$

OS = organizational sustainability

X1= Organizational Efforts For Community Development ( Standard of Living),

In this model “ $\alpha$ ” is a constant and  $\beta$  is the coefficients whose Worth will be estimated and ‘e’ refers to the error. Here organizational sustainability is the dependent variable Organizational Efforts For Community Development ( standard of living) is independent variable.

Table- 6  
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.711 <sup>a</sup>	.505	.450	.578601

a. Predictors: (Constant), Organizational Efforts For Community Development ( standard of living)

The overall predictability of the model is shown in table- where the adjusted  $R^2$  value of 0.505 indicates that 50.5% of the variation in the dependent variable is explained by independent variable.

Table : Analysis of Variance

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.756	1	12.656	67.531	.000 <sup>a</sup>
	Residual	61.001	350	0.174		
	Total	74.757	351			
a. Predictors: (Constant), Organizational Efforts For Community Development( standard of living)						
b. Dependent Variable: organizational sustainability						

From the ANOVA table, the F-test statistic is 67.531 with p-value of 0.000. Since the p-value is less than 0.05 the researcher concludes there is a statistical significance between Organizational Efforts For Community Development (standard of living) and organizational sustainability. Thus CSR Efforts taken by Large Enterprises in Odisha for Community Development (standard of living) have significant impact on organizational sustainability. Thus the hypothesis H2 is accepted.

Table-7: Regression Coefficients

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			Std. Error	Beta		
1	(Constant)	3.153	0.134		11.107	0
	Efforts taken by Large Enterprises in Odisha for Community Development ( standard of living)	0.217	0.028	0.204	7.001	0

a. Dependent Variable: organizational sustainability

## OVERALL TEST OF SIGNIFICANCE OF THE REGRESSION PARAMETERS

The coefficients for each of the variables indicates the amount of change one could expect in organizational sustainability will give a one-unit change in the value of that variable, given that all other variables in the model are held constant. To explain further, consider the variable efforts taken by Large Enterprises in Odisha for Community Development ( standard of living) in the above table which has given a unstandardized coefficient as 0.217 which is a positive value that means we would expect an increase of 0.217 of organizational sustainability the company measures on society benefits for every one unit increase in the CSR efforts put up assuming that all other variables in the model are held constant.

In order to compare the strength of one variable coefficient say efforts taken by Large Enterprises in Odisha for Community Development (standard of living) to the coefficient for another variable organizational sustainability, we can refer to the column of Beta coefficients, also known as standardized regression coefficients. The beta coefficients are used by the researchers to compare the relative strength of the various predictors within the model. In the above case, the Beta coefficient of efforts taken by Large Enterprises in Odisha for Community Development (standard of living) is 0.204, thus, a one standard

deviation increase in efforts taken by Large Enterprises in Odisha for Community Development (standard of living) leads to a 0.204 standard deviation increase in predicted organizational sustainability, with the other variables held constant.

### **Limitation of the Study:**

#### **Discussion:**

As per table-1, it is inferred that to facilitate community development through the promotion of health, the large scale organizations are performing well in terms of establishing old age homes/ Orphanages and sponsoring public health projects/medical camps as a part of its CSR activity and providing clean drinking water in the community. But unfortunately, in terms of extending help to the victims of natural calamities (Earthquake, flood, fire, cyclone) in the local community these large scale companies are not performing well. The data presented in table-2 reveals that the large scale organizations are performing well in terms of adopting slums and villages and supports its development as a part of its CSR activity by taking necessary steps for eradicating poverty from the community. As a result, the standard of living of the people has increased. But unfortunately, in terms of providing agricultural implements and assistance to rural people in the local community these large scale companies are not performing well. As agriculture is the primary source of income for the people of rural Odisha, the officials of large scale organizations should emphasize to strengthen it by providing firm implements. As per the results of regression analysis, there prevails a statistically significant relationship between organizational efforts for community development (through health and standard of living) and organizational sustainability is confined leading to a conclusion that CSR efforts taken by large enterprises in Odisha for Community Development have significant impact on organizational sustainability.

### **Limitations of the study:**

The research study is limited to the following: One of the major limitations confronted during the study was lack of willingness of respondents for filling up the questionnaire. Hence the responses from the participants were near to the ground and unwillingness. This study assumed that respondents were reflecting the true state of the companies however the individual perceptions but it is not free from bias and prejudice. Studies in this area in the Indian context were in the limited as CSR activities are not fixed to a particular concept. There prevails conceptual confusion among the officials as far as CSR implementation is concerned.





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## I rítyr fodkl dh vko"; drk

### Jlerh íe ífjgkj

Lkgk; d vkpk; ] b7, Q, e]

jkt dh; clakM Lukrdkklkj egkfo | ky; MhMokuk Yukxkj 74  
jktLFkku

### I kjlak

fdl h Hkh jk'Va ea vk; vks /ku dk forj.k 0; fDrxr ,oa i kns"kd Lrj ij l eku cusjgus l s gh vkfFkd fodkl dk exz [kyrk gA bl l s l ef) c<rh gA ns'k ea jktuhfrd fLFkjrk vks "kkr cuh jgrh gA ns'k ea l keftd dY; k.k ea of) gkrh gA vkfFkd {ks= ea vl ekurk , d vfhk"kki gs tks , d rjQ /kfudka dks foykfl rk dh vks /kdsyrk gs rks xjhca dks Hkq'kejh , oa cjkst xkj dh vks A mUkjk[k.M jkt; tglajkt; ea 1702 xkp futZu gks pps gA 474 xkpka ea l s rks 50 ifr"kr i yk; u dj x, gs vks ; g i yk; u fujUrj tkjh gA bu iorh; bykdka ea vktfodkl jkst xkj LokLF; ] f"kk [kk] l keftd l j {kk vks vk/kkj Hkkr l qo/kvka dh deh gA vc ulfr vk; ks us bu xkpka ds fy, rhu o'khz dk; Z; kstuk ykxw dh gsftl ds ek; e l s bu xkpka dk fQj l s vckn djs dk iz kl fd; k tk, xA 1951&52 ea dlnz l s jkt; ka dks 25 ifr"kr l d k/ku inku fd, tks rks tks 1987&88 ea c<ej 46 ifr"kr rd gks x, A 1951&56 ea 1431 djkm+: i; s dj] \_\_.k , oa vupku ds: i ea fn, x, A 1090&95 ea 2[44]260 djkm+: i; s rFkk 2000&05 ea 4[34]905 djkm+: i; s inku fd, x, A ns'k ea fofHkUu jkt; ka ds chp 0; klr vl ekurk vka dks /; ku j [krs gq vyi fodfl r jkt; ka dks fodkl ds fy, vf/kd l d k/ku miyC/k dj, tk, A l keftd xfr"kyrk l pdkud tuojh 2020 ds vk/kkj ij Hkjr ds 0; fDr; ka dks vks r vk; rd igpus ea l kr ih<h dk le; yxsx tcfd ckhth , oanf{k.kh vOdk ea fdl h ífjokj dks uks ih<h dk le; yxrk gs bl ds foihr MuekdZ ea l keftd xfr"kyrk l cl svf/kd gs tgl; g Lrj nks ih<h eagh iklr dj fy; k tkrk gs vfkZ xjhca l s futkr iklr dj yrs gA vl ekurk fo"o ds fdl h Hkh dks us ea gks og l EiukZ fo"o ds fy, [krjk , oa vfhk"kki cu tkrh gA VRK% l rítyr fodkl , d egrh vko"; drk gA eq; "kCn& vl ekurk vkfFkd fodkl ] dlnz l gk; rk fo"o l mHkZ ea vl ekurk

## I rítyr fodkl dh vko"; drk

y{k i=

fdl h Hkh jk'Va ea vk; vks /ku dk forj.k 0; fDrxr ,oa i kns"kd Lrj ij l eku cusjgus l s gh vkfFkd fodkl dk exz [kyrk gA bl l s l ef) c<rh gA ns'k ea jktuhfrd fLFkjrk vks "kkr cuh jgrh gA ns'k ea l keftd dY; k.k ea of) gkrh gA vehj vks xjhc ea [kkbZ ugha curh i jUr; fn ; s l c y{k.k fo|eku u gks vk; vks /ku dk forj.k 0; fDrxr ,oa i kns"kd Lrj ij vl eku gks rks gea ; s l c ykHk ugha fey l drA Hkjr , d , d h gh foy{k.k izlfr dk ns'k gA bl ea ifr 0; fDr vk; ] xjhca j{k dk Lrj] tul q; k] f"kk dk Lrj] Je cyka dh l q; k] m | kskk ífjogu vkfn dh miyC/krk l Hkh jkt; ka ea l eku ugha gA ; gkard dh jkt; ka ea Hkh bl ds Lrj ea fHkUurk i kbZ tkrh gA ns'k ea dbZ jkt; fodfl r] dñ fodkl "khy vks dñ fi NM s gA dbZ jkt; ka ds dbZ bykds rks , d s gsftlga nqk vkfne ; q dh ; kn vk tkrh gA fodkl ds /kjry l s budk dkbZ l jkdj ugha gA  
v/; ; u dsmns; &

- 1- l rítyr fodkl , oa vl rítyr dks tkuuA
- 2- vl rítyr ds íe dkj . kka dks tkuuA



- 147

I gk; rk dh iðfr] vk/kkj l jþuk l EclU/kh vl ekurk, l kelftd vk/kkj l jþuk , oaeuoh; fodkl  
vknA nsk ea dþy] rfeyukVh iatkc] egkjV] fgeky insk] gj; k.k , oa xqjkr Li'V : i l s  
vxzk Jskh ds fodfl r , oa l iðo/kk l EiUu jkt; gA bl ds foifjr fcgkj] vl ej mUkj insk]  
mMhl k o jktLFkku fi NM+ jkt; gS ftUga chekj jkt; ka ds mi uke l s Hkh tkuk tkrk gA vc  
jktLFkku bl volFkk l smcj jgk gA bu jkt; ka ea u dþy ifr 0; fDr vk; de jgrh gS cfyd  
vkfFkd fodkl nj Hkh de jgrh gA l oð ds vuq kj bu jkt; ka dh o'kz 1990 l s 2003 rd fodkl  
dh nj cgr gh /kheh jgh gA o'kz 2000&17 rd /ku , oa l EiFuk dh vl ekurk ea 6 xqk dh of)  
gþz gA vehj xjhch dh [kkbz yðxd] {s=h; , oa oxLrj ij Hkh c<h gA rktk mnkgj.k mUkj [k.M  
jkt; dk gh gS tga jkt; ea 1702 xþ futu gk pps gA 474 xþ ka ea l s rks 50 ifr"kr iyk; u  
dj x, gS vlg ; g iyk; u fujUj tkjh gA i kMh; vYekMk vlg fi FkS kx<+ tuin bl l eL; k l s  
T; knk xfl r gA bu i oðh; bykda ea vkt hfodk] jst xkj] LokLF; ] f"kk [kk] l kelftd l jþuk vlg  
vk/kkj Hkh l iðo/kk vka dh deh gA vc uhr vk; kx us bu xþ ka ds fy, rhu o'kz dk; l ; kstuk  
yxw dh gS ftl ds ek; e l s bu xþ ka dk fQj l s vkckn djus dk iz kl fd; k tk, xka uhr  
vk; kx us uþ vþkr gj; k.k] vkf Qlckn vryakuk] fl axjsh v/; insk vlg fdrQs vukxysM]  
dks nsk ds l cl s fi NM+ ftyS ?kkr fd, gA uhr vk; kx us nsk ds ftyka dk 49 fodkl ekudka  
ds vk/kkj ij 101 ftyka dh jstax dh gA bl dk y; LoLFk ifr LIK] l dk egkS cukdj bu  
fityka dks fodkl grqifjr djuk gA bu fityka dks vkcl kki w l fityka dk uke fn; k x; k gA  
dþnz l s jkt; ka dks glrkafjr l d /ku rhu idkj ds glrs gS ftuea dj] vupku vlg . k gA jkt;  
l d k/kuka ea l cl s vf/kd of) vupkula ds : i ea gþz gS tks jkt; ka dh c<h vko"; drkva dh vlg  
l dñr djrh gA ; s vupku var% jkt; h; vl ekurk vka dks nj djuea l gk; d glrs gA bl l s jkt;  
, oa dþnz }kjk l pkfyr l ekt dY; k.kdkjh l okvka , oa ; kstuk vka vlg fodkl dkjh dk; ka ea Hkh  
l elo; LFkfr gk tkrk gA dþnz }kjk fn, x, dj , oa . k dk iz kx ik; % jkt; ka }kjk l keku;  
mnns; ka dh iðr l ds fy, fd; k tkrk gA 1951&52 ea dþnz l s jkt; ka dks 25 ifr"kr l d /ku inku  
fd, tkrS fks tks 1987&88 ea c<dj 46 ifr"kr rd gk x, A 1951&56 ea 1431 djkm+ : i ; s dj]  
\_. k , oa vupku ds : i eafn, x, A 1090&95 ea 2]44]260 djkm+ : i ; s rFk 2000&05 ea 4]34]905  
djkm+ : i ; s inku fd, x, A 12oa foUk vk; kx ea mUkj insk] fcgkj] v : . kpy insk] if"peh  
cakhy vlg e/; insk dks dþy l d k/kuka dk 51-5 ifr"kr fgLI k fn; k x; k tcd "kSk jkf" k vU;  
jkt; ka dks forfjr dh xba jkt; ka dh dþnz ij fuHkjr c<h tk jgh gS ftl l s dþnz Hkh jkt; ka ds  
ekeykaean[ky nsusy xk gA  
l koZtfud {s= ds l dFkuka us Hkh bu {s= ka ea fodkl ds }kj [kysy gA bu jkt; ka ea izkkuea=h xke  
Lo. l t; arh Lojst xkj ; kstuk bñjk vkokl ; kstuk ¼ tks vc izkkuea=h vkokl ; kstuk ds uke l s  
l pkfyr½ gA jk'Vh; xke LokLF; fe"ku tks nsk ds , d s 18 jkt; ka ea l pkfyr fd; k tk jgk gS  
tgk LokLF; l pdkad detkj gA f"kk {k= ds fodkl ds fy, Hkh l oZ f"kk vfhk; ku] foHkku rjg  
ds i sk.k l qkj dk; Dþe] mUkj iðh {k= fodkl dk; Dþe ea fo"ksk : i l s v : . kpy insk] vl ej  
ef.kij] eþky; ] ulxkySM] fl fDde , oaf=i jk gA bu jkt; ka dks fo"ksk jkt; ka dk ntiz Hkh iklr gA  
vl ekurk dks de djus ds mik; &

- 1- fi NM+ , oa chek : jkt; ka ds fodkl ds fy, fo"ksk {k= fodkl dh ; kstuk vka dk l pkyu  
fd; k tkuk pkfg, A
- 2- futh {k= ka dks Hkh bu jkt; ka , oa {k= ka ds fodkl grqfuosk dks i k l kfg djuk pkfg, A
- 3- bu {k= ka dks vk; dj fj; k; r] dþnh; fuosk vupku ; kstuk ifjogu vupku vlg vU;  
idkj dh vucl fj; k; ranh tk l drh gA
- 4- jkt; l jdkja Hkh futh {k= dks i k l kfg djA

- 5- fi NM\$ jkT; ka dh vkfFkZl l gk; rk Hkh djuh pkfg, rkfd ekuo fodkl l pdkad ea of) gks l dA jkt xkj of) ds iz kl gkus pkfg, A
- 6- ns'k ds gj jkT; dks mPp vkfFkZl nj fodkl dk iz kl djuk pkfg, A ek= dñnz l jdkj ds Hkjd sgh ugha jguk pkfg, D; kAd dñnz dh Hkh viuh l hek, j gsrh gA
- 7- vkfFkZl l eh{k 2017&18 ds vuq kj ns'k ds l kekfTd {ks=ka xjhcka dh cgrjh ds fy, MkVk , d= djs pkfg, vj\$ l ekt dY; k.k ds fy, blga l koZtfud Hkh djuk pkfg, A
- 8- dñnz dks x\$ dj jktLo dk Hkh forj.k jkT; ka dks djuk pkfg, A
- 9- dñnz dks jkT; ka dk cMs-HkkbZ cuus dh iifr dk R; kx djdj jkT; ka dks Lo; a fodfl r , oa etcar gkus dk vol j inku djuk pkfg, A
- 10- dñnz l jdkj vius 0; ; ka dks de djs rkfd jkT; ka dks vf/kd l d k/ku fey l dA
- 11- xjhck jkT; ka dks ik; % de l gk; rk feyrh gS D; kAd xjhck jkT; ka ea [kk] mojd vj\$ iVky; e dh [kir vj\$ r l s de gsrh gA
- 12- foHkUu jkT; ka dh jkt dks kh; vko"; drk, p Hkh fHkUu & fHkUu gsrh gS D; kAd os fodkl ds fHkUu & fHkUu ik; nkuka ij [kMs gksrsgA vr% bl ij /; ku nus dh vko"; drk gA
- 13- l eku Lrj dh l koZtfud oLrq/ka vj\$ l okvka dh miyC/krk dh yxrk Hkh vyx vyx jkT; ka dh HkSkfyd Qsyko rFkk jktuSrd ifjLFkr; ka ds dkj.k vyx vyx gsrh gA
- 14- dj/kku tkp vk; ks ds vuq kj mPp Lrj ij vkenfu; ka dks ?Kvkdj vl ekurk/ka dks de djuk dj uhr dk , d izdkj ek= gA , d egRo iWZ ijd vk; ke vkfFkZl fodkl mnkgj.k ds : i ea dfr , oa fl pkbZ vj\$ l kekfTd l okvka tS s f"kk vj\$ LokLF; ds foLrkj ij fd, x, 0; ; ea fufgr gS tks l d kj ds detkj oxka dh fLFkr dks etcar dj l drk gA
- 15- vehj {ks=ka , oa jkT; ka dks Hkh bl vl ekurk dks nj djs ds l kFkZl dne mBkus pkfg, A i pth dk forj.k bl izdkj l sgksfd xjhcka dks vf/kd l d k/ku ikr gks l dA
- 16- vkfFkZl uhr; ka dk y{; Hkh l exz ekuo fodkl gkus pkfg, A : <hoknh l kekfTd <hps dk ifjr; kx djuk pkfg, A ftl l s vkfFkZl uhr; ka dk ykth vkfnokl hj fd l kuka , oa oipr oxZ dks fey l dA

fo"Ok LknHkZ ea ckr dja rks fo"o vkfFkZl ep jkjk tkjh igyh l kekfTd xfr"kyrk l pdkad dh fjikZ/ tuojh 2020 ds vk/kkj ij phu , oa Hkjr; vFko; oLFkk ea vkfFkZl fodkl ijh vkcnh dks iWZ vk; ds ekeys ea Aj dh vj\$ ys tkrk gS ySdu , d 0; fDr dh nh jka ds l ki \$k l ekt ea fLFkr ea cnyko ugha gsrk gA ns'k ea xjhck ea jgus okys ykSka ds ifr"kr ea ds ckn Hkh ns'k dk LFku 82 ns'ka ds bl l pdkad ea 42-7 vdk ds l kFk 76oa LFku ij gA ns'k dks etnjjh l jpuK , oa f"kk ds Lrj ea fo"ksk l dkkj djs dh vko"; drk gA bl l pdkad ds vk/kkj ij ns'k ds 0; fDr; ka dks vj\$ r vk; rd igpus ea l kr ih< dk l e; yxrk tcd ckh, , oa nf{k.k vOhdk ea fd l h ifjokj dks uks ih< dk l e; yxrk gS bl ds foijhr MuekdZ ea l kekfTd xfr"kyrk l cl s vf/kd gS tGj ; g Lrj nks ih< eagh ikr dj fy; k tkrk gA ; g l pdkad LokLF; l qo/kk f"kk] rdudh dk mi; ks] dke ds vol j vj\$ l kekfTd l j {kk ds vk/kkj ij r\$kj fd; k tkrk gS tks ukxfj dka dks dke; kc gkus dk vol j inku djrk gA Hkjr ds ckn : l ea l cl s vf/kd vl ekurk gA tkiku ea vl ekurk l cl s de gA ; gk dY l Eifr dk dY 22 ifr"kr Hkx gh vehjka ds ikl gA , d h gh l ekurk fclw] vesj dK , oa vLVky; k ea nq kus dks feyrh gA fu'd'k&

vr% dlnz l s jkT; ka dks dj ka dk c/okjk bl izdkj fd; k tkuk pkfg, rkfd ns'k eafodkku jkT; ka ds chip 0; klr vl ekurk vka dks /; ku j [krs gg vYi fodfl r jkT; ka dks fodkl ds fy, vf/kd l a k/ku miyC/k dj, tk, A dN jkT; tS s rfeyukMj xqjkr] ds j y Lo; a dk gh jktLo cgr gA vehj jkT; ka dks ns'k ds ml js fgLI ka l s vS fons'ka l s Hkh vf/kd fuos'k iklr gk'k gA bl l s mudh fodkl xfr c<+tkrh gS tcf d xjhc jkT; bu vol j ka l s o'pr gks tkrs gA l Hkh dks fodkl ds l eku vol j feyuk pkfg, A jkT; ka dks Lo; a Hkh vius l a k/ku ka dks c<kus dk iz, kl djuk pkfg, A mnkjoknh vkfFkZd e'pr cktkj uhr; k; tks vl ekurk dks c<krh gS bl ij i'p'opkj dh vko"drk gA vl ekurk fo"o ds fd l h Hkh dks ea gks og l Ei wZ fo"o ds fy, [krjk , oa vfHk"kki cu tkrh gA vRk% l r'fyr fodkl , d egrh vko"; drk gA

l nHk&

- 1- Mk-WekFkj jhrkj vkfFkZd fu; kstu , oafodkl ] vtq i fcyf"ka gkAl ] ubZfnYyh] 2009
- 2- nat T; ka vS l su ver; ] vuoknd d'ekj v"kkd] Hkkjr vS ml ds fojks'kkkkl ] jktdey izdk"ku] ubZfnYyh] 2017
- 3- udoh ghj] fodkl dk vFkZ'kkL=] l st i fcyf"ka bf.M; k] ubZfnYyh] 2017
- 4- MKW Mxh onuk] os"od ; q; dk Hkkjr& vkfFkZd l qkkj vS l eko'sh fodkl dk vk/kkj] iHkk' izdk"ku] ubZfnYyh] 2018
- 5- i kAs vkj- , oa vU; ] l kekl; v/; ; u] fi ; l u bf.M; k , T; wds'ku l fol st i kbo' fyfeVM] mRrj i ns'k] 2020] i'V l q; k 256
- 6- nsud tkxj.k] 8 Qjoh 2020] i'V l q; k 10
- 7- jktLFkk i f=d] 9 Qjoh 2020] i'V l q; k 1

Hkkjr; l h—fr] f'k'k rFkk dēz dsl exrk dsl mHZealokeh foodkum dk n'kū%

MMW l Unhi i kM\$

Jh fuokl JLoxZkjv; k; k

v; k; kmoio

Lokeh foodkum th Hkkjr; v\$ foūo bfrgkl dsmu egku 0; fā; ka ea l sg\$ tks jk"Vh; thou dks , d uā fn'kk čnku djusea , d ver ēkkj dh Hkkār gā A Lokeh th ds 0; fāRo v\$ fopkjka ea Hkkjr; l h—fr ijājk dsl oZSB rRo fufgr FkA mudk thou Hkkjr ds fy, ojnku FkA Lokeh th dk l āwz thou ekvHkkjr v\$ Hkkjrokl ; ka dh l ok grq l eār FkA mudk 0; fāRo fo'kky l eē dh Hkkār FkA os vkeqūd Hkkjr ds , d vkn'kz čfrfufek gkaus ds vfrfjā oīnd ēkel , oa l h—fr ds l eLr Lo: ika ds mTtoy črhd Fks A č[kj cā] ds Lokeh v\$ rdZ fopkjka l s l q fTtr tyrs nhi d dh rjg čdk'keku Fks A muds vr%dj .k earst Tokyk Fkh ; gh dkj .k g\$fd muds fopkjka l s gea ij .kk] uo pruk rFkk LOār čkr gkrh g\$ gekjs vr%dj .k ea vkykdr čLOār Tokyk čTtofyrgkrh gā "muds fopkj f'k'k v\$ n'kū brus čHkkoh g\$fd Lokeh th ds }kjk fn, x, l s l mka oā0; ka ea l s dka , d oā0; egku-Økār djus ds fy,] 0; fā ds thou ea vkey ifjorū djusea l eFZ gā "Lokeh foodkuln ds thou dks ka ea Hkkjr; uo&fuekz k ds moī chp ; Rui mēd l adfyrg\$gh ml ea i h mF v\$ t t j r ekuork ds i p l t u dh dk; kēd] dk; ā kēd ; kstuk Hkh l fēfyrgā Hkkjr ds fy, Lokeh th ds fopkj čpru v\$ l nsk čR; d Hkkjr; ds fy, veW; ekjg\$ g\$ rFkk muds thou 'k\$y v\$ vkn'kz čR; d ; qk i h k ds fy, čj .kk l k= gā Lokeh foodkum us vius thou dk čekku y{; Hkkjr ds uīrd rFkk l kēf t d i q m) kj ds fy, ml gkaus , d vuq\$jr dk; d r k z ds : i ea viuk l āwz thou [ki k fn; k A Lokeh foodkuln Hkkjr ds cgeW; jRu , d thfor Økār ds e'kky Fk\$ , d 0; fā ugh , d perdkj FkA Lokeh foodkuln l kēf; d Hkkjr ea mu d qky f'kFYi; ka ea g\$ ftugkaus vkekkj Hkkār Hkkjr; thou&eW; ka dh vkeqūd vr%jk"Vh; i f j c\$; ea food l ar 0; k[; k dhA muds fopkjkuq kj f'k'k dk mī\$; dōy tkudkj h nuk ek= ugh g\$ vfrq ml dk y{; thou pfj= v\$ ekuo dk fuekz k djuk gkrk gā pīd orēku f'k'k mu rRoka l s ; ēa ugē g\$ vr%og JSB f'k'k ugē gā os f'k'k ds orēku : i dks vHkkokRed crkrs Fk\$ ft l ea fo l kFk; ka dks viuh l h—fr dk Kku ugh gkrkA Hkkjr dh xq & f'k"; ijājk ft l ea fo l kFk; ka rFkk f'k'k dka ea fudVrk dsl cak u; k l ā dz jg l dā rFkfo l kFk; ka ea i fo=rk Kkujeks l foūokl] fouer k vkfn ds JSB xqkka dk fodkl gks l dā os ēkel dsl cak ea fd l h , d ēkel dks čkFkfedrk ugh nrs Fks] Lokeh th ekuo ēkel ds čfr —<+čfrK FkA ml gkaus ekkēd l adh .k r k l s m i j mBrs gq ; g ?k\$ k .kk dh fd \*\* čR; d ēkel l Ečnk; ft l Hkko ea Āūoj dh vkjkekuk djrk g\$] e\$ muea l s čR; d ds l kFk Bhd ml h Hkko l s vkjkekuk d: æk\$ A Lokeh th ds vuq kj ckāfcy] on] xhrkj d jku rFkk vū; ēkel kFk l e\$ ekus Āūoj ds i qrd ea ds , d & , d i "B gā os čR; d ēkel dks egro nrs Fks rFkk muds l k j Hkkār rRoka dks tks ekuo thou dks mudk pfj= rFkk T; k\$ čnku djus ea l fke gks dks viukus dk vkgoku d jrs Fks ft l s , d uke fn; k x; k \*\* l oZ ēkel l EHkko\*\*A ml gkaus čR; d ēkel ds fo'k; ea dgk fd dka 0; fā tle l s fgūh Ā l kā] e q l ye] fl D[k ; k vū; ēkel ds ugē gkrA muds vius ekrk&firk] i mēz ft l l h—fr] l h dkj ; k ijājk l s t m s j g r s g\$ os ml s l h [krs v\$ vkKk ikyu djus okys gkrsgā ekuo l s c < elj v\$ dka l ok JSB ugh g\$ v\$ ; gē l s 'kq' gkrk g\$ oLrfod ekuo dh thou ; k=kA gea vkt vko' ; drk g\$ Lokeh th ds vkn'k\$ ij pyus grq —<+čfrK gkaus muds f'k'k] fopkj l nsk rFkk n'kū dks l kdkj : i ea viuk yus dhA Lokeh th ds thou 'k\$y dks vRe l r d j ds tu&tu ea , drk cā] v\$ n; k dh uān; k v c g k d j u ,





; q; dh 'kq vkr djus dhA rks vkÄ; s tkfr] êkZ I Eçnk; j iÄk vKj vU; I dh.kZ ekufI drk I smij mBdj , d&nI js dk gkFk Fkkedj ekWHkkjrh dks I ef) Jfodkl vKj mi yfçk dh vKj ys tk, A Lokeh th dk thou n'kZ okLro ea Hkkjr dk okLrfod thou n'kZ gA Lokeh foodkuan dk okLrfod uke ujBæukFk nÜk Fkk mudk tUe 12 tuojh 1863 Å- ea dydrk ds vfhktr (kf=; ifjokj ea gA A I u 1881 ea mudh eykdrr jke—"k ijegA I s gA A I u 1886 ea Jh jke—"k ijegA dh eR; q ds le; foodkuan muds I ofç; f'k"; FkA vc foodkuan th ych ; k=k, WçkjHk dh A \*\*os Hkkjrh; I Å-fr ds I Hkh egRo i wKZ dæka ea x, vKj fgeky; I s ydj dU; kdçkj rh bl fo'ky nsk dk dksuk&dksuk Nku ekjA mudh dçkxz çf) vKj I onu'khy gn; us gtkjA çkra vRel kr dh \*\*A I u-11 çI rcj 1893 Å- ea f'kdLxka %vejhdLkZ ds foUo êkZ I Eesy ea os Hkkjr ds çrfufek cudj x, A mUgk us fglwêkZ dk vke; kRed vkekkj ij I Eesy ea thor foopu fn; k A bl foopu ds lef ik'feh êkks dk fnokfy; ki u Li"V gks x; k A ftI Li"Vrk vKj I ferk I s foodkuan us "onkr" dh 0; k dh ik'pkr; fo) kuka dks; g thou dk väre I R; ekye i Mæus yxk A Lokeh th us vucl ns kka dk Hke.k fd; kA ml Hke.k ds nKku os vucl 0; fä; ka I s feys, oa vucl I eL; kvka jhfr&fjoktj I Å-fr; ka rFkk ifjLFkr; ka dk çR; {k ifjp; çkrr fd; kA 4 tykA 1902 dks Lokeh foodkuan dh eR; q gks xA A Lokeh th , d egku jk'Vbknh jns kHkA rFkk foUo&çkç dh Hkkouk I s vkr&çkr Fks A Lokeh foodkuan th çkphu Hkkjrh; I Å-fr ds dÿ ekuus okys gh ugh çfYd muds I Pps mikl d Hkh FkA Lokeh th us Hkkjr ds tu&I enp; ds I kekftd jekRed , oa vKfkd ifjLFkr; ka dks fudV I s nçkk rFkk I e>k FkA bl tkudkj ds i"BHkæ ea gh mudk nk'kZud fpuru dk mnHko gA A Lokeh th Hkkjrh; I Å-fr ds çkphurk vKj egRo dks tkuus vKj I e>us ds fy, Hkkjr okI ; ka dks I nß çfjr djsr jgA I Å-fr ds I nHkZ ea mudk ekuuk Fk fd "oñd I Å-fr Hkkjr dh vRel gS vKj ; gkwdh vke; kRedrk Hkkjr o"Z ½ bu dk es n.M gA \*\*A Lokeh th ekurs Fks fd tc 0; fä I Ådkjo'k vPNs dk; Z djrk gS rHkh ml dk pfj= xBr glrk gSA os dgrs Fks fd çjA; ka dk dkj.k euf; ea gh fufgr gS fd I h nßh; I Ükk ea ugh A euf; j'ske ds dHkæ ds I eku gS og vius vki I s gh I r fudkydj dksk cuk yrrk gS vKj fQj ml h ea çnh gks trrk gSA bl tky dks 0; fä Lo; agh u"V dj I drk gS dKÄ nI jk ugA os dgrs Fks\* rfigkjs vanj tks dN gS viuh 'kfä; ka jkjk ml dk foodkl djs ij dHkh Hkh nI jka dk vuçkj.k dkj ds ughA os uo; pdk dks è; s oknh gkus fujarj çj.kk nrs jgrs Fks A os Hkkjr dks\* vej Hkkjr\* dh I Kk nrs FkA Lokeh th geçkk dgrs Fks fd ; fn Hkkjrokl ; ka us ik'pR; HkSrdoknh I H; rk dspøj ea i Medj vke; kRedrk dk vkekkj R; kx fn; k rks muds ifj.kke Lo; i rhu i hf<+ ka ea gh mudk vLrRo I ekr gks tk, xk ftI dk I hekk ifj.kke gksk I oZkBeçk I R; kuk'k A Lokeh th dgrs Fks fd vU; 0; fr; ka I s ge tks yuuk pgyys xg.k dja fdUr qml s thou ds vkn'kZ ds vekhu djs A Lokeh foodkuan dk n'kZ nji-f"V Fk muds fopkjA ea fn0; rk >ydrh Fkh os tks Hkh dgrs Fks fcYdy I Vhd vKj ekuo ds Hkoukva o ekfLr"d ij I heks iglbus okys glrs FkA Lokeh th us Hkkjrh; I Å-fr ds fo"k; ea tks Hkh dgk vkt gekj s I keus ifj.kke Lo; i çdV gks jgs gSA D; kAd Hkkjrh; I Å-fr dh eekjrk ifo=rk vKj egd êkhj&ekhs ylrk ds dxkj ij [kMk fn[kkA i Mæus yxh gS Hkkjrh; I Ådkj vKj ij jk tks çR; d f'j'r&ukrs dh ifo=rk cuk, j[krh Fkh vkt ds ifj-' ; ea Hkkjr ekW ds nkeu ea Ojrk ds çt dks jgh gS D; kAd vkt dh vkefudrk us ekuork ds ifo= f'j'rs dks nxnkj dj fn; k gSA çkphu Hkkjrh; I Å-fr ds vkekkj LrHk ij xgjk çgkj fd; k gS D; kAd [ku ds f'j'rs vc [ku ds I; kl s gks x; s gS çv/s çki dS HkA&HkA dS ekW çv/h ds çp uQjr dh nhokj [kMk nh gS tks fd ekuork ds fy, vR; r gkfudkj d gA bl dk ey dkj.k gS Hkkjrh; I Å-fr dks rN tkuuk vKj vkefudrk ds u'ka es pj fonsh I H; rk vKj I Å-fr dks vRel kr- dj yuuk Hkkjrh; I Å-fr Kku vKj I ÅdkjA dks R; kx nsk ey dkj.k gS A Lokeh foodkuan th , d I s nI o"Z igys tks vk'kæk trkA Fkh og vkt gea nçkus dks fey jgk gA



\*\*Lokhe foodkum , d l Pps onkarh Fks og l R; ds vuqkyu ds l eFkd Fks vls mudh -fV ea l R; ogh gsftl l s o; fa , oal e fV nkska dk fgr gks mlgkua ckphu Hkkjr; ofnd l l -fr dks thou ds 'kklor ew; ka ds : i ea Lohdkj fd; k \*\*A vc gekjs l e( k c'u ; g mBrk gsfd D; k ge l Pps ek; us ea Hkkjr; ga vls Hkkjr ds ewy l l -fr dks vius ea l ekfgr fd, gq gs\ fe=ka gekjs ikl vHkh&Hkh vol j gs l ukru ofnd l l -fr dks l e>u; tkuus vls vRl kr-dj yus dhA gekjs ewy l l -frd xjek dks vius ea l iqtfor djus dh A Lokhe foodkum th ds n'ku vls mPp fopkjekkjk dks Lohdkj djds jkV<sup>a</sup> vls l ekt ds qR; d 0; fa; ka ea l l -frd , drk vls txfr ykus dh ga gs tokuka mBls ; s nsk gs rfigkj ekWVHkkjr iqtjrh gs viuh l Pph l l -fr dks igpkuka vls ekuf d nkl rk ds ckfM+ ka l s Lora= gks tkvka A fe=ka okLro ea l l -fr geskk fo f'kV gksh gs vls nu js cfr) mrjfkedkjh l ekt) fo f'kV l ekt gksh ga l l -fr ylska dh thou jhr gs, d l l -fr 0; ogkj dh og 0; oLFkk gsftl ea fd l h l ekt ds l nL; l gHkhxh gksh gs vls l ekt og tul ewy gs tks, d l o fV l l -fr gsftl ea ekuo ds thou ew; vls Kku dk vl he Hk.Mkj ga thou ewy jgl; dks; fn tkuuk gs rks ofnd l l -fr dk Kku vko'; d ga\*\* ekuo thou ds bfrgkl dks tkuus dk l cl s ckphu l kfgR; ^on^ gs fofo ds bfrgkl ea vfr ckphu vls cekf.kr l kfgR; gs\*\*A

**f'k{k ds l mHzealokhe foodkum dk n'ku Lokhe foodkum** th , d sijEijxR 0; ol kf; d rdudh f'k{k 'kkL=h u Fks ftugks f'k{k dk Øec) l iuf'pr foj.k fn; k gks og e; r% , d nk'kud [ns kHk] l ekt l qkj d vls fn0; kRek Fks ftudk y; vius nsk vls l ekt dh [kks h ga turk dks txkuk rFkk ml suo fuelz k ds iFk ij vxd j djuk FkA f'k{k n'ku ds ks= ea Lokhe th dh rgyuk fofo dsekgure f'k{k 'kkL=; ka ly/vls : l k vls cVSM j ly l s dh tk l drh gs D; kad mlgks f'k{k ds dñ fl ) k r çLr fd, gsftuds vkekkj ij fo'ky Kku dk Hkou fuelz k rdudh : i l s dj l drs ga Lokhe th ds 'ks(kd fopkj Hkh mudh onkar fopkjekkjk l s çfjR ga mudk e; ; mS; Fks ekuo dk uofuelz k D; kad 0; fa l ekt dk ewy vkekkj gs A 0; fa ds l okzh.k mRFku l s l ekt dk l okzh.k mRFku gksh gs vls 0; fa ds iru l s l ekt dk iru gksh gs Lokhe th us vius f'k{k n'ku ea 0; fa vls l ekt nkska ds lej l l rfyR fodkl dks gh f'k{k dk çefk y; ekuk A Lokhe th ds vuq kj onkar n'ku ea qR; d ckyd ea vl he Kku vls fodkl dh l EHkkouk gs i jUr qml s bu 'kfä; ka dk irk uge gs A f'k{k } jk ml s budh çrfr dj kA tkrh gs rFkk muds mUkj kr-j fodkl ea Nk= dh l gk; rk dh tkrh gs A Lokhe th onkarh Fks bl fy, os euf; dks tle l siwz ekurs Fks vls bl iwrk dh vHko; fa dks gh f'k{k dgrs Fks A Lokhe th ds 'kCnka ea\*\* euf; dh vUrufgr iwrk dks 0; ä djuk gh f'k{k gs A Lokhe foodkum ylska dk usrd xqkka rFkk 0; fa ds xgs o ds l eFkd Fks A Lokhe foodkum f'k{k ds fo'k; ea dgrs gsfd l Pph f'k{k og gsftl l s euf; dh ekuf d 'kfä; ka dk fodkl gks og 'kCnka dks jVuk ek= uge ga og 0; fa dh ekuf d 'kfä; ka dk , d k fodkl gs ftl l s og Lo; æp Lora=rkiwd fopkj dj Bhdk&Bhd fu.kz dj l dA bôl oE 'krkCnh ds cnysr ifjosk ea tgW l i puk vls çks kxdh dk ; q py jgk gs ogWVHkkjr dh orëku f'k{k i) fr egt mi fcek; kWforj.k djus ds vrfj ä vls d kA fo'ksk mi yfcek çklr ugh dh xA ga ogWV Lokhe th ds çpru dks viukuk vko'; d gs A Lokhe th f'k{k ds orëku : i dks vHkkokRed crks Fks ftuds fo l kFk; ka dks viuh l l -fr dk Kku ugh gksh mlgA thou ds okLrfod ew; ka dk i k B ugh i < k ; k tk l drk rFkk mues J) k dk Hko ugh iuirk gs A Lokhe th dk ekuuk Fk fd Hkkjr ds fiNMi u ds fy, orëku f'k{k i) fr Hkh mUjnk; h gs A ; g f'k{k u rks mUke thou thus dh rdudh çnku djrh gs vls u gh çf) dk us fxd fodkl djus ea l (ke gs A Lokhe th vkefud f'k{k i) fr dh vykpuk djrs gq fy[ k \*\* , d k çf'k{k k tsudkjRed i) fr ij vkefjR gks eR; q l s Hkh çkj ga \*\* ckyd Ldwy ea tkrk gs vls igyh çkr l h[ krk gsfd ml dk fir k e f z gs nu jh çkr l h[ krk gsfd ml dk ckck ixxy gs



rhl jh ckr fd ml ds l Hkh f'k{k d ik[k.Mh gā] pkrh fd l Hkh ifo= xā >Bs gS A 16 o'kz ds gk&gkrs rls fo l kFk fu'kakka dk , d l emj vL Fkghu vāg thougu cu tkr gS; gh dkj.k gSfd i pkl o'kz ea Hkh ; g f'k{k , d Hkh ekdyd 0; fā mRiUu ugh dj l dha qR; d 0; fā ftl ea ekdydrk ugh gS ml s nsk ea ugh cfYd dgh vāg i < k; k x; k gS vFkok fQj l s vLekfoUokl ka l s epā gkus ds fy, vius nsk ds igkru f'k{kky; ka ea tkuk i Mk gā Lokeh foodkum Hkjr; ka ds fy, ik'pkr; -f'Vdlsk l s cHkfor f'k{k i) fr dls mfpr ugh ekurs Fks A\*\* os f'k{k dh Hkjr; i) fr xq dgy i) fr dls JSB ekurs Fks ftl ea fo l kFk; ka rFk f'k{k dka ea fudVrk ds l ak rFk l Ei dZjg l ds vāg fo l kFk; ka ds J) k] ifo=rk] Kku] ekS] fōUokl] fouerk] vknjvkn JSB xqkka dk fodkl gks l dāA Lokeh th Hkjr; f'k{k ikB; Øe ea n'kz'kkL= , oa ekāed xFka ds vē; ; u dls Hkh vko'; d ekurs Fks os , d h f'k{k ds l eFkd Fks tks l adh.kz ekufi drk rFk HknHko l kēnf; drk nkska l s epā gā Lokeh foodkum ds vuq kj f'k{k ds emy mns; ; ftl ea 0; fā dk l okx.k fodkl gks A mre pfj= jekufi d 'kfā vāg dS) d fodkl gā ftl ea 0; fā i; kR ek=k ea ēku vātr dj l ds vāg vki r dky ds fy, ēku l p; dj l ds A l ās] ea Lokeh th dk f'k{k n'kz ēkuo fuelz k] pfj= fuelz k 'kjhj d fodkl] cS) d fodkl] ekufi d fodkl] mUke qpru , oa vLefōUokl dk fodkl] , dkrk 'kfā dk fodkl] vē; kfed xqkka dk fodkl] Lorā 0; fāRo dk fodkl djuk Fka orēku f'k{k i) fr , oa l ek t ea uārd xqkka dk ōkl gqk gS ml s Lokeh th ds fopkj ka dls viukdj gh l ek r fd; k tk l drk gā qpru euu djus dh vko' drk gS ftl l s gea l s qR; d ea l R; ; vLek dh fo'kq rk fu"di v rFk nāh; q-fr l s ; qā xqkka dk fodkl dj uo ēkuo dk fuelz k djuk vko'; d gā

**fu'd'** Lokeh foodkum dk fopkj] n'kz vāg f'k{k vR; r mPpdkSV ds gS thou ds emy l R; k jgl; ka vāg rF; ka dls l e>us dh dāh gā muds 'kcn brus vl jnkj gSfd , d emā ea Hkh tku QM l drk gā os ēkuork ds l Pps qrd Fā gS vāg ēkuo tkr ds vLrRo dls tul kēkj.k ds ikl igpks dk vLkrioz dk; Zfd; kA\*\* os v) s omh ds qcy l eFkd Fka Hkjr; l ā-fr , oa muds emy ekU; rkva ij n'kz vākfjr thou 'ksh viukus rFk vkiuh l ā-fr dls thfor j [kus gq Hkjr; l ā-fr ds emy vLrRo dls cuk, j [kus dk vōoku fd; k rkfd vkus okyh Hkch ih<h i wZ l ādkfjd] uārd xqkka l s ; qā] U; k; fē; ] l R; ēkē rFk vē; kRed vāg Hkjr; vkn'kz ds l Pps qrd ds : i ea fōo ea mōk LFku j [kA orēku ea vkt ds ; qk ih<h ds fy, ; g vko'; d gS fd os vius emy l ā-fr l s ifjpr gkus vāg uārd xqkka l s Hkji j gkdj l Pps Hkjr; gkus ds xāso dls cuk, j [kā vākfudrk vāg ik'pkr; l ā-fr vāg thou 'ksh ds vLMEj ea u Qd dj Fkka fnuka ds l qk ds fy, cgeV; thou dk uk'k u dja Lokeh th ds vkn'kz ij pyus gq -<+ qrk jgā vāg f'k{k ds ew; dls l e>s xq dls mfpr vknj l Eku nā Hkdr drk ds vāks nā+ ea ekdydrk dk R; kx u dja f'k{k tS h ifo= qdk'k tks vKkurk ds caku l s epā fnykrh gS vāg thou ds nā kka l s Nākdj l qke; T; kēz thou qnku djrh gā xq &f'k"; ds ifo= fj'rka dls dyādr u dja uārd vkn'kz ij pyus gq -<+ l āfyir gks rkfd fōo ds Hā Vy ij Hkjr; gkus ds xāso dk Nki l qjgā vākja ea l nā vādr jgā ēkz ds l ak ea tks Lokeh th us gea ekxZ crk; k mu ij vey dja vāg l kēnf; drk] ekāed dērk] ?k.k] HknHko tkr&ikr] Nā&Nā tS h l adh.kz ekufi drk o fopkj ka l smij mBdj ekāed l fg". kpk dks gn; ea txg nā āUoj , d gS vāg ge l c ml h ds l rku gS bl fy, ēkuork dh l ok dls o ēkuo qe dls fny ea igyk LFku nā ; g l c rHkh l Hko gksk tc ge l pep Lokeh foodkum ds crk; sgq ekxZ ij pyā Lokeh foodkum ds 0; fāRo vāg vkn'kz ij qpru dja l R; dls l e>us dh dks'k'k dja l ā-fr nsk dh ekjg o igpku gS f'k{k T; kR gā ēkz ēkuo gkus dk qrd gā bl kfy, l ādkfjd pfj=oku mUke xqkka l svius dls l tk; f'k{k ds }kj k nsk ds fodkl dls pje ij ys tka

**l mHxāk**



- 1-nÜk Hkñ BæukFk ¼1954½\*\*foosdkun% i vñ; kV&çkQV uoHkkjr i fcy'kl Zdydrk vñ kjh jkM] nfj ; kxat uÅ fnYyh & 110002 çl ðdj.k A
- 2- Lokeh] 0; kx: i kuln \*\*foosdkun l p; u\*\* jke—" .k eB ukxi gA
- 3- Lokeh fuf[kykun ¼2005½\*\* foosdkun , d thout\*\* çdk'kd Lokeh çkñl kjkuln ] vè; {k ven\$ vkJe dkydkrkA
- 4- jgcj] gñ jkt ¼1998½ \*\* ; k\$ k l ð; kl h foosdkun\*\* çdk'kd jktiky , .M l Ut] enj l k jkM d'ehjh xñ] fnYyh&6 çFke l ðdj.kA
- 5- Lokeh jakun %\*\* Lokeh foosdkun vk\$ Hkkjr dk Hkfo"; \*\*A
- 6- l fjr] l qkhy , oahkxñ vfuy ¼2004&2005½ \*\* vkeñud Hkkjrñ; f'k{kñfonkñdk çpru \*\* onñlr i fcyd\$ku] vkxjk & 282004A
- 7- Lokeh foosdkun \*\* foñoekeZ onkr \*\* onkr dñæ çdk'ku tkñi gA
- 8-xñr] jktñæ çl kn ¼1997½ \*\*Lokeh foosdkun%0; fä vk\$ fopkj\*\* çdk'kd & jkñk i fcds ku
- 9- Lokeh foosdkun ¼29 fnl ðçj 1880½ \*\*u; k Hkkjr x<k\$ jke—" .k eB ukxi gA



## AN ANALYSIS OF HEALTH CONSCIOUSNESS OF RURAL AND URBAN ADOLESCENTS- A COMPARATIVE STUDY

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**Abstract:** The present study was carried with a view to explore the level of health consciousness of rural and urban adolescents with special reference to their rural urban dichotomy. 200 rural and 200 urban adolescents were selected from different higher secondary schools of Srinagar and Anantnag Districts. These respondents were selected by using Random Sampling Technique (RST). Health Consciousness Scale (HCS) developed by V. V.S. Narayana (2007) was used for data collection. The data was subjected to statistical treatment by using Mean, Standard Deviation and 't' test. The results indicate that there is significant impact of locality on the level of health consciousness of adolescents. Urban adolescents were observed with high level of health consciousness compared to their counterparts (Rural adolescents).

**Key words:** Health Consciousness, Rural Adolescents, Urban Adolescents

**Introduction:** The World Health Organization (WHO) defines health as a "state of complete physical, mental, and social well-being, and not merely the absence of disease. Health contributes to general well-being and overall lifestyle". In order to enjoy a quality of life, good health habits must be achieved because basic health determines what a person can do. Health Consciousness (HC) is a concept reflecting a person's readiness to do something to his/her own health. Health conscious is the behavioural process in which individuals are aware of and concerned about their wellness. They are motivated to improve and maintain their quality of life by engaging in healthy behaviours and being self-conscious about health. Gould, (1990) remarked, "Health Consciousness (HC) as inner status of a person about his/her health. It is a psychological state where an individual is aware of and involved in his/her health condition". Health Consciousness (HC) refers to the degree of readiness to undertake health actions previous studies proved that Health Consciousness (HC) influences health attitudes and behaviours. As stated above, it is believed that health conscious persons tend to be more involved with their health, which also includes searching for and using health information. Dutta-Bergman (2007) had the opinion that seeking and using health information is just the kind of behaviour triggered by Health Consciousness (HC). The role of

health self-monitoring, which is crucial part of Health Consciousness (HC) as it shows the intensity with which individuals value healthy conditions. One of the most important health-related things any individual should do is undergo regular physical exercise, choosing adequate food, and maintaining a healthy living environment. Large number of studies has conducted on health consciousness of the adolescents. However, diversified results has been observed on health consciousness of the adolescents, on thesis of locality some researchers reveal that locality has significant impact on the level of health consciousness of the respondents like, “Berkowitz, D., &Turnmire, K. (1994), Berndt, T. J. (1989), Bhat, B. S. (2015), Becker, M. H., Maiman, L. A., Kirscht, J. P., Haefner, D. P.&Drachman, R. H. (1977)” Asif H. B. (2019). In context to same, the investigator consider it vital to explore the study which reads as:

**1.1.1: STATEMENT OF THE PROBLEM:** The statement of the study is as under:

**An Analysis of Health Consciousness of Rural and Urban Adolescents- A Comparative Study**

**1.1.2: OBJECTIVES:** The present study consists of below mentioned objectives:

- 1) To explore the Health Consciousness (HC) of rural and urban adolescents on below mentioned dimensions:
  - a) Self & practice
  - b) Monitoring
  - c) Nutrition and satisfaction
  - d) Energy
  - e) Cautiousness

**1.1.3: HYPOTHESIS:** The present study consists of below mentioned hypothesis:

**Hypothesis-I: ( $H_{01}$ )** There exists no significant difference between rural and urban secondary school students on below mentioned dimensions of Health Consciousness (HC):

- a) Self & practice
- b) Monitoring
- c) Nutrition and satisfaction
- d) Energy
- e) Cautiousness

**1.1.4: OPERATIONAL DEFINITIONS OF TERMS AND VARIABLES:**

The operational definitions of terms and variables are as under:

- 1) **Health Consciousness (HC):** Health Consciousness (HC) in the present study refers the score obtained by the respondents on Health Consciousness Scale (HCS) developed by V. V.S. Narayana (2007).
- 2) **Rural Adolescents:** Rural Adolescents in the present study refers those secondary school students who are reading in 11<sup>th</sup> and 12<sup>th</sup> classes with the age group of 14-20 years. However, all these adolescents were selected from Anantnag District. Anantnag District was operationally treated as rural district.
- 3) **Urban Adolescents:** Urban Adolescents in the present study refers those secondary school students who are reading in 11<sup>th</sup> and 12<sup>th</sup> classes with the age group of 14-20 years. However, all these adolescents were selected from Srinagar District. Srinagar District was operationally treated as rural district.

**1.1.5: DELIMITATION OF THE PROBLEM:** Keeping nature, time and budget complexities under consideration, the research delimited the present study to following domains:

- 1) The study will be delimited to only adolescents within the age group of 14-20.
- 2) The study will be delimited to Anantnag and Srinagar Districts of Union Territory of Jammu and Kashmir.
- 3) The present study will be delimited to adolescents reading in different secondary school of Anantnag District and Srinagar District.

**1.1.6: METHODOLOGY AND PROCEDURE:** The methodology and procedure involved in the present study is reported as under:

- ❖ **Descriptive Survey Method (DSM):** Keeping the nature of the study under consideration, the researcher found it suitable to use descriptive method.
- ❖ **Sample:** The total sample for the present study consists of 400 adolescents selected from different higher secondary schools. However, while selecting whole sample due representation.
- ❖ **Sampling Technique (ST):** Sampling frames were already available in different higher secondary schools. So the investigator found it suitable to use Random Sampling Technique (RST).
- ❖ **Instrument Used:** The investigator used Health Consciousness Scale (HCS) developed by N.V.V.S. Narayana (2007) was used for measuring the level of consciousness of secondary school adolescents.

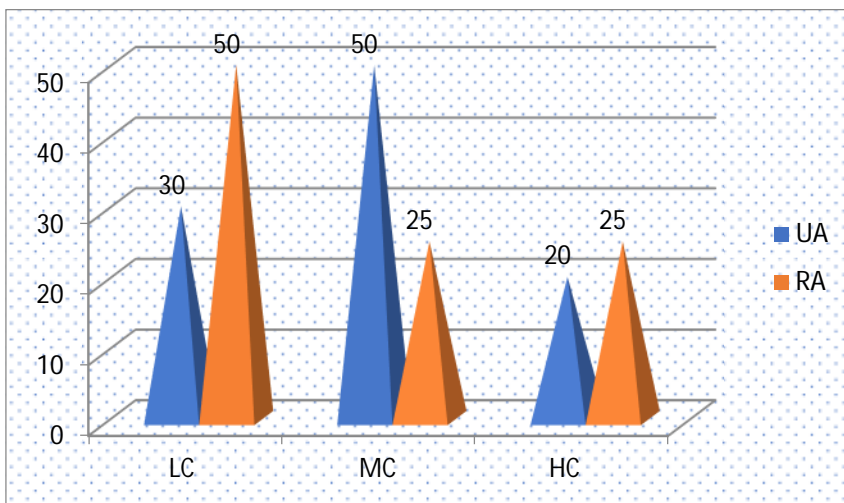
**1.1.7: ANALYSIS OF THE DATA:** The collected data was processed with the help of SPSS. Frequency Distribution, Mean, S.D. and 't' value was used for the collected data. The detailed analysis is reported as under:

**Table: 1.1: Showing frequency and percent wise distribution of rural and urban adolescents on their health consciousness. (N=200 each).**

DHC	Urban Adolescents		Rural Adolescents	
	F	%	F	%
LC	60	30	100	50
MC	100	50	50	25
HC	40	20	50	25
Total	200	100	200	100

Index:

- ❖ DHC= Dimensions of health consciousness
- ❖ LC= Low Consciousness
- ❖ MC= Moderate Consciousness
- ❖ HC= High Consciousness



Index:

- ❖ DHC= Dimensions of health consciousness
- ❖ LC= Low Consciousness
- ❖ MC= Moderate Consciousness
- ❖ HC= High Consciousness

**Fig: 1.1: Showing graphical representation of rural and urban adolescents on their health consciousness. (N=200 each)**

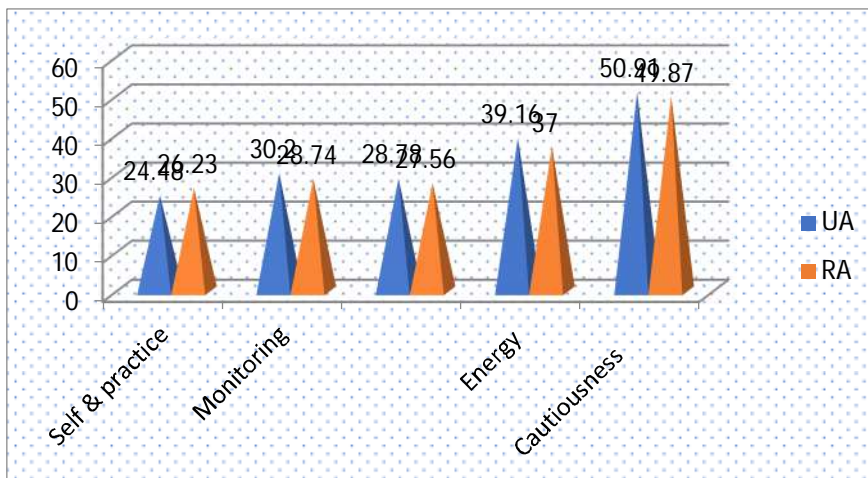


**Table 1.2: Showing mean significance between rural and urban adolescents on various dimensions of health consciousness.**

Dimensions	Urban Adolescents		Rural Adolescents		't' value
	Mean	S.D	Mean	S.D	
Self & practice	24.48	2.76	26.23	3.40	4.01**
Monitoring	30.20	3.55	28.74	4.13	3.77**
Nutrition satisfaction and	28.78	2.99	27.56	2.75	4.22**
Energy	39.16	3.85	37.00	6.20	4.18**
Cautiousness	50.91	1.89	49.87	3.68	3.56**

Index:

\*\*= Significant at 0.1 level of confidence.



Index:

- ❖ RA= Rural Adolescence
- ❖ UA= Urban Adolescence

**Fig. 1.2: Showing graphical representation of rural and urban adolescents on various dimensions of health consciousness.**

**1.1.8: INTERPRETATION OF THE DATA:** The interpretations of the above analysed tables are reported as under:

The perusal of the table 1.1 (Please Refer Chapter IV, Fig. 1.1) gives information about the frequency and percept wise distribution of the rural and



urban adolescents on various levels of Health Consciousness (HC). The results reveal that among urban adolescents 30% (F=60) were observed with low level of Health Consciousness (HC). In addition to this, 100% (F=50) urban adolescents were observed with moderate level of Health Consciousness (HC). The results further indicate that 40% (F=20) urban adolescents were observed with high level of Health Consciousness (HC). The inception of the same table indicate that among rural adolescents 100% (F=50) were observed with low level of Health Consciousness (HC). Meanwhile, 50% (F=25) rural adolescents were observed with moderate level of Health Consciousness (HC). The results further indicate that 50% (F=25) rural adolescents were observed with high level of Health Consciousness (HC). Thus, the examination of the table indicate that majority among urban respondents are high consciousness regarding their health. However, among rural respondents majority of respondents are inclined towards low level of Health Consciousness (HC).

The results presented in table 1.2 ( Please refer Fig. 1.2) gives information about the mean significance difference between rural and urban adolescents on various dimensions of Health consciousness. Coming towards the first dimension, (**SELF AND PRACTICE**), of Health Consciousness (HC). The calculated results indicate that the mean score of urban respondents (M=24.48) is reported high as compared to rural adolescents (M=26.23). The calculated 't' value came out to be 4.01, which is higher than the table value at 0.01 level of confidence. Thus, the results indicate that there is significant difference between urban and rural adolescents on first dimension (**SELF AND PRACTICE**). Urban adolescents were reported with high mean achievers on the first dimension (**SELF AND PRACTICE**) of Health Consciousness Scale (HCS). While glancing on second dimension (**MONITORING**), of Health Consciousness (HC), that the mean score of urban respondents (M=30.20) is reported high as compared to rural students (M=28.74). The calculated 't' value came out to be 3.77, which is higher than the table value at 0.01 level of confidence. Thus, the results indicate that there is significant difference between urban and rural adolescents on second dimension (**MONITORING**). Urban adolescents were reported with high mean achievers on the second dimension (**MONITORING**) of Health Consciousness Scale (HCS). While looking towards the third dimension the mean score of urban respondents (M=28.78) is reported high as compared to rural students (M=27.56). The calculated 't' value came out to be 4.22, which is higher than the table value at 0.01 level of confidence. Thus, the results indicate that there is significant difference between urban and rural adolescents on second dimension (**NUTRITION AND SATISFACTION**). Urban adolescents were reported with high mean achievers on the second dimension (**NUTRITION AND SATISFACTION**) of Health Consciousness Scale (HCS). While

observing towards the fourth dimension(**ENERGY**), the attained results indicate that the mean score of urban respondents (M=39.16) is reported high as compared to rural students (M=37.00). The calculated 't' value came out to be 4.18, which is higher than the table value at 0.01 level of confidence. Thus, the results indicate that there is significant difference between urban and rural adolescents on fourth dimension (**ENERGY**). Urban adolescents were reported with high mean achievers on the this dimension (**ENERGY**) of Health Consciousness Scale (HCS) as compared to their counterparts. While pondering towards the fifth dimension (Cautiousness) the mean score of urban respondents (M=50.91) is reported high as compared to rural students (M=49.87). The calculated 't' value came out to be 3.56, which is higher than the table value at 0.01 level of confidence. Thus, the results indicate that there is significant difference between urban and rural adolescents on fifth dimension (**CAUTIOUSNESS**) of Health Consciousness (HC). Urban adolescents were reported with high mean achievers on the this dimension (**CAUTIOUSNESS**) of Health Consciousness Scale (HCS) as compared to their counterparts (Rural adolescents). Therefore, from the obtained results, the investigator can generalise that impact of locality is significant on their level curiousness the respondents. Urban respondents were observed in doing regular exercise (yoga, walking, jogging, swimming or running) to make themselves healthy. Besides they feel inactive whenever exercise is not done. Urban respondents hold the opinion that regular exercise increases my life span. Subsequently, they participate in different social activities for being active and healthy. Besides, urban respondents feel isolated because of ill health of their family or friends and they give importance to my health because of avoiding for suffering with chronic disease. For maintaining sound they take all precautions because of my family health history. Therefore, from the above mentioned results, significant difference has been observed among urban and rural adolescents on their level of Health Consciousness (HC). Thus, locality (rural urban dichotomy) seems to have significant impact on the level of health consciousness of the respondents. Thus the status of the hypothesis is reported as under:

❖ **Hypothesis-III: "There exists no significant difference between rural and urban adolescents secondary school students on below mentioned dimensions of Health Consciousness (HC):**

- a) **Self & practice**
- b) **Monitoring**
- c) **Nutrition and satisfaction**
- d) **Energy**
- e) **Cautiousness**

..... **Rejected"**

**1.1.9: CONCLUSIONS OF THE STUDY:** The present study was intended to explore the level of health consciousness of rural and urban adolescents. In connection to same, significant difference has been observed among urban and rural adolescents on their level of Health Consciousness (HC). Thus, locality (rural urban dichotomy) seems to have significant impact on the level of Health Consciousness (HC) of the respondents. Moreover, the results are carried in consonance of the host of the researchers like, “**Berkowitz, D., & Turnmire, K. (1994), Berndt, T. J. (1989), Bhat, B. S. (2015), Becker, M. H., Maiman, L. A., Kirscht, J. P., Haefner, D. P. & Drachman, R. H. (1977), Bhat, A. D. (2015)**”.

**1.1.10: SUGGESTION OF THE STUDY:** The study this study has attempted to suggest that the feasible method of meeting adolescents’ needs and at the same time aiming to promote health consciousness is to foster an atmosphere of youth-adult companionship as youth volunteer program.

- 1) Health consciousness should be provided in rural areas. Efforts should be made by the Government to recruit health education at village. So that awareness may be provided in rural areas.
- 2) Exercise is a key contributory factor to a healthy lifestyle, and this needs to be reinforced in consumer education initiatives. The findings point to the fact that while food labels support the efforts of consumers in achieving a healthy lifestyle, exercise should also be part of such a lifestyle, as healthy eating alone does not achieve as good a result.
- 3) From managerial perspective, this study substantiates the fact that the stakeholders, including marketers, Government and different community actors, are far from educating the people regarding health consciousness. So efforts should be made by marketers, government and different community actors.
- 4) Seminars and conferences should be organised so that importance of health consciousness may be imparted among respondents.

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## INCLUSIVE EDUCATION IN INDIA – HISTORY, CHALLENGES, AND THE PRESENT

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### **Abstract**

Inclusive education in India is an approach towards educating every child with disability along with any other child under the same roof. This approach is to build a community, regardless of their strengths or weaknesses. The main motive for this approach is; firstly to curb the dropout rates and secondly to address the scarcity of special schools in rural areas. The concept of inclusive education in India is to bring the marginalized section of society into the mainstream. Any section of the society to develop require proper education to explore himself/herself to their utmost potential. The concept of Inclusive education aims to develop a common learning environment that accommodates and make necessary adaptations for all students from diverse backgrounds, caste, creed, sex and both academic and emotional needs.

A common learning environment is not a place for discrimination or isolation. No child is separated from a regular classroom and enjoys all the benefits that a school has to provide. This enables complete participation in the learning process and also enhances a positive approach among students and adults in society. The families and children and adults with difficulties develop a sense of belongingness and develop better social relationships and interactions. Every member can be a contributing member of the society, they just need equal opportunity and exposure to bring out the best in them.

Any society to develop must provide equal opportunities for all to survive and sustain. The community support is also an important aspect of individual growth. Therefore, to develop the community support our societal norms and mindset must change and be flexible.

The principle of inclusive education was adopted at the World Conference on Special Needs Education: Access and Quality (Salamanca, Spain 1994). Later the education rights in India were developed according to the inclusive needs of its people. The UNCRPD gave momentum to the system of Inclusive Education in India.

This article will highlight the history of Inclusive education in India and its journey so far.

**Keywords** – Inclusive Education, Challenges, History of Inclusive Education, RTE, UNCRPD, RCI, IEDC, NPE, ICDS



## Introduction:

India is the largest democracy in the world, yet inclusiveness in India is highly debatable. After the independence, Part IX, Article 45 of the Constitution states, the state shall provide compulsory education for all children until they complete the age of 14 years. Unfortunately, this policy could not safeguard the rights of its people. Ultimately, in the 86th Amendment Act marked a split in The Ministry of Education and a new branch the Ministry of Social Welfare was formed. The function of this organization was rehabilitation of the weak and vulnerable section of the society. The Government of India took several measures to make education available for all. The Kothari Commission came into place and enabled the integrated program in education.<sup>1</sup>

The Integrated Education of Disabled Children Scheme (IEDC<sup>2</sup>), started providing free books, school uniforms, transportation, special equipment, and aids. This was followed by The National Policy on Education (NPE) in 1986. This Act facilitated the admission of mild to moderate disabilities in the classrooms. Who would receive the same education as mainstream students.<sup>3</sup>

The establishment of the Rehabilitation Council of India (RCI) Act in 1992 started encouraging individuals to take up Special Education and become trained special educators. This policy was important because it establishes itself as a recognized organization to facilitate trained individuals to teach children with special needs.<sup>4</sup>

The 86th Amendment Act of the Constitution in 2002 made education free from 6-14 years of age. But, this amendment Act yet could not control the dropout rate to ensure education for children with special needs. The lack of effectiveness of this policy gave rise to the 21(A) in the constitution. The Inclusion in Education of Children and Youth with Disabilities<sup>5</sup>(IECYD), planned envisions that all children with disability will have access to mainstream education, the Government of India collaborated with the Rehabilitation Council of India and the National Council for Teacher's Education to provide with trained special educators.

When on one hand we observe that the Government of India has implemented new education policies to meet inclusive needs. The fact remains that, education in India is definitely not one of the best department of the government and curbing the rate of dropouts has still not been ensured.

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<sup>1</sup>MHRD Government of India. [https://mhrd.gov.in/sites/upload\\_files/mhrd/files/upload\\_document/amend86.pdf](https://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/amend86.pdf)

<sup>2</sup>Edudel. [http://www.edudel.nic.in/circulars\\_file/IEDC\(FINAL\\_COPY\).htm](http://www.edudel.nic.in/circulars_file/IEDC(FINAL_COPY).htm)

<sup>3</sup>MHRD Government of India. [https://mhrd.gov.in/sites/upload\\_files/mhrd/files/document-reports/NPE-1968.pdf](https://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/NPE-1968.pdf)

<sup>4</sup>Rehabilitation Council of India. <http://niepmd.tn.nic.in/documents/RCI%20Act.pdf>

<sup>5</sup>HRD Government of India. [https://mhrd.gov.in/sites/upload\\_files/mhrd/files/upload\\_document/amend86.pdf](https://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/amend86.pdf)





The education among the children with special needs, therefore, takes a backseat when education for all is concerned. It is observed that 78% of the disabled population stay in rural areas without the provision of any special schools.<sup>6</sup> The concept of inclusive education is new in the domain of education and accommodating different learners under one roof is a progressive approach which schools must understand, in the long run, would benefit the schools and all learners in the school.

A flexible education system will include all learners in its ambit. Inclusion is not an experiment to be tested but a value to be followed. A teacher's creativity rests on the way he/she conducts a lesson and the audience it reaches out for and the success of a curriculum is determined by its accessibility.

The following sections will deal with the history of inclusive education, possible strategies in a mainstream set up to bring in Inclusion and the challenges it faces.

### **History of Inclusive Education:**

The government of India started involving education policy at a national level from 1953. Between 1960 to 1975 several committees were appointed to focus on the needs of the children from low socio-economic areas. This resulted in the formation of National Policy for Children and also National Children's Board in 1974. The major achievement of this policy was the ICDS program. The integrated child development program (ICDS) was a part of India's fifth-year plan. This originally focussed on the health and nutrition of women.<sup>7</sup>

With time our government realized that people with disabilities have the same right to education as others and the gap between education among different classes has to be bridged and focussed on.

In 1974 the establishment of the Integrated Education for Disabled Child (IEDC). The aim was to provide education to children with disability. The government with the growing number of children being reported launched the project Integrated Education Development (PIED), which provide teacher training, identification of children and facilities as services. The major drawback of this project was it did not include the intellectual disability under its preview. To counter the challenges, in 1986 the National Policy on Education (NPE) was formally launched. However, the main focus of this action was to integrate children with mild to moderate disabilities in mainstream schools.<sup>8</sup>

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<sup>6</sup>MHRD Government of India. [https://mhrd.gov.in/sites/upload\\_files/mhrd/files/upload\\_document/National-Survey-Estimation-School-Children-Draft-Report.pdf](https://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/National-Survey-Estimation-School-Children-Draft-Report.pdf)

<sup>7</sup>EduDel. [http://www.edudel.nic.in/circulars\\_file/IEDC\(FINAL\\_COPY\).htm](http://www.edudel.nic.in/circulars_file/IEDC(FINAL_COPY).htm)

<sup>8</sup>EduDel. [http://www.edudel.nic.in/circulars\\_file/IEDC\(FINAL\\_COPY\).htm](http://www.edudel.nic.in/circulars_file/IEDC(FINAL_COPY).htm)

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Children, in general, were the concern of the government and to strengthen the policy, the Ministry of Social Justice and Empowerment was established, this provides assistance through a grant in aid schemes to voluntary organizations. Unfortunately, only 10% of people with disabilities receive a cover under the grant in aid schemes.<sup>9</sup>

We must keep in mind that, from a time where disability was thought to be a curse carried from a past life or the rule where education was only considered for the elite class or the Bramhinal education system India has emerged well in the domain of education and including all learners in the ambit of it.

Though in the Indian constitution it does not explicitly include children with disabilities in the provisions made for education, our fundamental rights clearly state that the state will not discriminate any individual on the grounds of sex, caste, creed, religion, social and economic background. Also, Article 45 clearly states that all children should be provided basic education until they complete the age of 14. Therefore, if correctly practiced the policies can ensure education for all.

### **The concept of Inclusive Education:**

The principle of inclusive education was adopted at the Salamanca Conference with the idea to make education systems adopt the principle of inclusive education as a policy. This was important for the Indian context keeping in mind that the HRD ministry did not consider the education of special needs children in its preview. The segregation of children in the admission procedure has left many children outside the ambit of proper formal schooling. It is observed that 78% of the rural population lives without any facility of the special schools or rehabilitation centres which can address the needs of differently abled children. All children whether disabled or not have the right to education, and the inefficiency of mainstream schools to accommodate children with special needs has to be addressed. Statistics show that over 4 million children between the age group of 4 to 16 years have been denied education in the mainstream schools based on their physical and mental disabilities, there is a history of continuous neglect of these children even when there are policies to safeguard the interest of the students.

In the late 1990s, the philosophy of Inclusive Education was at the swing. The District Primary Education Programme (DPEP) made it mandatory to make the curriculum accessible for all. Also, it was ensured that the schools are providing enough support and resources to accommodate different learners in the school.<sup>10</sup>

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<sup>9</sup>MHRD Government of India, [https://mhrd.gov.in/sites/upload\\_files/mhrd/files/upload\\_document/npe.pdf](https://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/npe.pdf)

<sup>10</sup>DPEP. <https://www.educationforallinindia.com/page81.html>

Further, in 1986 The National policy on education emphasized distance and open learning system to provide opportunities to a larger mass to access education. This mass does not only include the disabled people but also, women, schedule tribe and schedule caste other backward classes, women.

The Persons with Disabilities Act 1995 stress on the free of cost education to all children in an appropriate environment till they are 18 years old. The government further emphasize the following points:

- The transport facilities to the students with disabilities or alternative financial incentives to parents or guardians to encourage them to attend schools
- The removal of the architectural barriers from schools, colleges to make it accessible for all
- The supply of books and uniforms
- The grant of scholarships
- Specific modifications while conducting examinations
- Restructuring the curriculum to benefit children and students<sup>11</sup>

The National Trust Act (National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation, and Multiple Disability), 1999 also came into existence. This remarkable policy was adopted to ensure the financial and livelihood security of people who were marginalized even under the ambit of equality. The Cerebral Palsy and Mental Retardation also could bequeath to trust.

The Salamanca Statement and Framework for Action on special needs education (1994) emerged as a policy drafted by 300 participants representing 92 governments and 25 international organizations in June 1994. Their objective was an education for all, to accommodate all learners despite their physical, intellectual, social, emotional, linguistic or other conditions.<sup>12</sup>

India being a signatory to the Salamanca Statement, committed itself to include learners in the mainstream curriculum. The MHRD has formulated a comprehensive Action Plan for the inclusive rights of children and youth with disabilities. The government is committed to providing mainstream schools to be inclusive in nature to accommodate all learners.

MHRD encourages:

- To complement and supplement with the Sarva Shiksha Abhiyan programmes
- Admissions for children with disability in mainstream schools
- Providing need based educational support that the child might require for mainstream

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<sup>11</sup>DREDF. <https://dredf.org/legal-advocacy/international-disability-rights/international-laws/india-persons-with-disabilities-act/>

<sup>12</sup>UNESCO. <http://www.csie.org.uk/inclusion/unesco-salamanca.shtml>



- Support for higher education or vocational training for children to make them independent and functional
- Review implementation of existing programmes, provision to identify factors for the fulfilment and development of children with special needs
- Ensure a barrier-free environment for children with disability
- Provide appropriate services in the mainstream school to support the children be it through curriculum, extra support in the classroom, others
- Participation of all children in sports, co-curricular activities, to promote an over-all development in children.

In the year 1995 – The Persons with Disabilities (Equal Opportunities Protection of Rights and Full Participation) Act 1995 stressed to provide free of cost education to all children in an appropriate environment until 18 years of age. It also further emphasized the following:<sup>13</sup>

- Transport facilities to the students with disabilities or financial incentives to parents or guardians
- Removal of architectural barriers from schools, colleges and other institutions working with children with disabilities
- The supply of books, uniforms, and other materials to students
- Set-up a facility for grants and scholarship
- Suitable modification in the examination system to ensure the development and improvement of all children in school
- Restricting the curriculum for the benefit of all

The country aimed to be a disable friendly. NCERT as an education platform has always worked towards inclusive education. The integrated Education for Disabled Children (IEDC) scheme of 1974 was one of the early initiatives towards including all learners under the same umbrella. The National Policy on Education from 1986, the Sarva Shiksha Abhiyan (SSA) and the National Curriculum Framework 2005 was launched with full vigor to include children with different needs in the mainstream schools.

The National Trust Act of 1999 also came into existence. The landmark legislation to protect and promote the rights of the people in the disability sector, it recognized the need of various individuals and also took into consideration the functioning ability of individuals, claiming for financial aid from the government sector for vocational training.<sup>14</sup>

In the late 90s, the philosophy of inclusive education was added to the District Primary Education Programme (DPEP). It was promoted to have curriculum modifications to ensure fuller curriculum access or to encourage teachers to use

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<sup>13</sup> NIEPMD. [niepmd.tn.nic.in/documents/PWD%20ACT.pdf](http://niepmd.tn.nic.in/documents/PWD%20ACT.pdf)

<sup>14</sup> The National Trust. <https://thenationaltrust.gov.in/content/innerpage/introduction.php>



the child- pedagogy centred approach to tailor opportunities for the different learners in the classroom.

Over the years 10 states of Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, and Uttaranchal have scaled up in the IED programme.

The basic question remains the same, with inclusion policies in place, why is an inclusive society yet not a reality?

### **Special Education VS Inclusive Education:**

The term Special Education Needs (SEN) is a replacement term for Special Education. This type of education mostly focuses on the training and learning of children with special needs. But the Special Education concept also, promote marginalization and exclusion in society. The major drawbacks of this system are it, ignores or fail to provide the overall development in students. It also curbs the opportunity to expose the children with disability with the mainstream which hampers their social relationships. The scope of development and interaction among students in a special school set-up can never guarantee the development and progress like an inclusive school set-up. The biggest challenge in the special school lies in the fact that the children with a disability grow up with similar peers, developing a common culture, whereas in an inclusive setup the child who is differently able gets to interact and grow with other children and imbibe diverse culture.

We must also understand that in a special school the curriculum and classroom accommodations are developed keeping in mind the child with difficulties, on the other hand, the inclusive education model will propagate to develop a curriculum based on the age appropriation of children and everyone learns the same thing under this curriculum may be in a different way. But the content matter remains equal for all. Therefore, children from an inclusive background stand at par with societal needs. An inclusive set-up always provides more opportunities for the child to grow, with the multiple participation opportunities at events.

We must also come out of the notion that inclusive education requires a lot of adaptations to accommodate all learners and it hampers the growth of high IQ students. This is a myth and under an inclusive set-up all children get adequate opportunity to grow and it benefits all learners, it also enhances the learning styles of the individual. It further develops every child to benefit from cooperation, collaboration among the school community.

On the other hand, the term Inclusive Education is for all students, despite their abilities and disabilities.



### Challenges:

In India, one of the major problems is a mindset, here people believe, that a child is born with special needs because this is his/her bad deeds from a past life. People and families with special needs are looked down upon and anticipate it as a curse from God. The second major problem is the lack of resources and awareness among people. Some of the major challenges are:

- **Acceptance** – To understand the basic need, that every person is special and has various needs which are different from one another. Every person has the right to be included and it is important that we respect people the way they are. Further, we must understand that every person needs to be included as an individual and not with the pre-conceived notions of society. This basic awareness of children and adults with difficulties have still not yet been inculcated in our societies. The culturally constructed notions are narrow and have very less scope to include diversity in the system. This leads to labelling, lack of awareness towards adaptations and accommodations.

The basic requirement of an individual is getting accepted. This primarily is not granted to children and adults with difficulties.

- **Resources** – We lack resources in classrooms and with regards to trained professionals, classroom structure and also skilled management to handle children or adults with special needs. It is very unfortunate that most of the teachers at schools are not trained to handle children with special needs.

The rigid curriculum and inaccessible classrooms make it difficult for children with difficulties to accommodate themselves in schools. Above all, our teachers fail to identify and label children with diverse needs as incapable and mad. This not only hampers the emotional growth of the children but also decreases the learning capabilities in children.

At offices and other places too, the lack of adaptations makes it difficult for people to access these services.

- **Lack of Curriculum flexibility** – We are in a country where structured and need-based curriculum are not in place. Every curriculum be it taught at the lower levels or higher level of education, we must understand that curriculum should be framed in such a manner which can include the development for all learners. A curriculum must bring out the best in every child.

The lack of curriculum flexibility makes it difficult for children and adults to opt for regular and mainstream education pattern and techniques.

Concepts like differentiated instructions, universal instructions are to be incorporated in the curriculum as a mandate. Which will not only enhance the learning capabilities in children but also ensure that every child in the classroom gets to learn the specific curriculum content

- **Strict Policy** – Though there are government mandates to include everyone and discrimination against no one. Yet there are very vague policies to safeguard the rights of the people who are differently abled.

The Government of India claims that it has implemented inclusive education everywhere and at all levels. However, the policy is such that the degree of measurement is not clear. Above all the government measures to ensure inclusion at schools is not clear. Most of our public services are not accessible by the people and remains a major concern.

- **Expenses involved-** For a country like India, where expenses is a perennial concern, inclusive education calls for a huge expense incurred. This huge expenditure involved often makes the government programs take a back seat. Mainstream schools to think twice before approving projects to include diversity in campuses. (ramp facilities, classroom resources, etc.)

To incorporate any adaptations in areas of public access it incurs a huge expense which the government officials fail to understand due to their lack of acceptance.

- **Inaccessible Schools** – Most of the schools in India are inaccessible. Without the ramp and curriculum flexibility, it becomes difficult for all learners to access the school campus.

- **Family collaboration** – Families with children and adults with special needs often do not receive any support other family members, this mounts up to additional mental pressure leading to an unpleasant environment at home for the child development.

#### **Measures to implement Inclusive Education:**

Inclusive education helps every child to develop a sense of pride in their work because they feel they have accomplished something. We know there are many famous personalities like Albert Einstein, Rabindranath Tagore, Tom Cruise, Stephen Hawking, and Helen Keller who were diagnosed with disabilities, but with the opportunity, they have established special benchmarks for themselves. Educating children with disabilities along with regular students is an initiative which must be a priority for the Government. The Government of India must work closely with education councils and make it mandatory for schools, institutions, colleges to include students with difficulties (keeping in mind the adaptations and accommodation needs).

- The NCERT and the CISCE councils must make observations mandatory in private schools to ensure the admission and accommodation of children with difficulties at school. The Government schools too must start strict scrutiny to ensure inclusive education is practiced everywhere. The government must also ensure all the schools have sufficient resources to accommodate children<sup>15</sup>

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<sup>15</sup>NCERT. [http://www.ncert.nic.in/pdf\\_files/SpecialNeeds.pdf](http://www.ncert.nic.in/pdf_files/SpecialNeeds.pdf)

- There must be strict scrutiny on admissions for children with special needs in schools
- The curriculum must be differentiated and universal instruction design pattern as a mandatory element in the curriculum must be included. Student-oriented material must be developed and no strict curriculum can be followed everywhere for everyone
- Teachers and other educational professionals must be trained to accommodate different learners in the school campus, teachers and special educators must be trained for an inclusive classroom
- Schools must accommodate different learners by strict mandate from the government with required modifications
- Government policies must be strong and implemented with strict measures and a regular follow-up
- Parents must play an important role in the decision-making process, to understand the child's needs from a different perspective
- Periodic evaluation of the policies is a mandatory action to be implied, to measure the development.
- Involvement of every individual in the system to make it inclusive in nature
- Examination and assessment procedures have to be tried to make it accessible for all

### **Conclusion:**

The Right to Education Act 2009 ensures education for all children irrespective of their caste, religion, ability, and gender. Unfortunately, we have witnessed the ineffectiveness of RTE due to a number of challenges faced by the schools in India. The employment rights too of the people have not been successfully safeguarded. There is corruption in getting disability cards, the rigid mindset and perception about disability. The situation in India can only be attended through strict policies and implementation of the same.

The inclusive design must be developed in such a way that everyone is comfortable and the structure must be flexible to accommodate diversity. Continuous exposure of the PWD will help in removing prejudices from our minds. Social acceptance and equal opportunity is the basic necessity to maintain a happy and healthy society.

For a society to develop, it is important that India takes the point of view from the people who are disabled, family and guardian, teachers and schools, administrative officials and then draft a policy. Even in the world largest democracy, the basic citizenship rights are denied to a particular class which makes India a non-inclusive society. Inclusion can and will happen when the mindset of the people are modified with respect and dignity. The statistics on disability in India is varied and the authenticity of the same is questionable.





However, keeping in mind the gaps in the education system, we must focus on reducing the challenges and focusing on the development of the inclusive set-up in our societies.

Another major area where India must look upon is the vast and rigid assessment and examination methods. The assessment methods must be flexible enough to accommodate diversity. Examinations were conducted to assess the knowledge of the learner and the aim and objective of the examination must be kept the same, having a tiered question pattern to make all the examinees comfortable and also encourage their interest in learning and excelling.

India can be an inclusive society only if the education department strengthens there policy to include diverse learners under its umbrella. A developed society is one where education is for all and not select few.

As pointed out by Myron V. Walwyn, Minister for Education and Culture rightly pointed out that Inclusion is a right and not a privilege of the select few.

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## **AN ANALYSIS OF SATISFACTION AND KNOWLEDGE LEVEL OF FARMER BENEFICIARIES TOWARDS EXISTING KISSAN CREDIT CARD SCHEME IN BLOCK SOGAM**

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### **Abstract**

The present study was intends to explore the economic, satisfaction and knowledge level of the Beneficiaries farmers towards Kissan Credit Card Scheme (KCCS). Besides, the study aims to analyse the opinion of the beneficiaries towards constraints existing in Kissan Credit Card Scheme (KCCS). A self-made Kissan Credit Card Schedule (KCCS) was used for data collection. Whole data was selected with the help of purposive cum snowball sampling technique. The collected data was subjected to statistical treatment by using Mean, Standard Deviation and 't' test. The study revealed that there is significant difference between literate and illiterate beneficiaries. Literate beneficiaries were observed high level of satisfaction, knowledge and economic approach towards Kissan Credit card Scheme in block Sogam.

**Key words:** Satisfaction level, Knowledge level, Literate Beneficiaries, Illiterate Beneficiaries, Kissan Credit Card Scheme.

**1.1: Introduction:** The Kissan Credit Card (KCC) scheme is a credit scheme introduced in August 1998 by Indian banks. Kissan Credit Card Scheme (KCCS) in 1998-99 with three different sub-limits viz. production, assets maintenance and consumption needs is a step-in this direction. This brings integration into the multi-credit product system by offering farm entrepreneurs a single line of credit through a single window for multiple purposes. The Kissan Credit Card Scheme (KCCS) would allow farmers to purchase agriculture inputs such as seeds, fertilizers, pesticides and also allow them to withdraw some cash for meeting their other crop production related requirements. The Kissan Credit Card Scheme was a step towards facilitating the access to short-term credit for the borrowers from the formal financial institutions. This model scheme was prepared by the National Bank for Agriculture and Rural Development (NABARD) on the recommendations of R.V.GUPTA committee. The chief quality behind Kissan Credit Card Scheme (KCCS) is that it reduction



in work load for branch staff by avoidance of repeat appraisal and processing of loan papers under Kissan Credit Card Scheme (KCCS). For availing this facility minimum paper work and simplification of documentation for drawl of funds from the bank is given priority. Kissan Credit Card Scheme (KCCS) has emerged as reduction in transaction cost to the banks and to some extent the banker customer relation has observed hassle free. The scheme is so effective that Over 8 crore Kissan Credit Cards have been issued to farmers till date from its inception in 1998. The disbursement procedures, satisfaction level of beneficiaries have remained under discussion since 1998. Agriculture, like any other economic activity, needs external financial assistance or credit for its survival in the said district. This becomes all the more important in the light of production rigidities, high dependence on natural or climatic factors, inelastic demand for agricultural products, perishability of produce and poverty stricken farming community. Thus, for the survival of the socio-economic equilibrium in the society all the stakeholders have to play their role in enhancing agricultural development. Financial institutions have to shoulder the responsibilities in providing financial assistance to farmers by availing the facilities of credit and debit system. The State Agriculture Policy (SAP) is, therefore, aimed at developing a road map that will seek to actualize the vast untapped growth potential of the agriculture, promote value addition, accelerate the growth of agri-business, create employment in rural areas, secure fair standard of living for the farmers and agricultural workers and their families, discourage migration to urban areas and face the challenges arising out of economic liberalization, globalization and climate change. In consonance to same in the Union Territory of Jammu and Kashmir different banks are playing vital role in providing the credit facilitates to farmers for enhancing their agricultural allied activities. But, the role of Jammu and Kashmir Bank is unique in the entire state of Jammu and Kashmir. Timely it provides financial assistance to famers through availing the initiatives launched by state or central government. The credit system provided by the Jammu and Kashmir hold an important and never lasting position in the state. During the past few years significant progressive changes have taken place in banking and financial structure of Jammu and Kashmir. The Banks have played a vital role in the mobilization of savings and Investment. Bank credit to productive sectors of the economy has a critical role in sustaining the growth process. Banking structure in Union Territory of Jammu & Kashmir consists of Commercial Banks, Regional Rural Banks and Cooperative Banks. However, among all these financial institutions Jammu and Kashmir Bank occupies central position in Jammu and Kashmir State. Keeping in view Kissan Credit card is a valuable intuitive. Indeed, large number of studies has been conducted in the field of Kissan Credit Card. However, diversified results have been found. Notable studies are; “ Sahil, A. S. (2018), Ajay, J. P. (2017),

Samantara (2010), Nanda, T. (2005), Danish Faruqui (2001), Sharma Ankit (2008), Bhukta (2003), Bhat, A. S. , Dar, H. G (2012), Dashawant&Jayaprada (2007), Doshinge B. (2005), Jainuddin, S. M., G.M. Hiremath, Suresh S. Patil (2015), Dar, A. J. &Nisar, A. (2016), Biswas, D. & Dash H. (1997)". Therefore, the investigator found wide gap of research to explore the below mentioned research problem.

**1.2: RESEARCH PROBLEM:** The statement of problem for the present study is as under:

**"An Analysis of Satisfaction and Knowledge Level of Farmer Beneficiaries Towards Existing Kissan Credit Card Scheme In Block Sogam"**

**1.3: OBJECTIVES OF THE STUDY:** The objectives of the present study are and under:

- ❖ **Objective-I:**To explore the impact of existing Kissan Credit Card Scheme (KCCS) on the level of economic enhancement of literate and illiterate farmer beneficiaries of Block Sogam.
- ❖ **Objective-II:**To explore the level of satisfaction of literate and illiterate farmer beneficiaries towards existing Kissan Credit Card Scheme (KCCS) of BlockSogam.
- ❖ **Objective-III:**To explore the Knowledge level of literate and illiterate farmer beneficiaries towards existing Kissan Credit Card Scheme (KCCS) of BlockSogam.
- ❖ **Objective-IV:** To explore the perception of literate and illiterate farmer beneficiaries towards constraints existing in Kissan Credit Card Scheme (KCCS) of Block Sogam.

**1.4: HYPOTHESIS OF THE STUDY:** On the basis of richness background of the knowledge the investigator speculated the bellow mentioned hypothesis.

- ❖ **Hypothesis-I:**There exists no significant difference between literate and illiterate beneficiaries on their level of economic enhancement resulted due to existing Kissan Credit Card Scheme in block Sogam.
- ❖ **Hypothesis-II:**There exists no significant difference between literate and illiterate beneficiaries on their level of satisfaction towards Kissan Credit Card Scheme in block Sogam.
- ❖ **Hypothesis-III:**There exists no significant difference between literate and illiterate beneficiaries on their level of knowledge towards Kissan Credit Card Scheme in block Sogam.
- ❖ **Hypothesis-IV:**There exists no significant difference between literate and illiterate beneficiaries on their perception towards existingKissan Credit Card Scheme in block Sogam.

**1.5: OPERATIONAL DEFINITION OF TERMS AND VARIABLES:**The operational definitions of terms and variables are as under:

- 1) **Kissan Credit Card:** The Kissan Credit Card (KCC) scheme is a credit scheme introduced in August 1998 by Indian banks. This model scheme was prepared by the National Bank for Agriculture and Rural Development (NABARD) on the recommendations of R.V.GUPTA committee to provide term loans, capital investment and agricultural needs. However, in the present study Kissan Credit Card scheme refers the above mentioned scheme organised by Jammu and Kashmir Bank.
- 2) **Literate beneficiaries:** Literate beneficiaries in the present study refer those respondents who avail Kissan Credit Card Scheme (KCCS) since last three years and possess level of education above 10<sup>th</sup> standard.
- 3) **Illiterate beneficiaries:** Illiterate beneficiaries in the present study refer those respondents who avail Kissan Credit Card scheme since last three years and cannot read and write, more evidently means those respondents who possess level of education zero.
- 4) **Block Sogam:** Block Sogam in the present study refers those respondents who are living in Block Sogam of Kupwara District, delimited as per revenue record.

**1.6: DELIMITATIONS OF THE STUDY:** The present study will be confined to the following aspects:

- 1) The present study will be delimited to blocks Sogam of Kupwara District.
- 2) The present study will be delimited to Kissan Credit Card Scheme availed in the selected areas provided by Jammu and Kashmir Banks only.
- 3) The present study will be delimited to those beneficiaries who availed Kissan Credit Card since last three years.
- 4) The present study will be delimited to literate and illiterate beneficiaries of SogamBlock of Kupwara District.

**1.7: METHODOLOGY:** Keeping the feasibility of the research problem under consideration, the descriptive method has been used by the researcher. The perimeters involved are reported as under:

- ❖ **Sampling procedure:** The whole sample was selected from SogamBlocks of Kupwara District. However, it is imperative to mention here, that 50 respondents were selected with due representation of level of education. Among 50 respondents 25 were illiterate beneficiaries and 31 were literate beneficiaries. In addition to this only those respondents were selected who avail Kissan Credit Card Scheme (KCCS) since last three years. Besides, keeping the nature and convenience of the research study under consideration; whole sample was selected by using purposive cum snowball sampling technique. The experience of the respondents was used to generate the snowball sampling networks.
- ❖ **Tool used:** The self-made Kissan Credit Card Scheme Schedule (KCCS) was used for data collection. The schedule consists of 26 item based four

dimensions. The schedule is based on three point's ratings. The recorded responses of the scale are "yes" Undecided" and "No". The schedule intended to measure the agricultural enhancement, beneficiary's level of Satisfaction and beneficiary's level of knowledge about the existing Kissan credit card scheme. Apart from this, the schedule aims to analysis constraints existing in Kissan Credit Card Scheme (KCCS).

**1.8: STATISTICAL TREATMENT OF THE DATA:** The collected data was subjected to statistical treatment under two major captions:

- ❖ **CAPTION-I: Descriptive analysis:** The data was analysed with the help of descriptive statistics. In this caption the collated data was put to statistical treatment by using frequency distribution and percentage. Further, description is given as under:

**Table: 1. 1: Showing the level of impact of respondents on different dimensions of Kissan Credit Card Schedule (KCC-S) in Block Sogam District Kupwara. (N=25)**

Dimensions	LAE		MAE		HAE	
	F	%	F	%	F	%
/Agricultural Enhancement	20	40	22	44	08	16
Beneficiaries Level of Satisfaction	LS		AS		HS	
	F	%	F	%	F	%
	14	28	26	52	10	20
Beneficiaries Level of Knowledge	LLK		MLK		HLK	
	F	%	F	%	F	%
	12	24	16	32	22	44
Constraints Existing in KCC	CL		MC		HC	
	F	%	F	%	F	%
	18	36	15	30	17	34

**Index:**

**LAE=** Low agricultural enhancement.

**MAE=** Moderate agricultural enhancement

**HAE=** High agricultural enhancement

**LS=** Low satisfaction

**AS=** Averages satisfaction

**HS=**High satisfaction

**LLK=**Low level knowledge

**MLK=** Moderate level knowledge

**HLK=** High level knowledge

**CL=** Constraint less knowledge

**MC=** Moderate Constraints

HC= High Constraints

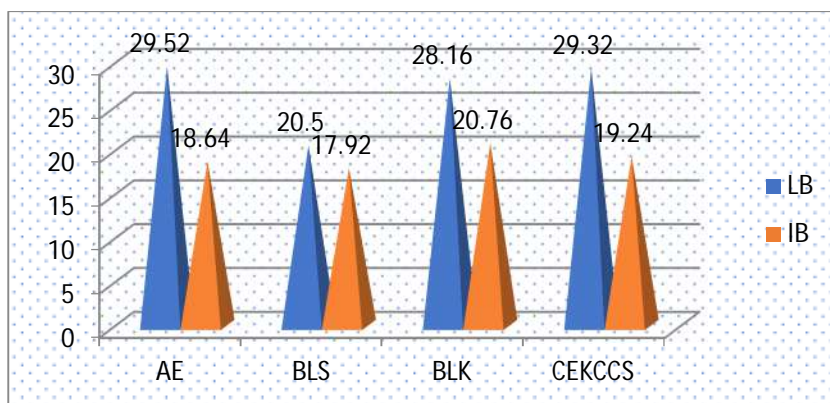
- ❖ **CAPTION-II: Comparative analysis:** The data was analysed with the help of comparative analysis also. In this caption the collated data was put to statistical treatment by using Mean, Standard Deviations and “t” Value. Further, description is given as under:

**Table: 1.2: Showing significance of difference between mean scores of literate and illiterate beneficiaries on different dimension of Kissan Credit Card Schedule (KCC-S) in Block Sogam of District Kupwara. (N=25 each)**

Dimensions	Literate Beneficiaries		Illiterate Beneficiaries		‘t’ value
	Mean	SD	Mean	SD	
Agricultural Enhancement	29.52	6.36	18.64	6.20	6.83@
Beneficiaries Level of Satisfaction	20.50	3.78	17.92	3.09	7.49@
Beneficiaries Level of Knowledge	28.16	16.08	20.76	10.28	2.09@@
Constraints Existing in KCCS	29.32	5.93	19.24	9.26	6.83@

Index:

- ❖ @ = Significant at 0.01 level of confidence.  
❖ @@ = Significant at 0.05 level of confidence.



Index: AE= Agricultural enhancement

- ❖ BLS= Beneficiaries level of satisfaction  
❖ BLK= Beneficiaries Level of Knowledge



- ❖ CEKCC= Constraints existing in KCC
- ❖ LB: Literate beneficiaries
- ❖ IB: Illiterate beneficiaries

**Fig: 1.2: Showing graphical representation of mean scores of literate and illiterate beneficiaries on different dimension of Kissan Credit Card Schedule (KCC-S) in Block Sogam of District Kupwara.**

**1.9: DISCUSSION OF THE RESULTS:**The results in post statistical treatment are enumerated in table 1.1 and 1.2. The interpretation of the results is given as under in two separate captions:

- ❖ **CAPTION-I:** Discussion related to descriptive analysis: In this caption the investigator made the discussion and interpretation of the results as analysed in **CAPTION-I**. The detailed interpretation is reported as under:

The results collected in the Table 1.1 (Please Refer Fig 1.1) gives evidence about the frequency and percent wise distribution of beneficiaries on various levels of Kissan Credit Card Scheme (KCCS) in Block Sogam of District Kupwara. Coming towards the first dimension “**Agricultural Enhancement**”, it has been observed that 40% (F=20) respondents perceive low impact of Kissan Credit Card Scheme (KCCS) on agricultural enhancement. Moreover, 44% (F=22) beneficiaries perceive the impact of Kissan Credit Card Scheme (KCCS) as moderate on agricultural enhancement. Meanwhile, the perusal of the same table reveals that 16% (F=08) beneficiaries feel that the impact of Kissan Credit Card Scheme (KCCS) on agricultural enhance is high in Block Sogam of District Kupwara. While observing the same respondents on the second dimension “**Beneficiaries level of Satisfaction**”, it has been observed that 28% (F=14) respondents were observed with low level of satisfaction towards existing Kissan Credit Card Scheme (KCCS). Further, 52% (F=26) beneficiaries were observed with average level of satisfaction and 20% (F=10) beneficiaries observed with high level satisfaction towards existing Kissan Credit Card Scheme (KCCS). Coming towards the third dimension of Kissan Credit Card Scheme (KCCS) (**Beneficiaries Level of Knowledge**), it has been found that 24% (F=12) respondents possess low level of knowledge, 32% (F=16) possess moderator level knowledge and 44% (F=22) beneficiaries were found with high level of knowledge towardsexisting Kissan Credit Card Scheme (KCC). In connection to fourth dimension (**Constraints existing in KCCS**), it has been found that 36% (F=18) respondents feel existing Kissan Credit Card Scheme (KCCS) is constraint less, 30% (F=15) feel existing Kissan Credit Card Scheme (KCC) has moderate constraints and 34% (F=17) perceive that high constraints are existing in Kissan Credit Card Scheme (KCCS).



- ❖ **CAPTION-II:Discussion related to descriptive analysis:** In this caption the investigator made the discussion and interpretation of the results as analysed in **CAPTION-II**. The detailed interpretation is reported as under:

The proportional investigation of literate and illiterate beneficiaries on different dimensions of Kissan Credit Card Schedule (KCCS) in Block Sogam has been reported in **Table 1.2 (Fig. 1.2)**. A perusal of this table reveals a significant mean difference between the two groups of beneficiaries on all the four dimensions of Kissan Credit Card Schedule (KCCS). An observation on the first dimension (**Agricultural Enhancement**) reveals that both the groups of beneficiaries differ significantly with each other. The mean score in case of literate beneficiaries was reported to be higher ( $M=9.52$ ) as compared to illiterate beneficiaries ( $M=18.64$ ). The calculated 't' value came out to be 6.83, which is significant at 0.01 level of confidence. From these results, it may be said that literate beneficiaries perceive Kissan Credit Card Scheme (KCCS) more useful for agricultural enhancement as compared to illiterate beneficiaries. Thus, from the above discussion it can be concluded that literate beneficiaries perceive Kissan Credit Card Scheme (KCCS) is a beneficial scheme. Literate beneficiaries believe that owing Kissan Credit Card Scheme (KCCS) increase in their production took place. Apart from this, it was found that literate beneficiaries perceive that their assets and activities allied to agriculture has been enhancement after utilization of Kissan Credit Card Scheme (KCCS) and consequently, they perceive that due to Kissan Credit Card Scheme (KCCS) influence the overall economic development of the farmer took place. With regard to second dimension (**Beneficiaries level of Satisfaction**) of the Kissan Credit Card Scheme the two groups under discussion have been found significantly different from each other. The mean score of literate beneficiaries has been found to be 20.50 and in case of illiterate beneficiaries the mean score was observed to be 12.12. Therefore, the mean significant difference goes in favour of literate beneficiaries ( $M=17.92$ ). The calculated 't' value ( $t=7.49$ ) is reported to be significant at 0.01 level of confidence ( $p> 0.01$ ). Consequently, it can be revealed that literate beneficiaries are more satisfied with prevailing Kissan Credit Card Scheme (KCCS) as compared to illiterate beneficiaries. Therefore, from the above discussion it can be inferred that literate beneficiaries perceive Kissan Credit Card Scheme (KCCS) is a beneficial scheme. They consider that there is timely availability of credit from Kissan Credit Card Scheme (KCC). In addition to this they were observed satisfied with the credit limits provided in existing Kissan Credit Card Scheme (KCCS). Literate beneficiaries recognize that there is enough simplicity in annual renewing of Kissan Credit Card Scheme (KCC) limit and the procedure operated by Jammu

and Kashmir bank is systematic rather than haphazard. Coming to the third dimension of Kissan Credit Card schedule **(Beneficiaries Level of Knowledge)** it has been observed that the mean score of literate beneficiaries has been reported to be higher ( $M=28.16$ ) as compared to the illiterate beneficiaries ( $M=20.76$ ). The obtained 't' value has been found to be significant at 0.05 level of confidence ( $t=2.09$ ). In addition to this, it can be revealed that literate beneficiaries were observed fully aware with the procedure of availing Kissan Credit Card Scheme (KCCS). Literate beneficiaries in Sogam block recognize that Kissan Credit Card Scheme (KCCS) is a working capital for maintenance of farm assets and activities allied to agriculture enhancement and subsequently lead to economic development. Apart from this, they were observed fully aware that Kissan Credit Card Scheme (KCC) is intended to erase the dependence on higher commission granting agents and agencies. The table further reveals a significant mean difference between the two groups under discussion on the fourth dimension of Kissan Credit card Schedule **(Constraints existing in KCCS)**. The mean score of literate beneficiaries was reported high ( $M=29.32$ ) as compared to illiterate beneficiaries ( $M=19.24$ ). The calculated 't' value came out to be 6.83, which is significant at 0.01 level of confidence. Additionally, it was found that literate beneficiaries were observed fully aware with the proper management and planning of Kissan Credit Card management as a result they fell least constraints in availing the benefits of Kissan Credit card scheme

**1.10: CONCLUSIONS OF THE STUDY:** In the study it was revealed that maximum percentage favour to literate respondents. In addition to this, significant difference was found between literate and illiterate beneficiaries. Literate beneficiaries were observed high level of satisfaction knowledge and awareness towards Kissan Credit card Scheme as compared to their counter parts in Block Sogam of District Kupwara. Apart from this, it was found that literate beneficiaries perceive that existing Kissan Card Scheme should be evolved in its procedure. Thus, the status of the hypothesis is reported as under:

- ❖ **“Hypothesis-I:** There exists no significant difference between literate and illiterate beneficiaries on their level of economic enhancement resulted due to existing Kissan Credit Card Scheme in block Sogam.(.....**Rejected**)
- ❖ **Hypothesis-II:** There exists no significant difference between literate and illiterate beneficiaries on their level of satisfaction towards Kissan Credit Card Scheme in block Sogam. (.....**Rejected**)
- ❖ **Hypothesis-III:** There exists no significant difference between literate and illiterate beneficiaries on their level of knowledge towards Kissan Credit Card Scheme in block Sogam. (.....**Rejected**)

- ❖ **Hypothesis-IV:**There exists no significant difference between literate and illiterate beneficiaries on their perception towards existing Kissan Credit Card Scheme in block Sogam. (.....**Rejected**)

“Indeed level of education of the respondents was observed significant impact of on selected variables of Kissan Credit Card Scheme (KCCS) Keeping the above results under consideration, it was observed that host of the researcher support the findings of the researcher like;

**“Samantara (2010), Danish Faruqui (2001), Sharma Ankit (2008), Bhukta (2003), Bhat, A. S. , Dar, H. G (2012), Dashawant&Jayaprada (2007), Doshinge B. (2005), Jainuddin, S. M., G.M. Hiremath, Suresh S. Patil (2015), Dar, A. J. &Nisar, A. (2016), Biswas, D. & Dash H. (1997), Bhat, A.S.”**

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## APPLICATION OF IOT IN SMART MANUFACTURING

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### Abstract :

An IOT plays consequential role in Smart Manufacturing. The accuracy, time and money is very important in the today's world. The person finding reluctant and trouble to control the industrial appliances, but by IOT works efficiently. By attaching the sensors and wireless devices to the system making it powerful and intelligent.

The purpose of this paper is to providing the application of IOT in smart manufacturing in various domains. The aim of this paper is to implement the application of IOT in smart manufacturing process into an advanced, automotive, time consuming & efficient process. The study of this paper is an attempt to describe the IOT with the various key challenges i.e. Architecture, technology imported IOT, scope etc. This survey represents the latest scenario of art technology of IOT in a orderly method. This system endeavor a complete influential low cost, Eco friendly way of real time invigilate and preventive of devices.

**Keywords** -Smart Manufacturing, Internet of thing, Automotive, Sensors, Industrial appliances.

### I.Introduction

#### a) Internet Of Things :

- Today, IOT influence the complete aspects of human life, billions of people are using the Internet of Things nowadays in the form of the applications. Basically, IOT is a network in which all the Physical objects are interlink with each other to the internet through electronic network and interchange or communicate the data. IOT permits object to whom controlled remotely

across current network infrastructure . As IOT helps to reduce the manual work as well as easy access to physical devices . This technology has self-governing control aspect by which any device can monitored without any human interplay. It is clear that after some years, the IOT will available in all kinds of application, whether it's working, communicating, or even in smart manufacturing, managing to modern or fresh way of living.

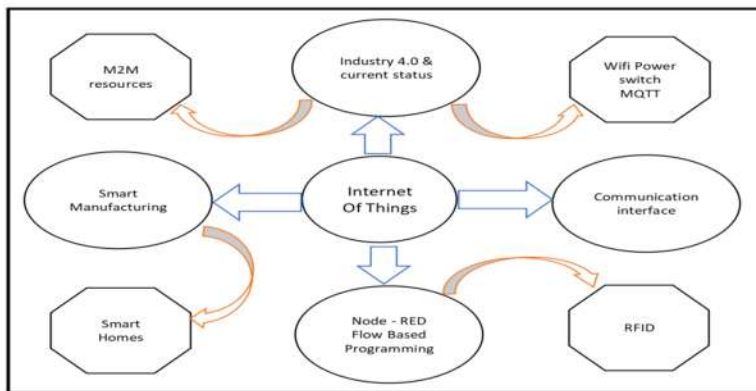
- In this paper, we will focus the new concept of IOT in modern industries in smart manufacturing, The modern manufacturing industry implementing the new fresh techniques such as the internet of the things (IOT), big data analytic, cloud computing, M2M (machine to machine) and cyber security to cope with system complexity, enhancing communication, visibility and benefiting advantages in mordial market . This advantages are rapidly enabling a new way of “Smart Manufacturing”.
- This paper represents a review of the IOT technologies and its systems that are backbone of data driven innovations in manufacturing. We focus the evolution of internet from the era of computer networks to the latest era i.e. human networks of smart and linked to networks of manufacturing things, (e.g. materials, sensors, equipment, people, products, and supply chain) . The IOT motives is to make use of smart techniques by connecting things anytime achieve anything at any place. In addition we extant a new structure that focus IOT and cloud computing to develop a virtual network. In this way, the IOT has enhancing its role and application in the field of “Smart Manufacturing”.
- Smart Manufacturing becomes the automation in manufacturing and helps the shop floor work make the manufacturing process easier and faster with good quality producer, hence absorbing the automation and reducing the human efforts and consuming the time. As IOT and big data conduct to the procurement of the manufacturing system, the physical world is transferred in cyberspace through data driven information processing, modelling and simulation . This concept represent a theoretical review of IOT technologies and system that are enablers of data driven innovation in smart manufacturing.
- Smart Manufacturing is expanded category of manufacturing high levels of the adaptability and fast design changes, digital information technology and more versatile technical workforce training . As smart manufacturing becomes a latest trend in imparting business and economic growth , a large number of network machines are used to carry out the manufacturing works.
- This machines leads to enable the same or different functions or works and some machine rely heavinly on the output from other machines. This paper discuss the current IOT scenario with its background , Section 1 give the



introduction , Section 2 briefly describes the background and scope of IOT including the version of IOT . Section 3 shows the basic architecture of IOT . Section 4 discuss various application of IOT. Section 5 discuss the lay challenges and section 6 concludes the paper.

### **b) Technology imparted IOT :**

In this content, we present an integrated views of technologies, standard, tools, frameworks and platforms that helps the end to end internet of things (IOT), such in general terms and highlight the specific



Industrial IOT solution components.

The Technology of IOT is smart manufacturing that expanded category of manufacturing that assign computer integrated manufacturing , high levels of adaptability , & fast design changes, digital information technology, & more versatile technical workforce training other fundamental technology industry 4.0 & current status, which is game changing for manufacturing & warehousing .

RFID which works by allowing microchips to transfer identifying data to the reader via wireless medium. Machine to machine which is direct communication between devices using any communicating channel, including wired & wireless. A lot of other technologies and devices includes NODE RED flow based programming , smart homes, wifi power switch with MQTT and communication interfaces etc. also getting used to make a comprehensive network to empower IOT.

### **c) IOT Architecture :**

Because of outstanding opportunities IOT promises, many fields for the inclusion of product in their business process. In other way the challenges of inventing a better architecture of IOT inertably requires the stages . Among all



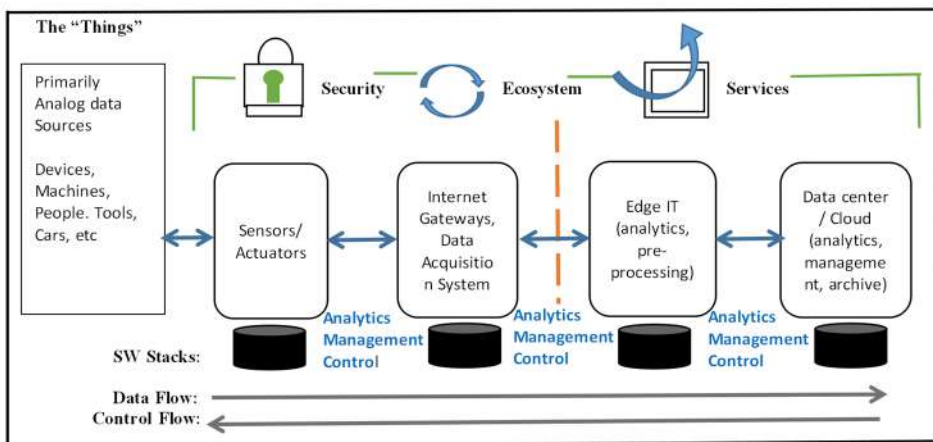
of the factors that defends the IOT architecture , its simple and more efficiency to know a reliable provider of IOT solution.

In simple terms, the 4 stages IOT architecture consists of :

1. Sensors & actuators.
2. Internet gateways and Data Acquisition systems.
3. Edge IT.
4. Data centre & cloud.

### 1. Sensors & Actuators -

The most fundamental feature about the sensor is the capability of conversion the information coming into the outer world data for analysis.



For actuators, the process goes even further this devices are able to prevent or alter the physical reality . In this way sensors, and actuators steps carries and adjusts everything that required in the physical world to get the necessary insight for further analysis.

### 2. Sensor data aggregation system and analog to digital data conversion -

In this stage of IOT architecture means works in a close relationship with sensors and actuators, Internet gateways and DAS appear due too, they later connect to sensor network & aggregate output, while the internet gateways works through wifi. The crucial part of this stages is to process the amount of information gather on the last stage and compose it to the excellent size for furthermore analysis with the necessary timing & structure happen.

### **3. Edge IT -**

In this stage the data is converted into the IT world. In particular edge IT systems perform enhanced analytic and pre-processing here. Additionally, stage 3 is the inter connection or interlinked to the previous stages for the information of an architecture of IOT. In this way the location of edge IT system is close to one where sensors & actuators are situated , creating a wiring closed. At the same time , the residing in remote offices is also possible.

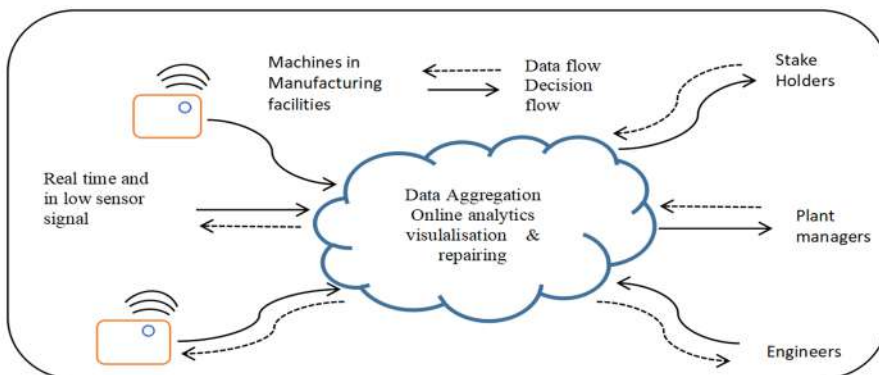
### **4. Analysis , Management & storage of data -**

The main part on this stage is the data center or cloud . Precisely , it enables in depth processing,, along with a follow up revision for feed base. Here the skills of the both IT & OT are needed . Also meeting all the quality standard and requirements , the information is brought back to the physical world but in a processed & precisely analyzed appearance already.

#### **d) Vision :**

In Simple terms, machine vision is an image processing technology that enables automated object scanning within a set field of view, plant operators mount cameras, for example on production lines or cells for real time process control , product inspection and sorting and robot guidance .

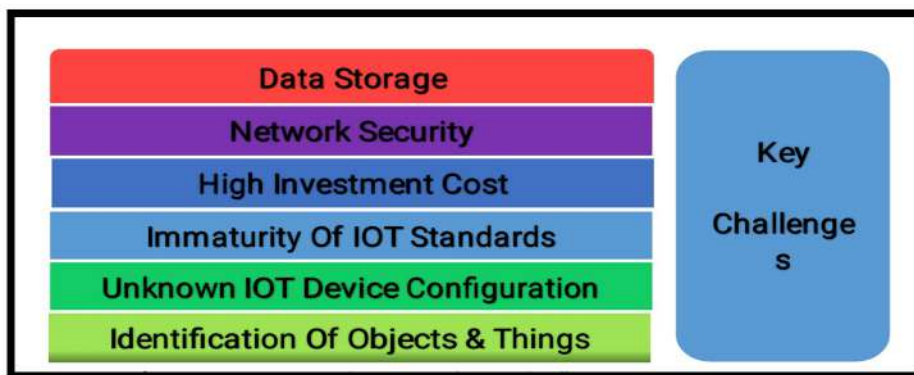
Machine vision is centered to the idea of smart factory base upon common cutting network and the intelligence exchange of information among sensors, device and machines. Acting as the eye's of the factory, image processing system based on industrial camera as can compute information that was previously gathered and analyzed by humans .This reduce errors and enables robots to react flexible to production controls need .



As the infrastructure of manufacturing system becomes smarter , more operation are being carried out by an increasing number of machines . The IOT employs a multitude of sensors output , known as machines signatures , provide an unprecedented opportunity for optimal decision making in manufacturing . However , realizing full potential of IOT for smart manufacturing depends to a greater extent , on addressing the challenges .

## **II. Key Challenges**

The data storage is immense problem. The cooperation and coordination of millions of administrating devices recommended on internet, The data requires more space to store. The sensor devices redirect data either over wired or wireless transmission media. Network security creates a problem. Putting data online particularly data analogous to critical equipment's may seem vulnerable. These data easily hacked and may be miss-used, In today's world huge amount of different types of sensors and devices are in attendance. It is very prominent to identify proper objects and things. Intelligibly, nobody wants to invest in IOT's version. Because the reason behind them while IOT standards are still in blossoming . That's why Immaturity of IOT standards in market. The different system have versatile models and design .The different configuration models for IOT devices which come from unknown owners. Moving from one end of the maturity meaningful investment. Companies try to make the leap from



beginning to end in one step, due to high investment cost.

The vision of the smart manufacturing is completing in three challenges :-

### **● First challenges:-**

Is to know the status of each machines. This status induces not only fact of being busy as not, but also the health conduction, in the sense of whether it is

functioning properly or not better challenging is also sometimes challenging and time consuming.

● **Second challenge:-**

Is how to mate the use of status of various machines to distribute task to each machines. Under the circumstances, distributing task dynamic to machines based on the sensor status of each machines.

● **Third challenge:-**

The third challenges includes originates from the communication between machines possibly including the coordinating machines if they exist. In addition, manufacturing asserts are closed system that cannot be controlled fully from the outside even if a two way flow of information exist.

### **III. Application**

**1) Quality check :-**

Factories creating complicated products like microchip and circuit board are making use of machine vision , which equips AI with conceivable high resolution cameras . This technology capable of apprehend minute details and defect for more assuredly than the human eye .

**2) Maximize production :-**

Due to the smart manufacturing production rate is increase less time takes in production .Indirectly help in profit of factory .

**3) Maintenance :-**

Smart factories are making use of Azure machine learning to detect andpredict defects in there machinery earlier issue make an appearance . This authorize for productive maintenance demolish unexpected delays .

**4) Faster more reliable design :-**

Due to the smart sensors the work will be done faster . the more optimizing model design can be produce .

**5) Supply chain communication :-**

The introductory data can also be used to communicate the links in the supply chain. Keeping delays to a minimum as concurrent updates and request write away available .

#### **IV. Scope of future work**

- **Automatic air compressor** is the integrated concept of IOT and smart manufacturing. In this concept Android app is used to control the flow of air.
- No need to present at operating places. The air compressor can be manipulated with the help of Android App from anywhere. The different pressure are used for various applications, whatever as per need .
- The components like solenoid valve , Android App, Air compressor, WiFi, Arduino, Pressure sensor, Air pressure relief , Relay ,etc are be used.
- We can also control air pressure directly with the Air pressure relief by making it rotate automatically and adjust its rotation according to the pressure asked for.

#### **V. Conclusion**

Now a days, Industry 4.0 Smart Manufacturing is vogueable term in the field of Smart Manufacturing Engineering. As per requisite of fourth industrial revolution, "Industry 4.0", configuration is propound in this paper for application of IOT in Smart Manufacturing. With the adventation of IOT in the sector of Smart Manufacturing Engineering, facet live safe solution for shop floor environment, furtherance of life cycle of product, less product damage, maximum production, faster more reliable design, prediction technology, good quality, manufacturing automation, supply chain optimization and inventory management, etc. aid for industry standardization were encompass under single umbrella of Framework of IOT and smart manufacturing system.

Industry 4.0 aims to enhance the Manufacturing system to a new generation of Cyber - physical system for smart manufacturing. This paper presented an delineation of concept of IOT Architecture, Technology imparted IOT , vision, key challenges, application and possible scope. The architecture, Technology imparted, vision gives the brief knowledge of smart manufacturing and IOT. The challenges are additionally in essence talk about to give an discernment issue faced, to making industries manufacturing smart.

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**A STUDY TO EVALUATE THE EFFECTIVENESS OF BENSONS  
RELAXATION THERAPY ON BLOOD PRESSURE AMONG  
PREGNANCY INDUCED HYPERTENSIVE WOMEN VISITING  
ANTENATAL OPD IN RAJINDRA HOSPITAL OF DISTRICT  
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**ABSTRACT**

Pregnancy induced hypertension is a condition which affect the health of mother and baby and sometimes if the blood pressure goes beyond limits, results in longer hospitalization which leads to increased stress and decreased coping mechanism in the women. WHO expert committee (1996) and Joint National Committee report on prevention detection and evaluation of high blood pressure recommends non-pharmacological treatment as the first measure in control of hypertension.

**Aim of the study:**

The aim of the study is to evaluate the effect of Bensons relaxation therapy on level of blood pressure among pregnancy induced hypertensive women visiting antenatal OPD.

**Methodology:**

A randomized control trial (pre-post test control group design) was conducted in Antenatal OPD of Rajindra hospital of district Patiala, Punjab. Forty mild pregnancy induced hypertensive women were selected purposively assigned randomly to experimental and control group by using chit method. Pre test of both groups was taken by measuring blood pressure than Bensons relaxation therapy was demonstrated and video sent through social media (whats App) to the experimental group . Instructions were given them to continue the therapy for 10 minutes thrice a day for 10 days and telephonic reminder was given for a period of 10 days. No intervention to control group. Post test of both groups was taken after ten days by measuring blood pressure

**Results**

The Results of the study indicated that mean  $\pm$  SD post test score of SBP/DBP ( $129.1 \pm 7.8$ ) ( $83.7 \pm 4.8$ ) was lower than the mean  $\pm$  SD pre test score( $145.5 \pm 4.4$ ) ( $93.4 \pm 4.6$ ) with mean difference (16.4) (9.7) for SBP/DBP in experimental group. In experimental group the mean  $\pm$  SD post test score of SBP/DBP ( $129 \pm 7.8$ ) ( $83.7 \pm 4.8$ ) was lower than the mean  $\pm$  SD post test score( $144.0 \pm 6.1$ ) ( $91.8 \pm 6.8$ ) of control group with mean difference (14.9) (8.1). The computed t value of SBP/DBP was greater than the table value at  $p < 0.05$  level of significance. Benson relaxation therapy was found effective in reducing blood pressure among PIH women. The investigator also identifies that there was no significant association of PIH women with demographic and obstetrical variables except parity.

**Conclusion:**

The Bensons relaxation therapy, a non pharmacological measures is effective in reducing blood



pressure among mild pregnancy induced hypertensive women.

**Key words:** Effectiveness, Bensons relaxation therapy, Pregnancy induced hypertensive women.

## **Introduction**

**“The health of a mother and child is a more telling measure of a nation's state than economic indicators”**

**Harjit Gill (2015)**

In the life cycle, a female has to undergo various stages like daughter, wife, mother, mother in law and grandmother. Among these one of the most beautiful and memorable event is becoming a mother. Pregnancy is the period of happiness expectancy, excitement, anxiety and fear for her. In this wonderful period she spends each and every day in pleasant anticipation, waiting to hold her bundle of joy in her arms at the end of the ninth month .

Pregnancy is the period from conception to birth also known as gravidity or gestation. It is the time during which one or more offspring develops inside a women. It usually lasts around forty weeks from the last menstrual period. Most of the women may not have any problem during pregnancy but some are not so lucky, face various problems related to pregnancy and childbirth<sup>1</sup> Hypertensive disorders of pregnancy are important causes of maternal mortality. They account for nearly 18% of all maternal deaths world wide, with estimated 62,000 to 77,000 deaths per year. The crude incidence of preeclampsia and eclampsia as per WHO region (SEARO) is 2.7% and 1.3% and the crude incidence of preeclampsia and eclampsia in India is 2.1% and 1.2%.<sup>2</sup> Hypertensive disorders during pregnancy are classified into four categories, as recommended by the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy: These are gestational hypertension, or pregnancy-induced hypertension, which is hypertension without proteinuria; preeclampsia, hypertension with proteinuria; and chronic hypertension, or essential hypertension, which is pre-existing hypertension with or without superimposed preeclampsia.<sup>3</sup>

Pregnancy induced hypertension is the development of new hypertension in a pregnant women after twenty weeks of gestation but it can also develop at the time of delivery or right after delivery. Pregnancy induced hypertension more commonly occurs during first pregnancy, or in subsequent pregnancies. It is also more common in pregnant teens and in women over age 40, other than that it is common in women carrying multiples and women whose sisters and mothers had Pregnancy induced hypertension.<sup>4</sup>

Hypertensive disorders of pregnancy are the prime causes for early hospitalization, labour induction, maternal and foetal morbidity and mortality. With high blood pressure there is an increase in the resistance of blood vessels which may hinder blood flow in many different organ systems in the expectant mother including the liver, kidneys, brain, uterus and placenta. Pregnancy induced hypertension can prevent the placenta (which gives oxygen and food to the baby) from getting enough blood. If the placenta doesn't get enough blood, baby gets less oxygen and nutrition. This can cause low birth weight and other problems for the baby. Few women develop a condition called eclampsia (PIH with seizures), which is very serious for the mother and baby, or other serious problems. Because of their risks it may be necessary for the baby to be delivered early before 37 weeks gestation.

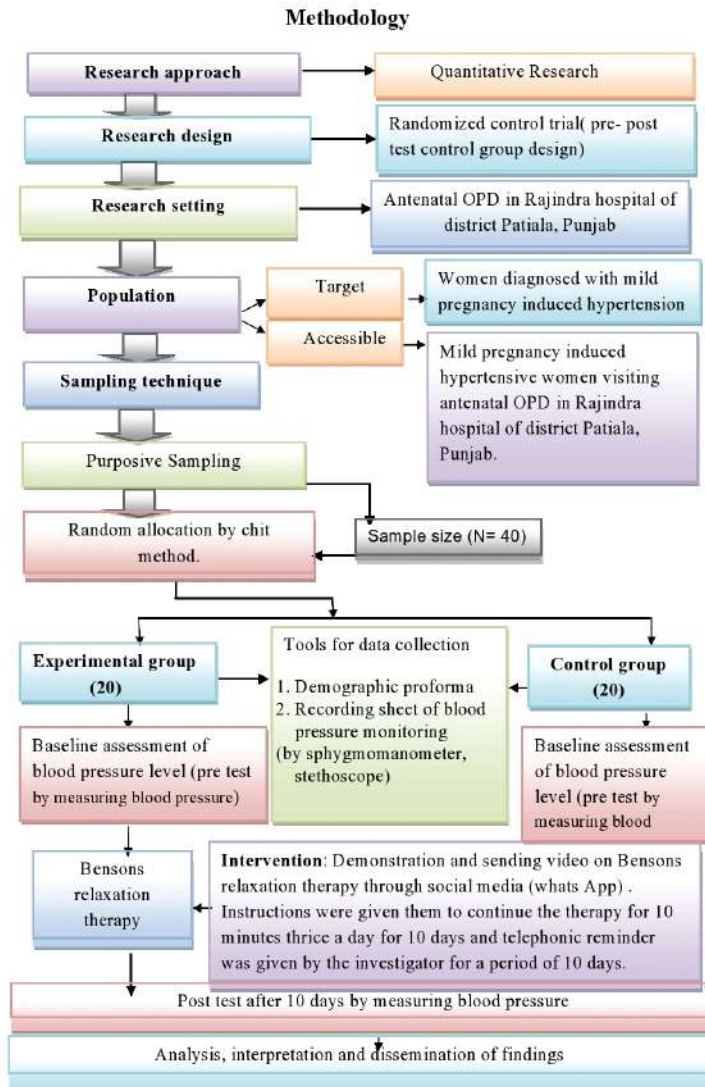


Figure 2: Schematic representation of Research Methodology



### Research Design

A Randomized control trial ( pretest post test control group design) was adopted

E	O <sub>1</sub>	X	O <sub>2</sub>
C	O <sub>1</sub>	-	O <sub>2</sub>

**Figure 3: Schematic representation of research design**

E= Experimental Group

O<sub>1</sub>= Pre test by measuring blood pressure

X= treatment ( Bensons relaxation therapy )

O<sub>2</sub>= Post test by measuring blood pressure after intervention

C= Control group

- = No intervention

### Research setting

The study was conducted in antenatal OPD of Rajindra hospital of district Patiala Punjab.

### Target Population

In this study population consists of antenatal women who are diagnosed by a doctor with mild pregnancy induced hypertension

Accessible Population: Mild pregnancy induced hypertensive women visiting antenatal OPD in Rajindra hospital of district Patiala, Punjab.

### Sample And Sampling technique

Sample size was calculated using Rao software and sample size was found to be 37 at 10% margin of error and at 90% level of confidence. The value was rounded off and the sample size was taken as 40. The sample was selected purposively and assigned randomly to experimental (20) and control (20) group by using chit method.

### Description of tools

The following tools were developed to collect data for evaluating the effect of Benson relaxation therapy on women with mild pregnancy induced hypertension.

- Part I= Demographic and Obstetrical variables



- Section-A:- Demographic variables, which had 5 items. It included information about age ,habitat ,diet, qualification, occupation.
- Section-B:- Obstetrical variable , which had 5 items .It included information about parity ,period of gestation (weeks) ,family history of pregnancy induced hypertension, pregnancy induced hypertension in previous pregnancy ,number of foetus in womb.
- Part2= Recording sheet of blood pressure monitoring (By sphygmomanometer and stethoscope).
- Part 3=Procedure of Bensons relaxation therapy.

## RESULTS

The collected data was tabulated in the master data sheet (MDS) and statistical data were performed using SPSS (version 16). Collected data were analyzed according to objectives and hypothesis of the study using descriptive and inferential statistics.

**Finding were organized under the following section :-**

**Section – A:-** Description of sample characteristics.

**Section B :-** Baseline level of blood pressure among pregnancy induced hypertensive women.

**Section C :-** Effectiveness of Bensons relaxation therapy on blood pressure among pregnancy induced hypertensive women.

- a. Comparison of mean pre and post test score of blood pressure in experimental group.
- b. Comparison of mean post test score of blood pressure in experimental and control group.

**Section D:-** Association of blood pressure with selected demographic and obstetrical variables.



SECTION A

Description Of sample characteristics

Table -1:Frequency , percentage distribution and homogeneity of demographic and obstetrical variables

N=40(20+20)

Sample characteristics	Experiment group		Control group		$\chi^2$	df	P-value
	f	%	f	%			
Demographic variables							
1. Age(In years)							
18 – 26	9	45.0	8	40.0			
27 – 34	10	50.0	8	40.0	1.962 <sup>#</sup>	2	0.461 <sup>NS</sup>
35 – 42	1	5.0	4	20.0			
2. Habitat							
Rural	13	65.0	11	55.0	0.417	1	0.519 <sup>NS</sup>
Urban	7	35.0	9	45.0			
3. Diet							
Vegetarian	11	55.0	11	55.0			
Non-vegetarian	9	45.0	9	45.0	0.000	1	1.000 <sup>NS</sup>
Mixed	0	0.0	0	0.0			
4. Qualification							
Under matric	7	35.0	3	15.0			
Matric	2	10.0	7	35.0			
10 + 2	6	30.0	7	35.0	4.801 <sup>#</sup>	3	0.203 <sup>NS</sup>
Graduate and above	5	25.0	3	15.0			
5. Occupation							
Housewife	14	70.0	14	70.0			
Labour	0	0.0	1	5.0			
Private sector	4	20.0	5	25.0	2.723 <sup>#</sup>	3	0.551 <sup>NS</sup>
Govt. Sector	2	10.0	0	0.0			

### Obstetrical variables

#### 1. Parity

Primiparous	13	65.0	15	75.0	0.476	1	0.490 <sup>NS</sup>
Multiparous	7	35.0	5	25.0			

#### 2. Period of gestation

(weeks)

25 – 29	6	30.0	3	15.0	1.316 <sup>#</sup>	2	0.609 <sup>NS</sup>
30 – 34	7	35.0	9	45.0			
35 – 39	7	35.0	8	40.0			

#### 3. Family history of PIH

Yes	0	0.0	0	0.0	-	-	-
No	20	100.0	20	100.0			

#### 4. PIH in previous

pregnancy

Yes	3	15.0	4	20.0	0.000 <sup>\$</sup>	1	1.000 <sup>NS</sup>
No	17	85.0	16	80.0			

#### 5. Number of foetus in

Womb

Single	20	100.0	20	100.0	-	-	-
Twins	0	0.0	0	0.0			
Triplets	0	0.0	0	0.0			

# - Fisher's exact test      \$ - Yates' corrected test      NS      Non-significant

Table 1 illustrates that in experimental group (50%) of PIH women were lying in age group 27-34 whereas, in control group (40%) PIH women lying in 27-34 and 18-26 age group. Majority (65%) and (55%) of PIH women in experimental and control group were from rural habitat. In experimental and control group majority(55%) of PIH women are vegetarian. Under qualification (35%) of PIH women were under matric in experimental group and 10+2 in control group . Majority of PIH women(70%) were housewives in experimental group and control group respectively. Majority (65%) and (75%) of women were primiparous in experimental and control group respectively. In experimental group (35%) of PIH women were having period of gestation in between 30 - 34 weeks , 35 - 39 weeks and in control

group (45%) of women were having period of gestation 30 -34 weeks. In both experimental and control group there is no family history of PIH. In experimental(85%) and control group (80%) majority of women were not having PIH in previous pregnancy. Both in experimental and control group the women were having single number of foetus in womb.

To determine the homogeneity of experimental and control group chi square Fisher's exact test and Yates' corrected test was used and it was found to be non-significant for demographic and obstetrical variables. Hence experimental and control group were homogenous in all aspects.

**Table 2: Baseline level of blood pressure among pregnancy induced hypertensive women in experimental and control group**

N=40(20+20)

Group	SBP(Systolic Blood Pressure)		DBP(Diastolic Blood Pressure)	
	Range	Mean $\pm$ SD	Range	Mean $\pm$ SD
Experiment	140 – 150	145.5 $\pm$ 4.4	90 – 100	93.4 $\pm$ 4.6
Control	140 – 150	144.4 $\pm$ 4.2	90 – 100	92.5 $\pm$ 4.4

Table 2 shows that in experimental group the mean  $\pm$  SD of SBP/DBP is(145.5  $\pm$  4.4/93.4  $\pm$  4.6) with range 140-150/90-100 and in control group the mean  $\pm$  SD of SBP/DBP is (144.4  $\pm$  4.2/92.5  $\pm$  4.4 ) with range140-150/90-100 .





value (14.641/23.240) of SBP/DBP was greater than the table value (2.09) at p-value <0.05 level of significance. Hence inferred that findings were statistically significant so null hypothesis was rejected. Therefore Benson relaxation therapy was found effective in lowering the level of blood pressure.

**H<sub>02</sub>:** There is no significant difference between mean score of post test readings of blood pressure among the antenatal women in experimental and control group.

**H<sub>2</sub> :** There is significant difference between mean score of post test readings of blood pressure among the antenatal women in experimental and control group.

**Table-4: Comparison of mean post test score of blood pressure in experimental and control group.**

N= 40 (20+20)

Group	SBP(Systolic Blood Pressure)				DBP(Diastolic Blood Pressure)			
	Range	Mean ± SD	Mean difference	t-test	Range	Mean ± SD	Mean difference	t-test
Experiment	120 – 140	129.1 ± 7.8			80 – 90	83.7 ± 4.8		
			14.9	6.735*			8.1	4.344*
Control	138 – 160	144.0 ± 6.1			84 – 110	91.8 ± 6.8		

t<sub>38</sub>= 2.024

\* Significant at p-value <0.05

NS Non-significant

Table 4 shows in experimental group the mean ± SD post test score of SBP/DBP (129.1 ± 7.8 ) (83.7 ± 4.8) was lower than the mean ± SD post test score(144.0 ± 6.1) (91.8 ± 6.8) of control group with mean difference (14.9) (8.1). The computed t value (6.735) ( 4.344) of SBP/DBP was greater than the table value (2.024) at p<0.05 level of significance. Hence inferred that findings were statistically significant so null hypothesis was rejected. Therefore Benson relaxation therapy was found effective in lowering the level of blood pressure.

#### Section D

##### Association of blood pressure with selected demographic and obstetrical variables.

In order to determine the association of blood pressure among pregnancy induced hypertensive women with selected demographic variables following hypothesis was formulated:

$H_{03}$ : There is no significant association between pregnancy induced hypertensive women with selected demographic and obstetric variables.

$H_3$ : There is significant association between pregnancy induced hypertensive women with selected demographic and obstetric variables.

##### Association of blood pressure with selected demographic and obstetrical variables .

N=20+20					
Sample characteristics	N	SBP(Systolic Blood Pressure)		DBP(Diastolic Blood Pressure)	
		Mean ± SD	F/t-value	Mean ± SD	F/t-value
Demographic variable					
1. Age(in years)					
18 – 26	17	144.9 ± 4.5		92.8 ± 4.3	
27 – 34	18	144.3 ± 4.4	0.865 <sup>NS</sup>	92.8 ± 4.6	0.150 <sup>NS</sup>
35 – 42	5	147.2 ± 2.7		94.0 ± 5.5	
2. Habitat					
Rural	24	144.6 ± 4.1		92.4 ± 4.1	
Urban	16	145.5 ± 4.7	0.656 <sup>NS</sup>	93.8 ± 5.0	0.920 <sup>NS</sup>
3. Diet					
Vegetarian	22	144.1 ± 4.3		92.3 ± 4.3	
Non-vegetarian	18	146.0 ± 4.2	1.416 <sup>NS</sup>	93.8 ± 4.7	1.058 <sup>NS</sup>
4. Qualification					
Under-matric	10	145.0 ± 4.5		93.0 ± 4.8	
Matric	9	145.3 ± 4.4	0.727 <sup>NS</sup>	93.3 ± 5.0	1.734 <sup>NS</sup>



10 + 2	13	146.7 ± 4.1		91.0 ± 2.9	
Graduate and Above	8	146.5 ± 4.5		95.5 ± 4.9	
<b>5. Occupation</b>					
Housewife	28	144.9 ± 4.3		92.8 ± 4.4	
Labour	1	146.0 ± -	1.100 <sup>NS</sup>	90.0 ± -	2.034 <sup>NS</sup>
Private sector	9	144.0 ± 4.4		92.2 ± 4.4	
Govt. sector	2	150.0 ± 0.0		100.0 ± 0.0	
<b>Obstetrical variable</b>					
<b>1. Parity</b>					
Primiparous	28	143.8 ± 4.2	2.846*	92.1 ± 3.9	1.961 <sup>NS</sup>
Multiparous	12	147.7 ± 3.2		95.0 ± 5.2	
<b>2. Period of gestation (weeks)</b>					
25 – 29	9	146.0 ± 4.2		93.3 ± 5.0	
30 – 34	16	143.8 ± 4.5	1.068 <sup>NS</sup>	92.1 ± 4.0	0.448 <sup>NS</sup>
35 – 39	15	145.6 ± 4.1		93.6 ± 4.8	
<b>3. Family history of PIH</b>					
Yes	0	-	-	-	-
No	40	144.9 ± 4.3		92.9 ± 4.5	
<b>4. PIH in previous Pregnancy</b>					
Yes	7	146.9 ± 3.8	1.305 <sup>NS</sup>	94.3 ± 5.3	0.865 <sup>NS</sup>
No	33	144.6 ± 4.3		92.7 ± 4.3	
<b>5. Number of foetus in Womb</b>					
Single	20	144.9 ± 4.3		92.9 ± 4.5	
Twins	0	-	-	0	-
Triplets	0	-		0	

NS Non-significant

\* Significant at p-value <0.05

Table 5 depicts that there was no association between PIH women and selected demographic variables expect parity. The calculated Anova and t test values for these variables were less than the table value at 0.05 level of significance except parity. Hence, null hypothesis was accepted but in category parity alternate hypothesis was accepted.

## DISCUSSION

" Ideas run wild without discussion."-Serge king

The findings of the study had been discussed in accordance with the objectives and hypothesis of the study to evaluate the effect of Bensons relaxation therapy on level of blood pressure among pregnancy induced hypertensive women visiting antenatal OPD in Rajindra hospital of district Patiala, Punjab.

The analysis of the data from the present study revealed that in experimental group(50%) of PIH women were lying in age group 27-34 and whereas, in control group (40%) PIH women lying in 27-34 and 18-26 age group. Majority (65%) and (55%) of PIH women in experimental and control group were from rural habitat. In experimental and control group majority(55%) of PIH women are vegetarian. Under qualification (35%) of PIH women were under matric in experimental group and 10+2 in control group . Majority of PIH women(70%) were housewives in experimental group and control group respectively. Majority (65%) and (75%) of women were primiparous in experimental and control group respectively. In experimental group (35%) of PIH women were having period of gestation in between 30 - 34 weeks , 35 - 39 weeks and in control group (45%)of women were having period of gestation 30 - 34 weeks. In both experimental and control group there is no family history of PIH . In experimental(85%) and control group (80%) majority of women were not having PIH in previous pregnancy .Both in experimental and control group the women were having single number of foetus in womb.

The study conducted by **Reshma SS et al(2012)** supports the present study, and the findings of the study demonstrated that, among the subjects, majority(53%) of PIH women were from rural habitat, 50% of subjects were vegetarians.

Majority of PIH women (86.7%) were housewives . Majority of women were primiparous (56.7%). Majority of PIH women ( 90% ) have no family history. Majority (86%) did not have previous history of PIH.<sup>9</sup>

Present study shows that mean  $\pm$  SD post test score of SBP/DBP ( $129.1 \pm 7.8$ ) ( $83.7 \pm 4.8$ ) was lower than the mean  $\pm$  SD pre test score( $145.5 \pm 4.4$ ) ( $93.4 \pm 4.6$ ) with mean difference (16.4) (9.7) for SBP/DBP in experimental group. The computed t value was greater than the table value at p-value  $<0.05$  level of significance. Hence inferred that findings were statistically significant so null hypothesis was rejected.

The study conducted by **Reshma SS et al(2012)** supports the present study and in study the result revealed mean  $\pm$  SD post test score of SBP/DBP ( $137.80 \pm 8.313$ ) ( $88.03 \pm 6.078$ ) was lower than the mean  $\pm$  SD pre test score( $141.67 \pm 8.734$ ) ( $91.00 \pm 5.477$ ) with mean difference (3.87) (2.97) for SBP/DBP. The computed t value was greater than the table value at p-value  $<0.05$  level of significance.<sup>9</sup>

Present study shows in experimental group the mean  $\pm$  SD post test score of SBP/DBP ( $129 \pm 7.8$ ) ( $83.7 \pm 4.8$ ) was lower than the mean  $\pm$  SD post test score( $144.0 \pm 6.1$ ) ( $91.8 \pm 6.8$ ) of control group with mean difference (14.9) (8.1). The computed t value (6.735) ( 4.344) of SBP/DBP was greater than the table value (2.024) at  $p<0.05$  level of significance. Therefore Benson relaxation therapy was found effective in lowering the level of blood pressure.

The study conducted by **Jazna et al (2016)** supports the present study and in this study the result revealed mean post test score of SBP/DBP ( $130.6$ ) ( $84$ ) was lower than the mean post test score( $141.75$ ) ( $92.1$ ) of control group with mean difference (9) (8.1). The computed t value (9.52) (8.11) of SBP/DBP was greater than the table value (2.05) at  $p<0.05$  level of significance. Therefore Benson relaxation therapy was found effective in lowering the level of blood pressure.<sup>21</sup>

Present study shows that there was no association between PIH women and selected demographic variables expect parity. The calculated Anova and t test values for these variables were less than the table value at 0.05 level of significance except parity. Hence, null hypothesis was accepted but in category parity alternate hypothesis was accepted.

The study conducted by **Mitsumasa Umesawa**<sup>28</sup> et al (2017) supports the findings of study in which findings revealed a significant association between PIH and parity. The study conducted by **Siphesihle Mbonane** (2015)<sup>29</sup> is contradict to the findings of study in which the findings revealed a significant association between socio demographic variables and obstetric history ( $p=0.001$ ).

### CONCLUSION

The Bensons relaxation therapy, a non pharmacological measures is effective in reducing blood pressure among mild pregnancy induced hypertensive women.

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## ICT: THE GREAT BOON IN SOIL TESTING DATA ANALYSIS

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### **Abstract**

Soil Testing is one of the important aspect in the world of agricultural industry. Nashik is the popular “Grape city “in the Maharashtra. Use of pesticides in grape farm is necessary. About 45 Vineyard; Grape growing soil samples was collected from three talukas in Nashik District and tested for its pesticides residue and physicochemical parameters. The present study reviewed and discusses the contribution of different computer software's such as SPSS, Ms-Excel as well as Analyst in the soil testing data analysis which can efficiently improve monitoring and interpretation systems.

**Keywords:** Vineyard Soil, SPSS , Ms-Excel,Soil testing data analysis.

**Introduction:** Use of Information and Communication Technology is an emerging field focusing on improvement of the whole world that constitutes components of communication devices such as radio, television, cellular phones,computer network,hardware and software as well as satellites also.[7]

Soil analysis is a valuable tool for farm as it determines the inputs required for efficient and economic production. A proper soil test will help to ensure the application of enough fertilizer to meet the requirements of the crop while taking advantage of the nutrients already present in the soil. In practice, soil testing is used in the following main ways such as, a diagnostic tool, to help identify the main reasons for poor plant performance, to confirm some nutrient deficiencies, as a means for predicting fertilizer rate and type for individual situations [5].

The conventional practices used in soil analysis are although reasonable and cost effective but its very tedious with low accuracy interpretation.In order to get prompt and quick results innovative and high tech instruments were come up in agricultural field for soil testing .Falcon and auto probe are modern soil sampler that can drags soil in cores installed with GPS The system creates information which is very helpful for users to make superior fertility decisions, optimize their input efficiency and enhance fertilizer accuracy [13] also has ability to collect soil samples upto 150 acres per hour. Near – Infrared Reflectance Spectroscopy (NIRS) has the ability to estimate 20 soil characteristics at a time in one test only. On the report we can get results of



analysis, fertilizer requirement, and information about water retention curve, soil structure, and organic matter. [3,4,13]. Mobile van for soil testing is the mobile soil testing lab with all analytical instruments and different sensors technologies. The main asset of this van is that it provides soil health cards to the farmers at his own agricultural field. Now a days Handheld Device (Soil Testing Kit) is also used as one of the soil diagnostic system which is affordable, usable and actionable. [14,16,17]. Arduino is the electrochemical sensor system applicable in assessment of major soil nutrient level as, Nitrogen, Phosphorous and Potassium (NPK) which plays an important role in the yield of crop. [15]

In the vineyards loss of grape production is due to grapevine pests which causes destructive fungal diseases like Downy Mildew, Powdery Mildew, Black Rot, Botrytis Bunch Rot, Anthracnose. The use of chemical pesticides have to use to protect the production of grapes. Both inorganic and organic fungicides strongly bound with the soil leaving pesticides residue [8]. Pesticides may reach the soil through direct application to the soil surface, incorporation in the top few inches of soil, or during application to grapes. Pesticides can also enter ground water resources and surface run-off during rainfall, thereby contributing to the risk of environmental contamination [6]. Due to the large number of pesticides on the world market, the development of multi-residue methods is preferred in terms of pesticide residue analysis. Soil testing data analysis is crucial part. The implementation of computer application software's is an easy pathway to report the farmers about their soil nutrient status as well as contamination due to pesticides residue which will be highly advantageous for them.

### **Experimental Work:**

**Study Area:** Three major grape growing tahasils from Nasik district as, Niphad, Dindori, and Nasik were selected as study area. Grape farm of five progressive farmers were selected from each talukas for proposed study. Classification of vineyards was done based on sale market of grapes. 5 soil samples from different villages of each taluka were collected by proper soil sampling method in such a way that, 2 soil samples from export quality grape growing field and 3 soil samples from random field. (Indian sale market). Codes are given as A to O for 15 soil samples. Soil samples were collected from the study areas by proper soil sampling methods [1, 11] in three levels for determination of their physicochemical parameters and to analyze for soil pesticides residues throughout the year. Total 45 soil samples were analyzed for their contamination of pesticides residues.

- 1) August to September 2012 at the time of pruning, before application of pesticides. (Lean Period).

- 2) November to December 2012 at the time of growth, after application of pesticides. (Peak period).
- 3) February to March 2013 at the time of harvesting.(Harvest period)

**Table: 1 Information about collected soil samples**

Taluka	Soil Sample Code	Village(Place)	Sale Market
NIPHAD	A	Kasbe Sukhene	India
	H	Pimpalgaon	Export
	K	Kundewadi	Export
	M	Kothure	India
	O	Ugaon	India
DINDORI	B	Vadner	India
	C	Khedgaon	Export
	I	Korate	Export
	J	Shindwad	India
	N	Dindori	India
NASHIK	D	Aadgaon	Export
	E	Aadgaon	Export
	F	Makhmalabad	India
	G	Panchavati	India
	L	Mungsara	India

**Material and Methodology:**

Soil Samples were analyzed by multiresidue pesticide analysis with analytical modern instruments GCMS/MS and LCMS/MS by using analyst software. Multiresidue pesticide analysis is a selective and sensitive method of analysis for simultaneous determination of pesticides of different chemical classes. Soil physicochemical analysis was done by standard chemical procedure [9]

Soil testing data analysis was done by using statistical software, Statistical Package for the Social Sciences (SPSS version 16.0). SPSS is a powerful, user-friendly software package for the manipulation and statistical analysis of data [2]. Tables and graphs were prepared by Microsoft excel (Windows 7). For qualitative data, frequency count N and percentage were put in a tabular and graphical manner. For quantitative data, descriptive statistics was presented by N, Mean, Standard Deviation and Range. To analyze the data, appropriate statistical tests were applied such as General Linear Model (GLM) of Repeated Measures .

## Results and Discussion:

### ➤ Quantitative Data Analysis

**Table 2 : The hypothesis and error SSCP matrices for testing the effects in the model.**

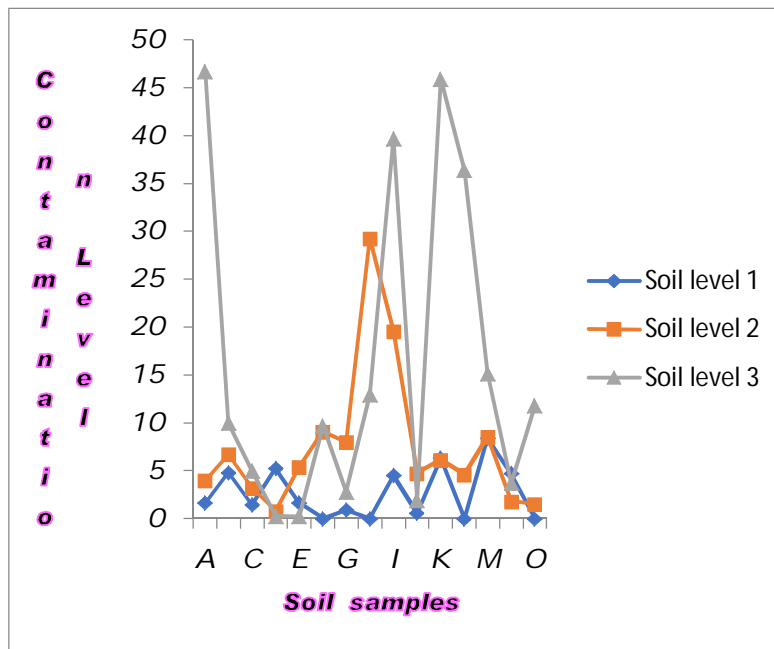
Between-Subjects SSCP (sum of square & cross product) Matrix			
			pesticides
Hypothesis	Intercept	pesticides	2063.00
	soil blocks	pesticides	299.99
	pesticides	pesticides	46770.00
Error		pesticides	123500.00
Based on Type III Sum of Squares			

When there is just one measure, the matrices each have one element, which correspond to the sums of squares in the tests of between-subjects effects.

**Table 3: This is an analysis of variance table. (ANOVA)**

Tests of Between-Subjects Effects						
Measure:pesticides						
Transformed Variable:Average						
Source	Type III Sum of Squares	Df	Mean Square	F	p value	Partial Eta Squared
Intercept	2063.437	1	2063.437	4.194	<b>0.042</b>	0.016
soil levels	299.991	1	299.991	0.61	0.436	0.002
pesticides	46765.377	17	2750.905	5.591	<b>0.000</b>	0.275
Error	123490.433	251	491.994			

The significance value for pesticides less than 0.05, so it can be concluded that pesticides contribute to the model. The significance value for soil levels means soil samples collected in three batches is greater than 0.10, so it appears there is no interaction effect. It means each soil sample is different. The large partial eta squared values for pesticides shows that it explains a mild variation in soil levels. (i.e. 27%) Look at the profile plots for a visual representation of the effects of these variables.



**Figure1: Mean plot for soil sample -wise contamination**

Figure1 indicates contamination of soil samples A to O for three soil levels. At soil level 1, M soil sample showed highest contamination level whereas at soil level 2, higher contamination level showed in I & highest in H soil sample. At the time of harvesting, soil samples A, K, I & L soil samples showed comparatively more contamination than other soil samples.

**Table 4: Area wise and soil testing time wise contamination**

Measure: area	Estimates			
Soil area	Soil Levels	Mean	95% Confidence Interval= Mean + / - SE	
			Lower Bound	Upper Bound
A	1	1.62	0.2126	3.0354
	2	3.98	-3.134	11.094
	3	46.70	-22.70	116.1
B	1	4.83	0.67	8.99
	2	6.71	-4.79	18.21
	3	10.0	0.8	19.20
C	1	1.44	-0.72	3.61
	2	3.19	-0.408	6.788
	3	5.0	-3.0	13.0
D	1	5.26	-5.26	15.78
	2	0.80	-0.24	1.84

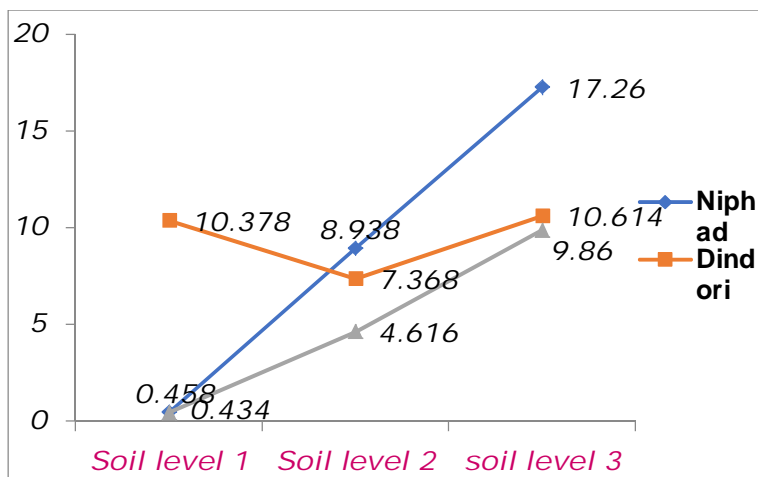
	3	0.30	0.1	0.50
E	1	1.64	0.179	3.101
	2	5.41	-0.456	11.276
	3	0.20	-0.2	0.6
F	1	0.0	0.0	0.0
	2	9.08	0.794	17.366
	3	9.70	-2.3	21.70
G	1	0.91	-0.212	2.02
	2	7.97	-2.564	18.504
	3	2.80	-1.0	5.8
H	1	0.0	0.0	0.0
	2	29.27	-27.984	86.524
	3	12.90	-1.9	27.7
I	1	4.52	1.091	7.949
	2	19.57	8.662	30.478
	3	39.7	15.70	63.70
J	1	0.58	-0.58	1.74
	2	4.74	-3.778	13.258
	3	1.9	-0.7	4.50
K	1	6.32	-4.184	16.824
	2	6.14	-0.26	12.54
	3	45.9	-14.7	22.11
L	1	0.0	0.0	0.0
	2	4.6	-1.84	11.04
	3	36.4	-23.8	96.6
M	1	8.42	1.3	15.556
	2	8.54	-1.442	18.522
	3	15.2	-1.4	31.80
N	1	4.72	-1.68	11.12
	2	1.79	-0.116	3.696
	3	3.7	-2.10	9.5
O	1	0.0	0.0	0.0
	2	1.52	-0.138	3.178
	3	11.8	-0.0046	23.60

Soil level wise, the values of contamination level of pesticide residues were described in the form of mean Standard Error (SE) and 95 % confidence intervals. Here, 95 % confidence intervals tell about future estimates of contamination level of pesticide residues in the different soil levels. Above table shows estimated approximate judgment of contamination level of pesticide residues in selected grape farms at three soil levels. It was found that most of the soil samples have higher contamination at soil level 3 i.e. at the time of harvesting as compared to soil level 1 and 2.

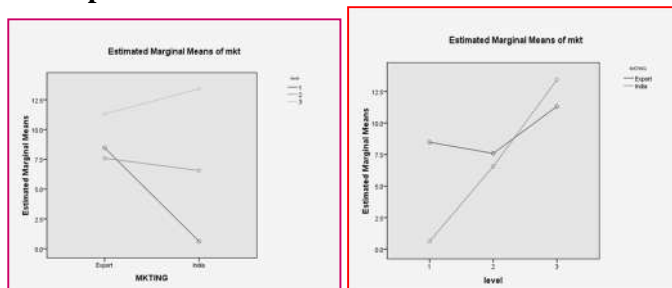
**Table 5: Taluka wise variation of contamination in soil levels**

Taluka	Soil level 1	Soil level 2	soil level 3
Niphad	0.458	8.938	17.26
Dindori	10.378	7.368	10.614
Nashik	0.434	4.616	9.86

Above table express talukawise contamination throughout the year in three soil levels. In first batch at soil level 1 Dindori taluka shows highest contamination among three talukas, in second batch at soil level 2 Niphad taluka indicates slightly higher contamination than Dindori. While in third batch at soil level 3 again Niphad taluka shows highest contamination as compared to others. It was observed that, Nashik area showed lowest contamination level than Niphad & Dindori



**Figure 2: Mean plot for taluka - wise contamination.**



**Figure 3: Mean plots for market -wise contamination**

As discuss earlier at each soil level out of five samples collected from each taluka two soil samples are from export quality grape growing farms. Results interprets that at soil level 1 export market showed notably higher contamination level than Indian market. At soil level 2 export market showed just higher contamination level than Indian market. At the time of harvesting India market showed higher contamination level than export market. It was observed that India market showed constant and high growth in contamination level for each soil level as compared to export market. Export quality grape growing soil shows lower contamination at the time of harvesting which avoids contamination of pesticide residues in grapes and fulfills all the condition required for export of grapes. This indicates that these farmers have knowledge about proper management of pesticides throughout the year.

To find the relationships between the physicochemical parameters of soil samples collected from different grape farms from study area, the correlation coefficient “r” was calculated by using following formula used by Pearson (1957)

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{n(\sum x^2) - (\sum x)^2} \sqrt{n(\sum y^2) - (\sum y)^2}}$$

Where  $n$  is the number of pairs of data (x, y).

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**Table 6: Pearson correlation coefficients between soil physicochemical parameters of soil samples**

Data	PH	E.C.	Water holding capacity	Calcium carbonate	Organic carbon	Organic matter	Nitrogen	Phosphorus	Potassium	% sand	% clay
E.C.	0.247										
Water holding capacity (WHC)	-0.373	-0.252									
Calcium carbonate	0.217	0.13	.951*								
Organic carbon	-0.207	-0.1	.688*	.616*							
Organic matter	-0.209	-0.102	.884*	.820*	.711*						
Nitrogen (N)	0.15	-0.157	.818*	.742*	.618*	.765*					
Phosphorus (P)	-0.328	-0.147	.892*	.828*	.660*	.802*	.558*				
Potassium (K)	-0.113	-0.125	.758*	.660*	.606*	.721*	.680*	.550*			
% sand	0.215	0.458	.733*	.808*	.576*	.706*	.478*	.680*	.600*		
% clay	-0.255	0.018	.938*	.802*	.714*	.822*	.786*	.771*	.618*	.521*	
% silt	0.058	-0.449	.781*	.792*	.493*	.597*	.646*	.524*	.506*	0.374	.734*

The correlations between soil physicochemical parameters are shown in table. There were significant and positive correlation between found in



between water holding capacity and calcium carbonate ( $r = 0.951$ ,  $p < 0.01$ )  $r$  value indicates very high correlation between these parameters, with organic carbon ( $r = 0.688$ ,  $p < 0.01$ ), organic matter ( $r = 0.884$ ,  $p < 0.01$ ) shows high correlation, with NPK also it was positively and significantly correlated ( $r = 0.818$ ,  $p < 0.01$ ), ( $r = 0.892$ ,  $p < 0.01$ ), ( $r = 0.758$ ,  $p < 0.01$ ) respectively. WHC shows significant positive correlation with % sand ( $r = 0.733$ ,  $p < 0.01$ ), % clay ( $r = 0.938$ ,  $p < 0.01$ ) and % silt ( $r = 0.781$ ,  $p < 0.01$ ) also. It was interesting to note that, the correlation coefficient value between % clay and water holding capacity indicates very strong and highly significant correlation between these two parameters. As discussed earlier clay soil composed of very fine particles due to which it has higher water holding capacity. Significant and positive correlation of WHC with almost all other parameters except  $p^H$  and E.C. reflects importance of this parameter in soil. The significant and positive correlation is also found among major nutrients NPK. As well as organic matter and NPK also shows significant and positive correlation proved that, organic matter plays an important role in availability of nutrients. While there was not significant correlation can be found in between  $p^H$  and E.C. [12]

**Conclusion:** As time is money, ICT is the great boon which has potential to work out the process rapidly and efficiently. In the today's modern technologically advanced world, all these techniques have to reach up to the farmers of rural areas also, as India is an agricultural country. Farmers do not need to go to the lab and wait for couple of months for the results and recommendation. But in the economic point of view again question raises about funding. The Government should take initiative in educating the farmers by the agricultural extension officers and release grants subsidies for them. Several soil parameters can be measured simultaneously. But for this farmers should be encouraged to accept such a cost effective strategies that will help in soil conservation and better environmental protection. Regular programs in the media, written and audio visual are needed for the farmers to make them aware of such Techniques. Then and then only a dream of **Green Revolution** comes in a truth.

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## A STUDY OF PHYSICAL FITNESS OF SECONDARY SCHOOL STUDENTS WITH SPECIAL REFERENCE TO THEIR RURAL URBAN DICHOTOMY

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### Abstract

The study was intended to explore the level of physical fitness of rural and urban secondary school students. 400 respondents were selected with due representation of gender. The age groups of the subjects were ranged 15-19 years. Whole data was selected by using Convenient Sampling Technique (CST). The Run test (Cooper Test), 10 meter agility shuttle test and Sit and reach test were employed for measuring selected physical fitness the respondents. The data was subjected to statistical treatment by using inferential statistics. The results revealed that there exists no significant differences between rural and urban respondents on all the three selected components of physical fitness, viz. Cardiovascular Endurance (CE), agility and flexibility.

**Keywords:** Physical Fitness, Cardiovascular Endurance, Agility, Flexibility, Urban Secondary School Students, Rural Secondary School Students.

**1.1: Introduction:** General fitness implies the ability of a person to live most effectively with his/her potentials, which depend upon the physical, mental, emotional, social and spiritual components of fitness which are highly interrelated. Fitness is dynamic quality that allows one to satisfy all needs regarding mental and emotional stability, social consciousness and adaptability, spiritual and moral fibre and organic health consistent with the individual heredity, fitness has become a national concern. Health related physical fitness includes this aspect of physiological function that offers protection from diseases resulting from sedentary lifestyle<sup>4</sup>. It can be improved or maintained through regular programme of physical activities that adheres to the principles of exercise. Specific components of health related physical fitness include muscular strength, power, speed, agility, balance, flexibility and endurance etc. The departure from the traditional notion of fitness as a result in a clear differentiation between physical fitness related to functional health and well-

being. The primary components of physical fitness identified by the president's council on physical fitness and sports were muscular strength, muscular endurance and cardio respiratory endurance. However, later on the president council also included some other motor performance components namely agility, speed, flexibility and balance in physical fitness. The components of the physical fitness are reported as under:

- ❖ **Endurance:** A muscles ability to perform a maximum contracture time after time. (Continuous explosive rebounding through an entire Basketball game).
- ❖ **Strength:** The extent to which muscles can exert force by contracting against resistance(holding or restraining an object or person).
- ❖ **Power:** The ability to exert maximum muscular contraction instantly in an explosive burst of movements (Jumping, sprint/ starting).
- ❖ **Agility:** The ability to perform a series of explosive power movements in rapid succession in opposing directions.
- ❖ **Balance:** The ability to control the body position, either stationery or while moving.
- ❖ **Flexibility:** The ability to achieve an extended range of motion without being impeded by excess tissue, i.e. fat or muscle (Executing a leg split).
- ❖ **Local muscle endurance:** A single muscles ability to performand sustains work.
- ❖ **Cardiovascular Endurance:** The heart ability to deliver blood to working muscle and their ability to use it.
- ❖ **Coordination:** The ability to integrate the above listed components, so that effective.

Therefore, fitness refers the ability to live a full and balanced life.The importance of physical fitness is well exemplified since the beginning of the human civilisation. Hilman, S. D. (2017) remarked “The wealth of a nation does not depend much in its economical and natural resources but more decidedly in the kind and quality of the health of its children and youth. It is they who will be the creators and shapers of a nation's tomorrow. The children of today will be the adults of tomorrow. Their quality and personality will determine the kind of destiny that the nation will have. Therefore, it becomes mandatory for every nation and every society to nurture a strong, healthy and intellectual youth. It is the responsibility of the adults to direct the youth in the desired direction”.Indeed, large number of research studies has been conducted on physical fitness. There results has been revealed in contrary approach. Some studies report that impact of locality is significant and some studies argued insignificant like;Carlson, J. J., Dejong, G. K., Robison, J. I., &Heusner, W.W. (1994), Tomik, R. (2008), Trudeau, F., and

Shephard, R. J. (2008), Henning, B., Stark, T. (2001) and Rahil, A. G. (2013), Wright, J. (1996). Accordingly, the investigator feels it pertinent to explore the level of physical fitness of the female respondents in relation to their type of school. The detailed statement of the problem is as under:

**1.2: STATEMENT OF THE RESEARCH PROBLEM:** The statement of the research problem is as under:

**“A Study of Physical Fitness of Secondary School Students With Special Reference To Their Rural Urban Dichotomy”**

**1.3: OBJECTIVES OF THE STUDY:** The objectives of the present study are as under:

- 1) To explore the level physical fitness of rural and urban secondary school students on below mentioned components:
  - a) Cardiovascular fitness
  - b) Agility
  - c) Flexibility

**1.4: Hypothesis:** Following hypothesis has been framed for the present study:

- 2) There exists no significant difference between rural and urban secondary school students below mentioned components of physical fitness:
  - a) Cardiovascular fitness
  - b) Agility
  - c) Flexibility

**1.5: Operational Definition:** The operational definitions of terms and variables are as under:

- 1) **Physical Fitness:**Physical fitness in the present study refers the set of achievement obtained by respondents on Run test (Cooper Test), 10 meter agility shuttle test and Sit and reach test.
- 2) **Urban Secondary school adolescents:** Urban Secondary school adolescents in the present study refer those respondents who belong to Srinagar District and are reading in 11<sup>th</sup> or 12<sup>th</sup> classes.
- 3) **Rural Secondary School adolescents:** Rural Secondary School adolescents in the present study refer those respondents who belong to Anantnag, Kulgam Shopian and Pulwama Districts of Union Territory of Jammu and Kashmir.
- 4) **Dichotomy:** In the present study, the dichotomy of the respondents was made on the basis of residential background of Secondary School Students (SSS). The residents of Srinagar District were operationally treated as urban respondents and the residents of Anantnag, Shopian and Pulwama were treated as rural respondents.

**1.6: DELIMITATIONS OF THE STUDY:** The present study will be confined to the following aspects:

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- A) The present study will be delimited four Districts viz. Anantnag, Kulgam Pulwama, Srinagar and Shopian of Kashmir Division of Union Territory of Jammu and Kashmir.
- B) The study will be delimited to health related physical fitness of the respondents. Besides, it is imperative to mention here that only below mentioned three components of physical fitness were included in the study:
- ❖ Cardiovascular fitness
  - ❖ Agility
  - ❖ Flexibility

**1.7: Methodology:** The intention behind the present study was to explore the physical fitness of the respondent in current setting. The investigator found it suitable to go through descriptive survey method. Accordingly, present study was carried with the help of descriptive method. The parameters involved in methodology and procedure are as under:

- ❖ **1.7.1: Sample:** The sample for the present study consists of 400 respondents with due representation of type of school. The age groups of the subjects were ranged 14-19 years. Whole data was selected by using Random Sampling Technique (RST). The below mentioned table indicates the precise explanation of sample:

**Table:** 1.1: Showing the selection of sample with dichotomy representation.

Category	USSS	RSSS
Sample	200	200
Total= 400		

**Index:**

- USSA= Urban Secondary School Students
  - RSSA= Rural Secondary School Students
- ❖ **1. 7.2: Instrument used:** All the three components were assessed separately the detailed analyses of these instruments is reported as under:
    - A) **Cardiovascular fitness:** Cardiovascular fitness was analysed with 12 minute Run test (Cooper Test). Place markers at set intervals around the track to aid in measuring the completed distance. Participants were runner for 12 minutes and the total distance covered is recorded. However, walking was allowed, though the participants must be encouraged to push themselves as hard as they can.
    - B) **Agility:** Agility was assessed using 10 meter agility shuttle test. Mark two lines 10 meters apart using marking tape or cones. The

two blocks was placed on the line opposite the line they was going to start at. On the signal "ready", the participant places their front foot behind the starting line. On the signal, "go!" the participant sprints to the opposite line, picks up a block of wood, runs back and places it on or beyond the starting line. Then turning without a rest, they run back to retrieve the second block and carry it back across the finish line. Two trials are performed.

C) **Flexibility:** Sit and reach test for flexibility was employed for measuring the level of flexibility of the respondents.

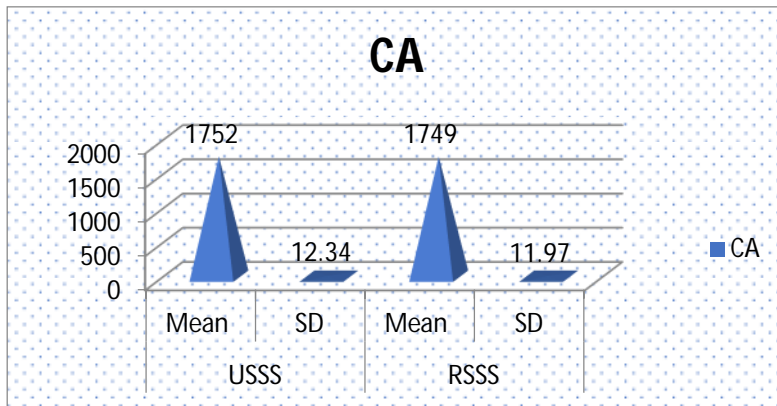
**1.8: Statistical Technique Employed:**The collected data was put to suitable statistical treatment by using Mean, SD and 't' value. The detailed procedure of statistical treatment is analysed as under:

**Table: 1.2: Showing significance of difference between mean scores of rural and urban secondary school students on cardiovascular component of physical fitness. (N=200 each)**

Category	USSS		RSSS		't' value
	Mean	SD	Mean	SD	
Cardiovascular Endurance	1752	12.34	1749	11.97	1.33**

Index:

- USSA= Urban Secondary School Students
- RSSA= Rural Secondary School Students
- \*\*= Insignificant at 0.05 level of confidence.



Index:

- USSA= Urban Secondary School Students
- RSSA= Rural Secondary School Students
- CA= cardiovascular endurance



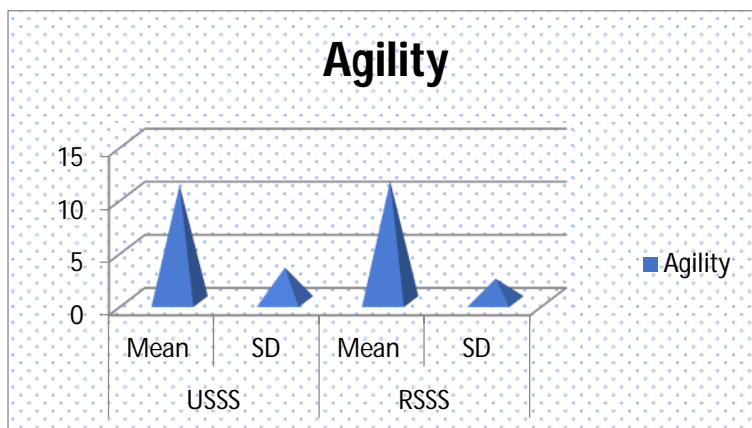
**Fig: 1.2: Showing significance of graphical representation of rural and urban secondary school students on cardiovascular component of physical fitness.**

**Table: 1.3: Showing significance of difference between mean scores of rural and urban secondary school students on agility component of physical fitness. (N=200 each)**

Category	USSS		RSSS		't' value
Agility	Mean	SD	Mean	SD	0.50**
	10.99	3.21	11.37	2.17	

**Index:**

- USSA= Urban Secondary School Students
- RSSA= Rural Secondary School Students
- \*\*= Insignificant at 0.05 level of confidence.



**Index:**

- USSA= Urban Secondary School Students
- RSSA= Rural Secondary School Students

**Fig: 1.3: Showing significance of graphical representation of rural and urban secondary school students on flexibility component of physical fitness.**

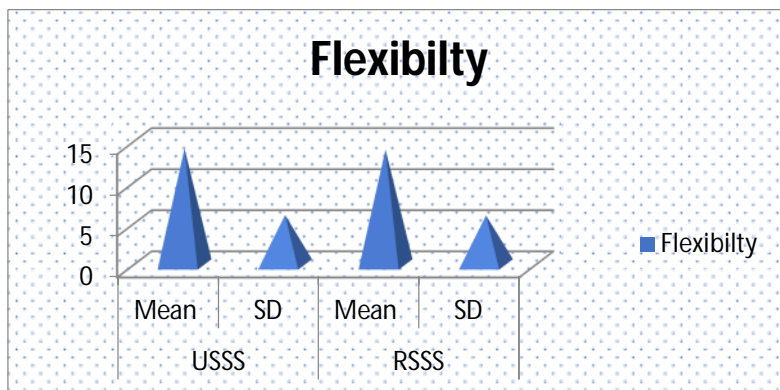
**Table: 1.4: Showing significance of difference between mean scores of rural and urban secondary school students on flexibility component of physical fitness. (N=200 each)**



Category	USSS		RSSS		't' value
Flexibility	Mean	SD	Mean	SD	0.36**
	14.12	6.03	13.99	5.96	

Index:

- USSA= Urban Secondary School Students
- RSSA= Rural Secondary School Students
- \*\*= Insignificant at 0.05 level of confidence.



Index:

- USSA= Urban Secondary School Students
- RSSA= Rural Secondary School Students

**Fig: 1.4: Showing significance of graphical representation of rural and urban secondary school students on flexibility component of physical fitness.**

**1.9:INTERPRETATION AND DISCUSSION OF THE RESULTS:** The statistical results reported in above mentioned table are interpreted and discussed as under:

- ❖ **1.9.1: Interpretation For table 1.2 (Fig. 1.2):** The results presented in table 1.2 (Please refer Fig. 1.2) gives information about the mean comparison of rural and urban secondary school students on their Cardiovascular Endurance (CE). The results reveal that the mean score incase of Urban Secondary School Students (USSS) was reported 17.52. However, the mean score of Rural Secondary School Students (RSSS) was found 46.70. When the both groups were analysed statistically, the calculate 't' value came out to be 1.33, which is insignificant at 0.01 level of confidence. Thus, from the above results it can be inferred that there exists no significant difference rural and urban secondary school students on their Cardiovascular Endurance. Identical level of

Cardiovascular Endurance was reported among both the groups of students. Thus, the research can inferred that the locality seems insignificant impact on the level of Cardiovascular Endurance (CE) of the respondents.

- ❖ **1.9.2: Interpretation For table 1.3 (Fig. 1.3):** The inspection of the table 1.3 (Please refer Fig. 1.3) gives information about the mean comparison of rural and urban secondary school students on their level of agility. The results reveal that the mean score incase of urban secondary school students (USSS) was reported 10.99. However, the mean score of rural and urban secondary school students was found 11.37. When the both groups were analysed statistically, the calculate 't' value came out to be 0.50, which is insignificant at 0.01 level of confidence. Thus, from the above results it can be inferred that there exists no significant difference between rural and urban secondary school students on their level of agility. Identical level of agility was reported between both the groups of students. Thus, the research can inferred that the locality seems insignificant impact on the level of agility of the respondents.

- ❖ **1.9.3: Interpretation For table 1.4 (Fig. 1.4):** The results obtained in table 1.4 (Please refer Fig. 1.4) gives information about the mean comparison of rural and urban secondary school students on their level of flexibility. The results reveal that the mean score incase of Urban Secondary School Students (USSS) was reported 14.12. However, the mean score of Rural Secondary School Students (RSSS) was found 13.99. When the both groups were analysed statistically, the calculate 't' value came out to be 0.36, which is insignificant at 0.01 level of confidence. Thus, from the above results it can be inferred that there exists no significant difference rural and urban secondary school students on their level of flexibility. Identical level of flexibility was reported among both the groups of students. Thus, the research can inferred that the locality seems insignificant impact on the level of flexibility of the respondents. Hence, investigator can inferred that locality (rural urban dichotomy) has no any significant impact on the level of selected physical fitness of the respondents. In the light of the results reported above the status of the hypothesis reported in item 1.4 (Please Refer Item No: 1.4) is indicated as under:

**“HYPOTHESIS (H<sub>1</sub>) itemised in item 1.4: “There exists no significant difference between rural and urban secondary school adolescents below mentioned components of physical fitness:**

- ❖ **Cardiovascular fitness**
- ❖ **Agility**

**❖ Flexibility”****.....Status: (Accepted)**

Irrefutably, the previously established hypothesis has been accepted. However, apart from the above reported results level of physical fitness (PF) of secondary school students in relation to their rural urban dichotomy has been explored. Accordingly, the investigators feel pertinent to mention that the **Objective NO. 1, (Item 1.3)** has been investigated, which reads as:

❖ **“OBJECTIVES-O<sub>I</sub>: “To explore the level physical fitness of rural and urban secondary school students on below mentioned components:**

- a) Cardiovascular fitness**
- b) Agility**
- c) Flexibility”.**

**1.10: CONCLUSIONS OF THE STUDY:** The study was intended to explore the level of physical fitness of secondary school students with special reference to their rural urban dichotomy. In connection to same, it was found that there exists no significant difference between rural and urban secondary school students on their level of Cardiovascular Endurance, agility and Flexibility. Identical level of flexibility, agility and Cardiovascular Endurance was reported among both the groups of students. Thus, the research can inferred that the locality seems insignificant impact on the level of physical fitness of the respondents. The results are carried in consonance of host of the research like; **Sahil, A. D. (2005), Carlson, J. J., Dejong, G. K., Robison, J. I., &Heusner, W.W. (1994), Tomik, R. (2008), Trudeau, F., and Shephard, R. J. (2008), Henning, B., Stark, T. (2001) and Rahil, A. G. (2013)**

**1.11: CONFLICT OF INTERESTS:** Keeping the results of the present study under consideration, no any conflict of interest has been declared.

**1.12: SUGGESTIONS OF THE STUDY:** The present study washas produced a fund of knowledge for the further research. Some of them are as under:

- 1) Secondary school students are adolescents and adolescence is a period during which physical and psychological complexities are arising rapidly, so keen attention should be provided by teacher’s especially physical education teachers in contributing towards the level of physical education of the students.
- 2) It was observed while surveying the related literature, that hygienic environment and physical fitness is positively correlated so that hygienic environment should be provided by the school administration in schools so that level of physical fitness may be enhanced.
- 3) Classroom-based physical activity, recess, active transportation policies that encourage safe walking or biking to and from school, intramural, club, and

sports activity programs and other types of before and after school physical activity opportunities should supplement physical activity provided through physical education.

- 4) Shared use policies that make physical activity facilities available to the community during out-of-school time should also be in place to facilitate physical activity outside of school hours. Increasing other school-based physical activity should not be an excuse to cut or substitute for the quantity of physical education.
- 5) “Khalo India” initiative should be strictly implemented in the school. So that it will provide opportunities for sublimation of instincts.
- 6) Physical education teachers should coordinate the physical activity initiatives that are integrated throughout the school day. Teachers should use physical education homework to extend time spent in physical activity and improve knowledge gain.
- 7) Physical education should be made as a core academic subject, so that students may get ample opportunity to avail physical activities in schools.

**1.13: RECOMMENDATIONS FOR FURTHER RESEARCH:** The present study is not an exception rather it opens certain opportunities for further research in the field of present investigation. However, following few suggestions are recommended as per the results reported in the study.

- 1) Present study explored the impact of locality on the physical fitness. Keeping in view, a comparative study may be conducted on the level of physical fitness among male and female students. So that the impact of gender may get explored.
- 2) Present study was limited to physical fitness; a study may be conducted to explore the level of physical fitness among respondents in relation to their attitude towards organisation of physical type of activities.
- 3) A study may be conducted to explore the level of physical fitness of the adolescents in relation to their level of stress management.
- 4) A study may be conducted to analyse the level of physical fitness of the secondary school adolescents in relation to their level of sports participation.

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## A STUDY OF LEVEL OF EMOTIONAL MATURITY OF MALE AND FEMALE ADOLESCENTS OF JAMMU DISTRICT

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### Abstract

The present study was conducted to explore the level of emotional maturity of male and female adolescents of District Jammu. 100 male and 100 female adolescents were selected from different higher secondary schools of Jammu District with due representation of gender. These respondents were selected by using random cum stratified sampling technique. Emotional Maturity Scale (EMS) developed by Dr. Yashvir Singh and Dr. Mahesh Bhargava (1999) was used for data collection. The data was subjected to statistical treatment by using Mean, Standard Deviation and 't' test. The results indicate that there is insignificant impact of gender on the level of emotional maturity of adolescents. Identical level of emotional maturity was observed among male and female adolescents.

**Key words:** Emotional maturity, Female adolescents, Male Adolescents.

**1.1: Introduction:** Adolescents may also feel overwhelmed by the emotional and physical changes they are going through. The emotional development of adolescents seems ever more complex in a changing and challenging world especially in conflict zones of the world. It goes in the process of rise and decay, stable and unstable and control and out of control. The term adolescence comes from the Latin verb "adolescere", which simply means to grow, or to grow to maturity. Thus, it is the stage in which individual achieves biological maturity. Globalization and Information Technology have brought revolutionary changes in human culture and civilization. These unique trends are transforming the life of all individuals all over the world, especially of adolescents. The modernization has caused stress, anxiety and emotional disturbances in the youth and depression and anxiety rates have risen dramatically (Easterbrook, 2003). The present era has witnessed the importance of emotional maturity in the harmonious development of the adolescents. The term emotion is derived from Latin term "**emovere**" which means to stir, to agitate, to move. Hence, an emotion is referred to as a stirred up state of the



individual. In our day to day life, we feel agitated or excited in the form of anger, fear, joy, grief, disgust, etc. An emotional state of an individual consists of feelings, impulses, physical and physiological reactions. A feeling is the experience of pleasantness or unpleasantness. Every emotion is also accompanied by an impulse or inner drives towards action of one kind or another. The mode of expression depends upon the intensity of emotion. Physical and physiological components refer to the actual body movements. An emotion is always aroused by certain stimulus which may be any people, object or event. However, among all the stages of life, adolescence is considered the period in which the emotional sentiments of an individual. Smithson (1974) viewed emotional stability as a multi-trait non-cognitive psychological concept. He described it as a process in which personality is continuously striving for greater sense of emotional health, both intra-psychically and intra-personally. It enables the person to develop an integrated and balanced way of perceiving the problems of life. Andrabi, A. A. (2015) conducted a study on Emotional Intelligence among female and female adolescents of Bandipora and Kupwara districts of Kashmir and revealed that male female adolescents showed a higher level of emotional intelligence than female students. Further the study revealed insignificant differences between the male and female adolescents on the measure of emotional intelligence in female group. However, significant difference was found among the male female male and female adolescents. Sinha, V. K. (2014) examined the level of emotional maturity among female and male female adolescent girls and identified the impact of socio economic status and family structure on emotional maturity. Findings showed that male female adolescent girls had high level of emotional maturity in comparison to the female adolescent girls. Further, data analysis concluded that emotional maturity had been affected by socio economic status and family structure. Gopal, D. V. V. et al. (2013) conducted research on the effect of ethnicity and gender on emotional and behavioural problems in young adolescents and revealed that female adolescents have higher emotional, aggressive and other problems than their male female counterparts. Thus, the above studies provide ample opportunity for the research to conduct a research study which reads as:

**1.3: STATEMENT OF THE RESEARCH PROBLEM:** In the present study an attempt has been made by the investigator to study the research problem which reads as:

**“A study of level of Emotional Maturity of Male and Female Adolescents of Jammu District”**

**1.4: OPERATIONAL DEFINITION OF THE TERMS AND VARIABLES:**

The operational definitions of the terms used in the present study are:



- A) **Emotional maturity:** In the present study emotional maturity refers the dominant set of scores obtained by the respondents on Emotional Maturity Scale developed by Dr. Yashvir Singh and Dr. Mahesh Bhargava (1999).
- B) **Male and female adolescents:** Male and female adolescents in the present study refers the dichotomy made on the basis of gender of the respondents. However, in the present study male and female adolescents were selected from different Higher secondary schools of Jammu District.

**1.5: OBJECTIVES OF THE STUDY:** Present study consists of the following objectives:

- 1) To explore the level of emotional maturity of male and female adolescents on below mentioned dimensions:
  - a) Emotional stability
  - b) Social adjustment
  - c) Emotional Progression
  - d) Personality integration
  - e) Independence

**1.6: HYPOTHESES:** For the present study below mentioned hypothesis has been formulated on the basis of richness background of the knowledge of the investigator:

- 1) There exists no significant difference between female and male adolescents on their level of emotional maturity on below mentioned dimensions:
  - a) Emotional stability
  - b) Social adjustment
  - c) Emotional Progression
  - d) Personality integration
  - e) Independence

**1.7: DELIMITATION OF THE PROBLEM:** The present study will be delimited to following domains:

- 1) The study will be delimited to only secondary school adolescents within the age group of 14-22. In addition to this the study will be delimited to District Jammu of the Union Territory of Jammu and Kashmir.

**1.8: METHODOLOGY:** The methodology of the study has been stated in the following sub-headings:

- 1.8.1: Method of the study:** Keeping in view the research evidences, objectives and hypotheses; the researcher followed descriptive survey method.

**1.8.2: Sample:** As regarding to the aim, sample for the study, both Female and Male Secondary School Adolescents (M&FSSA) were selected from various Government and Private Higher Secondary Schools of Jammu District. Their age range was 14 to 22 years. The representation of gender of the respondents was kept under consideration. The sample for the present study consists of 200 respondents.

**1.8.3: Sampling Technique:** Whole sample for the present study was selected with the help of stratified Random Sampling Technique (RST).

**1.9: INSTRUMENT USED:** For measuring emotional maturity below mentioned tool was used:

- a) **Emotional Maturity Scale (EMS):-**To measure the level of emotional maturity of respondents, EMS (Emotional Maturity Scale) has been used. EMS(Emotional Maturity Scale) is a self-reporting scale developed by Singh and Bhargava (1990). This scale has a total of 48 items, measures 5 areas of emotional maturity that are emotional instability, emotional regression, social maladjustment, personality disintegration and lack of confidence.

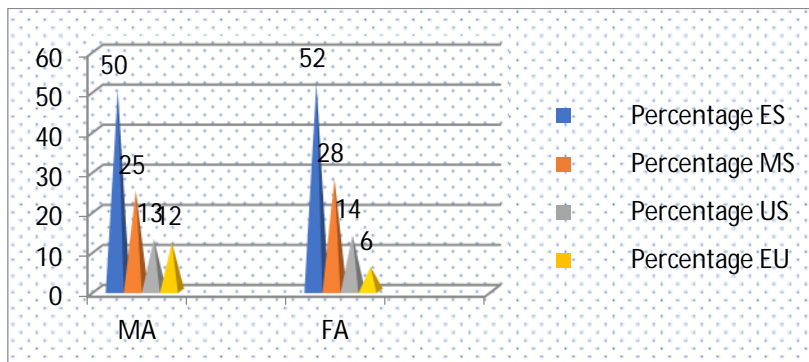
**1.10: ANALYSIS OF THE DATA:** The data has been analysed with the help of suitable statistical treatment. Descriptive and comparative analysis was used for processing the data. The detailed description of the statistical treatment is given as under:

**Table: 1.1: Showing Descriptive analysis of male and female secondary school adolescents on various levels of Emotional Maturity (EM).**

Category	Percentage				Total
	ES	MS	US	EU	
MA	50 (F=100 )	25 (F=50)	13 (F=26)	12 (F=24)	100
FA	52 (F=104)	28 (F=56)	14 (F=28)	06 (F=12)	100

**Index:**

- ❖ FA= Female Adolescents
- ❖ MA= Male Adolescents
- ❖ ES= extremely stable
- ❖ MS= moderate emotional stability
- ❖ US= unstable level of emotional maturity
- ❖ EU= Extremely unstable level of emotional maturity



Index:

- ❖ FA= Female Adolescents
- ❖ MA= Male Adolescents
- ❖ ES= Extremely stable
- ❖ MS= Moderate emotional stability
- ❖ US= Unstable level of emotional maturity
- ❖ EU= Extremely unstable level of emotional maturity

**Fig: 1.1: Showing graphical representation of the male and female adolescents on various level of emotional maturity.**

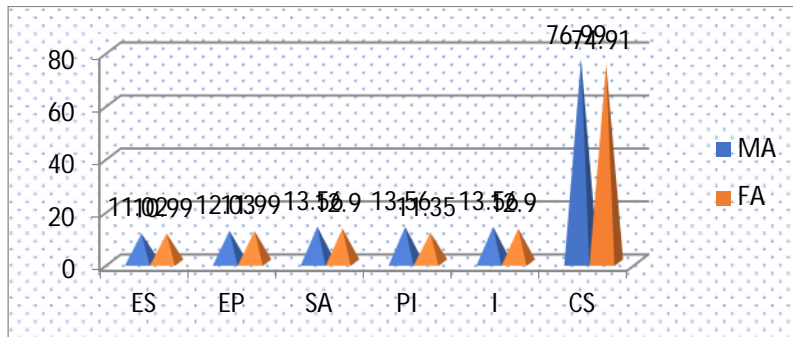
**Table: 1.2: Showing means significant difference between male and female adolescents on different dimension of emotional maturity. (N=100 each)**

Dimensions of Emotional Maturity		MA		FA		t-value
		Mean	S.D	Mean	S.D	
I	Emotional stability	11.02	1.40	10.99	1.53	0.28**
II	Emotional Progression	12.03	1.40	11.99	1.78	0.21**
III	Social adjustment	13.56	2.16	12.90	2.09	0.30**
	Personality integration	13.56	1.86	11.35	2.47	0.81**
IV	Independence	13.56	1.99	12.90	2.00	0.30**
V	Composite score	76.99	6.19	74.91	9.12	0.90**

**Index:** MA= Female adolescents

**FA:** Female adolescents

\*\*= Insignificant at 0.01 level of confidence.



### Index

- ❖ **Index:** MA= Female adolescents
- ❖ **FA:** Female adolescents
- ❖ **ES=** Emotionally Stable
- ❖ **EP=** Emotional Progression
- ❖ **SA=** Social Adjustment
- ❖ **I=** Independence
- ❖ **CS=** Composite Score

**Fig. 1.2: Showing graphical representation of male and female Secondary school adolescents on different dimension of emotional maturity.**

**1.11: INTERPRETATION OF THE DATA:** The analysed data was carefully tabulated and was systematically processed. However, after processing the data results was tableted more empirically. For clear facilitation of understanding that data was put to graphical representation. The detailed interpretation is given asunder:

The results presented in Table 1.1(Please refer Fig. 1.1) gives information about the percent-wise distribution of male and female secondary school adolescents on various levels of emotional maturity. A fleeting look on the table shows that among female secondary school adolescent's adolescents, 50% (F=100) female adolescents belong to the extremely stable level of emotional maturity whereas 25% (50) female adolescents possess moderate social maturity. However, it was observed that 13% (26) male adolescents were observed with unstable level of emotional maturity. Apart from this it was found that 12% (F=24) female adolescents were observed with extremely unstable level of emotional maturity. Coming towards the female secondary school adolescent's adolescents it was found that 52% (104) male female adolescents belong to the extremely stable level of emotional maturity whereas 28% (F=56) male adolescents possess moderate social maturity. However, it was observed that 14% (F=28) female adolescents were observed with unstable level

of emotional maturity. Apart from this it was found that 06% (12) female adolescents were observed with extremely unstable level of emotional maturity.

The perusal of the **Table 1.2 (Please Refer Please Fig. 1.2)** gives information about the mean comparison of male and female secondary school adolescents on various levels of emotional maturity. The results indicate that both the group under discussion were observed with identical level of emotional maturity. While exploring the first dimension “**Emotional stability**” of emotional maturity scale it has been observed that the two groups under discussion possess identical level of emotional maturity. The mean score of male adolescents ( $M=11.02$ ) has been found almost similar with female secondary school adolescents ( $M=10.99$ ). The calculated ‘t’ value came out to be 0.28, which is significant at 0.01 level of confidence.

Coming towards the second dimension (**Emotional progression**) of emotional maturity, it has been observed that two groups possess identical level of mean emotional progression. The mean score of male female adolescents was reported to be almost similar. The calculated ‘t’ value came out to be 0.21, which is insignificant at 0.01 level of confidence. Thus, it can be inferred that the two groups under discussion does not differ significantly with each other. Therefore, from the above results it can be said that feeling of adequate advancement and growing vitality of emotions in relation to the environment to ensure a positive thinking imbued with righteousness and contentment was observed among male and female adolescents.

The comparative analysis of the two groups (female and male female adolescents) on third dimension (**Social adjustment**) indicates again insignificant difference between two groups under discussion. The mean score of Male adolescents ( $M=13.56$ ) was reported almost similar with their counterparts (female adolescents) ( $M=12.90$ ). The calculated valued ( $t=0.30$ ) also indicated the insignificant difference between two groups under discussion. While glancing on the fourth dimension (**Personality integration**) of “emotional maturity scale” it has been observed that the two groups under discussion possess identical level of personality integration. The calculated “t” value came out to be 0.30, which is insignificant at 0.01 level of confidence.

While analysing the two groups on last dimension “**Independence**” it has been observed that two groups (male and female adolescents) did not differ with each other. The mean score of male female adolescents was reported to be ( $M=13.56$ ) as and incaseof female adolescents it was reported ( $M=12.90$ ). The calculated ‘t’ value came out to be 0.30, which is insignificant at 0.01 level of confidence. Thus, it can be inferred that the two groups under discussion differ insignificantly with each other. While analysing the two groups on composite score, it has been observed that two groups (male and female adolescents) did not differ with each other. The mean score of male female adolescents was

reported to be almost identical ( $M=76.99$ ). The mean score of female adolescents was found ( $M=74.91$ ). The calculated 't' value came out to be 0.99, which is insignificant at 0.01 level of confidence. Thus, it can be inferred that the two groups under discussion differ insignificantly with each other on their composite score. Thus to conclude, it can be said the hypothesis, which reads as **"There exists no significant difference among female and male adolescents on their level of emotional maturity on five mentioned dimensions, Emotional stability, Emotional Progression, Social adjustment, Personality integration and Independence"** stands accepted. Additionally, the results are supported by the host of the researchers, notable among them are; Sanjay, S. T. (2017), Elha, P. S. (2019), Nath, S. G. (2017) Sarvjeet Kaur (2017), (2012) and Vinita Kumari Sinha (2014).

**1.12: CONCLUSIONS OF THE STUDY:** After keen evaluation of the statistical treatment of the data, it was found that there is insignificant impact of gender on the emotional maturity of male and female adolescents. Male and female adolescents were observed with identical level of emotional maturity. Identical level of social adjustment, emotional progression, independence, personality integration and emotional stability was observed among male and female adolescents.

**1.13: RECOMMENDATIONS FOR THE FURTHER STUDY:** The present study generated the fund of knowledge and subsequently large number of recommendations was drawn for the present study:

- 1) Present study was delimited to Jammu District so the present study may be replicated on large sample.
- 2) A study may be conducted among male and female to locate the gender of locality on emotional maturity of the adolescents.
- 3) A study should be conducted to explore the level of social maturity of adolescents keeping the impact of tribe and gender under considering.
- 4) In the present study it was perceived that family environment may be impact on social-maturity maturity of the adolescents. So keeping in views, a correlative study may be conducted to verify the level of aspiration and emotional maturity of the adolescents in relation to their family environment and parental care.

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## IMMEDIATE RELEASE TABLETS OF SALBUTAMOL SULPHATE- DEVELOPMENT AND IN VITRO CHARACTERIZATION

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### Abstract

The aim of the present study is to formulate and evaluate immediate release tablets of salbutamol sulphate by using direct compression method. The tablets were prepared by varying concentrations of crosscarmellose sodium, sodium starch glycolate, crospovidone. The drug polymer compatibility were studied by FTIR studies. No significant drug polymer interactions were observed in FTIR studies. The tablets evaluated for pre and post compression parameters tests carried within limits. The F6 formulation showed good release within 60 min and it consider as a optimized.

**Keywords:** salbutamol sulphate, crosscarmellose sodium, sodium starch glycolate, crospovidone.

### 1. Introduction:

Oral route is the most convenient and extensively used for drug administration. Oral administration is the most popular route for systemic effects due to its ease of ingestion, pain, avoidance, versatility and most importantly, patient compliance suitable for industrial production, improved stability and bioavailability.<sup>1</sup>

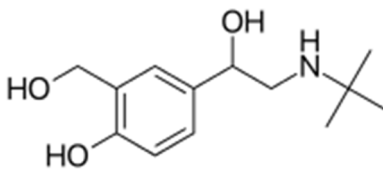
Oral route of administration is the most popular route for systemic effects due to its ease of ingestion, pain, avoidance, versatility and most importantly, patient compliance. Also solid oral delivery systems does not need sterile conditions and are therefore, less expensive to manufacture. Patient compliance, high precision dosing, and manufacturing efficiency make tablets the solid dosage form of choice. There is requirement for new oral drug delivery system because of poor patient acceptance for invasive methods, requirement for investigation of new market for drugs and combined with high cost of disease management. Developing new drug delivery techniques and that utilizing in product development is critical for pharma companies to survive this century.<sup>2-4</sup>

The term 'immediate release' pharmaceutical formulation is the formulation in which the rate of release of drug and/or the absorption of drug from the formulation, is neither appreciably, nor intentionally, retarded by galenic

manipulations. Immediate release dosage form is those which break down quickly and get dissolved to release the medicaments. In the present case, immediate release may be provided of an appropriate pharmaceutically acceptable diluent or carrier, which diluent or carrier does not delay, to an appreciable extent, the rate of drug release and/or absorption.<sup>5-7</sup>

Immediate release drug delivery is suitable for drugs having long biological half-life, high bioavailability, lower clearance and lower elimination half-life. But main requirement for immediate release dosage form is poor solubility of the drug and need the immediate action of drug to treat undesirable imperfection or disease.<sup>8</sup>

The literature reveals that previous articles shows' using of Super disintegrates like Sodium starch glycolate, cross Povidone, cross carmellosium sodium<sup>9-11</sup> and another immediate release tablets prepared by Wet Granulation & Direct Compression. Coating by Ethyl cellulose and Dibutyl sebacate were dissolved in PEG-6000, HPMC-6cps, talc and titanium di oxide<sup>12</sup>



**Figure: 1 Structure of Salbutamol**

## 2. Materials & Methods:

Salbutamol Sulphate was Procured From Aurobindo Pharma Ltd., Hyderabad. Provided by SURA LABS, Dilsukhnagar, and Hyderabad. Croscarmellose Sodium purchased from Chempure Lab, Mumbai, India, Sodium Starch Glycolate from Akin laboratories, Hyderabad, Crospovidone from Qualigens fine chemicals Mumbai, Aspartame from Nihar traders pvt Ltd, Magnesium stearate from Yarrow Chem. Products, Mumbai and Mannitol from Nice chemicals Ltd

### Instruments:

Ten station rotary tablet punching machine (lab press), Electronic balance (shimadzu), Digital vernier calipers(Remi equipments Ltd), UV/Visible-spectrophotometer (Lab India), Dissolution tester (USP) (Lab India), Digital pH meter (Lab India), Roche Friabilator (Lab India), and FT-IR spectrophotometer (Bruker)

### 2.1 Analytical method development for Salbutamol Sulphate:

#### a) Buffer Preparation:

#### Preparation of 0.2M Potassium dihydrogen orthophosphate solution:

Accurately weighed 27.218 gm of monobasic potassium dihydrogen orthophosphate was dissolved in 1000 mL of distilled water and mixed.

**Preparation of 0.2M sodium hydroxide solution:** Accurately weighed 8 gm sodium hydroxide pellets were dissolved 1000 ml of distilled water and mixed.

**Preparation of pH 6.8 Phosphate buffer:** Accurately measured 250 ml of 0.2M potassium Dihydrogen ortho phosphate and 112.5 ml 0.2M NaOH was taken into the 1000 ml volumetric flask. Volume was made up to 1000 ml with distilled water.

#### b) Determination of absorption maxima

A spectrum of the working standards was obtained by scanning from 200-400nm against the reagent blank to fix absorption maxima. The  $\lambda_{\text{max}}$  was found to be 276 nm. Hence all further investigation were carried out at the same wavelength.

#### c) Preparation of Standard graph in pH 6.8 phosphate buffer

100 mg of Salbutamol Sulphate was dissolved in method 5ml, volumetric flask make upto 100ml of Phosphate buffer of pH 6.8., form primary stock 10ml was transferred to another volumetric flask made up to 100ml with Phosphate buffer of pH 6.8, from this secondary stock was taken separately and made up to 10 ml with Phosphate buffer of pH 6.8, to produce 10, 20, 30, 40 and 50 $\mu$ g/ml respectively. The absorbance was measured at 276 nm by using a UV spectrophotometer.

#### 2.2 Drug-Excipients compatibility studies:

Drug Excipients compatibility studies were carried out by mixing the drug with various excipients in different proportions (in 1:1 ratio were prepared to have maximum likelihood interaction between them) was placed in a vial, and closed with rubber stopper and sealed properly.

**Table: 1 Formulation of Immediate Release tablets**

Ingredients	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12
Salbutamol Sulphate	4	4	4	4	4	4	4	4	4	4	4	4
Croscarmellose Sodium	10	20	30	40	-	-	-	-	-	-	-	-
Sodium Starch Glycolate	-	-	-	-	10	20	30	40	-	-	-	-
Crospovidone	-	-	-	-	-	-	-	-	10	20	30	40
Aspartame	3	3	3	3	3	3	3	3	3	3	3	3
Magnesium stearate	3	3	3	3	3	3	3	3	3	3	3	3
Mannitol	100	90	80	70	100	90	80	70	100	90	80	70
Total weight	120	120	120	120	120	120	120	120	120	120	120	120

Total weight of tablets = 120 mg

The tablets were prepared by using 6mm flat surfaced punch. The hardness of the tablets was maintained as 1.12 - 2.24 kg/cm<sup>2</sup>.

## In vitro drug release studies

### Dissolution parameters:

Apparatus	--	USP-II, Paddle Method
Dissolution Medium	--	Phosphate buffer pH-6.8
RPM	--	50
Sampling intervals (hrs)	--	5,10,15,20,25,30 and 45 minutes
Temperature	--	37°C + 0.5°C

## 3. Results and Discussion

### 3.1: Analytical Method

#### Determination of $\lambda$ max:

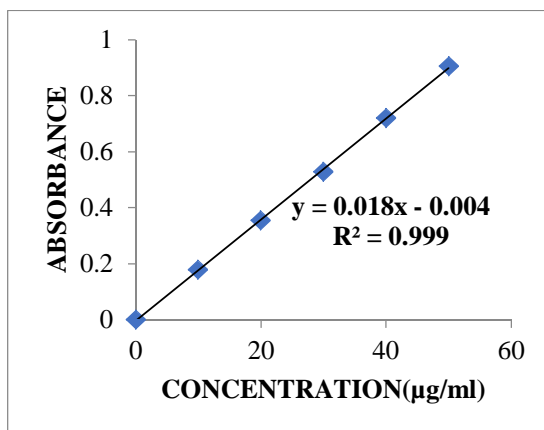
The prepared stock solution was scanned between 200-400 nm to determine the absorption maxima. It was found to be 276 nm.

#### Calibration curve of Salbutamol Sulphate:

The standard curve of Salbutamol Sulphate was obtained and good correlation was obtained with  $R^2$  value of 0.999, the medium selected was pH 6.8 phosphate buffer.

**Table: 2 Standard graph values of Salbutamol Sulphate at 276 nm in pH 6.8 phosphate buffer**

Concentration ( $\mu\text{g/ml}$ )	Absorbance
0	0
10	0.178
20	0.354
30	0.528
40	0.719
50	0.905



**Fig: 2 Standard curve of Salbutamol Sulphate**



**Table: 3 Physical properties of precompression blend (All the values represent n=3)**

Formulation code	Angle of repose (°)	Bulk density (gm/cm <sup>3</sup> )	Tapped density(gm/cm <sup>3</sup> )	Carr's index (%)	Hausner's ratio
F1	30.86±0.03	0.518±0.25	0.613±0.02	15.35±0.3	1.18±0.01
F2	33.54±0.04	0.522±0.25	0.615±0.04	15.64±0.26	1.175±0.02
F3	30.48±0.02	0.515±1.47	0.610±0.01	15.57±1.4	1.18±0.01
F4	36.27±0.06	0.522±0.34	0.621±0.04	14.87±0.35	1.185±0.06
F5	33.28±0.01	0.517±1.05	0.617±0.03	33.28±0.01	1.185±0.15
F6	34.65±0.08	0.526±0.65	0.614±0.01	15.62±0.72	1.187±0.13
F7	32.19±0.02	0.525±0.99	0.611±0.01	14.91±0.33	1.175±0.03
F8	31.10±0.02	0.522±0.36	0.623±0.02	14.56±0.20	1.170±0.01
F9	39.23±0.01	0.527±0.45	0.618±0.01	16.53±1.6	1.198±0.21
F10	35.24±0.07	0.525±0.11	0.619±0.02	15.32±0.09	1.197±0.07
F11	32.21±0.01	0.516±0.24	0.622±0.05	14.96±0.15	1.186±0.03
F12	31.24±0.04	0.523±0.45	0.612±0.01	14.95±0.66	1.17±0.02

**Table: 4 Physical evaluation of Salbutamol Sulphate**

Formulation code	Average Weight (mg)	Thickness (cm)	Hardness (Kg/cm <sup>2</sup> )	Friability (%)	Content uniformity (%)
F1	118.58	2.23	1.18	0.38	99.45
F2	119.12	2.28	1.12	0.45	99.27
F3	119.37	2.31	1.15	0.67	97.12
F4	117.62	2.48	1.19	0.49	99.94
F5	118.92	2.25	2.0	0.53	100.63
F6	120.65	2.22	2.25	0.70	98.33
F7	119.32	2.50	2.23	0.58	99.76
F8	115.46	2.33	1.16	0.26	99.23
F9	117.74	2.45	2.24	0.44	97.39
F10	119.52	2.37	1.17	0.58	100.16
F11	120.31	2.35	2.21	0.39	99.84
F12	119.88	2.43	1.16	0.46	98.63

### 3.4 Invitro drug release studies:

Time (min)	F1	F2	F3	F4
0	0	0	0	0
5	9.23	11.69	15.38	10.61
10	26.86	29.06	30.81	22.81
20	38.94	53.89	52.89	32.89
30	52.62	68.03	79.32	46.09
40	63.25	72.81	80.67	61.86
60	70.98	87.22	95.23	72.64

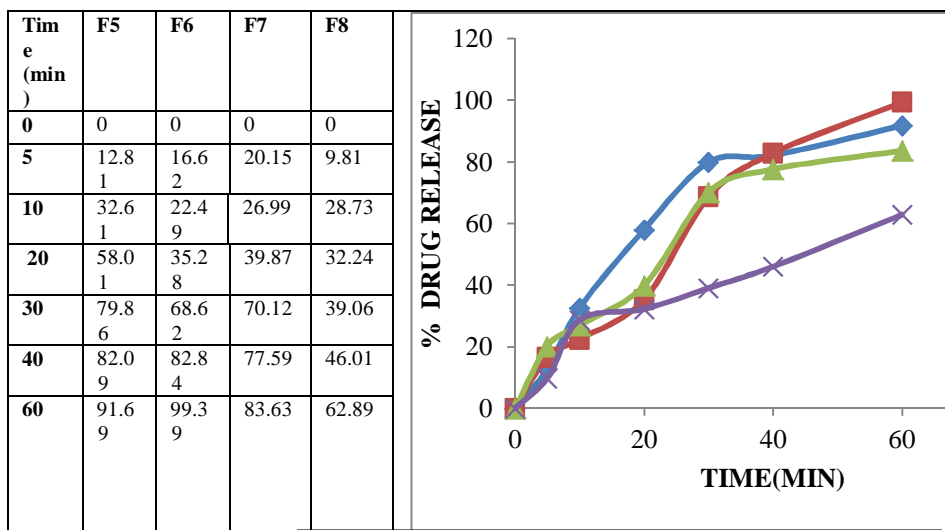


Fig: 6 In vitro dissolution data for formulation F1-F4

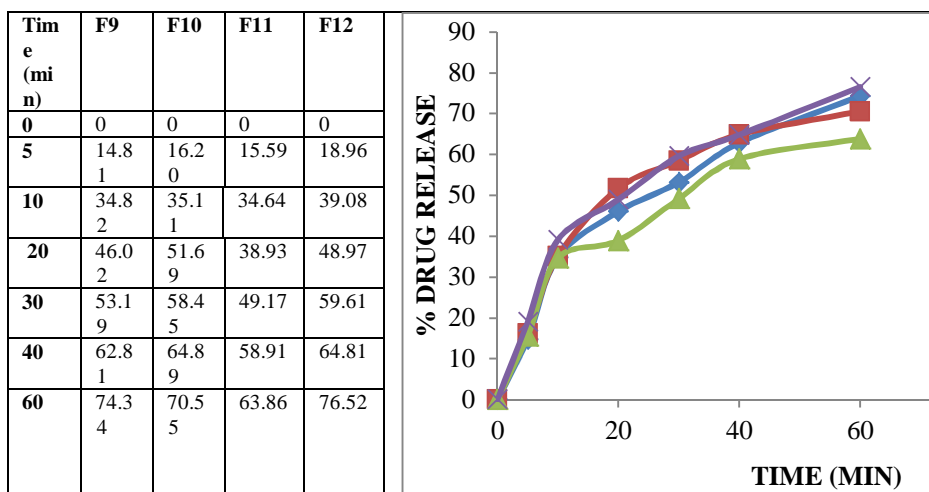


Fig: 7 In vitro dissolution data for formulation F9-F12

From the above results it was evident that the formulation F6 is best formulation with desired drug release pattern extended up to 60 min.

### 3.5 Discussion:

Standard graph of Salbutamol sulphate was plotted as per the procedure in experimental method and its linearity is shown in Table and Fig.2 The standard

graph of Salbutamol sulphate showed good linearity with  $R^2$  of 0.997, which indicates that it obeys "Beer- Lamberts" law.

From the FTIR data it was evident that the drug and excipients does not have any interactions. Hence they were compatible.

The precompression blends of Salbutamol Sulphate were characterized with respect to angle of repose, bulk density, tapped density, Carr's index and Hausner's ratio. Angle of repose was less than 28 °C, Carr's index values were less than 11 for the precompression blend of all the batches indicating good to fair flow ability and compressibility. Hausner's ratio was less than 1.198 for all batches indicating good flow properties.

From the dissolution data it was evident that the formulations prepared with Croscarmellose Sodium as polymer were retard the drug release up to desired time period i.e., 60 min. and showed maximum of 72.64 %

Formulations prepared with Sodium Starch Glycolate retarded the drug release in the concentration of 20 mg (F6 Formulation ) showed required release pattern i.e., retarded the drug release up to 60 min and showed maximum of 99.39 % in 60 min with good retardation.

The Formulation Containing Crospovidone in 40 Mg Concentration Showed good retarding nature with required drug release in 60 min i.e 76.52 %.

## **Conclusion**

The formulation were successfully developed various disintegrants like croscarmellose sodium, sodium starch glycolate and crospovidone. From the experimental results it could be confirmed croscarmellose sodium, sodium starch glycolate, crospovidone are suitable carriers for salbutamol sulphate. Studies revealed that there are incompatibilities between drug and excipients used in the formulations. Precompression evaluation studies have shown that powder blend has good flow properties and are suitable direct compression. Post compression evaluation studies have shown that all the parameters were within specifications for immediate release formulations. F6 formulation was optimized based on the results of disintegration time and in vitro dissolution profile releases maximum of drug within 60 min there by objective of increasing dissolution has been met by formulation.

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## ROLE OF INSOLVENCY PROFESSIONALS UNDER INDIAN INSOLVENCY REGIME

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### **Introduction**

The enactment of Insolvency and Bankruptcy Code 2016 (“IBC”) brought in with itself the profession and regime of the Insolvency Professionals. Today, there are more than 2500 Insolvency Professional registered with the Insolvency and Bankruptcy Board of India (“IBBI”). The insolvency representatives play a central role in the effective and implementation of an insolvency law, with certain powers over debtors and their assets and a duty to protect those assets as well as the interests of creditors and employees, and to ensure that the law is applied impartially. These Insolvency Professionals wear many hats as per their functions during resolution and liquidation process. During the resolution process they act as Interim Resolution Professional (IRP) and Resolution Professional (RP) and during the process of Liquidation they act as the liquidator.

As per Section 3(19) of the IBC Code an “insolvency professional” means a person enrolled under section 206 with an insolvency professional agency as its member and registered with the Board as an insolvency professional under section 207.

Interim resolution professionals are usually appointed with the admission of an application to initiate the Corporate insolvency resolution process (“CIRP”) in respect of a company under the IBC. The interim resolution professional undertakes the management of the company during the period between the commencement of the CIRP and the appointment of a full-time resolution professional by the Committee of Creditors (CoC).

Resolution Professional has a wider role as he becomes the manager of the negotiation between the debtor and the creditors in assessing the viability of the entity. The appointment of a resolution professional is approved by the CoC in its first meeting (by way of a majority vote of not less than 66% by value), approximately 30 days from the date of the commencement of the CIRP or soon thereafter. Resolution Professional has the responsibility of managing all information so that the debtors and creditors are equally informed about the business. A resolution professional may, with his/her consent, be re-appointed by the NCLT as the liquidator of the corporate debtor if the company enters liquidation.

### **Role defined in the Insolvency Code and Regulations<sup>1</sup>**

Insolvency professionals are governed under specific regulations issued by the IBBI along with a comprehensive code of conduct, which mandates the highest standard of care and integrity and prohibits any conflict of interest. Insolvency and Bankruptcy Code and Regulations has a well-defined structure of roles and duties to be performed by the Resolution Professional in the Corporate Insolvency Resolution Process (CIRP). Following are the duties of Resolution Professionals as per the Code and CIRP Regulations:

S.No.	Relevant Section and Regulation	Description
1.	Sec 13(2) & 15 and Reg 6(1)& 6(2)	Making public announcement within 3 days of appointment and calling for submission of claims.
2.	Sec 17	Management of affairs of the Corporate Debtor (CD), exercise the powers of the Board of Directors of the CD, etc.
3.	Sec 17(2)(e)	Compliance with the requirements under any law on behalf of the CD during CIRP
4.	Sec 18(1)(a)	Collecting all information relating to the assets, liabilities, finances and operations of the CD
5.	Sec 18(1)(b) and Reg 13 & 14	Receiving, collating and verifying claims
6.	Sec 18(1)(d) & (f)	Monitoring of the assets of CD, manage its operations, take control and custody of its assets
7.	Sec 21(6A) & (b) and Reg 4A & 16A	Ascertaining class(es) of creditors, identifying and selecting AR, applying to AA for appointment of AR, provide list of such creditors to AR, provide electronic means of communication between AR and such creditors
8.	Sec 17(2)(e)	Compliance with the requirements under any law on behalf of the CD during CIRP
9.	Sec 18(1)(a)	Collecting all information relating to the assets, liabilities, finances and operations of the CD
10.	Sec 18(1)(b) and Reg 13 & 14	Receiving, collating and verifying claims
11.	Sec 18(1)(d) & (f)	Monitoring of the assets of CD, manage its operations, take control and custody of its assets
12.	Sec 18(1)(c) & 21(1) and Reg 17(1)	Constitution of CoC and filing report with the Adjudicating Authority (AA)
13.	Sec 22(1) and Reg 17(2)	Holding the first meeting of the CoC within seven days of filing report
14.	Sec 24 & 25(2)(f) and Reg 23 to 26	Convene, attend and conduct of meetings of CoC, including participation through video conferencing and voting through electronic means

<sup>1</sup><https://ibbi.gov.in/uploads/legalframework/547c9c2af074c90ac5919fa8a5c60bd4.pdf>  
<https://ibbi.gov.in/uploads/legalframework/1e972e1431d061f08472e2b3ef3fb32d.pdf>



15.	Sec 18(1)(e)	Filing of information with information utility
16.	Sec 19(2)	Make application to the AA in case of non-cooperation from CD
17.	Sec 20(1) & 20(2)(e)	Protect and preserve the value of property of the CD and manage its operations as a going concern
18.	Sec 20(2)(a) & 25(2)(d)	Appointing accountants, legal or other professionals, as may be necessary
19.	Sec 20(2)(b)	Enter into contracts on behalf of CD or amend contracts entered into before commencement of CIRP
20.	Sec 20(2)(c)	Raise interim finance (within the limits set by CoC)
21.	Sec 20(2)(d)	Issue instruction to personnel of the CD for keeping it as a going concern
22.	Sec 21(10)	Make financial information available to CoC within seven days of such requisition under section 21(9)
23.	Sec 12A and Reg 30A	Filing of withdrawal application before the AA
24.	Sec 18(1)(g) and Reg 34A r/w IBBI Circular dated 12-06-2018 <sup>2</sup>	Disclosure of insolvency resolution process costs
25.	Sec 23(1)	Conducting of the CIRP in compliance with the procedure under the Code and Regulations
26.	Sec 25(1)	Preserve and protect the assets of the CD including continued business operations of CD
27.	Sec 25(2)(a)	Take control and custody of all assets of CD
28.	Sec 25(2)(a)	Represent and act on behalf of the CD with third parties, exercise rights for the benefit of CD in judicial, quasi-judicial and arbitration proceedings
29.	Sec 25(2)(g) & 29(1) and Reg 36(1)	Preparation and circulation of Information Memorandum (IM) to CoC
30.	Sec 240(1) and Reg 36(3)	Providing information having a bearing on the Resolution Plan, upon request from a member of the CoC
31.	Sec 29(2) and Reg 36(4)	Obtaining confidentiality undertaking from prospective Resolution Applicants(RA)s and CoC
32.	Sec 25(2)(h) and Reg	Publishing of invitation for EOI from prospective RAs

<sup>2</sup>[https://ibbi.gov.in/webadmin/pdf/legalframework/2018/Jun/Circular%20on%20Fee%20and%20other%20Expenses%20incurred%20for%20CIRP%20\[June%202018\]\\_2018-06-18%2014:05:28.pdf](https://ibbi.gov.in/webadmin/pdf/legalframework/2018/Jun/Circular%20on%20Fee%20and%20other%20Expenses%20incurred%20for%20CIRP%20[June%202018]_2018-06-18%2014:05:28.pdf)



	36A(1) to (3)	
33.	Sec 25(2)(k) and Reg 36A(10)	Issue provisional list of eligible prospective RAs
34.	Sec 25(2)(k) and Reg 36A(12)	Issue final list of eligible prospective RAs
35.	Sec 25(2)(g) & (h) r/w 29 and Reg 36B(1) to (5)	Issue of IM, EM and RFRP (including performance security requirements)
36.	Sec 25(2)(i) and Reg 37,38 & 39	Present all Resolution Plans which fulfill required criteria at the meeting of CoC
37.	Sec 25(2)(j)	File application for avoidance of transactions
38.	Sec 24(8) and Reg 28	Notifying each participant of CoC and AA of any change in CoC consequent to assignment or transfer of debt by a creditor
39.	Sec 25(2)(j), 43,45, 50, 66 and Reg 35A	i) Determination of transactions of the nature of preferential, undervalued, extortionate, fraudulent trading or wrongful trading; (ii) intimation to the IBBI; and (iii) applying to the AA for appropriate relief
40.	Sec 30(2) & (3) and Reg 38 & 39(2)	Submission of compliant resolution plans to CoC (mandatory contents including details of previous non implementation, if any, of Resolution Plan by RAs) along with details of irregular transactions (if any)
41.	Sec 30(6) and Reg 39(4)	Submission of Resolution Plan approved by CoC to AA along with compliance certificate in Form H and the evidence of receipt of performance security
42.	Proviso to Sec 23(1)	Continuing to manage the operation of CD until the order is passed by the AA under section 31
43.	Sec 240 and Reg 39(5)	Communicating order of the AA on Resolution Plan to participants and RAs
44.	Sec 208(2) & Reg 7(2)(h) r/w First Schedule of IP Regulations <sup>3</sup>	Abide by the code of conduct

<sup>3</sup><https://ibbi.gov.in/uploads/legalframework/28e6d4af87340b69502cc7177aa57772.pdf>

### **Role of Insolvency Professionals defined through various judgements**

Since the inception of this law, role of Resolution Professional has been defined by various decision making authorities through different cases. Following table depicts the same:

<b>S.No.</b>	<b>Case Laws</b>	<b>Role Defined</b>
1.	Asset Reconstruction Company (India) Private Limited v. Shivam Water Treaters Private Limited	IRP has the powers of a Court Officer.
2.	In the matter of Martin S.K. Golla, Insolvency Professional	RP should not make misleading statements and adhere to every guideline to stay a fit and proper person to continue as an IP.
3.	Deepak Seth v. Moods Hospitality Private Limited	IRP can refer any violation / tainted/illegal transaction committed by the ex management/ ex-directors or anyone else to AA
4.	In the matter of Mr. Mukesh Mohan, Insolvency Professional	RP should not mislead the CoC, NCLT and IBBI during CIRP.
5.	Mussadi Lal Kishan Lal v. Ram Dev Int. Ltd	RP has to be an independent party for conducting CIRP. They cannot be related party of either the Corporate Debtor or any creditor.
6.	Anil Goel v. LML Ltd.	RP should follow the timeline prescribed under the Code.
7.	Numetal Ltd. v. Satish Kumar Gupta and Ors.	The nature of duties assigned to a RP is similar to a public servant, as he is being an appointee of the Code.
8.	In the matter of Vedikat Nut Crafts Pvt. Ltd	RP should only engage another counsel if he is incapable of handling the matter on his own.
9.	IDBI Bank Ltd. v. LancoInfratech Ltd.	RP should not accept too many assignments.
10.	Rajputana Properties Pvt. Ltd. v. Ultra Tech Cement Ltd. &Ors.	The RP is required to examine whether the resolution plan confirms the provisions as mentioned therein, but he cannot disclose it to any other person, including resolution applicant(s) who has submitted the resolution plan.
11.	Rajputana Properties Pvt. Ltd. v. Ultra Tech Cement Ltd. &Ors.	The RP cannot hold or decide as to who is ineligible under Section 29A. Neither Section 30 (2) nor any other provision in the Code confers such power on the RP to scrutinize the eligibility of Resolution Applicants.
12.	V. Nagarajan v. K. Subburaj & Others	RP has to follow the directions of the Tribunal and non compliance of the same will result in penalty.
13.	InderPreet Singh v. Mariners Buildcon India Limited	Earlier RP will have to cooperate with the new RP wherever they require.
14.	In the matter of Mr. Mukesh Mohan, Insolvency Professional	RP should not mislead the CoC, NCLT and IBBI during CIRP.
15.	In the matter of Mr. Mukesh Mohan, Insolvency Professional	RP cannot make false claims in the Expression of Interest (EoI) and cannot take post facto approval of the CoC.
16.	Binani Industries Limited v. Bank of Baroda and Anr.	The approval of the Resolution Plan is in the domain of the CoC and not of the RP. If the Resolution Plan is approved by the CoC and does



		not provide for full satisfaction of claims of OCs, in absence of any power of the RP to reject such resolution plan, the RP cannot be blamed for the same.
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## **Conclusion**

Looking back at the journey of three years of the insolvency law it cannot be denied that Resolution Professionals have played the most important part in its successful implementation. An effective reorganization can only be done if the agents of the reorganization are masters of their field and carry their duties with utmost integrity and respect. It will be difficult for an Insolvency system to function without specialized professionals. A huge responsibility lies on the shoulders of such resolution professionals especially when they have been given the powers of the Court Officer, thus they should abide by the law and follow the code of conduct and work in the spirit of law.

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