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**A STUDY ON FINANCIAL PERFORMANCE OF OIL FIELDS COMPANIES LISTED IN NEW YORK STOCK EXCHANGE THROUGH DISTRESS ANALYSIS**

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**ABSTRACT**

*In the era of globalization, prediction of financial distress is of interest not only to managers but also to external stakeholders of a company as they are always concerned for the performance of the company. The stakeholders are continuously seeking the optimal solution for performance forecasting, as a way to rationalize the decision-making process. The most frequently used tool for financial distress analysis is Z score. Altman's Z score model has been used as a tool to evaluate last four years performance of the oil fields companies listed in New York Stock exchange. Present research work depicts that all five companies are not consistent in their performance during the four financial years and there are indications of near bankruptcy in case of two companies as their financial performance is indicating distress during all four years.*

*Keywords: Bankruptcy, Z score, distress, financial health*

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**INTRODUCTION**

Need for bankruptcy prediction research using different models has increased significantly in the past several years. Financial trepidation could happen as a result of changing economic environment such as a decrease in aggregate demand, an increase in the cost of borrowed funds, and changes in government regulation. Irrespective of how a company managed to find itself in a state of financial anxiety, the situation could lead to several consequences including the possibility of bankruptcy.

The Altman's Z score and the sustainable growth rate can be useful tools in the prediction of corporate financial distress. The Altman's Z score is a discriminant analysis technique widely used in the prediction of corporate bankruptcy. While the Altman's z-score has produced consistent results based on financial data, it does not incorporate growth in revenue and its effect on the overall viability of the firm when growth is not sustainable. Growth rate in revenue is the percentage increase in revenues. The Altman's z-score is one of the bankruptcy models that has proven to be successful in the forecast of financial distress. Analyzing and understanding the problem is important because it will help manage put together better strategic financial plans and grow the firms at a rate that is sustainable in order to avoid financial distress.

The purpose of this study is to investigate the efficacy of using Altman's z score for determining the financial soundness or forecasting financial distress of the global market leader in oilfield services listed in NYSE.

Oilfield services includes different oil related activities such as exploration, drilling, completion, stimulation, production, and intervention among many others for fulfilling various purposes over the entire oil well exploration life cycle. The services are also helpful in well logging, perforation, zonal isolation, well stimulation, sand washing, & setting tubing plugs. These services help the operators explore and produce from oil & gas reservoirs.

Discovery of new oil & gas fields along with increasing volume of crude oil production coupled with application of EOR technique in maturing oilfields are the key factors that is expected to drive the growth of the market.

**OBJECTIVES**

- To study financial health of the top 5 oil fields companies listed in New York Stock Exchange and its implications.
- To study the distress of top 5 oilfield companies listed in NYSE using Altman's Z Score.

**REVIEW OF LITERATURE**

Musaed Sulaiman AlAli (2018) examined the financial soundness of the companies listed in the healthcare sector in Kuwait stock exchange and financial distress risk for the healthcare companies listed in Kuwait stock exchange and examines their financial soundness against any bankruptcy threat.

**Zubair Hassan & Isioma Odibi (2015)** in their research resulted that not all failed companies were listed under PN17 companies in bursa Malaysia and all but one of the companies under the PN17 companies were in the safe zone in the fifth year and showed four out of five financial ratios where significantly related in the



prediction of corporate failure under the Z-score model. Also the regression analysis showed that the model is a great fit with significance of 0.000 and accuracy levels of 86% and 99.6%.

Edward I. Altman, Małgorzata Iwanicz-Drozdowska, Erkki K. Laitinen, Arto Suvas (2017) assessed the classification performance of the Z-Score model in predicting bankruptcy and other types of firm distress, with the goal of examining the model's usefulness for all parties, especially banks that operate internationally and need to assess the failure risk of firms. There is some evidence that Z-Score models of bankruptcy prediction have been outperformed by competing market-based or hazard models, in other studies, Z-Score models perform very well. This study offered evidence that the general Z-Score model works reasonably well for most countries (the prediction accuracy is approximately 0.75) and classification accuracy can be improved further (above 0.90) by using country-specific estimation that incorporates additional variables.

**Prof. Rohini Sajjan (2016)** applied the Z score model to understand the likelihood of Bankruptcy which were listed in BSE & NSE. Companies are selected from manufacturing & non-manufacturing sector. The study revealed that none of the companies completely belongs to Safe Zone except for few years. Most of the firms are in Distress Zone which clearly indicates that these firms may go Bankrupt in near future.

**Syed Jaffer & Dr Badiuddin Ahmed (2017)** depicted financial soundness of the company is most important factor to its stakeholders. What will be the future of the business, whether it will flourish or will become bankrupt, has caught the attention of the various researchers around the globe and has led to the development of many theories. To be able to predict the financial soundness of a business has led to many research works. Financial ratios are a key indicator of financial soundness of a business. Financial ratios are the tools to determine the operational & financial efficiency of business enterprises. There are a large number of ratios propounded by many authors. Altman developed a z-score model for predicting bankruptcy using ratios as the base. Using Z- Score model, Altman could predict financial efficiency, Bankruptcy up to 2-3 years in advance. If companies have the ability to improve their financial position during the years then Altman z-score is useful tool to predict failure early so that the company takes measures like debt restructuring or to proceed with a merger with other companies.

**Vaiva Kiaupaite-Grushniene** applied Altman's Z-score model for bankruptcy prediction on the three listed Lithuanian agricultural companies. Agribusiness is an important industry in Lithuania and recent trends of consolidation and long-term government subsidies make evaluation of financial health of such companies important not only for the owners, but for the other stakeholders as well. The study has found that the model correctly places companies into "safe" and "grey" zones, which gives initial information for the stakeholders.

**Stepanyan A** in his work has highlighted due to high fuel prices which caused U.S air carriers to incur significant financial losses. These adverse developments in the airline industry in that last decade have even resulted in bankruptcy filings by several U.S biggest carriers, followed by mergers and acquisitions among them to become financially stronger and better cope with challenges created by changes in the economic environment. The results of the research showed that seven U.S largest carriers remain potential bankruptcy candidates despite all the recent improvements in the airline industry.

**M.S. Pratibha Raj, Dr. Dinakar** analyzed eight automobile companies out of which "Atul Auto" and "Hindustan Motors" have weak Z score, they are safe if performance is seen individually but when compared to its peers it is worst performer,. As per analysis, Eicher Motors have very good score highest of its peers. The best performer amongst all is Eicher motors.

**Sulphey M.M., Nisa S** investors use various tools to arrive at investment decisions. The study assessed the solvency position of 220 companies listed in the BSE Small Cap Index using Z score. The results showed that only 79 companies were in the safe zone. 117 companies were in the grey zone and 24 in the distress zone. Again when classified these companies as per their sectors it has been found that most of the sectors are having more number grey and distress zone companies Only housing, diversified and tourism sectors that there are more number of companies in the safe zone. It shows that investors should be careful and exercise due diligence before investing in small cap companies.

**Vineet Chouhan, Bibhas Chandra, Shubham Goswami** analyzed 10 companies selected for this purpose for a period of 5 years each with using Z score as a tool. And then it is divided as per their scores, later the significant in the changes in the ratio is calculated with the help of One sample Komogrov-Smirnow test, which resulted that the change in the z scores is not significant in case of all the companies.

**Roli Pradhan (2014)** highlighted concern of prediction to evaluate the terms of credit and ensure repayment safely. Z score has been used as a tool to evaluate the credibility of the firms. The research was carried out for

calculating Z score value for the public sector banks. This value is useful when these banks demand loans from the RBI or any other funding agency. The usage of back propagation neural network is to forecast the internal parameters of Z score and then use these internal parameters to forecast the Z score value up to 2020.

**Apoorva D.V, Sneha Prasad Curpod Namratha(2019)** used Z score to predict bankruptcy of companies two years prior to the happening of the event. The main objective of this paper is to check the efficiency of this model in predicting bankruptcy of Indian companies three years prior to the occurring of the event. Seven companies have been selected to check the efficiency and accuracy of this model. As per this model, bankruptcy of these companies could be predicted three years prior to the occurring of the event in India. In conclusion, Altman Z score can be applied for Indian companies; however the accuracy level is not 100%.

## RESEARCH METHODOLOGY

This research paper has emphasized on 'descriptive research' - a research used to evaluate a situation, subject, behavior, or phenomenon. It is used to answer questions of who, what, when, where, and how associated with a particular research question or problem. It places an emphasis on the performance of U. S based oil field companies listed in NYSE using Z Score Multi discriminant model for 4 consecutive years. The main five ratios has been calculated which are the inputs of Altman Z score model.

Financial statement data has been extracted form annual reports published on their websites. Based on the results conclusion have been drawn to validate whether these companies are in distress or having a healthy financial condition.

The total number of oilfield service providers listed on NYSE are 82. Among which the top five oilfield service providers based on their market share are been taken as sample

Schlumberger (SLB)

Halliburton (HAL)

Baker Hughes (BHGE)

Weatherford (WHF)

Nation Oilwell Varco (NOV)

### Altmans Z Score as a Bankruptcy Prediction Model

In 1968 Edward Altman developed a bankruptcy prediction model using Multiple Discriminant Analysis (MDA). The generated Z-score is used to predict possible bankruptcy. He has taken into consideration 5 ratios which are based on accrual basis of Balance sheet and Income Statement. This model does not consider Cash flow statement.

$X_1 = \text{Working Capital/Total Assets}$

$X_2 = \text{Retained Earnings/Total Assets}$

$X_3 = \text{Earnings before Interest and Tax/Total Assets}$

$X_4 = \text{Market value of Equity/Book value of Debts}$

$X_5 = \text{Sales/Total Assets}$

(Market value of equity = Shares outstanding \* Current Market price per share  
Book value of debt = Notes payable + Current portion of LT debts + LT debts)

$Z \text{ score} = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.999X_5$

Financial Health Status of the company	Z Score
Safe	Above 2.99
Distress	Between 1.81 - 2.99
Default	Below 1.81

*Z Score Criterion*

The first ratio ( $X_1$ ) is a good indicator of a firm's ability to make good on what it owes in the next few months.

The second ratio ( $X_2$ ) is a good indicator of how in debt the company is and whether it has a history of profitability.

The third ratio ( $X_3$ ) is a measure of efficiency in that it indicates how many cents the company generates in earnings for every dollar of assets it owns.

The fourth ratio (X4) is a fluid measure of the market's "confidence" in the company.

The fifth ratio (X5) is similar to the third ratio in that it measures the company's efficiency in delivering sales from its assets.

### DATA ANALYSIS

Below are the calculated Altman's Zscore of the top five oilfield service providers listed on NYSE for last four years i.e 2015-2018

#### Schlumberger's Altman's Z Score

Parameters	2015	2016	2017	2018
X1	0.19	0.11	0.04	0.03
X2	0.60	0.47	0.45	0.47
X3	0.08	0.03	0.04	0.05
X4	2.51	2.89	2.56	1.45
X5	0.52	0.36	0.42	0.47
Z score	3.36	2.97	2.76	2.15

*Schlumberger's Altman's Z Score YOY*

#### Halliburton's Z Score

Parameters	2015	2016	2017	2018
X1	0.40	0.28	0.24	0.24
X2	0.56	0.52	0.51	0.53
X3	0.06	0.02	0.08	0.11
X4	1.27	2.53	2.46	1.39
X5	0.64	0.59	0.82	0.92
Z score	2.86	3.26	3.55	3.14

*Halliburton's Altman's Z Score YOY*

#### Baker Hughes Altman's Z Score

Parameters	2015	2016	2017	2018
X1	0.08	0.11	0.17	0.11
X2	0.00	0.00	0.00	0.00
X3	0.10	0.05	0.01	0.02
X4	0.00	0.00	0.73	0.53
X5	0.72	0.61	0.30	0.44
Z score	1.15	0.92	0.98	0.97

*Baker Hughes's Altman's Z Score YOY*

#### Weatherford's Altman Z score

Parameters	2015	2016	2017	2018
X1	0.10	0.20	0.17	0.17
X2	0.03	-0.23	-0.59	-1.31
X3	-0.03	-0.08	-0.12	0.02
X4	0.63	0.42	0.40	0.05
X5	0.64	0.45	0.58	0.87
Z score	1.08	0.35	-0.20	-0.67

*Weatherford's Altman's Z Score YOY*

### National Oilwell Varco's Altman Z score

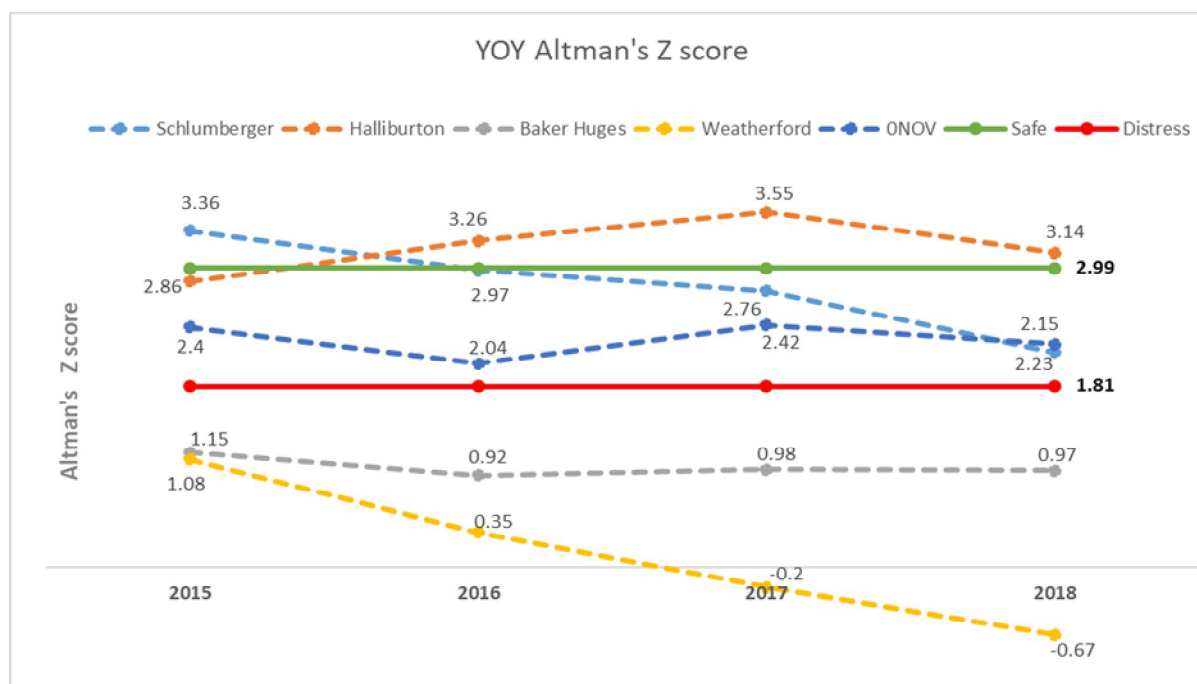
Parameters	2015	2016	2017	2018
X1	0.29	0.23	0.24	0.25
X2	0.38	0.34	0.34	0.35
X3	0.05	-0.07	-0.01	0.01
X4	1.30	1.95	2.23	1.64
X5	0.57	0.34	0.36	0.43
Z score	2.40	2.04	2.42	2.23

National Oilwell Varco's Altman's Z Score YOY

### Tabular Representation

Name of the Company	Years			
	2015	2016	2017	2018
Schlumberger	3.36 Safe	2.97 Grey	2.76 Grey	2.15 Grey
Halliburton	2.86 Grey	3.26 Safe	3.55 Safe	3.14 Safe
Baker Hughes	1.15 Distress	0.92 Distress	0.98 Distress	0.97 Distress
Weatherford	1.08 Distress	0.35 Distress	-0.2 Distress	-0.67 Distress
National Oilwell Varco	2.4 Grey	2.04 Grey	2.42 Grey	2.23 Grey

Altman's Z Score YOY determining green, grey and distress zone



Altman's Z Score four all 5 companies

### FINDINGS

The above graph and table shows that from the selected sample of 5 companies two companies are in distress zone namely Baker Hughes and Weatherford. These means that the financial performance of these companies are pathetic and are likely to go bankrupt. They can probably recover over a long period of time with the effective management of financials & other resources.

Z score of the NOV falls under the grey zone, which depicts that it is on the threshold of financial performance and need to improve its financial performance or else it may fall into distress. However past trend shows that it has continued stay in the grey zone for last 4 years which indicates its survival consistency.

Schlumberger and Halliburton shows mixed zones of Z value. Halliburton's financial performance in the initial phase landed it in grey zone but steadily it has showed improvements & gained its position in to safe zone. In case of Schlumberger, performance trend shows declining state as it has been in green zone prior to last three years but moved in to grey zone from last three consecutive years. But by taking required remedial actions it could re-enter into the safe zone.

None of the top 5 oilfield service provider companies are consistent in their performances

## **CONCLUSIONS**

Financial ratios are tools used to assess the relative strength of companies by performing simple calculations on items on income statements, balance sheets and cash flow statements. Ratios measure companies' operational efficiency, liquidity, stability and profitability, giving investors more relevant information than raw financial data.

Altman Z score is a likely hood and not a prediction. From a company's financials, it may look likely that bankruptcy looms, but the management may well succeed in improving matters. However, for the rational investor, it's wise to keep an eye on this numbers and have an insight into a company's solvency. The Z Score is not intended to predict when a firm will actually file for legal bankruptcy. It is instead a measure of how closely a firm resembles other firms that have filed for bankruptcy, i.e. it tries to assess the likelihood of economic bankruptcy.

This research has been performed to examine the relationship between the financial variables (WC/TA, RE/TA, EBIT/TA, MVE/TL & S/TA) and the (Z-Score) in determining a company's financial sustenance and also to investigate whether the global leaders are financially sound & stable.

The study covers 5 companies and 4 years of time frame from 2015-2018. According to findings none of the company completely belongs to safe zone except for few years. Most of the firms are in Distress Zone which clearly indicates that these firms may go Bankrupt in near future. It's upto the top level management to design effective strategies for better control & management of resources. This would result in win-win situation for both the management and the investors.

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## A STUDY ON ROLE OF PERSONAL CLOTHING IN SELF-ESTEEM OF WOMEN ENTREPRENEURS IN MUMBAI REGION

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### ABSTRACT

*Self-esteem is an important aspect of an individual's identity. It not only affects the individuals but also their achievements and progress in various realms in life. There are multiple factors which affect self-esteem in a woman. The present study aims to understand the relationship between Clothing and Self-esteem in women entrepreneurs. It also intends to understand whether what women entrepreneurs wear is consistent with whom they are as individuals along with their opinions on dress code at workplace. Data was obtained from 79 women entrepreneurs with an age group from below 25 years to above 45 years and experience in entrepreneurship ranging from 0-3 years to above 10 years from Mumbai region. The data obtained was analysed using Pearson's Chi-square test of Goodness of fit and Chi-square test of Independence. With the help of chi-square test, the findings revealed that there is a significant relationship between Personal Clothing and Self-esteem of women entrepreneurs. It also disclosed that what clothes these women entrepreneurs wear is incongruent and inconsistent with whom they are as individuals. This non-congruency suggests remedial measures during entrepreneurial trainings. It is therefore imperative to train woman entrepreneurs in understanding Personal Clothing as a self-concept rather than expecting them to ape the universally accepted dress code at workplace.*

*Keywords: Clothing, Self-esteem, Women entrepreneurs, Self-concept.*

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### INTRODUCTION

Self-concept is an organized set of characteristics, traits, feelings, images, attitudes, abilities, and other psychological elements that a person attributes to oneself and is personal in nature (Kobal, 2000). There are four classifications of Self-concept: Physical, Social and Moral and Intellectual. The Physical Self-concept focuses on individuals' view about their physical appearance, body and strength. The Social Concept is individuals' view about their social interaction and worth thereof. The Moral Self-concept is an individual's view about right and wrong, their moral worth. The Intellectual Self-concept is an individuals' awareness about their intelligence and problem solving ability (Saraswat, 1992).

Self-esteem is defined as "the experience of being capable of meeting life's challenges and being worthy of happiness." (National Association for Self-esteem, n.d.). Self-esteem refers to a person's beliefs about one's worth and is often accompanied by strong affect. Self-esteem varies with respect to two components- High self-esteem and low self-esteem. High self-esteem is when an individual feels satisfied, worthy and has positive feelings towards self. On the contrary, a person with low self-esteem disapproves one's traits, beliefs and has low self-worth. (Rosenberg, 1965; Leary, Downs, 1995). Self-esteem is generally contingent, which means that the feelings about one are dependent on certain factors which could differ from individual to individual (Deci, Ryan, 1995).

The direct relation of the self-concept and self-esteem was postulated by William James' who stated that self-esteem is a product of an individual's own sense of their achievements and aspirations (Lachowicz, Sniecinska, & Kinga, 2011). Self-concept and Self-esteem are often used interchangeably. However, Self-concept refers to totality of cognitive beliefs that people have about themselves that is known to them whereas Self-esteem is the emotional response that people experience when they evaluate diverse things about themselves (Heatherton & Wyland). There are multiple factors affecting self-esteem, clothing being one of them (O'Callaghan, 2014).

The clothes that people wear alter or modify how they perceive themselves along with the world (Neilson, 2016). Business Insider states that clothes not only affect your confidence levels but also significantly influences how others perceive you and thereby respond to you (Fergusson, 2017). The theory of 'Enclothed Cognition' which is brought in the forefront by Rutchick discusses that clothes can have an impact on the confidence level of an individual (Neilson, 2016). 'Enclothed Cognition' states the impact clothes have on your mood and confidence (Fashion Gone Rogue, 2017). It also throws light on the survey conducted by KIA wherein they discovered that women feel confident in heels and a black dress and men feel confident when in a suit thereby concluding the impact clothes has on an individual's confidence level (O'Callaghan, 2014).

Clothes sometimes act as a barrier between the individual and the social groups. When an individual dresses to fit into these social groups they aspire to be a part of, it distorts one's identity and affects their self-esteem (Savasuk, 2018). There are so many clothing trends that cater only to a certain body shapes which make teens feel low on self-esteem (Patricia). Adam Galinsky says, "If you try to control people's clothes by making people wear uniforms, you are exerting control over their behaviour and muting their individuality" (Neilson, 2016).

### **PURPOSE OF STUDY**

The purpose of the study is to recognize the role of Clothing on Self-esteem and consistency of Personal Clothing to Self in women entrepreneurs in Mumbai region. It also intends to explore the acceptance of a dress code at workplace by these women entrepreneurs.

### **PROBLEM STATEMENT**

Low self-esteem can be a result of constant failure and rejection in the personal and professional life of an entrepreneur. Proximity of clothing to self is one of the clothing dependent variables which could help in understanding the importance of Personal clothing in self-esteem (Johar, Kashyap, & Kulshreshtha, 2013). This enlists clothing as one of the factors affecting self-esteem. The study will thereby help to evaluate and use Personal clothing in enhancing one's self-esteem

### **OBJECTIVES OF THE STUDY**

- To understand whether woman entrepreneurs in Mumbai believe that personal clothing affects self-esteem.
- To understand the role of personal clothing on self-esteem of woman entrepreneurs.
- To identify whether what women entrepreneurs' Personal Clothing is consistent with whom they are as individuals.
- To understand the acceptance of dress code at workplace.

### **REVIEW OF LITERATURE**

#### **Clothing and Self-esteem**

A study on teens (Patricia) revealed that clothing that teens wear is more about self-esteem and less about their personal style. Self-esteem is affected largely by the way the teens feel they look rather than actually how they look (Patricia). Another study throws light on congruency between the self-image of the consumer and the consumer's image of brands and that there exists relationship between inconspicuous fashion and self-esteem (Hume & Mills, 2013). (Cantor) in her study emphasizes that fashion is not only about style but about functionality and that comfortable clothes elevates one's self esteem. Dressing Right is synonymous to feeling powerful as it does wonders to your personality (Cantor). Clothes are related to self-concepts (Kaiser, 1990). Therefore the judgements that people make about others particularly regarding clothing might reflect their own point of view. Perception of clothing is another clothing related variable which explains one's level of satisfaction/ dissatisfaction with his/her clothing (Kaiser, 1990). Sontag, Lee and Peteau (1997) determined that adolescents who have high proximity of clothing to self might anticipate that their personal clothing should help them gain a sense of personal competence. The study also reveals that Proximity of clothing to self is one of the clothing dependent variables which could be used by individuals to make judgements about clothed strangers (Johar, Kashyap, & Kulshreshtha, 2013).

### **HYPOTHESIS**

1.  $H_0$ : There is no significant relationship between Personal Clothing and Self-esteem of women entrepreneurs in Mumbai region.  
 $H_1$ : There is a significant relationship between Personal Clothing and Self-esteem of women entrepreneurs in Mumbai region.
2.  $H_0$ : There is no consistency between Personal Clothing and Self-concepts of women entrepreneurs in Mumbai region.
3.  $H_1$ : There is a significant consistency between Personal Clothing and Self-concepts of women entrepreneurs in Mumbai region.

### **RESEARCH METHODOLOGY**

'Proximity of clothing to self and self-esteem' scale developed by Sontag & Lee, 2004 which is an objective measure of psychological closeness of clothing to self and self-esteem is used for this research. The scale is modified according to the requirement of the research and consists of 21 items along with other closed and open ended questions. The sample size comprises of 79 woman entrepreneurs as respondents from Mumbai region.

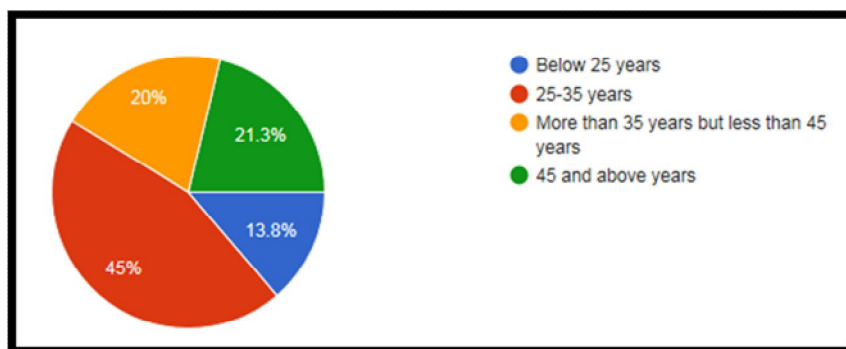
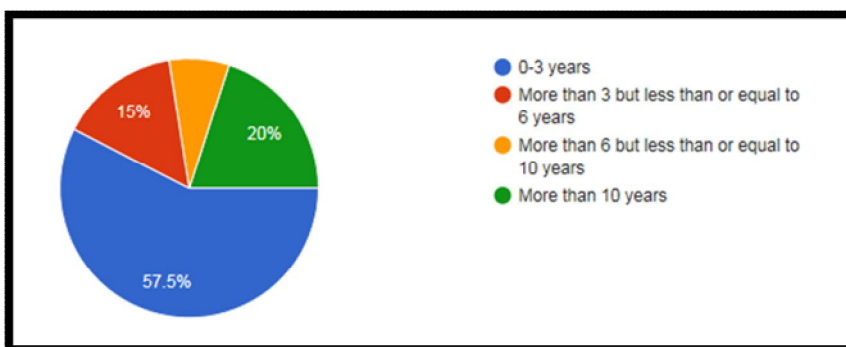


**LIMITATIONS OF THE STUDY**

The research focuses only on western suburbs in Mumbai regions. The sample size for this research is limited to 79 respondents. Since the Likert scale used for the research has questions which are qualitative and opinion based, it could be influenced by respondents' apprehension in expressing in genuine feelings leading to personal bias. The anonymity of the respondents has been a hindrance while data collection due to their incomplete responses thereby demanding to exclude those respondents.

**DATA ANALYSIS**

The demographics for this research are as follows:

**a) Age group****b) No of years spent as an Entrepreneur:**

**Table-1.0: Relationship between Personal Clothing and Self-Esteem:**

Frequencies			
Relationship between Clothing and Self esteem			
	Observed N	Expected N	Residual
1.00	70	39.5	30.5
2.00	9	39.5	-30.5
Total	79		

Source: Primary Data

**Chi-Square Goodness of Fit Test**

	Relationship between Clothing and Self- esteem
Chi-Square	47.101 <sup>a</sup>
df	1
Asymp.Sig	.000

The research hypothesis is tested at 5% level of significance. Since the P-value is less than the level of significance, we cannot accept the Null hypothesis. This strongly states respondents beliefs that there is a significant relationship between Personal Clothing and Self-esteem of an entrepreneur (Refer Table: 1.0 ). This helps to draw an inference that Personal Clothing is a determinant of one's Self-esteem.

**Respondents opinion on Consistency between Personal Clothing and Self**

Clothing reflects or expresses one's identity, personality, traits, self-regard, values, attitudes, beliefs, or moods. The person subconsciously strives for consistency between clothing and self-image. When one wears clothes

which are congruent to one's personality and beliefs, it makes the individual comfortable in his/her own skin thereby elevating one's self-esteem (Keogan, 2013). It thereby is imperative to wear clothes in congruency to self-concepts.

Chi-square is applied to test this research hypothesis. The observed frequencies are 79. Since the hypothesis is tested at 5% level of significance and the P-value is greater than 0.05, the null hypothesis in this case is accepted. This shows that there is no consistency between Personal Clothing of an entrepreneur to his/her self (personality). This is a very significant finding. What women entrepreneurs wear is incongruent to their true personality. It signifies that there is a disconnect between whom they are as individuals and what they wear. This affects their Self-esteem since they have failed to express their true self through their Personal Clothing (Refer Table: 2.0 ).

Table-2.0

Consistency of Personal Clothing to Self			
	Observed N	Expected N	Residual
1.00	40	39.5	.5
2.00	39	39.5	-.5
Total	79		

Source : Primary Data

Chi-Square Goodness of Fit Test

	Consistency between Personal Clothing and Self
Chi-Square	.013 <sup>a</sup>
df	1
Asymp.Sig	.910

To understand the association between Variable<sub>1</sub>= Relationship between Personal Clothing and Self esteem and Variable<sub>2</sub>= Consistency of Personal Clothing to Self, Chi-square test of independence was used. The P-value for the same is 0.270. When it is tested at 5% significance, the null hypothesis is accepted. This infers that the two categorical variables- 'Relationship between Clothing and Self-esteem' and 'Consistency of Personal clothing to Self' are independent of each other. (Refer Table 3.0)

Table-3

Chi-Square Test Of Independence			
		df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.216 <sup>a</sup>	1	.270

Source: Primary Data

Table-4.0 Cross tabs

Relationship between Clothing and Self esteem * Consistency of Personal Clothing to Self				
Cross tabulation				
Count				
		Consistency of Personal Clothing to Self		Total
		1.00	2.00	
Relationship between Clothing and Self esteem	1.00	37	33	70
	2.00	3	6	9
Total		40	39	79

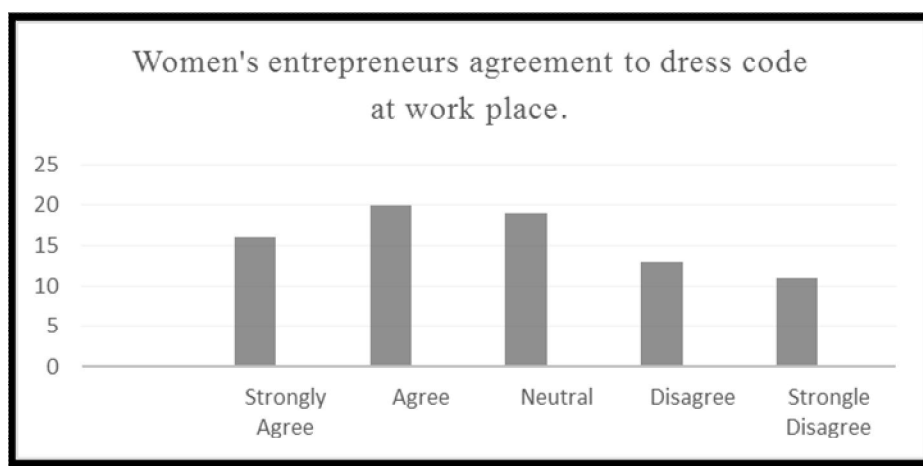
### Clothing and Self-Esteem & Consistency between Personal Clothing and Self

To further analyse the relationship between Clothing and Self-Esteem & Consistency between Personal Clothing and Self among women entrepreneurs Crosstabs are used. The crosstabs have notified that out of 70 women entrepreneurs who believe that the Clothing affects Self-esteem, only 37 women entrepreneurs wear clothes which is a true representation of who they truly are while the other 33 have incongruency with what they wear and who they truly are. This leads us to delve into understanding and solving the disconnect between Personal Clothing and Self-concepts (Refer Table 4.0)

### Women's entrepreneurs agreement to dress code at workplace

There are mixed opinions about women entrepreneurs with respect to dress code at work place. The respondents disagreeing to dress codes on further probing expressed that 'The No Dress Code' policy should be followed

largely because one rule of Personal clothing might not fit to the comfort and functionality of everyone. They also pointed out that clothing is one of the media for self-expression. Hence no one should be dictated and asked to modify their Self-concepts with respect to clothes. The ones who agree to 'The Dress Code Policy' largely agree on the basis of uniformity and appropriateness of Personal Clothing at workplace. They feel there should be a dress code at work place to avoid wardrobe malfunction, encourage equality & uniformity through personal clothing. This could build a cohesive atmosphere at workplace disallowing Personal Clothing to overpower the actual job at work. It also boosts professionalism and avoids discrimination. Therefore 'The Dress Code Policy' should be a determinant of entrepreneurial training and must focus on comfort, functionality & uniformity rather than style and latest trends.



## RECOMMENDATIONS AND CONCLUSION

The study highlights the significance of Personal Clothing to Self and thereby to Self-esteem. It has also revealed that women entrepreneurs encourage freedom of choice in Personal Clothing because many believe it is a determinant to one's Self-esteem. There are innumerable trainers who train entrepreneurs on 'Corporate Dressing', 'Professional Dressing' etc. The study will thereby act as a guide for trainers to dominate their training content on 'Comfort and Functionality' in Personal Clothing and attaching it to one's true individuality. The study can also help us to understand the influence of Personal Clothing in boosting one's Self-esteem

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**HIGHER EDUCATION IN INDIA: NEED FOR INNOVATIVE AND TRANSFORMATIVE APPROACH**

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**ABSTRACT**

*Over the last few decades, the social and economic environment has witnessed phenomenal change. The education sector has not been an exception in this process. The revolutionary change in our education system can primarily be attributed to inculcation of information technology and its applications in our routine life. The availability of technology in various areas has, undoubtedly, eased our life to a very large extent but at the same time it has some negative repercussions as well. The profile and nature of jobs in the industry has changed tremendously on account of extensive use of technology in performing most of the routine work. The Higher education system which is intended to impart essential knowledge to an individual with a view to develop and enhance his employment potential needs to be accordingly changed and be kept in synchronization with fast changing environment. It is felt that advancement in technology may make several jobs redundant but at the same time create new jobs. Thus structural shift in employment, consequent to changing profile of corporate sector, will lead to increase in demand for skilled workers who can assist in their growth of companies in a global competitive environment. According to one of the report released by FICCI, 3.5 billion jobs are expected to be created by 2020 and the demand for highly skilled labor is projected to outpace that for low-skilled workers. The report has further highlighted that skill-intensive industries such as manufacturing and services are expected to contribute more than 90% of India's GDP by 2030. Therefore, India is well positioned to take advantage of the expected increase in employment opportunities at global level in future. It is against this background, an attempt has been made under this study to identify various areas of our existing higher education system which needs amelioration so as to reap the benefit of emerging demand of employment at global level.*

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**INTRODUCTION**

Higher education has been in India for last many centuries as its traces can be observed from the historical reference of learning centres like Taxila, Kanchipuram, Nalanda and Vikramashila. However, the access to higher education was very limited till pre independence period. After independence, Dr. S.P. Radhakrishnan was appointed chairman of a commission on University education to report on Indian University education. Later on, the National Policy of Education of 1986 and Programme of Action of 1992 focused on the importance of higher education, particularly on graduate, post-graduate and research work. Among the various recommendations made for improvement of Higher education, one of the most important recommendation was that Autonomous Colleges should be established according to UGC directives. The policy also recommended setting up and development of technical institutes like medical, engineering, agriculture universities etc. along with the need for initiating courses catering to vocational skills. The importance of Higher education in imparting employment skills besides equipping individuals with academic knowledge was gradually realized by the policy makers and the reflection of this aspect can be observed from the subsequent policies and efforts of Government in promoting higher education. The recent studies conducted by FICCI, KPMG and other such entities demonstrates the urgent need of enhancing component of skill education in higher education and to manifest the academic institutions in order to take advantage of upcoming employment opportunities likely to arise within as well in other parts of the world.

**OBJECTIVE(S) OF THE STUDY**

The main objective of the study is to examine the structural changes in the system of higher education in India over last three decades and inter alia includes the following sub objectives:

- i) Studying the trend of gradual integration of the higher education system of India with global environment system.
- ii) Identification of main challenges and opportunities for Higher education system in India.

**RESEARCH METHODOLOGY**

The study has mainly been conducted using secondary sources of information though as a primary source of information, views of different academicians and researchers have been sought to examine the veracity of the available information. Data has been collected from various journals, magazines and websites. Various statistical charts and diagrams have been employed for simplifying the presentation of data covering long period of time. Meaningful interpretation have been drawn after analyzing the data systematically and corroborating it with other existing facts available at different sources of information.

**OBSERVATIONS**

**The present state of higher education in India can be inferred from the following observations made from different sources of secondary information.**

- 1) According to data released by India Brand Equity Foundation, India has largest population in the world in the age bracket 5 -24 years which implies education sector has phenomenal opportunities of growth as there is huge demand supply gap in this sector.
- 2) India's youth literacy rate (15-24 years) and adult literacy rate (15 years and above) in 2011 were 86.1 per cent and 69.3 per cent, respectively.
- 3) The details of number of students enrolled in Higher education and number of colleges in India during the period 2012 -2018 is given below in table 1.

**Table 1:- Data showing number of students enrolled (in millions) and number of colleges ( in thousands)**

Year	Number of students enrolled in Higher education (in millions)	Number of College
2012	29	34.852
2013	30	35.525
2014	32	36.634
2015	34	38.498
2016	35	39.071
2017	36	40.026
2018	37	39.650

The country's Gross Enrolment Ratio or GER in higher education, for the year 2014-15 (as shown in table 2) has registered an increase from 24.5% in 2015-16 to 25.2% in 2016-17, according to the latest edition of the All India Higher Education Survey (AIHES).

Level	Male	Female
Primary (1 -V)	98.9	101.4
Upper Primary (VI-VIII)	87.7	95.3
Secondary 78.1	78.1	78.9
Senior Secondary	54.6	53.8
Higher Education	25.3	23.2

**Table-2: Gross Enrolment Ratio(GER) 2014-15**

The Gross Enrolment ratio of USA and China are 43.39% and 8.5.8% respectively which is much above the GER in India and therefore offers tremendous scope of improvement in Higher Education in our country.

The detail of number of institutions in Higher Education as reported during the year 2015-16 by Department of Higher Education, Government of India released in the year 2018 is given below in table 3.

Number of Institutions in Higher Education in India (2015-16)	
University	
Central University	43
State Public University	329
Deemed University	122
State Private University	197
Central Open University	1
State Open University	13
Institution of National Importance	75
State Private Open University	1
Institution under State Legislature Act	5
Other	13
<i>Total</i>	<i>799</i>

College	39071
Diploma Level Technical	3867
PGDM	435
Diploma Level Nursing	3060
Diploma Level Teacher Training	4403
Institute under Ministeries	158
<b>Total</b>	<b>11923</b>

Table-3: Number of Higher Education institutions in India\*

(\*Source : Department of Higher Education, MHRD, Government of India)

The above data has been represented using bar diagram (shown in figure 1) with a view to highlight the wide disparity in the number of different types of Universities .

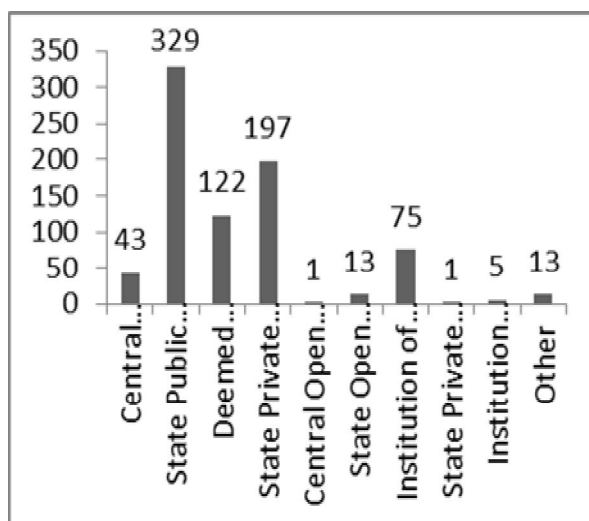


Figure-1: Number of Higher Education Institutions in India represented by Bar Chart

It can be observed that number of open Universities at Central as well as State level are significantly less than other type of Higher education institutions.

The enrollment for availing higher education through distance learning mode is significantly lower than those enrolled in regular courses as can be observed from the statistics given below in table 4

Mode	Male	Female	Total	Percentage
Regular	16539469	14220411	30759880	89
Distance	2055254	1769647	3824901	11
Total	18594723	15990058	34584781	100

Table 4: Enrolment in Higher Education through Regular &amp; Distance Mode: 2015-16

According to report on Higher Education released at FICCI Higher Education Summit 2014 India is expected to be the third largest-economy in the world by 2030. Skill-intensive industries such as manufacturing and services are expected to contribute more than 90% of India's GDP by 2030.

The report published by Associated Chambers of Commerce and Industry of India (ASSOCHAM) states only 20 per cent of the five million students who graduate every year get employed.

"India's demographic dividend will be a huge deficit if we continue to have only 20 per cent of our graduates employable. The evident gap in the industry requirements and curriculum has emerged as one of the most common reasons highlighted for this figure," said Chief Executive Officer of MeritTrac Gopal Devanahalli.

The Government's Draft National Education Policy 2016 also envisages to include skills and training in the curriculum to expand opportunities for students to acquire relevant skills, including skills needed for work and entrepreneurship.

"Academic institutions should devise a dynamic curriculum which gives more emphasis on practical knowledge in tune with the needs of the industry rather than encouraging rote learning," said Rohit Manglik, Chief

Executive Officer of EduGorilla. According to him, the academic-industry collaboration for curriculum structuring, guest lectures and internships will lead to better career prospects for students.

Christopher Higgins, Business Head of Ideate Labs, said: "In a fast-changing areas like digital marketing where schools and universities cannot keep up with the pace of change, many agencies have also launched part-time training courses that lead to internships."

### **INFERENCE DRAWN FROM THE OBSERVATIONS**

The education sector, particularly Higher education, in India has tremendous growth potential over next few decades and requires significant improvisation keeping in view the anticipation of younger generation and employment needs of the industry. The above detail clearly reflects that structural changes in terms of number of Higher education institutions and GER has taken place subsequent to gradual efforts of Government during post independence period. However, serious concern has been expressed by some of the experts with regard to ability to produce employable graduate through our existing higher education system. The importance towards skill enhancement and development has been highlighted by various experts in the existing system of our higher education. This facts clearly signals its gradual integration with global education system where practical utility of our courses in real life situation are given more consideration instead of rote learning. It can be observed from the details of GER for Higher education and other academic levels, the GER for Higher education is almost one fourth of the enrollment in primary education level. As the demand for employment in the manufacturing and services sector in India and abroad is like to increase in future, there is need to set up more academic institutions which can provide facility of higher education so as to achieve the targeted Gross Enrolment ratio by the year 2030. Information technology can play vital role in achieving this objective and its use should accordingly be made to the fullest extent. The curriculum of various courses needs to be thoroughly revised in the light of emerging employment opportunities besides ensuring delivery of necessary academic knowledge. The new curriculum should focus not only the transitions in the socio economic environment at local level but also at the global level. Practical training and course towards skill enhancement shall be given due consideration while drafting new syllabai of different courses. The regulatory aspects relating to functioning of Higher Education Academic institutions also need to be further strengthened and aimed to increase the number of institutions to meet the growing demand for higher education in India.

### **CONCLUSION AND SUGGESTION**

The purpose of Higher Education over a period of time has phenomenally changed ever since its traces have been noticed in our country. The principle goal of enriching an Individual with academic knowledge has gradually shifted towards employment centric goal for higher education. It has, thus, become imperative for the policy makers to respond timely to the changes taking place in our local as well as international environment and orient the focus of the Higher education for imparting industry specific knowledge besides providing necessary academic knowledge. The present demographic situation of India is well poised to reap the advantage of upsurge in job market expected to take place over next one decade. The most important requirement to achieve this objective is to increase Gross Enrollment ratio in Higher Education which is around 24% as against 98% of enrollment in Primary education. Some of the measures which can prove effective in enhancing GER at higher education level are listed below:

- i) The number of Universities and other type of academic institutions for providing higher education be increased in proportion to the number of primary level educational institutions.
- ii) There is need to propagate a message among population living in rural part of our country regarding importance of higher education in enhancing employment potential of an individual.
- iii) Distance learning mode of education shall be encouraged and propagated among the masses particularly in the rural part of country. The anomaly and misconception with regard to recognition of degrees offered by different type of Universities shall be clarified and an independent agency to deal with queries of applicant in this regard be set up.
- iv) The committee(s) constituted for drafting syllabai shall consist experts/members from industries and other related field besides members from academic institutions and universities.
- v) A system of constant review and revision of syllabai be set up to ensure its effectiveness and utility in meeting the fast changing requirement of different industries.
- vi) Skill enhancement courses which can assist in generating or increasing employment potential shall be included as substantial part of courses curriculum.



- vii) Project Works including field work , practical and hand on training in industry shall be included in the course curriculum. Students shall be encouraged to take up projects to gain practical exposure.
- viii) Various Add on courses catering to specific industry requirement shall be offered to the students alongwith their core course curriculum so as to develop their skill and ability in the area of employment being aspired by them.
- ix) Faculty Development programmes , online as well as offline, shall be conducted to provide opportunity to all faculties in updating their knowledge in their respective areas.
- x) Regulatory agencies shall be set up at state as well as regional level to monitor and examine the functioning of Higher education institutes in their respective areas. This will facilitate quick approval of various programmes /course and redressal of various issues encountered by institutions on routine basis.

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**IMPACT OF LEAVE MANAGEMENT ON HRIS - A STUDY**

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**Mohd Irfanuddin<sup>1</sup> and Prof. Badiuddin Ahmed<sup>2</sup>**Research Scholar<sup>1</sup> and Head<sup>2</sup>, Department of Management Studies, Maulana Azad National Urdu University, Hyderabad**Abstract**

*Human Resource Management Information System is the software used by Human Resource management Department to maintain the records related to employees in the organization. This software is basically the advanced form on traditional Human Resource Functions. Using this software time can be saved with much more accuracy compared to manual record maintenance. In the present paper the relation between the Human Resource functions i.e. Leave management and Payroll management and Human Resource Information System using binomial test has been analyzed. For the study four IT companies have been selected of which two are Indian based Multinationals and the other two are Foreign based Multinationals. The study reveals the significance of Human Resource management on Human Resource Functions.*

*Keywords: HRIS, HRM, HR functions, leave Management, payroll Management. etc.*

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**Introduction**

The Human Resource Information System (HRIS) is a combination of Human resource management and Information systems. Earlier the hand-written hard copy records were used to store employee information. With the advent of computers entering and tracking employee information into a system became easy. As technology progressed, it became easy to track employee information. HRIS started playing the role of a more sophisticated database. One of the important uses of this database was to pull the HRIS reports. With the advancement in technology, organizations started using HRIS in handling different human resource functions like leave management, payroll management, Knowledge management, employee appraisal, etc.

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Payroll system is the heart of any Human Resource System of an organization. The solution has to take care of the calculation of salary as per rules of the company, income tax calculation and various deductions to be done from the salary including statutory deductions like Income tax and provident fund deductions. It must generate pay-slip, cheque summary and MIS reports. It is understood that we are tired of managing thousands of odd papers, pay slips, payroll reports, and salary details and so on. Imagine that we have a payroll processing system which will generate our pay slips and payroll reports within seconds. We can help others automated your payroll system by developing a customized payroll application that suits your specific requirements. Payroll function is another important component of a HRIS. HR professionals can easily download or unload employee hour, issue cheques or payroll deposits to employees. It reduces risks of errors itself when it comes to paying the

salary to the employees. The HRIS payroll software assists usually to improve tax compliance for locations with multiple tax levels.

Leave Management System (LMS) in HRIS and also its key features. Leave is an entitlement provided to the employees and accumulates in an automated manner. All workers are relied upon to utilize their leaves within a reasonable way. Workers may be instructed to ask for leave a few days to some weeks ahead of time that they wish to take it with the intention that work can be delegated, and the leave plans of different representatives facilitated. Leave management software will help the HR department base the performance appraisals on accurate information since there is no chance of human error through the employee leave management systems. Hence, errors in the work input, leave count, and diligence in the work of an employee are a few less things you don't need to worry about keeping track of.

Some of the key features of LMS are:

- Leave privilege records might be transferred and loaded into the system
- No programming customization needed for leave procedures
- Email notification feature will be integrated to alert requestor on leave approval status.
- Online requisition for leave without any hard copies or files

Employees can apply for leave online and have their requests for planned type of leaves, sent to their manager and the Human Resource department. The system creates vital reports, for example documents such as taxation forms and transfer forms letters. Workflow communicates with the leave database to display employee leave history when the employee is using the system. The supervisors can recognize which leave procedures apply to the leave request, and the leave administration result will track and manage these simultaneously with the different sorts of leave. The eligibility for leave is figured out by adaptable guidelines they also determine the leave balance calculation.

### **Objectives**

1. To understand importance of Leave management in HRIS
2. To study the effectiveness of HRIS in Leave Management.
3. To study the significance of HRIS in Leave Management,

### **Review of Literature**

Verner et al. did the statistical analysis to find the determinants of project victory using regression. The study reveals the success has the great potential with the involvement of project manager in schedule negotiations, sufficient information can be fetched with prior estimations, early work are upright, taking staff leave into consideration, and when no staff is integrated with late aggressive plan. The study is complete as the estimate of success is fretful but it excludes some factors of success.

Sharma (2009) recognizes the premeditated value of leave, and uses five important issues that relate directly to leave management. They are a. meeting project delivery to deadlines; b. legal issues regarding leave; c. emotional factors related to leave; d. the financial implications of leave; 5. Performance vs leave". Leave, as an assimilated progression managed by set of "legislative and policy" frameworks (Sharma, 2009).

Alvarez - Suescun (2007) has studied HRIS from the point of view of HR department. As per his analysis HR departments of organizations are using HRIS as a tool to gain competitive advantage over other firms. Better HRIS leads to a formulation of a better strategy and communication between the employee and the employer. A better strategy leads to better management of staff that in turn leads to a strong corporate character

Maria Chiara (2010), has analyzed the benefits derived from HRIS. As per her analysis HRIS leads to improvement in the productivity of the employees working for the company. The other benefits from HIRS are improvement in the employee morale. Her study concludes that HRIS improves the organization's ability towards decision making. she further concludes that HRIS helps in improving the potential for innovations in an organization.

### **Research Methodology**

The paper now explores the HRIS that is being used by 4 different IT companies. The type of the study is Exploratory cum Descriptive. The nature of the study is quantitative. The responses were taken from 1600 respondents from 4 different companies. 400 respondents from each of the 4 IT companies was taken. company

### Sampling

Since the population size in each of the 4 IT companies is more than 10,000 .

Stratified Random sampling was done using the following formula

$$N = \frac{z^2 \cdot p \cdot q \cdot N}{e^2(N-1) + z^2 \cdot p \cdot q}$$

Source:( Kothari, 2004)

n= sample size

z= (1.96) the value of standard variate at a given confidence level and to be worked out from table showing area under normal curve.

p= (0.5) sample proportion      q= 1- p

e = (0.05) given precision rate or acceptable error

$$N = \frac{(1.96)^2 \times 0.5 \times 0.5 \times 10,000}{0.05^2 (1.96-1) + (1.96)^2 \times 0.5 \times 0.5}$$

$$= 370$$

As per the formula, the sample size for each of the IT companies is 370. However, the sample size of 400 hundred was taken for each of the four companies under the study.

**Data Collection:** The data for this research has been collected using both primary and secondary sources.

**Primary Data:** Primary data has been collected from the respondents, who are active employees working on the permanent payroll of these four IT companies. Questionnaire has been personally distributed and collected from the four IT companies.

**Secondary Data:** Secondary data provides a context within which to set the work.

Secondary Data has been obtained from Articles from different journals, Newspapers, Books, Websites and Magazines.

### Data Analysis

**Hypotheses Testing:** For the present study Binomial test has been used to analyze the effectiveness of leave management on Human resource Information System.

**Purpose:** To study whether HRIS is effective in Leave Management

**Hypothesis:** HRIS is an effective tool in leave management

**Statistical Test:** Binomial Test

### Variables and Measurements

Respondents were asked to comment on the following statements using a five-point scale. (1=Strongly Disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4=Agree, 5=Strongly Agree).

- The tool is user-friendly in terms of leave management.
- The tool Maintains the leave data accurately
- The tool effectively provides the summary of my leave record.
- The tool effectively maintains the history of my leave records
- The tool clearly depicts the different types of leaves an employee is entitled for
- The tool effectively guides me to plan my leaves in advance

### Cut Point

The original five-point scale was converted to two point scale using Cut Point option as “3” in IBM SPSS 21. Hence the newly created categories were:

$\leq 3$ : Disagree

$\geq 3$ : Agree

### Test Proportion

Test Proportion was taken as 0.5. Since more than 50% of favorable responses to a particular category suggest greater approval for this category.

Hence  $P = 0.5$

**H<sub>0</sub>:**  $P \leq 0.5$  (Proportion of responses indicating “HRIS is an effective tool in leave management” is less than or equal to 50%)

**H<sub>1</sub>:**  $P > 0.5$  (Proportion of responses indicating “HRIS is an effective tool in leave management” is more than 50%)

**Level of Significance:**  $\alpha = 0.05$

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
The tool is user-friendly in terms of leave management	Group 1	$\leq 3$	815	0.51	0.5	P=0.468
	Group 2	$> 3$	785	0.49		
	Total		1600	1		
The tool Maintains the leave data accurately	Group 1	$\leq 3$	655	0.41	0.5	P<0.001
	Group 2	$> 3$	945	0.59		
	Total		1600	1		
The tool effectively provides the summary of my leave record	Group 1	$\leq 3$	903	0.56	0.5	P<0.001
	Group 2	$> 3$	697	0.44		
	Total		1600	1		
The tool effectively maintains the history of my leave records	Group 1	$\leq 3$	946	0.59	0.5	P<0.001
	Group 2	$> 3$	654	0.41		
	Total		1600	1		
The tool clearly depicts the different types of leaves an employee is entitled for.	Group 1	$\leq 3$	1246	0.78	0.5	P<0.001
	Group 2	$> 3$	354	0.22		
	Total		1600	1		
The tool effectively guides me to plan my leaves in advance	Group 1	$\leq 3$	1272	0.8	0.5	P<0.001
	Group 2	$> 3$	328	0.21		
	Total		1600	1		

### Interpretation

a. The tool is user-friendly in terms of leave management.

Observed Proportion: 0.49, Test Proportion: 0.5,  $P = 0.468$

b. The tool maintains the leave data accurately

Observed Proportion: 0.59, Test Proportion: 0.5,  $P < 0.001$

c. The tool effectively provides the summary of my leave record.

Observed Proportion: 0.44, Test Proportion: 0.5,  $P < 0.001$

d. The tool effectively maintains the history of my leave records

Observed Proportion: 0.41, Test Proportion: 0.5,  $P < 0.001$

e. The tool clearly depicts the different types of leaves an employee is entitled for

Observed Proportion: 0.22, Test Proportion: 0.5,  $P < 0.001$

f. The tool effectively guides me to plan my leaves in advance

Observed Proportion: 0.21, Test Proportion: 0.5,  $P < 0.001$

**Result :** From above discussion it can be seen that out of six variables , for 5 variables the observed proportion is more than 50% and P value is less than 0.05 hence the hypothesis “HRIS is an effective tool in leave management” is rejected .

### **Conclusion of the Study**

HRIS is being used by the companies to manage their HR activities. Leave management is of utmost importance for Employer as well as for the employee. It is revealed from the study that HRIS is effective in Leave Management Effective usage of HRIS helps in maintaining transparency between the employer and the Employee.

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**APPLICATION OF BIOMETRIC TECHNOLOGY IN ACADEMIC LIBRARIES**

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**ABSTRACT**

*Biometric technology is being used in various sectors for identification and security purposes, recently it has been introduced in the education sector to record the student and staff attendance. Biometrics can help librarians to ensure the safety and security of the library. This paper discusses the areas of a library that can benefit from implementing biometrics and suggests the benefits and drawbacks of this technology.*

*Keywords: Biometric technology, Academic Libraries, ICT in LIS.*

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**1. INTRODUCTION**

Academic libraries form an integral part of education and are responsible to impart knowledge to the youth of the country, thus ensuring good citizens responsible for the development of the nation. Libraries have a long and well-known history of preserving the materials in their possession, starting with closed access, however, development in technology has enabled the libraries to use latest technology to preserve its resources and make them available to its user's thorough modern means of data access and data transfer. Use of modern technologies bring about its own issues of security. Biometrics is presently being used to mark attendance of students and teachers alike and integration of biometrics in libraries can prove to be a boon in the modern environment.

**2. BIOMETRIC TECHNOLOGY**

Biometrics is the science of measuring physiological or behavioral characteristics that verify a persons' identity. This is possible, if each person has distinct characteristics that are invariant over a period and can be measured quantitatively.

A biometric system is basically a pattern-recognition system at recognizes a person based on a feature vector derived from a specific physiological or behavioral characteristic that the person possesses

**The various biometric solutions that are presently available are**

- Facial Recognition – Here the images of the overall facial structure, shape and proportion of the user's face are measured, along with the facial expressions. These are then stored in the database.
- Finger-print Recognition – Here the images of the ridges and valleys in the surface of the finger are captured and stored in the database.
- Voice Recognition – The voice tract and the accent of each voice are unique and this aspect is used in voice recognition technology.
- Iris Recognition – The color of the eyes depends on each individual's genetic composition and pattern of the iris vary from person to person. These features can be used to identify individuals
- Veins Recognition – This technology makes uses of recognition of pattern of the veins in the human hand, this can be done by passing the hand through Infra-red light and recording the pattern of the veins.
- Hand Geometry – The shape of the hand, dimensions of the fingers can be used for identification purpose as they vary from individual to individual.
- Signature / Handwriting Recognition – This technology is used in daily transaction such as banks, here the shape (dips – groves and peaks) of the handwriting are used for recognition purposes.
- DNA Recognition – Each person's DNA contains some traits from its parents. DNA profiling decides the amount of Variable Number Tandem Repeat (VNTR) which repeats at several distinctive loci. The amount of VNTR makes up an individual's DNA profile. Collecting the DNA profile is a time consuming and complex process requiring a physical sample such as blood, saliva, hair, etc. As this system of recognition requires highly sophisticated expensive equipment it is not usually preferred.

Biometric devices using finger print recognition are small, affordable and easy to operate, further they can be integrated with various software's for optimum usage and hence are preferred.

Presently this technology is being used in many areas especially for recording the attendance of the employees and generation of payroll.

### 3. PROCESS INVOLVED IN IMPLEMENTATION OF BIOMETRICS

In recent times most of the educational institutes have been using biometric systems to gather the attendance data of students and staff alike. Integration of this data in the library system would ensure better security for the libraries and provide instant statistics, enabling identification of various trends of the library users such as the peak time of library visits.

The procedure of integration of the biometric fingerprint recognitions involved the following processes

- **Enrollment** – Users were allotted a schedule during which their details were registered as follows

- Name of the User
- User-Id – Each user was assigned a unique User-Id
- The finger pattern for predefined fingers, namely, the thumb and forefinger of both the right and left hand were captured and stored in the database as a PIN
- The pattern of each finger is checked automatically three times for quality. Hazy and unrecognizable, patterns are rejected.
- The collected data is stored in the memory of the biometric system and can be copied on to a smart card/ pen drive or transferred to a central database.

- **Verification**

The captured data is verified to ensure recognition. The match or no- match is indicated by the system in less than a second, in case of a mismatch the old data is selected and deleted from the system and a new entry made using the same user-id.

Verification ensures that multiple people do not use the same identity.

- **Identification**

As each user is given a unique identity, multiple identities for a single person are avoided. The system searches the entire database for a match. This ensures that only enrolled users are identified.

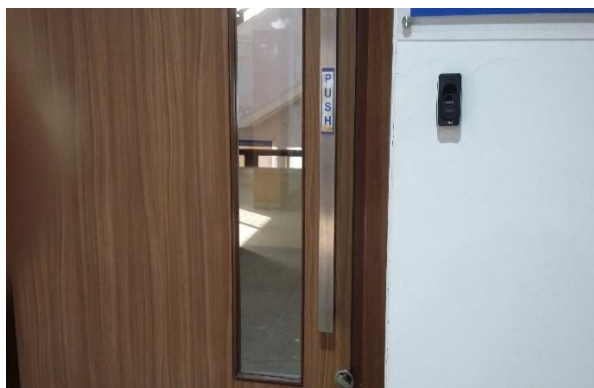
- **Authorization**

The system permits various levels of authorization; hence schedules can be set for allowing access to individuals based on time, number of days, etc.

This captured data can now be integrated with various systems (computers, servers, etc.) using middleware's and software's. The middleware's help the biometric device's database to run effectively across the networks. The middleware and the software's used by the biometrics system form an integral part of the biometric system and are responsible for its efficiency and effectiveness, it binds the biometric devices with the computers or servers of the library.

### 4. BIOMETRIC APPLICATION IN LIBRARIES

**4.1 Access to library premises** – This application does not allow unauthorized persons to open the doors. The biometric reader is mounted on the wall near the library door, the reader scans the fingerprint and matches it with the pre-recorded data, only authorized persons are permitted to enter the premises.



**4.2 Controlled check-outs** - Integration of the biometric data with the library software enables the user to check-out library materials. Here the problems with issuing Library Cards / Reader's tickets are overcome. Also misuse due to exchange of Library Cards / Reader's tickets is prevented. Users tend to be more responsible as they must personally issue the library materials.



**4.3 Controlled access to library networks** – Most of the libraries work in a digital environment wherein they provide their users access to various e-resources through user names and passwords, However, there can be lapses in security due to hacking, sharing of passwords and loss of passwords. These problems can be overcome by integrating biometrics in the library network, this will ensure that the e-resources are used only by authorized users.

**4.4 Generation of statistics** – Statistics such as number of footfalls, details of members accessing a service at a time can be easily generated in Excel format

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## 5. BENEFITS

- Biometric finger print recognition systems are presently cost efficient and easy to manage
- No swipe, pin, cards are required.
- Biometric traits cannot be exchanged, forgotten or lost nor can they be replicated by other users
- Biometric traits cannot be shared, distributed or cracked

## 6. DRAWBACKS

- Privacy issued need to be addressed
- Accuracy cannot be judged before implementation.
- A well-defined threat model should be in place while considering biometric systems.
- The cost of failure is high

## 7. CONCLUSION

Biometrics technology is advancing rapidly at the same time the cost is dramatically reduced. The present biometric technology is user-friendly, provides a means for fast authentication and can be easily integrated with various library software's. This technology can be used to provide fool-proof security measures, quick identification of users and generate instant statistics.

Academic libraries can use the benefits of this technology to ensure the security of its collection as well as overcome the problems faced due to shortage of staff.

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**BRIDGING GAP BETWEEN INDUSTRY EXPECTATIONS AND STUDENT COMPETENCE**

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**INTRODUCTION**

The phrase “sustained relations” is pivotal to building up rapport between the Industry & the Institutions: Are the students’ competent enough of maintaining relations with the existing corporates who had evinced interest in hiring from their Business School? Are they mature enough to have convincing conversations which would yield breakthroughs & results? Is it prudent on the part of the Institution to be on an advisory or coordination role with the students’ at the forefront? If so, what type of Business Schools & at what stage of their life cycle should they go for such student driven corporate initiatives? Based on a report by ASSOCHAM published in April 2016 the quality of education is falling and the number of un-employable graduates is on the rise, considering the vast number of B-schools available in India itself. If the market is seen steady and in need of employees, then that translates to the industry requirements not being met with respect to the graduate proficiency. According to the report published by ASSOCHAM in April 2016, “only 7 per cent of the MBA graduates passing out of around 5500 B schools barring IIM’s are actually employable. India produces about 0.3 million management graduates annually, but hardly 35,000 of them are employable”. This mismatch between industry requirements and graduate proficiency is termed as the industry academia gap. The paper is part of a preliminary thought into the subject which has scarcely been researched on, into which the empirical research has been initiated by us. India has one of the largest Higher Education System in the World, with more than 700 Universities and 35,500+ colleges out of which 115 Universities and 5672 colleges teach various engineering disciplines. With more than 12 million students on their rolls, and half a million A Study on Industry Expectations from Professional Student’s with Reference to Engineering Institute in India 343 teachers teaching in all disciplines, More than 85% of these students are enrolled in bachelor’s degree programmes and about one sixth of all Indian Students are enrolled in Engineering\Technology degree programmes. Engineering colleges in the country have been growing at 20% and business schools growing at 60%. Even after Having 1000’s of Educational Institutions in place, Unemployment is a biggest threat for the Country 25% of technical graduates are having potential for employable and 10-15% of other graduates are considered employable. So the reason of “Unemployment” is not the lack of demand or lack of supply, but It’s the lack of “Quality Supply.” The reasons behind is Lack of regular industry academia interface Lack of Job oriented & Skill based Curriculum, Lack of proper evaluation & Certification of practical skills, Lack of internship/ apprenticeship opportunities in industry.

**LITERATURE REVIEW**

Many stakeholders have suggested different approaches in dealing with this growing gap. Some have tried to use Research and Development (R&D), collaborative projects, and internships as a way of bridging the gap between universities, colleges and industry (Larkin, 2014). For one’s competence vis a vis interpersonal skills, it depends on the ability to understand and deal with the social interaction dynamics (Hayes, 2003). Mostly this focuses on dealing with inherently rational as well as process orientation (Duffy, Gordon, Whelan, Cole-Kelly, & Frankel, 2004). It must be noted that at times interpersonal skills and soft skills have been used interchangeably, but they are not the same (Hardina, 2013).

**THE DILEMMA**

Placement is an inherent & indispensable part of sustenance & thereby brand building of any business school. Quality placements result in enhanced incumbent quality intake which further drives the growth of the brand & enriches its image. The accumulated value adds over the years result in brand equity which instils trust & recognition & boosting up the positioning of the Business School. The dilemma here is since the students’ are to be placed & they would be the products, the outcome of management education, would it be a viable solution if some of the brightest minds reach out to the corporates for Industry-Institute-Interface? Does the buyers’ in the form of the corporates prefer to interact with the faculty deputed for managing corporate initiatives or would the students’ corporate relations team be sufficient enough in managing placements & other corporate initiatives as a result of sustained relations.

**OBSERVATION**

Corporate Relations is an art & science requiring lot of discipline, determination, devotion, great interpersonal skills, and balanced communication skills. Empanelment with the corporates & driving relations or getting the alumni who are working in the different companies to campus requires specialized skills which have to be attained over time. The second & third tier Institutions have volume of their intake in the form of freshers’ in India & need to be monitored, trained closely as any sort of miscommunication or wrong commitment might

endanger the subtle relations between the company & the campus. The model thus takes shape that for these types of business schools it's recommended to be essentially faculty driven.

### **EMPIRICAL RESEARCH**

Our empirical research has pointed out an interesting fact which is that the Tier-2 & Tier-3 Business Schools are blindly imitating the Tier-1 Business Schools in having the placement initiatives fully student driven, the upper layer of these cluster comprises of a mix of experienced & fresher candidates but in the absence of competence & maturity a gap ensues thereby resulting in a drop in quality of the desired outcome.

For the best B-School brands that have opened up their new campuses which are in a nascent stage might go with the legacy of having the corporate relations student driven but it needs a full time dedicated faculty mentoring team under whose leadership & supervision the student team would function. This team of students' might create a pool of contacts which they share with the faculty & on mutual discussion can take it forward under the able guidance of the faculty team. The cause of concern in such Institutions & such a system is that the lower rung of the students' who despite appearing in quite a number of campus drives could not manage to crack the interviews. It is these students' that fall upon the faculty for their placement & if not satisfactorily placed might demean the Institutional repute. These Business School students' are many a time not even aware of their preferred sectors & suitability of their skills therein & very often gamble to venture for a specialization & an opportunity that they might not be able to sustain over time. They change jobs frequently & in a short span lose credibility thereby settling down for a clerical level job unbecoming of a Business School graduate. Since supply of pool of candidates far outwits the right set of demand there is always a dearth of getting a satisfactory job matching the skill sets & the learning of the passouts.

Reasons behind the Gap between Academia and Industry 1) Academicians and industrialists have a different mindset; therefore both have different perspectives and expectations. 2) The curriculum is static in nature while its application is dynamic. 3) Both academicians and industrialists are pursuing different goals entirely. The academic is striving for recognition from his or her peers. The Industrialist is striving to survive. 4) Lukewarm attitude of lecturers to surrender themselves for trainings and workshops. 5) Industry thinks in terms of short range goals whereas academic has a long range perspective. 6) Industry prefers proven solutions with a low risk, whereas academia is interested in creating new solutions with a high innovation rate. 7) Industry seeks the minimum solution to minimize their risk, whereas academia strives for a maximum solution to maximize their recognition.

### **CONCLUSION**

Placement activity should thus be collaborative for it to give synergistic outcomes with the faculty mentoring team & the students' working at tandem to deliver results. Each of the stakeholders' of an Institution has a responsibility in uplifting the corporate interface. The essence required is to assess the students' & cluster them based on the domain knowledge, skills & attitudes & thereby groom them according to the analysis & preferences to fit to the Industry specific job roles & job descriptions. New graduates should be mentored on interpersonal skills. Interpersonal skills like effective communication, problem solving skills, negotiation, etc., go a long way to help slowly integrate new graduates into the business world by making them interact better and 69 International Journal of Organizational Leadership 7(2018) understand the whole organizational behavior. Mentoring involves having an experience that guides a graduate by advising, sharing knowledge and opening-up about the way of improving for the graduate. This can be done by managers and supervisors during coordinated internships. Internships should come with a form of assessment tool that is created with the collaboration of the managers of the industry the graduate is going to and the academic institution the graduate is from. The use of assessment tool during the internship helps give feedback as well as bring a sense of awareness to the graduate about where they lack certain skill and what to improve. This in turn gives a potential employer what to focus on in developing the graduate. Universities can also use this to help the graduate improve the skills they lack through counseling. If they can be nurtured based on the requirements of the Industry it would result in superior outcomes & better conversion for the passouts. The solution for the mass of the Business Schools thus lie in focused output orientation & prolonged exposure to fine tuning the skill sets desirable. The top tier of the Business Schools can continue with their reputed alumni base & their legacy of student driven corporate interface as a process has been established. But for the gamut of the Business Schools which operate at a tier below & further down the collaborative approach & streamlined orientation is the key for sustenance & brand value enhancement which if practiced with due diligence from the time the students' enter the campus will in due course deliver the expected results thereby diminishing the gap between the expectations & actuals. It will lead to slow & steady brand building & lay the Business School on a solid pedestal which is

bound to skyrocket with its increased valued alumni base & flourishing corporate base evincing interest in hiring the right set of candidates suited to their needs.

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**“CHINOOK”, THE GAME CHANGER FOR INDIAN AIR FORCE**

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**ABSTRACT**

*Armed Forces of India are responsible to protect the countrymen and land from foreign invasion and maintain peace in the region. Since Independence, India has bought large number of weapons (small and big) from foreign and developed countries. India's all time defense partner Russia has provided India with weapons ranging from small arms to fighter jets & helicopters, submarines & warships. India has also bought weapons from France, Sweden, Israel and many other countries. India has also developed its capabilities to manufacture its indigenous weapons for long term defense needs. India's Research and Development bodies are in a process to manufacture weapons for Indian army, navy and air force. Biggest success has been the indigenously built Light Combat Aircraft (LCA). Though, government of India has still decided to continue to buy weapons from foreign countries to keep its forces equipped with modern weapons. In the run, USA has now become a preferred partner of India in many defense weapons dealings. Recently, India has signed a deal to purchase CH-47F Chinook heavy lift and AH-64E Apache attack helicopters from Boeing (USA).*

*This paper is an attempt to understand the role and fitment of Boeing's CH-47F Chinooks in Indian air force and army. India has ordered 15 Chinooks to be based in Chandigarh and Assam. 4 of which has already been delivered and inducted in IAF's 126 Helicopter Unit in Chandigarh. It is important to understand that India already has heavy lift helicopters Mi-26 from Russia, then why would India require another type of heavy lift helicopter. In this paper we would understand the objectives behind acquiring the Chinooks and inducting them in Chandigarh and Assam.*

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**ABBREVIATION**

IAF – Indian Air Force

LCA – Light Combat Aircraft

SAR – Search and Rescue Operations

RTR – Route Transport Role

SHP – Shaft Horse Power

PAF – Pakistan Air Force

PLA – People's Liberation Army (China)

AH – Attack Helicopter

ALH – Advanced Light Helicopter

HADR - Humanitarian Assistance and Disaster Relief

NDRF – National Disaster Relief Force

LOC – Line of Control

LAC – Line of Actual Control

HAL – Hindustan Aeronautics Limited

**INTRODUCTION - Importance of a heavy lift helicopter for the Armed Forces:**

The IAF's helicopter fleet has steadily increased in numbers over the past few years. The armed forces has been using a range of helicopters both in war and in disaster relief missions in peacetime. India's geographic boundaries vary from the peaks of Siachen Glacier to sea levels of Indian Ocean. With such kind of varied conditions, the equipment that our soldiers use has to be technically very good. India's current fleet of helicopters include the Russian and Indian made medium lift helicopters, heavy lift helicopters, utility and attack helicopters. The HAL has also contributed towards increasing the capabilities of Indian Air Force supplying the Chetak and Cheetah helicopters. They have been used for SAR, Casualty Evacuation and RTR (Route Transport Role). HAL has also indigenously developed an Advanced Light Helicopter, ALH Dhruv. The fleet of Dhruv is steadily increasing with more advanced features and avionics.

The IAF also uses a fleet of Russian made Attack Helicopters (AH), the MI-25/MI-35. The Attack Helicopters has been used in operations like the Indian Peace Keeping Force in Sri Lanka, under UN at Sierra Leone and Democratic Republic of Congo under Chapter 7 of UN for Peace Enforcement.

The heavy lift and medium lift helicopters are operated for commando assault tasks, ferrying supplies and personnel to remote mountain helipads. It is used to carry out SAR (Search and Rescue Operations) and logistic support tasks in the island territories, Siachen Glacier, apart from armed role. The first four of the 15 CH-47F (I) Chinook helicopters, which were ordered from Boeing in September 2015, were commissioned into the IAF's 126 Helicopter Unit at a ceremony held in Chandigarh. After inducting the helicopters, IAF Air Chief Marshal B. S. Dhanoa said that induction of Chinook will be a game changer the way the Rafale is going to be in the fighter fleet.

### **OBJECTIVES OF THE STUDY**

- To study the operational capabilities of Chinook Helicopters in providing logistics support to the ground troops during military operations.
- To study the effectiveness of Chinook Helicopters in border/LOC/LAC to counter military activities by neighboring countries.
- To study if Chinook helicopters can provide its capabilities in humanitarian assistance and disaster relief (HADR) operations.
- To compare Chinook helicopter's capabilities with similar helicopters of China and Pakistan.

This study is based on secondary data sourced from various online and offline articles written by military experts and defense analysts.

### **OPERATIONAL CAPABILITIES OF CHINOOK**

The Chinook is a twin-engine, tandem rotor, multi-role, vertical-lift helicopter which is used for transporting troops, artillery, equipment and fuel. It is developed by American rotorcraft company Vertol and manufactured by Boeing Vertol (later known as Boeing Rotorcraft Systems).

The Chinook possesses several means of loading various cargoes, including multiple doors across the fuselage, a wide loading ramp located at the rear of the fuselage, and a total of three external ventral cargo hooks to carry underslung loads. It is one of the fastest helicopters with top speed of 315 kilometers per hour.

It has the capability to airlift the M777 lightweight howitzers that have been inducted in the Indian Army's Artillery last year. The Chinook has a maximum capacity to carry 11 tonnes and 45 troops. Additionally it has underslung capacity to load 10 tonnes that includes heavy machinery, artillery guns and even light armoured vehicles to high altitudes. These helicopters are expected to lift artillery, vehicles, road construction and engineer equipment as well as troops and supplies to mountainous sectors. Chinook would be also used for deploying troops and machinery at high-altitude locations. The Chinook's capabilities was first proved in Vietnam War where it was used in placing the artillery batteries in perilous mountain positions inaccessible by any other means. And then keeping them resupplied with large quantities of ammunition.

The Chinook has also carried out secondary missions including medical evacuation, disaster relief, search and rescue, aircraft recovery, firefighting, and heavy construction assistance. Chinook's ability to carry large, underslung loads has been of significant value in relief operations in the aftermath of natural disasters. Three Japanese CH-47s were used to cool Reactors 3 and 4 of the Fukushima Nuclear power plant with sea water after the 9.0 earthquake in 2011.

It can also be armed with 3 pintle-mounted medium machine guns (1 on loading ramp and 2 at shoulder windows), generally 7.62 mm machine gun.

The helicopter is equipped with two T55-L-712 turboshaft engines from Honeywell, which are pod-mounted on either side of the rear pylon under the rear rotor blades. The engine provides a continuous power of 3,000shp and maximum power of 3,750shp.

IAF Air Chief Marshal B. S. Dhanoa said, "Our country faces a multitude of security challenges, we require vertical lift capability across a very diversified terrain." The IAF operates from bases which are from sea level to very high altitude advance landing grounds. The helicopter will give the IAF quantum leap in terms of ability to transport cargo to precarious high altitude locations. The aircraft is one of its best in its category,"

The all-weather capable aircraft can also be used for humanitarian and disaster relief operations and in missions such as transportation of relief supplies and mass evacuation of refugees.

He said that all the 15 Chinook helicopters will not be stationed at Chandigarh Air Force Station. Another unit of heavy-lift choppers will be created in Dinjan (Assam) for some of the Chinooks to be inducted here.

The Indian Air Force (IAF) received 4 CH-47F (I) Chinook on February 10 at the Mundra port in Gujarat. The entire fleet of 15 Chinook helicopters is expected to arrive by March 2020.

Chinook helicopters serves armed forces of 19 countries. The first 4 Chinooks inducted in IAF is a part of 126 Helicopter Flight squadron at an official ceremony in Chandigarh. The 126 Helicopter Flight unit currently operates the last of the Russian built Mi-26 choppers that have been transporting heavy equipment so far. The Chinook is suited for mountain operations given its high maneuverability of negotiating narrow valleys. The CH-47F Chinooks are expected to be used by the IAF in missions in Ladakh area, Kashmir and north-east regions. Besides ferrying combat ready personnel and defense equipments.

Salil Gupte, president, Boeing India “The CH-47F (I) Chinooks will prove to be a significant force multiplier for the Indian Air Force.” Michael Koch, vice president, India, Boeing Defense, Space & Security said “With its advanced capabilities and versatility, we are confident that the CH-47F(I) Chinooks will be an important asset to the Indian Air Force.”

### **BORDER OPERATIONS OF CHINOOKS**

IAF has decided to induct the Chinook helicopters in Chandigarh at 126 Helicopter Flight squadron and Assam’s Dinjan. A separate unit will be created here. It is believed that these locations have decided keeping in mind our 2 hostile neighboring countries Pakistan and China.

There has been a military tension between India and Pakistan post Pulwama attack. Pakistan has mobilized some of its units close to the border after Indian Air Force struck terrorists camp at Balakot. This has resulted in counter mobilization by Indian Army. There is heavy shelling and cross border firing going on at the border from both sides. There has been a war-like situation currently at the LOC and the International Border with Pakistan. The induction of Chinook helicopters will boost India’s capabilities for quick mobilization of troops in higher reaches along the Line of Control. It can deliver heavy payloads to high altitudes and is eminently suited for operations in the high Himalayas. According to IAF, both Mi-26s and CH-47F Chinooks will give tremendous mobility capability to the forces.

Similarly, induction of Chinooks in Dinjan, Assam will help the IAF to counter any threats from China Frontier. India and China share the Line of Actual Control (LAC) which is very volatile. Quite often the Indian and Chinese ground forces get into a standoff position like in the case of Doklam in June 2017. The People’s Liberation Army of China has been very aggressive in increasing weapon capability for their forces. Acquiring the Chinook and the Apache helicopters by IAF will certainly keep the balance maintained in the South Asian region. It is also in the interest of USA to equip India with modern weapons as India only has the will and capability to counter the Chinese forces and keep a balance of power in the region. Chinooks will be used to transport troops, artillery guns, supplies, equipment on the battlefield, ammunition and even barrier materials. It will also prove a key contributor in developing the supply routes and infrastructure along the LAC.

### **CAPABILITIES OF HELICOPTERS IN HUMANITARIAN ASSISTANCE AND DISASTER RELIEF (HADR) OPERATIONS**

Indian armed forces have always played key role in Humanitarian Assistance and Disaster Relief (HADR) operations. Armed forces are always in a ready mode to conduct any HADR operations in the country and abroad. The HADR operations include landslide, Flood like situation, Tsunami or Cyclone like situations and evacuation of civilians. Indian Navy had conducted HADR exercise in Lakshadweep Islands. It was Indian Navy’s large scale exercise to test its readiness for handling a tsunami like disasters in order to provide immediate relief to the affected people.

IAF also has the capabilities to immediately get into action in such HADR situations. It has variety of transport aircrafts and helicopters to do the job. Aircrafts like the AN-32, C-17, C130J & IL-76 and Helicopters like Mi-17, Mi-26, Chetak & Advanced Light helicopters (ALH) are operations ready for any HADR like situations. IAF becomes the backbone supported by Indian Army and the National Disaster Relief Force (NDRF) team in such situations.

Indian Navy, IAF and Air India in March 2015 had also executed the evacuation of 2096 Indian nationals from Yemen after the Coalition Arab forces had commenced air strikes in Yemen. In August 2018, “Operation Karuna” was implemented by IAF when many parts of Kerala was completely isolated by landslides and floods due to heavy rains. The state government had requested IAF to provide urgent assistance in Wayanad for providing relief to the affected people. Five AN-32 transport aircraft were deployed to transport NDRF teams.

Two Mi-17 helicopters and one Advance Light Helicopter (ALH) has been pressed into service for distribution of relief material and winching operations. C130J aircraft airlifted Medical team consisting of 96 medical doctors & relief supplies for flood hit areas of Kerala.

India acted like a good friend and neighbour and under “Operation Insaniyat” and offered help to Bangladesh to deal with the humanitarian crisis in 2017. Since late August’17, nearly 400,000 Rohingya Muslims have fled to Bangladesh. C-17 globemaster airlifted 55 tonnes of relief material comprising daily necessities like rice, pulses, sugar, salt, cooking oil, ready-to-eat-meals, mosquito nets, and other important items. Air Vice Marshal Manmohan Bahadur (retd.) said “History shows that HADR is a capability that we (IAF) have been displaying for about 20 years now, starting largely with the Tsunami disaster in 2004.”

Since its inception in operations, the Chinooks has carried out secondary missions including medical evacuation, disaster relief, search and rescue, aircraft recovery, firefighting, and heavy construction assistance across the world. Chinooks have already been used in relief operations in Indonesia following the 2004 Asian tsunami. After the 2005 Kashmir earthquake the Royal Air Force dispatched Chinooks to Northern Pakistan to assist in recovery efforts. The Japanese CH-47s were used to cool Reactors 3 and 4 of the Fukushima Nuclear power plant with sea water after the 9.0 earthquake in 2011.

Citing the above details and examples, it clearly states that the Armed forces of India especially the IAF is committed towards any HADR operations that may come its way. Hence, very rightly the current Air Chief Marshal B. S. Dhanoa claimed that the Chinooks will be readily used in all types of HADR operation. It is an important addition in HADR capabilities.

#### **WHAT DOES CHINA AND PAKISTAN HAS SIMILAR TO IAF’S CH-47F CHINOOK**

The Chinese military is in a dire need of bigger choppers to give a lift to its preparedness in the event of a military emergency and major natural disasters. The People’s Liberation Army’s current helicopter squadrons comprise mainly medium-sized transporters like the Z-9, Z-20 and Mi-17. It has been reported that China turned to Russia and leased a number of Mi-26s to transfer relief supplies, first responders and injured civilians after the devastating Wenchuan earthquake jolted Sichuan province and the rest of western China in May 2008. Hence, China is teaming up with Russia in jointly developing a new advanced heavy lift helicopter with a 15 ton payload, a range of over 630 kilometers and speed of 300kilometers per hour. It is believed that the new helicopter will be modeled on Russia’s most powerful Mi-26 helicopter. A scale model of the new advanced heavy lift helicopter was showcased in Airshow China 2018 on November 7, 2018. Under the contract, at least 200 heavy lift helicopters will be built in China. It will be delivered to China’s PLA by 2032

If we look at Pakistan Air Force (PAF) arsenal, we see PAF has mostly utility helicopters along with attack and training helicopters. It only has medium lift helicopters in form of Mi-17 that does job of transportation for the Pakistan Army. Many Pakistani military experts say that PAF does not need heavy lift helicopters. In 1970’s USSR had sent a Mi-26 helicopter for tests but the Pakistan Army rejected it. Some defense experts also believe that for a country like Pakistan (size and geography), medium lift helicopters like Mi-17 are enough for their requirements. Pakistan has shown interests in Chinooks and Blackhawks to be bought from USA but USA is reluctant in selling the said helicopters to Pakistan. Pakistan may at later stage buy a few heavy lift helicopters from China after it has jointly developed its advanced heavy lift with Russia. USA may also later sometime agree to sell its Chinooks to Pakistan to maintain a balance of military power in the region. This has been US policy since a long time. Though, it depends on India’s governments relations with the US.

At this moment, we see that India has an edge over both China and Pakistan as IAF operates 2 heavy lift helicopters Mi-26s and Chinooks other than the medium lift helicopters. IAF has got a big boost in terms of transport capabilities with the addition of the Chinooks.

#### **CONCLUSION**

The government’s decision to buy the CH-47F Chinooks for the armed forces has been appreciated by most of the defense experts. The twin-engine, tandem rotor heavy lift helicopter gives a superb stability to the helicopter. The Chinooks have proved their efficiency and capabilities in war time and in rescue missions. The Chinooks have been inducted in critical air force stations that will give operational support to both the Pakistan border/LOC and China Frontier/LAC. The helicopter will be a strategic game changer for the Indian forces. The decision to buy the Chinook and Apache helicopters was important for India to keep itself a step ahead of the Pakistan Air Force (PAF) and counter a balance with Chinese Air Force. As mentioned in previous chapter, acquiring Chinooks give IAF an edge over both the neighboring countries atleast for the next 5 to 8 years till the time Pakistan and China get their own heavy lift helicopters matching Chinook’s capabilities.



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**HEALTH CARE PRACTICES OF FOUR TRIBES OF TAMIL NADU - A MULTIDIMENSIONAL AND INTERSECTORAL APPROACH**

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**ABSTRACT**

*Medical Anthropology covers the health and health related problems of the tribals who have symbiotic relationship with the ecology and environment systems, the biotic and abiotic. It examines of the physical world, apart from their magico-religious beliefs system, affecting psycho physical behaviour pattern of the tribals. It understands the ecosystem of the tribals and their interactions with social systems, the adaptive system. The ecological system and the social systems of the tribals are complex and adaptive systems. By exploring the traditional health practices of four tribes of Tamil Nadu, this paper argues that the concept of health in tribal communities needs to be understood in their social, economic, cultural institutions and practices and therefore requires a multidimensional and intersectoral approach in understanding them.*

*Keywords: Indigenous knowledge of health and health care systems of the tribes – ecology environment, symbiotic relationship with human nature and complex and adaptive systems – shamanism, lack of documentation, preservation and distribution - Plural system of Medical Anthropology with its ramifications.*

*One of the major concerns of the International Decades of Community and Development during 1990's, was recognition for the cultural diversity of the indigenous tribes and their knowledge systems as an alternative system. These systems predate modern system of medicine which is the allopathic system. The international convention for safeguarding the intangible cultural heritage by UNESCO in 2003 advocated the importance and validity of the world's living local, regional and national cultural heritage. The experts of cultural studies and organizations around the world not only document the indigenous knowledge system of the marginalized people but also encourage their preservation and distribution of it in the interest of all.*

*Anthropology and health-seeking behaviour in developed, developing and under-developed countries, as well as among the local communities, has theoretical and practical relevance. It analyzes and conceptualizes the concepts of health, curative practices, role of health care practitioners, and the cognitive perception and management of illness. All of these provide insights into community health and the communities' use or non use of traditional or modern health services.*

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**ECOLOGY AND ENVIRONMENT**

Anthropologists use an ecological perspective to understand disease patterns, and view human populations as biological as well as cultural entities. They take a systems approach. Disease is not just a response to environmental problems, but also a response to genetic and physiological processes which carry equal weight. The key concept in medical ecology is "adaptation," i.e. the changes, modifications, and variations that increase the chances of survival, reproductive success, and general well being in an environment. Humans adapt through genetic change, physiological responses (short-term or developmental), cultural knowledge and practices, and individual coping mechanisms.

The basic premise is that health is a measure of environmental adaptation, and disease indicates disequilibrium. A second premise is that the evolution of disease parallels human biological and cultural-evolution.

Ecology, unlike other orientations, assumes that biomedical disease categories are universal. Disease rates can be measured, compared through time and across geographic space, and correlated with changes in settlement patterns and subsistence. The frequencies of haemoglobin types can be measured and mapped geographically in relation to the incidence of infectious diseases. Due to the multiplicity and complexities of influences, and counter influences, medical anthropology in India and in the world continuously modifies itself into various subfields of hybridizations and specializations, depending upon the needs of people, in general and of tribes, in particular.

Since the mid-1960s, medical anthropology has developed three major orientations. Human ecology views populations as biological and cultural units and studies interactions among ecological systems, health, and human evolution. Ethno-medical analysis focuses on cultural systems of healing and the cognitive parameters of illness. Applied medical anthropology deals with intervention, prevention, and policy formulation. It analyses the socio-economic forces and power differentials that influence access to care. In this triad, cultural anthropology is most closely allied with ethno-medicine. In the formative years, some anthropologists favoured

identifying the field as “ethno-medicine”, while others preferred “anthropology of health.” However, the term “medical anthropology” is prevalent, thereby representing a diversified range of orientations (McElroy, 1989).

### **ECONOMY AND HEALTH**

A positive relationship between socioeconomic status and health has been observed across the countries in the world at different times (Marmot, 1999). It is commonly believed that economic growth leads populations to live better, longer lives and with sound health.

Firstly, economic growth means rising per capita income and part of this increased income translated into the consumption of higher quantity and better quality nutrients. Through nutrition, health, as measured by life expectancy, responds to increases in income (Rosenzweig & Stark, 1997). Secondly, economic growth driven by technological progress and part of this progress reflected in improvements in medical science (Morand, 2005).

Sound health forms the fundamental base for the nations and individuals. From the early 1990s, various studies have attempted to identify the determinants of economic growth. The role of human capital (comprising health, education, and skill) is now almost universally regarded as being indispensable in this regard. Sustained economic growth depends on levels of human capital whose stocks increase because of higher levels of health status, better education and new learning and training procedures without a labour force, with a minimum level of education and health status, a country is incapable of maintaining a stage of continuous growth (Prankrishna Pal, 2009). Health, knowledge about health, health education, skilled personnel to address the health issues are important for sustained economic development (Taylor & Francis, 1997). Health is tightly linked with the overall integrated development of society, including cultural, economic, educational, social and political development.

### **METHODS**

Medical anthropology is such a broad field that draws from a variety of disciplines and areas of expertise. The approaches taken to research and the data collection come from a wide variety of fields. Most research problems necessitate using data from different fields and integrating them, giving medical anthropology the interdisciplinary nature that characterizes it today.

Understanding the cultural context of a particular health issue, necessitates ethnographic data which is collected by cultural anthropologists in the field. Ethnographic data provides information on religion, kinship, family, structure, marriage practices, and subsistence techniques, thereby providing a full account of the people who experience health issues, the conditions of their lives, what they do when they get sick, and what kinds of perceptions they have about good health.

Ethnographic research collects these data through intense and often long-term field study. This primary method of research is called Participant observation and can be complemented with collecting quantitative survey data relevant to the issue at hand. Collecting epidemiological data is also important to medical anthropologists. Epidemiology is the study of the distribution and determinants of the various forms of disease in human populations (Helmen, 1994).

### **RESEARCH PROJECT ON THE FOUR TRIBAL POPULATIONS**

This research project studied populations who are situated in different environments in the region. The Malayali, Kurumans and Kurichchans live in the plains as well as in hilly areas and represented themselves as agricultural communities.

The Irular community is gradually shifting from forest to plain areas for their continued subsistence due to lack of economic resources in the forest area. This study focuses on the multi dimensional perspectives of medical ecology, ethno medicine and applied Medical Anthropology.

### **KEY FINDINGS OF THE STUDY**

#### **Socio-economic Status and Health**

The present study has come out with results that there is a strong correlation between the socio economic background of the individual and tribes and its relative isolation from mainstream population and infrastructure with poor education, political factors and health care seeking behaviour. Simply stated, poor tribes have less education, less political power and therefore, poorer health.

These tribes are classified as scheduled tribes by the Indian Government (ST). The economic capability of the ST population, that are studied, is an important determinant of health and well-being. The majority of individuals, within the studied population, have a monthly income of less than Rs. 2000 (71.3%). The lack income, combined with geographic and infrastructural isolation and social exclusion makes these tribes especially vulnerable to much worse health outcomes than the general population.

Out of the four tribes, Irulars seem to have been really pushed back into deep poverty due to lack of land, employment, education, money etc. This tribe, in particular, needs maximum attention from development programmes.

### **Maternal Health**

Poverty has impact on maternal and child health and mortality. The research results suggest that in the studied population, those who are the poorest have the worst health outcomes and have a severe lack of health services.

The majority of child births take place in hospitals now. It was observed that healthcare providers did not share key information with the pregnant women. The focus groups results revealed that women felt disrespected and their dignity was affected because they were treated as 'illiterates' who did not know anything about pregnancy/childbirth.

Rather than creating a positive atmosphere for new mothers experiencing the joy of childbirth, the health care provider created a negative environment, where the pregnant women felt a loss of dignity. This conflict created vulnerability in pregnant women and hence they did not engage in necessary health care behaviour such as seeking institutional prenatal and antenatal care. Symptoms such as losing weight, particularly by married/pregnant women, were never taken as a serious health issue. It was justified as a way of life and process of pregnancy. Early age marriage, among girls (12 to 15) and boys (16 to 20), is one of the main causes of early pregnancies and poor nutritional status of women. These in turn causes repeated abortions, premature deaths, low birth weight babies, anaemic children etc.

The quantitative and qualitative analysis establish, that access to maternal health care is more restricted for Scheduled Tribes and they are subject to indignities at the hospital, leading to feelings of exclusion and alienation. The ability to pay hardly determines the level of care and attention a birthing woman receives.

### **Child Health**

All four tribes took the health and illness of children very seriously. In case of illness, parents did visit private doctors. In comparing the four communities, the tribe which is the most mobile (Irula) has deprived the children of proper education, health and nutritional services. Extreme poverty, debt, prevalence of shyness, lack of leadership, aloofness and high level of illiteracy have all been responsible for their poor health and nutritional status.

### **Social Practices and Health**

Tribal communities are homogeneous and strictly endogamous. Their definition of marriage is different from the mainstream definition. Even today, 'marriage by elopement' is very common among the Malayali Tribe. Among the Irulars, marriage rituals are solemnized after childbirth. Such attitudes do have an impact on maternal health.

### **Food Habits and Health**

The Kurumans and Kurichchan of Dharmapuri districts have common staple foods which are Ragi and other Millets. Millets have been perceived as a food for the lower strata of society and stigma was attached to its consumption. However, recent findings on the health benefits of millets have renewed interest in the consumption of millets by the younger generation. Moreover, the public distribution system (PDS) provided rice is not of sufficient quantity to sustain them.

The Tribes hardly consume vegetables, legumes, pulses, fruits, eggs and milk, which are all high in protein, vitamins and minerals, in spite of these being available at the market. Instead, they spent money on soap, face powder, oil and other cosmetic items.

### **INFRASTRUCTURE AND HEALTH**

The lack of adequate transportation and communication facilities, inaccessibility of the villages to medical staff and equipment has been one of the major factors hindering the providing of quality services, especially to the Irular and Malayali.

The lack of sophisticated medical facilities such as good medical equipments, operation theatres, hospital beds, toilets, etc., in Public Health Centre's has deprived the target groups from quality medical care.

### **TRADITIONAL BELIEF SYSTEMS AND HEALTH**

Traditional ethno medical beliefs and practices such as disease aetiology, body image and symbolism, ritual healing, mother and child health care practices etc. create conflict between the changing modern health care practices. Hence, neither the traditional practices nor the modern practices are followed exclusively by the tribal communities.

Faith in traditional healers is one of the reasons for the prevalence of beliefs and practices. Such beliefs do prevail with all the communities studied. However, traditional healing is also beneficial in some cases. The tribes have a great deal of knowledge of indigenous medical systems which help in health maintenance. Such knowledge and resources could be mobilized in order to facilitate the improvement of tribal health.

### **ROLE OF GOVERNMENT PROGRAMMES AND TRIBAL HEALTH**

Awareness about the government developmental schemes is minimal among the Irular and Malayali tribes when compared to the other communities studied. The ICDS and health providers find it difficult to reach the target group due to poor transportation.

Ultimately, the process of identifying beneficiaries of government programmes is not transparent. The communities, listed in the official documents as 'Scheduled Tribes' have great disparities when it comes to the ground reality. These discrepancies do affect the identification of beneficiaries. Such problems prevail with dispersed tribes (Kurumans) but not with hill dwellers (Malayalis).

The success of government programmes have been not as widespread as they could have been if the infrastructure facilities had been in place. Due to different departments dealing with different aspects of health delivery, often while there may be advanced medical facilities available, it cannot be taken to the people due to poor infrastructure and coordination.

### **CONCLUSION**

The ethnographic and qualitative research allows for a more complete understanding of the health status of tribal populations. Health is not merely the outcome of individual income but also requires an entire support system of infrastructure, medical facilities, education and awareness as well as cultural understanding to enable people to reach their fullest and healthiest lives.

Government programmes which are top-down tend to see health problems from only a biomedical perspective, where the health care providers treat diseases rather than patients. Therefore, many of the health services available to the tribal populations are under used due to the cultural insensitivity of medical service providers.

Even though schooling is widespread in Tamil Nadu, specific health behaviour education targeted a children to create healthy behaviours was absent for a long time. Recently there has been a hand washing movement which can help in preventing diseases of contamination from affecting children.

The role of Medical anthropology is in helping develop programmes which solve health issues using culturally acceptable solutions. It serves the important function of linking local beliefs and practices to health care interventions that are useful for addressing health issues of the target populations.

This research analysis proves that the inequalities prevail in maternal health care services is related to poor infrastructure, poor socio-economic background, illiteracy, food consumption pattern, lack awareness on government policy and identity crisis. These factors adversely affect the 'life chances and capability' of the mothers and as well as their children. The prevalence of high rate of miscarriages, stillbirths, neonatal mortalities, infant mortalities and maternal mortalities necessitate a scrutiny of the prevailing policies and academic approach related to the issues. Microcosmic studies, with their participatory approach, can elucidate the existing realities and provide scope for sustainable improvement in the health care scenario.

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**PHYTOSOCIOLOGICAL STUDIES OF AHOBILAM AREA OF NALLAMALA FOREST,  
KURNOOL DISTRICT, A.P., INDIA**

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**ABSTRACT**

The Phytosociological study of Ahobilam forest area revealed the occurrence of 73 tree species and 81 other habitués that are distributed in 31 and 35 families and belong to 61 and 66 genera respectively. Phytosociological studies revealed highest IVI to *Bridelia retusa* (23.6) of the family Euphorbiaceae among tree flora and *Adiantum incism* (37.085) of the family Adiantaceae from Pteridophytes and *Panicum repens* of the family Poaceae among the herbaceous flora of angiosperms with IVI value of 22.34 followed by *Centotheca lappacea* (17.84). The diversity index of the present study was 0.95, which lies within range reported for Indian forests. The present study revealed the Simpson index value (0.04930467), Simpson diversity index value (0.95069533) and Simpson Reciprocal index value (20.2821) of tree species had shown high diversity of the area. Shannon – Weiner index value (6.42091) and the evenness value (1.4966) calculated were indicated high evenness in distribution of trees. Simpson index (0.054965), Simpson diversity index (0.945035) and Simpson Reciprocal index (18.19339) are indicated greater diversity of herbaceous flora. Shannon – Weiner index value (0.180979) and evenness value (0.0411) were indicated less evenness in distribution of the herbaceous flora. Cluster analysis of the IVI values conducted for tree species revealed 19 clusters, where as for other habitués, it was revealed 24 clusters indicated more heterogeneity of the flora. Occurrence of greater herbaceous flora indicated degradation of the forest and demanded concentration of regulatory authorities to conserve.

**Keywords:** Floristic diversity, Phyto sociology, Abundance, Important value index, Simpson index, Shannon-Weiner index, species richness, Evenness etc.

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**INTRODUCTION**

Phytosociological analysis of a plant community is the first and foremost basis of vegetation study and this study is important to understand the functioning of any community. Phytosociological studies are essential for protecting the normal plant communities and biodiversity as well as understanding the changes experienced in the past and continuing on it to the future. Phytosociological surveys are important tool of ecologist to assess and evaluate the vegetation types in a given ecosystem. These surveys are ultimately helping in following the planning, management and exploitation of natural resources. Phytosociological attempts to describe the diversity in plant communities and its methods often involve the quantitative estimation of various parameters of vegetation such as cover, abundance and frequency etc. (Hill 1979). All species are not equally important, but there are only a few overlapping species which by their bulk and growth, modify the habitat and control the growth of other species of the community and these species are called “dominants”. Estimating the species richness of a biological community located in some specified region called R, often relies on quadrat sampling (Krebs, 1989). Documenting the relative abundance and distribution of plant species like quantitative descriptions of vegetation are uncommon. Thus, we carried Phytosociological studies at Ahobilam area of Nallamala forest, Kurnool district, A.P., India.

**MATERIALS & METHODS****STUDY AREA**

Ahobilam, one of the renowned sanctified areas of South India is located in Allagadda mandal of Kurnool district, Andhra Pradesh. The Ahobilam forest is divided into upper and lower Ahobilam. It is situated between longitudes of 76°58'— 78°56'E and latitudes of 14°55'— 15°24'N. It has an average elevation of 327 meters (1076 feet) and altitude is around 700m. It is a catchment area of Nallamalais Reserve Forest of Eastern Ghats. Rainfall is concentrated in the months of the South West Monsoon (June–Sept.), averages about 90 cm. The forest is dry deciduous with patches of scrub.

**METHODOLOGY**

The study was carried out from April 2017 to January 2019 for a period of 2 years. The quadrates are laid down at different study sites and the list of species was prepared along with the number of individuals of each species for all the sites. The quadrat size for trees, shrubs and herbs was 10 x 10 m., 5 x 5 m. and 1 x 1 m. respectively. The quadrates were laid down at elevations ranging between 285 – 325 m.

The specimens were identified from their vegetative and reproductive features by using Flora of Kurnool district (Raju RRV. & Pullaiah, T.1995), Flora of Andhra Pradesh (Pullaiah, T & Chennaiah, E. 1997) , Flora of the

Presidency of Madras (Gamble & Fischer, 1957) and from electronic sources. The specimens collected were processed and mounted on herbarium sheets. They were deposited in Botany department of Rayalaseema University, Kurnool.

### DATA ANALYSIS

Data collected from the field was analyzed to determine the Phytosociological attributes - abundance, density, frequency and their relative values and Important value Index (IVI) were calculated by using the following analysis formulas of Cottam and Curties (1956) -

$$\begin{aligned}
 \text{Density} &= \frac{\text{Total number of individuals of a species}}{\text{Total number of quadrates studied}} \\
 \text{Relative Density} &= \frac{\text{Number of individuals of a species}}{\text{Number of Individuals of all species}} \times 100 \\
 \text{Frequency} &= \frac{\text{Total number of quadrates in which the species occurred}}{\text{Total number of quadrates studied}} \times 100 \\
 \text{Relative Frequency} &= \frac{\text{Frequency of individual of a species}}{\text{Total frequency of all species}} \times 100 \\
 \text{Abundance} &= \frac{\text{Total number of individuals of a species}}{\text{Total number of quadrates in which the species occurred}} \\
 \text{Relative Abundance} &= \frac{\text{Abundance of a species}}{\text{Total abundance of all species}} \times 100
 \end{aligned}$$

$$\text{IVI} = \text{Relative Frequency} + \text{Relative Density} + \text{Relative Abundance}.$$

Variations regarding the habit of plants are also analyzed. Further, we are also estimated the species diversity of the area by using following formulas –

Simpson diversity index is calculated as followed-

$$\text{Simpson's index } D = \sum (n_i/N)^2$$

Where

$n_i$  = Relative density of a species

$N$  = Total relative densities of all species.

Simpson diversity index of the studied area is known by calculating  $1/D$ .

Simpson Reciprocal index is also calculated by the equation –  $1/D$ .

Shannon-Wiener index is a measure of the average degree of uncertainty in predicting to what species an individual chosen at random from a collection. It is estimated by using the formula–

$$H' = - \sum_{i=1}^s P_i \ln(P_i)$$

Where  $P_i = n_i/N$

Where

$n_i$  = Relative density of a species

$N$  = Total relative densities of all species.

Species richness was calculated by using the formula –  $\ln(S)$

Evenness (J) was calculated by the following equation –

$$E = H/H_{\max} = H/\ln(S)$$



Hierarchical cluster analysis was conducted for IVI values of all the recorded species in quadrates and dendrograms were prepared both for tree specie and to other habitués. They were read from left to right to describe.

## RESULTS

The quantitative study of the area revealed presence of 73 trees and 81 other species that are distributed in 31 and 35 families and belong to 61 and 66 genera respectively. Phytosociological studies revealed highest IVI to *Bridelia retusa* (23.6) of the family Euphorbiaceae among tree flora followed by *Chloroxylon sweitenia* (21.88) and *Cleistanthus collinus* (21.6) and *Adiantum incism* (37.085) of the family Adiantaceae from Pteridophytes and *Panicum repens* of the family Poaceae among the herbaceous flora of angiosperms with IVI value of 22.34 followed by *Centotheca lappacea* (17.84).

The diversity in Indian forests was ranged between 0.83 to 4.1 (Venkatesh et al, 2015). The diversity index of the present study was 0.95, which lies within range reported for Indian forests.

The greater number of tree species (73) and TNI of tree species (1898) was attributed to its neutral soil  $P^H$  (6.9) and soil organic matter (1.5%). It has been determined that most plant nutrients are optimally available to plants within 6.5 to 7.5  $P^H$  range, and this range of  $P^H$  is very compatible to plant root growth. Soil  $P^H$  of the study area falls within this range. Soil organic matter usually in the range of 1-6%. It provides all the essential nutrients to the plant either directly or indirectly.

Diversity indices afford additional information than simply the number of species present. They serve as classy tools that enable biologists to quantify diversity in a community and describe its numerical structure. Scientific exploring of the biodiversity is at most necessity in preserving, restoring and proper management of the existing species in consideration of the ecological values. The present study revealed the Simpson index value (0.04930467), Simpson diversity index value (0.95069533) and Simpson Reciprocal index value (20.2821) of tree species had shown high diversity of the area. Shannon – Weiner index value (6.42091) and the evenness value (1.4966) calculated were indicated high evenness in distribution of trees. Simpson index (0.054965), Simpson diversity index (0.945035) and Simpson Reciprocal index (18.19339) are indicated greater diversity of herbaceous flora. Shannon – Weiner index value (0.180979) and evenness value (0.0411) were indicated less evenness in distribution of the herbaceous flora.

Cluster analysis of the data conducted for tree species (Figure -1) revealed 19 clusters showing high value for *Bridelia retusa*. Cluster analysis of the data conducted for herbaceous species (Figure -2) revealed 24 clusters showing high value for *Adiantum incisum*. Most of the clades were with one or two leaves whereas few of them were with more than three leaves indicted heterogeneity of the forest flora.

## CONCLUSION

The equal diversity indices both for trees (0.95) and other habitués (0.945) were indicating that the area is undergoing to severe anthropogenic activities and the forest was depleted. It demands immediate concentration of regulatory authorities for the conservation management of the imperative ecosystem.

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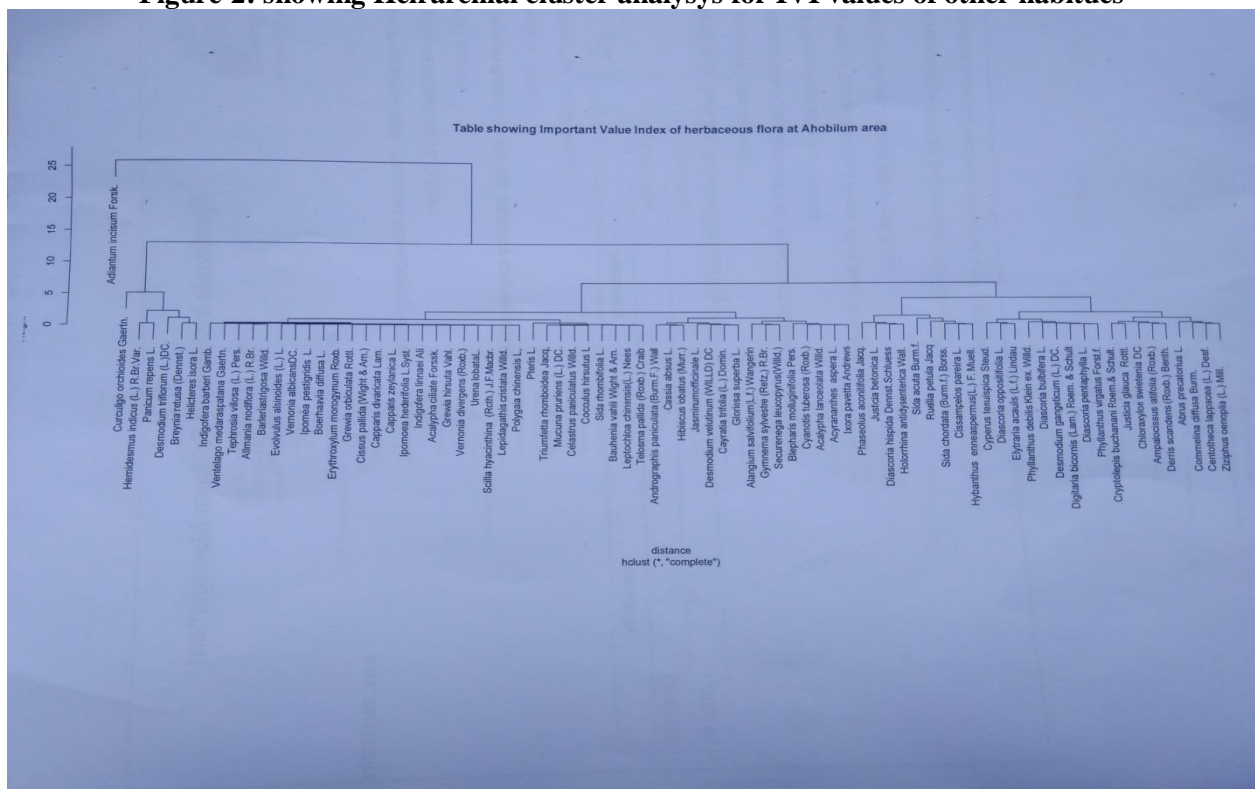
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Figure-1: showing Heirarchial cluster analysys for IVI values of tree species



Figure-2: showing Heirarchial cluster analysys for IVI values of other habitues



**Table showing Phytosociological studies of tree flora at Ahobilam area of Nallamala forest, Kurnool district, A.P., India**

S.No.	Name of the Plant	Family	TNI	RA	RD	RF	IVI	ni/N	Pi= (ni/N) <sup>2</sup>	H' = -ΣP <sub>i</sub> ln ( P <sub>i</sub> )
1.	<i>Aegle marmelos</i> (L.) Corr.	Rutaceae	3	0.3	0.16	0.8	1.26	0.002	0.000004	-4.97168647873e-5
2.	<i>Alangium salvifolium</i> (L.f.) Wang	Alangiaceae	116	13.0	6.1	2.4	21.5	0.061	0.003721	-0.0208143914890
3.	<i>Albizia amara</i> (Roxb) Boiv.	Mimosaceae	2	0.22	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
4.	<i>Albizia lebbeck</i> (L.)Benth.	Mimosaceae	1	0.11	0.05	0.8	0.96	0.0005	0.00000025	-3.80045122977e-6
5.	<i>Albizia odoratissima</i> (L.f.)Benth.	Mimosaceae	93	10.3	4.9	1.6	16.8	0.049	0.002401	-0.0144825197781
6.	<i>Anogesissus latifolia</i> (Roxb.ex DC.)Wall. ex.Guillisper.	Combretaceae	26	2.9	1.37	0.8	5.07	0.0137	0.00018769	-0.0016105151288
7.	<i>Azadiracta indica</i> A.Juss.	Meliaceae	7	0.8	0.37	0.8	1.97	0.004	0.000016	-0.0001766867493
8.	<i>Bambusa arundineae</i> (Retz.)	Poaceae	16	1.8	0.84	0.8	3.44	0.0084	0.00007056	-0.0006744863666
9.	<i>Bridelia retusa</i> (L.)Spreng.	Euphorbiaceae	105	11.7	5.5	6.4	23.6	0.055	0.003025	-0.0175475536671
10.	<i>Buchanania lanzan</i> Spreng.	Anacardiaceae	5	0.6	0.26	0.8	1.66	0.0026	0.00000676	-8.04743366350e-5
11.	<i>Butea monosperma</i> (Lam.)Taub.	Fabaceae	4	0.4	0.2	1.6	2.2	0.002	0.000004	-4.97168647873e-5
12.	<i>Capparis zeylanica</i> L.	Capparidaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
13.	<i>Careya arborea</i> Roxb.	Combretaceae	1	0.111	0.05	0.8	0.96	0.0005	0.00000025	-3.80045122977e-6
14.	<i>Cassia fistula</i> L.	Caesalpiniaceae	9	1.0	0.47	0.8	2.27	0.0047	0.00002209	-0.0002368133165
15.	<i>Ceiba pentandra</i> (L.) Gaertn.	Malvaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
16.	<i>Chloroxylon switenia</i> Dc.	Flindersiaceae	104	11.6	5.48	4.8	21.88	0.0548	0.00300304	-0.0174420472258
17.	<i>Cissus pallida</i> Planch.	Vitaceae	1	0.111	0.05	0.8	0.96	0.0005	0.00000025	-3.80045122977e-6
18.	<i>Cleistanthus collinus</i> (Roxb.)Benth.	Euphorbiaceae	127	14.11	6.69	0.8	21.6	0.0668	0.00446224	-0.0241501087239
19.	<i>Cleistanthus patulus</i> (Roxb.)Muell.	Euphorbiaceae	19	2.1	1.00	0.8	3.9	0.0099	0.00009801	-0.0009046755266
20.	<i>Combretum albidum</i> G.Don.	Combretaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
21.	<i>Commiphora caudata</i> (Wight & Arn.)	Bursaraceae	96	10.67	5.06	4.0	19.73	0.0506	0.00256036	-0.0152792232964
22.	<i>Dalbergia sissoo</i> Roxb.	Fabaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
23.	<i>Dalbergia latifolia</i> Roxb.	Fabaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
24.	<i>Dalbergia paniculata</i> Roxb.	Fabaceae	14	0.39	0.74	3.2	4.33	0.0074	0.00005476	-0.0005373352685
25.	<i>Derris indica</i> Bennet OR <i>Pongamia pinnata</i> (L.) pierre	Fabaceae	68	2.52	3.58	2.4	8.5	0.0358	0.00128164	-0.0085352286752
26.	<i>Diospyros ebenum</i> J.Koeng.ex.Retz.	Tiliaceae	3	0.33	0.16	0.8	1.29	0.0016	0.00000256	-3.29612884466e-5
27.	<i>Diospyros melanoxylon</i> Roxb.	Tiliaceae	7	0.778	0.37	0.8	1.95	0.0037	0.00001369	-0.0001533121869
28.	<i>Dolichondrone arcuata</i> (Wight)	Bignoniaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
29.	<i>Ehretia laevis</i> Roxb.	Boraginaceae	5	0.556	0.26	0.8	1.62	0.0026	0.00000676	-8.0474366350e-5
30.	<i>Erythroxylum monogynum</i> Roxb.	Erythoxylaceae	40	4.445	2.11	0.8	7.355	0.0211	0.00044521	-0.0034356697548
31.	<i>Feronia elephantum</i> Co OR <i>Limonia acidissima</i> L.	Rutaceae	58	3.223	3.06	1.6	7.883	0.0306	0.00093636	-0.0065297163292
32.	<i>Ficus religiosa</i> L.	Moraceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
33.	<i>Flacourtia indica</i> (Burm.f.)Merr	Flacourtiaceae	37	2.056	1.95	1.6	5.606	0.0195	0.00038025	-0.0029943476886
34.	<i>Gardenia gummifera</i> L.f.	Rubiaceae	12	1.333	0.63	0.8	2.763	0.0063	0.00003969	-0.0004022347841
35.	<i>Gardenia latifolia</i> Ait.Hort.	Rubiaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
36.	<i>Garuga pinnata</i> Roxb.	Bursaraceae	11	0.411	0.58	2.4	3.391	0.0058	0.00003364	-0.0003464850944
37.	<i>Grewia hirsuta</i> Vahl.	Tiliaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
38.	<i>Grewia orbiculata</i> Rottler.	Tiliaceae	1	0.111	0.05	0.8	0.96	0.0005	0.00000025	-3.80045122977e-6
39.	<i>Grewia rothii</i> DC.	Tiliaceae	1	0.111	0.05	0.8	0.96	0.0005	0.00000025	-3.80045122977e-6
40.	<i>Grewia tilifolia</i> Vahl.Symb.	Tiliaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
41.	<i>Gyrocarpus americanum</i> Jacq.	Hernandiaceae	4	0.444	0.2	0.8	1.444	0.002	0.000004	-4.97168647873e-5
42.	<i>Hardwickia binata</i> Roxb.	Fabaceae	4	0.444	0.2	0.8	1.444	0.002	0.000004	-4.97168647873e-5
43.	<i>Haldina cordifolia</i> (Roxb.) OR <i>Adina cordifolia</i> (Roxb.)	Rubiaceae	1	0.111	0.05	0.8	0.96	0.0005	0.00000025	-3.80045122977e-6
44.	<i>Holarrhena pubescens</i> (Buch. – Ham.)	Apocynaceae	224	3.112	11.8	6.4	21.312	0.118	0.013924	-0.0595131435869

45.	<i>Hymenodictyon orixense</i> (Roxb.) Mabb	Rubiaceae	5	0.278	0.26	1.6	2.138	0.0026	0.00000676	-8.04743366350e-5
46.	<i>Ixora pavetta</i> Andrews OR <i>I. parviflora</i> Vahl Symb.	Rubiaceae	43	1.589	2.27	2.4	6.259	0.0227	0.00051529	-0.0039011475915
47.	<i>Lagerstroemia parviflora</i> Roxb.	Lythraceae	6	0.667	0.32	0.8	1.787	0.0032	0.00001024	-0.0001176494995
48.	<i>Lannea coromandelica</i> (Houtt.) Mann.	Anacardiaceae	14	1.556	0.74	0.8	3.096	0.0074	0.00005476	-0.0005373352685
49.	<i>Madhuka indica</i> J.F.Gmel. OR <i>Madhuka longifolia</i> (Koen.) Macbr.	Sap[otaceae	12	1.334	0.63	0.8	2.764	0.0063	0.00003969	-0.0004022347841
50.	<i>Mallotus philippensis</i> (Lam.) Muell. Arg.	Euphorbiaceae	3	0.33	0.16	0.8	1.29	0.0016	0.00000256	-3.29612884466e-5

51.	<i>Maytenus emarginatus</i> (Willd.) Ding.	Celastraceae	3	0.33	0.16	0.8	1.29	0.0016	0.00000256	-3.29612884466e-5
52.	<i>Millingtonia hortensis</i> L. f.	Bignoniaceae	1	0.111	0.05	0.8	0.96	0.0005	0.00000025	-3.80045122977e-6
53.	<i>Milusa tomentosa</i> (Roxb.)	Annonaceae	69	7.668	3.64	0.8	12.108	0.0364	0.00132496	-0.0087796791815
54.	<i>Mitragyna parviflora</i> (Roxb.) Korth.	Rubiaceae	32	1.778	1.69	1.6	5.068	0.0169	0.00028561	-0.0023308298833
55.	<i>Naringi crenulata</i> (Roxb.)	Rutaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
56.	<i>Olex scandens</i> Roxb.	Oleaceae	23	0.856	1.21	2.4	4.466	0.0121	0.00014641	-1.29266848016e-3
57.	<i>Polyalthia cerasoides</i> (Roxb.)	Annonaceae	142	7.891	7.48	1.6	16.971	0.0748	0.00559504	-0.0290151768738
58.	<i>Premna tomentosa</i> Willd.	Verbenaceae	5	0.556	0.26	0.8	1.616	0.0026	0.00000676	-8.04743366350e-5
59.	<i>Pterocarpus marsupium</i> Roxb.	Fabaceae	16	0.589	0.84	2.4	3.829	0.0084	0.00007056	-0.0006744863666
60.	<i>Pterospermum xylocapum</i> (Gaertn.)	Malvaceae	6	0.133	0.32	4.0	4.453	0.0032	0.00001024	-0.0001176494995
61.	<i>Sapindus emarginatus</i> Vahl.	Sapindaceae	2	0.111	0.11	1.6	1.821	0.0011	0.00000121	-1.64861171400e-5
62.	<i>Schleichera oleosa</i> (Lour.) Oken.	Sapindaceae	3	0.33	0.16	0.8	1.29	0.0016	0.00000256	-3.29612884466e-5
63.	<i>Soymida febrifuga</i> (Roxb.) A. juss.	Meliaceae	4	0.444	0.2	0.8	1.444	0.002	0.000004	-4.97168647873e-5
64.	<i>Strychnos potatarum</i> L.	Loganiaceae	99	2.756	5.22	3.2	11.176	0.0522	0.00272484	-0.0160911218180
65.	<i>Tectona grandis</i> L.	Verbenaceae	35	3.889	1.84	0.8	6.529	0.0184	0.00033856	-0.0027053683724
66.	<i>Terminalia bellarica</i> (Gaertn.) Roxb.	Combretaceae	44	0.978	2.32	4.0	7.298	0.0232	0.00053824	-0.0040514433577
67.	<i>Terminalia chebula</i> Retz.	Combretaceae	2	0.222	0.11	0.8	1.13	0.0011	0.00000121	-1.64861171400e-5
68.	<i>Terminalia tomentosa</i> (Roxb.) Wight & Arn. OR <i>T. elliptica</i> Willd.	Combretaceae	4	0.444	0.2	0.8	1.444	0.002	0.000004	-4.97168647873e-5
69.	<i>Vitex altissima</i> L.f.	Verbenaceae	1	0.111	0.05	0.8	0.96	0.0005	0.00000025	-3.80045122977e-6
70.	<i>Wrightia arborea</i> (Dennst.)	Apocynaceae	53	1.478	2.79	3.2	7.468	0.0279	0.00077841	-0.0055720589717
71.	<i>Wrightia tinctoria</i> (Roxb.) R.Br.	Apocynaceae	20	0.745	1.05	2.4	4.195	0.0105	0.00011025	-0.0010046817948
72.	<i>Ximenia americana</i> L.	Apocynaceae	3	0.33	0.16	0.8	1.29	0.0016	0.00000256	-3.29612884466e-5
73.	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	3	0.33	0.16	0.8	1.29	0.0016	0.00000256	-3.29612884466e-5
			1898		100.06				0.04930467	-2.73 E -01

Simpson Index =  $D = \sum (n_i/N)^2 = 0.04930467$   
 0.95069533

Simpson diversity index =  $1 - D = 1 - 0.04930467 =$

Simpson Reciprocal Index =  $1/D = 20.2821$   
 E - 01 = 6.42091

Shannon – Wiener Index –  $H' = -\sum P_i \ln(P_i) = 2.73$

Species richness =  $\ln(S) = 4.29046$

Evenness = 1.4966



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**DRAFT WAGE CODE BILL – REALLY NECESSARY?**

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**Paleti Narendar**

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**ABSTRACT**

*The government always tries to protect the workers or employees by bringing amendments in the legislations. One of such is Wage Code Bill which is draft stage. The ultimate objective of the code is protect the employees by bringing the prescribing the Minimum Wages to be given by the State Governments. The objective of the paper is to bring the advantages and disadvantages of the Bill.*

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**NEED FOR A WAGE CODE**

There are several grounds which have promulgated for the introduction of the wage code. Some of them are mentioned below.

- It provides financial Security to all the Workers.
- It helps in uplifting the weaker sections of the economy.
- It helps in providing the encouragement to the workers and make them motivated all the time.
- It increases the involvement of the Government by way of facilitators and thus protects the rights and powers of the Workers.
- The status of the Workers in the society increases with the introduction of the Code.
- There will be recognition for the overtime done by the workers in this code when compared to the existing wage laws.
- With the introduction of the code, most of the unskilled labour gets benefitted.
- The rifts between the workers regarding pay hikes and several other agitations by unions shall be completely set off with the introduction of this code.

**BRIEF OVERVIEW OF THE CODE**

- The Code replaces four existing laws: (i) the Payment of Wages Act, 1936, (ii) the Minimum Wages Act, 1948, (iii) the Payment of Bonus Act, 1965, and (iv) the Equal Remuneration Act, 1976.
- The central government will set minimum wages for certain employments including railways, and mines. State governments will set minimum wages for all other employments.
- The Code provides that a national minimum wage may be set by the central government. States cannot set minimum wages lower than the national minimum wage. Further, the central government may set separate national minimum wages for different states or regions of the country.

**KEY FEATURES OF THE CODE**

**Coverage:** The provisions of the Code will apply to all employees.

**Minimum wage**

The central government will set minimum wages for employments such as mines, railways, and ports among others, while the state governments will set minimum wages for all other employments. The central or state governments can set factors by which minimum wages will be determined for different types of work. These include skills required, the difficulty of work assigned, and geographical location.

**National minimum wage:** The Code provides that a national minimum wage may be set by the central government. The central government may set separate national minimum wages for different states or regions of the country.

- ❖ Minimum wages set by state governments will not be lower than the national minimum wage set by the central government. In case the existing minimum wages set by state governments are higher than the national minimum wage, they cannot reduce the minimum wages.

**PROS / ADVANTAGES OF THE WAGE CODE BILL**

- ✓ Will ensure decent Minimum wage for all which will result into increase in disposable incomes in turn help in eradicating Poverty, hunger to achieve SDGs.
- ✓ Uniformity in coverage: At present, the minimum wages fixed by the Centre and states are applicable to workers getting up to Rs. 18,000 pay monthly and does not cover workers getting a monthly wage of more

than Rs. 18,000. If the bill is approved in the Parliament, workers getting a monthly pay of higher than Rs 18,000 would also be legally entitled to a minimum wage.

- ✓ Multiplicity of definitions will be removed through this change.
- ✓ The wage conditions of unskilled workers will improve.
- ✓ This bill is expected to treat contract labour on par with regular employee to have dignified life.
- ✓ It will ensure humane working conditions through minimum working hours, overtime etc. and prevent exploitation of labour.
- ✓ Formalization of economy.
- ✓ Also help in reduce regionalism by reducing wage disparity across different regions.
- ✓ Minimum Wage gives people an incentive to work.
- ✓ This Wage Code promotes Societal Equity.
- ✓ It promotes local and regional economic growth.
- ✓ There will be decline in the labour turnover ratio with the introduction of this code.
- ✓ Stability in the workforce can be attained with the introduction of this Code.

#### **CONS / DISADVANTAGES OF THE WAGE CODE BILL**

- ✗ The Economic survey highlights 78% of Indian firms employ under 50 workers and just 10% employ more than 500 when comparable of china are 15% and 20% respectively. Further strengthening of labour laws will worsen the situation.
- ✗ According to Noble prize winner economist George Stigler, the minimum wages doesn't satisfies original intentions i.e. elimination of poverty and it tends to reduce employment and family income.
- ✗ Labour comes under concurrent list and different states having different criteria in deciding minimum wages so there is possibility some states may raise concern.
- ✗ Will facilitate ease of doing business but affect competitiveness of trade and industry, especially states capacity to attract FDI.
- ✗ Economic theory and its evidences suggest that any price control leads to creation and expansion of black market. Similarly in this case companies will prefer contractual workers or keep majority of workforce in informal sector.
- ✗ Negative impact on hiring in tier II and tier III markets.
- ✗ Implementation would be difficult and it may lead to inspector raj.
- ✗ The Equal Remuneration Act, 1976, prohibits employers from discriminating in wage payments as well as recruitment of employees based on gender. While the Code prohibits gender discrimination on wage-related matters, it does not include provisions regarding discrimination during recruitment.
- ✗ The Bill takes away the current flexibility with the states in revising minimum wages, as long as it is not more than five years.
- ✗ The Minimum Wage shifts the economic foundations of local communities.
- ✗ Employers may look for cheaper options to replace the Minimum wage workers.
- ✗ Minimum Wage Law may encourage more offshoring or outsourcing.
- ✗ Minimum Wage increases the cost of items as the purchasing power of the consumer is increased.
- ✗ This Wage Code affects the small businesses and low- skill labourers the most and also creates new hurdles for the Start ups.
- ✗ The main motive and one of the prominent objective of this Wage Code is that it will remove or eradicate Poverty, but the industry segments state that by revising the minimum wage it results in employing less number of high quality people and as a result the problem of Unemployment and Poverty doesn't get addressed the right way.

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**INDIA'S BENEFIT OR LOSS**

Undoubtedly, the consolidated Code will offer compliance benefits. An entity complying with 4 different legislations containing somewhat similar and overlapping subjects and maintaining records and compliance in 4 different forms, would certainly breathe a sigh of relief. On the same footing would be a foreign investor looking at India as a potential destination for lucrative return on investment with cheap and abundant labour.

All the features of the Code noted above are bound to enhance investor confidence and allow ease of doing business in India.

For employees and workers, it's an advantageous situation as well. The Code offers broadly the same extent of protection of labour rights and protection of workers in relation to their wages, as the existing legislations do.

At the same time, it extends the applicability and benefits of the existing legislations as well. Not only do existing employees earning less than Rs. 18,000 a month get a guaranteed payment of this amount every month, but all those employees in the organized and unorganized sector, who did not fall within the ambit of current legislations merely by reason of their industry or establishment not being mentioned in the Schedule, will get covered by protection of the Code.

This will help improve standard of living across India. Recent news articles state that this universal minimum wage could benefit approximately 40 million employees (4 crore employees).

The Code is not, however, all beneficial for employers and employees. The earlier draft version of the Code, which was circulated in 2015 for comments from industry and trade unions, received scathing remarks on the lacuna and poor drafting. Most of those provisions from the draft have been carried into the Code without much change.

Some of the reasons why the industry, trade unions, and even labour rights' organizations are unhappy with the Code are:

- Imposing a universal minimum wage on all States in India does not take into consideration the diverse demography, topography and living standards across India, as well as the development and prosperity of different States. While Rs. 18,000 a month may be easy for an employer in Maharashtra to pay, the same may not be possible in Uttarakhand or Tripura. Various news articles have reported that the industry reaction to the proposed minimum wage is fairly negative and it is feared that the Code may impact hiring. The Supreme Court in the case of **Hydro (Engineers) P. Ltd. v. Workmen** had held that minimum wages should be defined by needs-based criteria that extend beyond physical needs. This should include nutrition, clothing and housing needs, fuel, lighting, family expenses, etc. All these factors are, undoubtedly, different in different States in India.
- Universal minimum wage will also affect the wage competition between States. States often allow lower wages than their neighbouring States to attract investment to their State. This in turn has helped States grow and promote a spirit of competition, fostering more investment. This will, to a great extent, be eliminated under the Code.
- The added wage burden may push industries to automate at a faster pace.
- Provisions of the Equal Remuneration Act, 1976 are scantily referred to in the Code. The Equal Remuneration Act, 1976 has, in essence, been confined to Sections 3 and 4 of the Code. Further, when the draft code was released in 2015, the equal remuneration provisions gave recognition to the third gender and provided that no discrimination should be made between men, women and transgenders. The third gender, however, does not find reference in the Code.
- The Code also does not include any measures to prohibit discrimination in employment on the basis of caste, religion or social origin, something which is much required in a country like India.
- Unlike the provisions of the Minimum Wages Act, 1948 and the Payment of Bonus Act, 1965, the Code decriminalises the penalty provisions at first instance. Thus, where an employer pays less to an employee than the minimum wage, at first instance, the employer will only be penalized by a fine of Rs. 50,000 under the Code. On the contrary, under the existing legislations, imprisonment term is prescribed for such offences.

These, along with other issues like diluting the scope of overtime pay, replacement of judicial appellate authority with an authority which may or may not be judicial, limiting the scope of trade unions and employees to question the balance-sheet or the profit and loss account of the employer (for the purposes of payment of bonus), etc., are some issues which may hinder the effective implementation of the Code.

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**CONCLUSION AND WAY FORWARD**

As mentioned above, the Code is yet to become an Act and thereby come into operation. It is pending in Lok Sabha and then has to undergo the process of scrutiny and approval of the Rajya Sabha. It is likely that some of the issues noted above relating to misalignment between the current legislations and the Code may be resolved, though it is unlikely that other issues like easing the hiring fears of industries or addressing the issue of universal minimum wage mismatch with India's diverse topography, etc., will find a mention. We will get to know of this in the winter session of the Parliament. Nevertheless, the Code is a positive move to ease the process of doing business in India. It also lives up to the statement made by the Union Finance Minister in his 2017 budget speech where he said the government is "keen on fostering a conducive labour environment wherein labour rights are protected and harmonious labour relations lead to higher productivity". It is reported that along with the Wage Code, the government may soon introduce the code relating to industrial relations as well as the social security and welfare, the latter of which is already available in draft form on Ministry of Labour's website for comments. It is about time that India takes a step in the direction of revamping its labour laws and attunes them to India's present growth story.

Looking at the larger picture, the new wage code is one part of the reforms needed to modernize the archaic labour laws in India, and hence a step in the right direction. But to make the new code into reality Government will have to,

- Generate political consensus
- Work on creating an infrastructure to ensure implementation.
- Talk to state governments about the nuances of the new wage structure. It is a long process.

Until then, all the employees will have to keep their fingers crossed.

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**FUNCTIONING OF PUBLIC DISTRIBUTION SYSTEM AND FOOD SECURITY: A STUDY OF LAHOAL DEVELOPMENT BLOCK UNDER DIBRUGARH DISTRICT OF ASSAM**

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**ABSTRACT**

*The Public Distribution System (PDS) is among the most important food security programmes of the Government of India. It aims to ensure availability of certain essential commodities at reasonable price particularly to the weaker section of people. The smooth functioning of public distribution system is taken joint responsibility of the central government, state government and union territory. The food grains which are released by the central government every month to the state government for distribution through a network of Fair Price Shops (FPS) across the country. The State governments are also operational responsibilities including allocation and identification of families below poverty line, issue of ration cards, supervision and monitoring the functioning of FPSs (Fair Price Shops) After the implementation of NFSA in Assam the need for strengthening the PDS system in the state has been seriously felt. Because the PDS shall be the only vehicle through which the Act shall be implemented.*

*In the above context the present paper is an attempt to examine the objective, functioning of PDS with reference to Lahoal Development Block of Dibrugarh District of Assam.*

*Keywords: Public Distribution System, Targeted Public Distribution system, Evaluation Report, Fair Price Shops, Revamped Public Distribution system*

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**INTRODUCTION**

The Public Distribution System (PDS) is a combination of three words –public, distribution and system which means to distribution System for common people in India Public Distribution System can be expressed as the operation of distribution of essential commodities and major food grains by the government from the imported and internally procured quantities to meet the needs of the deficit areas and the poor strata of the population at subsidized rates.

The distribution system becomes a very crucial element in the supply management system. In India the distribution system consists of two components; namely private distribution system and public distribution system. The private distribution system is a larger system of distribution and public distribution system is a supplemental system to it but very influential one. The public distribution is regarded as an anti-inflationary as well as an anti-poverty measure.

Its anti-inflationary role is that it provides a set of inflation protected supply of essential commodities to the consumers, thereby providing the poor consumers a safety net against the reduction of purchasing power caused by rising price. It protects the real value of the purchasing power in the hands of the poor and in this sense works as an anti-poverty measures.

In addition to the general PDS in Assam, a special programme under Revamped Public distribution was introduced from 2<sup>nd</sup> October 1992 for those who are living below poverty line they were provided with rice at Rs 2/- per kg up to a maximum limit of 16 kgs per month. After that another important special programme under TPDS which was introduced in Assam along with other states in 1997. Under this scheme, for the BPL families, rice is distributed at the rate 10 kg. Per family per month at Rs 4.00 per kg through the special f-1 Cards (Red Cards).

Hence, the Public Distribution System (PDS) is among the most important food security programmes the Government of India. In this regard National Food Security Act (NFSA) has been introduced in the country for the greater interest of the people. After the enactment of food security Act on 5<sup>th</sup> July, 2013 and its implementation in Assam from 24<sup>th</sup> Dec 2015, the need for strengthening the PDS system in the state has been seriously felt. Because the PDS shall be the only vehicle through which the Act shall be implemented.

**OBJECTIVES OF THE STUDY**

Following are the main objectives of the present study –

- i. To study about the Public Distribution System and its Functions at the district level.
- ii. To highlight on various aspects of organization and Functioning of fair price shops in Dibrugarh District.

- iii. To access critically the Public Distribution System in Rural areas.
- iv. To identify the problems in Public Distribution System and to suggest the suitable remedial measures to overcome them.

### RESEARCH METHODOLOGY

The present study is conducted in the Lahoal Development Block of Dibrugarh district of Assam. The purpose of the study is to examine the working of PDS in rural areas. So, Dibrugarh, district has been selected for the study. Out of 13 panchayats of Dibrugarh District in the present study, 6 panchayats have been selected and again from each panchayat 50 respondents have been selected randomly using lottery method. From the total population 300 card holders are selected as respondents for the survey.

### SOURCES OF DATA

The data for the present study is collected both from primary and secondary sources. The primary data is collected from the selected respondents with the help of an interview schedules designed specifically for (a) Fair price shop owners, and (b) Card holders. A part of the primary data is also collected from proceeding files & other records maintained by the selected GPSS & FPS.

The secondary data is collected from books, journals, government reports, seminar reports, newspapers & websites. Besides, leading libraries such as DUL, GUL; AAUI is also consulted for secondary data.

### REVIEW OF LITERATURE

In recent years, there has been tremendous growth in the literature on PDS. Numbers of research studies by individuals, institutions and government agencies have been conducted on the subject of PDS.

**Arora (2013)** in her study examined food subsidy in India and analyzes reasons behind the failure of PDS in many parts of the country. She argues that the two major objectives for initiating this food security program was to provide nutritional support to the poor through subsidized and cheap food grains and maintain price stability, it has largely failed in meeting its goals.

**Sawant et al. (2013)** in their studies examined the effect of PDS with regards to social security and poverty alleviation in Maharashtra India. They concur that the present condition of PDS like poor quality of the good supply, weight cutting, leakages of PDS products to the open market, non availability of commodities etc. has led to the failure of the scheme. They suggest timely supply of commodities of good quality, construction of accessible public buildings, reducing the number of households under once fair price shop as well as effective and systematic complaint redressed mechanism for the service users.

**Jha et al. (2013)** conducted a comparative study of the Public Distribution System based on factors like food subsidy, income transfer and the involvement of the poor. The study revealed that the program is not well targeted and the poor as well as non –poor receive subsidy benefits. Better network of Fair Price Shops, higher margin of the PDS price with the market price, adequate supply, efficient procurement, storage and distribution and prioritizing livelihood expansion opportunities in the rural areas might ensure food security.

**Puri (2017)** in his study shown that there is an increase in coverage of eligible beneficiaries, a decline in exclusion error, a rise in the purchase-entitlement ratio (PER) and improvements in the transportation of food-grains. States/UTs that have implemented reforms such as doorstep delivery of food-grains, end-to-end computerization of TPDS (procurement, transportation and distribution), simplifying eligibility criteria and improving grievance redress mechanisms are reaping benefits in the form of more food security as well as political success. Though NFSA has improved the general functioning of TPDS, several areas require more focus. The delay in the implementation in most states/UTs was a major violation of the Act.

### ANALYSIS OF THE STUDY

A table below from 1.1 to 1.7 reflects views of the respondents related to various socio-economic aspects

#### 1. Age group of respondents.

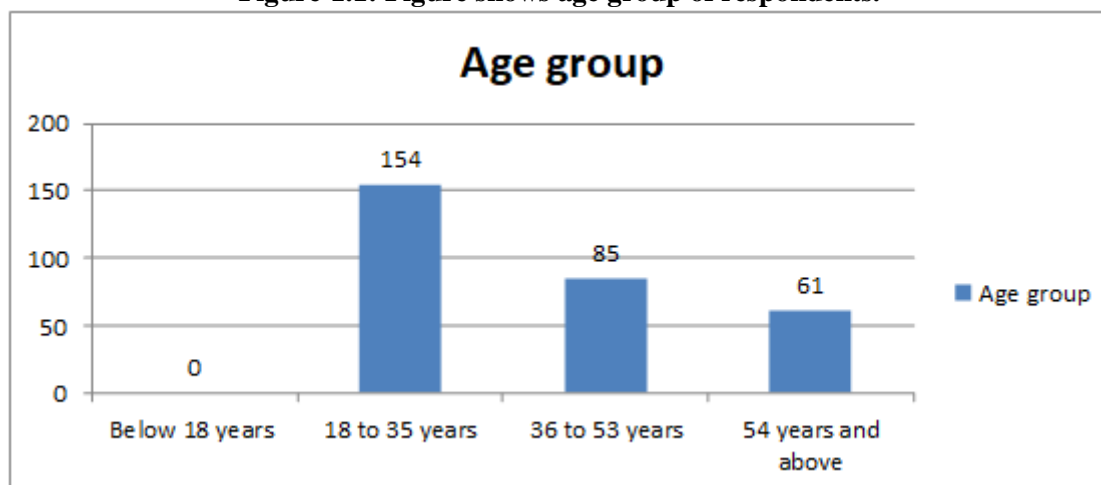
**Table-1.1: Table shows age group of respondents.**

Age Group	No. of Respondents
Below 18 years	0
18 to 35 years	154
36 to 53 years	85
54 years and above	61
Total	300

Source: Primary data.

From the survey it is seen from above table 1.1 that a large number of respondents i.e. 154 belong to the age group 18-35 years. The table further shows that the numbers of respondents are decreasing respectively with the increase in age.

**Figure-1.1: Figure shows age group of respondents.**



## 2. Annual Income of the Respondents

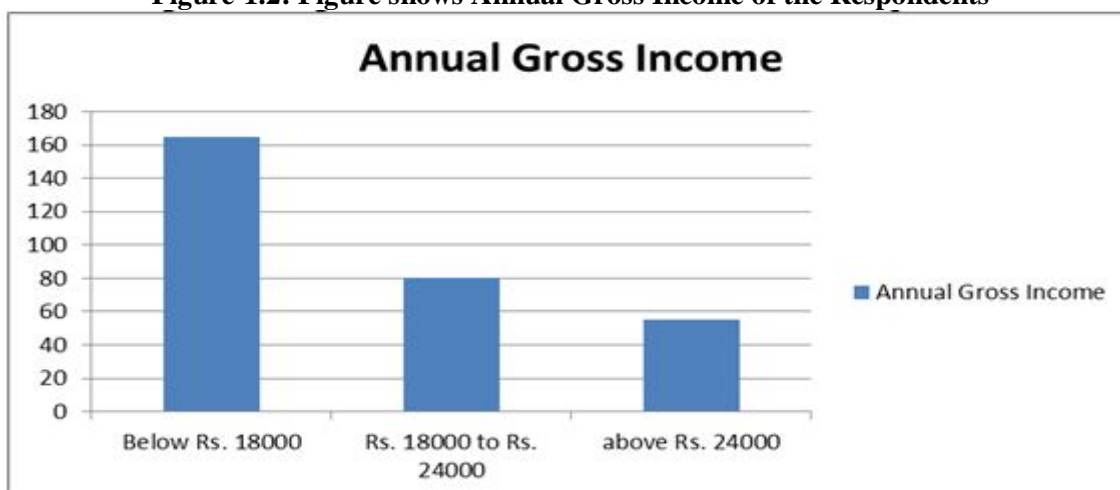
**Table-1.2: Table shows Annual Gross Income of the Respondents**

Annual Gross Income	
Below Rs 18000	165
Rs 18000 to Rs 24000	80
Above Rs 24000	55
Total	300

Source: Primary source.

The table 1.2 shows that the number of respondents with Gross Annual Income below Rs 18000 is more than the others. The table also reveals that the number of respondents is decreasing with the increase in income.

**Figure-1.2: Figure shows Annual Gross Income of the Respondents**



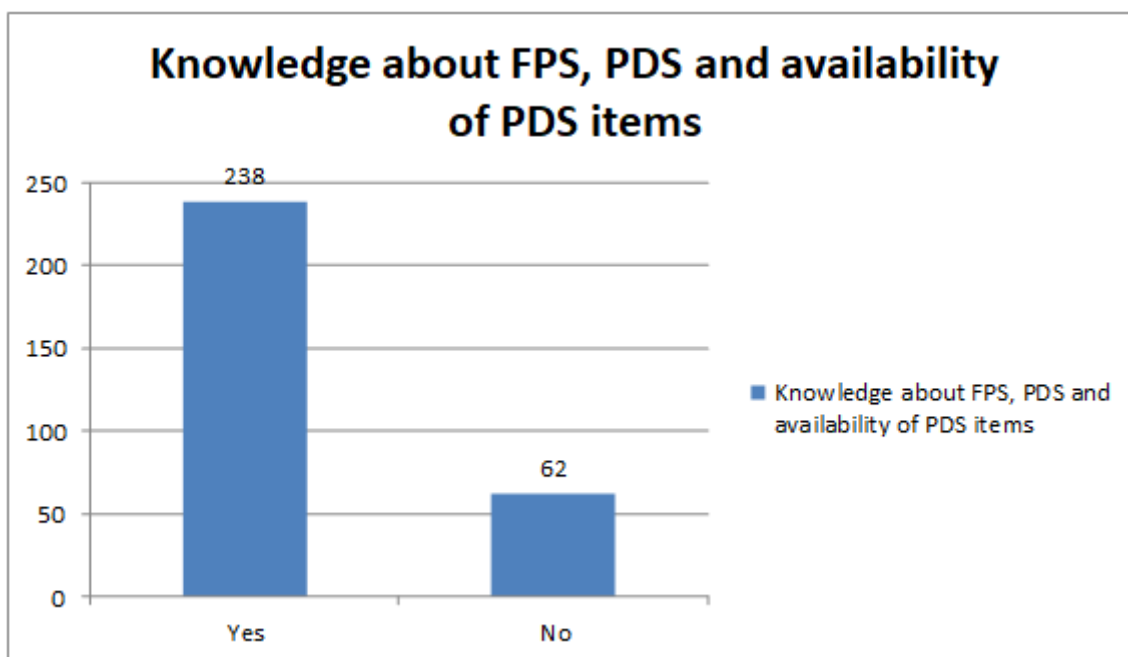
## 3. KNOWLEDGE ABOUT FPS, AVAILABILITY OF PDS ITEMS

**Table-1.3: Table shows number of respondent's knowledge about FPS, PDS and availability of PDS items**

Knowledge about FPS, PDS and availability of items	Number of Respondents
Yes	238
No	62
Total	300

Source: Primary source.

The above table1.3 it is clear that number of respondents with knowledge about FPS, PDS and the availability of items therein is more than those having less knowledge or unaware about PDS and FPS.



#### 4. WORKING DAYS OF THE FPS

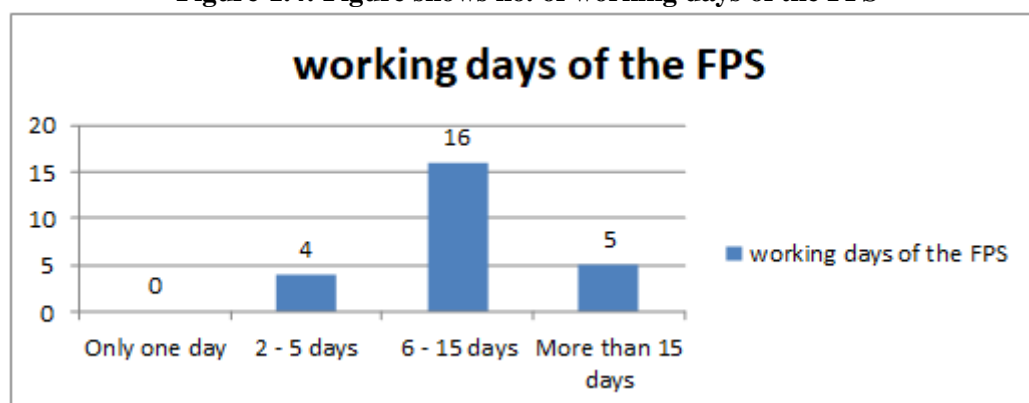
**Table-1.4: Table shows no. of working days of the FPS**

Range of working days	No. of days the FPS Dealers remain open
Only one day	Nil
2 - 5 days	4
6 - 15 days	16
More than 15 days	5

Source: Primary source.

Regarding working days of the FPS, above table 1.4 it is seen that the majority of FPS have very less working days. This is a major issue of PDS. As this FPS has very less working days, people can get the available items whenever necessary or according to their convenient.

**Figure-1.4: Figure shows no. of working days of the FPS**



#### 5. OPINION REGARDING PERFORMANCE OF FAIR PRICE SHOPS AND SERVICE PROVIDED TO CONSUMERS

**Table-1.5: Table shows Opinion Regarding Performance of Fair Price Shops and Service Provided to Consumers**

Sl. No.	Name of Area	Total No. of Respondent	Satisfied with Service	Not Satisfied with Service
01	Lahoal Development Block Rural	300	70%	30%

Source: Primary source.

Regarding Performance of Fair Price Shops and Service Provided to Consumers It has been observed from the above table 1.5 that 70% of the consumers investigated were satisfied with the overall operation and

functioning of fair price shops while the remaining 30% consumer were not satisfied with operation and functioning of the fair price shops. Those dissatisfied complained about irregular and inadequate supply of rationed items, irregular and inconvenient timing, delay in service, adulteration of commodities, under weigh and measurement of commodities, location and distances of fair price shop from the residence of the consumers, black marketing of goods, false entries of units/ration cards etc. These difficulties were more prominent in case of large fair price shops compared to small one.

## 6. BEHAVIOR OF FAIR PRICE SHOP KEEPER

**Table-1.6: Behavior of the FPS Keeper**

Sl. No.	Nature	Rural	
		No. of Respondents 300	% Nature
1.	Good	240	80%
2.	Moderate	45	15%
3.	Not desirable	15	5%
	Total	300	100

Source : primary data

The respondent were also asked to rate the behavior of the ration shop towards them. It was found that 80% percent of the respondent said behavior of FPS agent was good and 15% percent respondent said moderate and remaining 5% percent said that the FPS staffs do not behave politely with the consumer in rural areas. This clearly indicates that the PDS lacks the professional culture and is not service-oriented as expected of a public agency

**Figure-1.6: Figure shows Behaviour of Fair Price Shop Keeper**



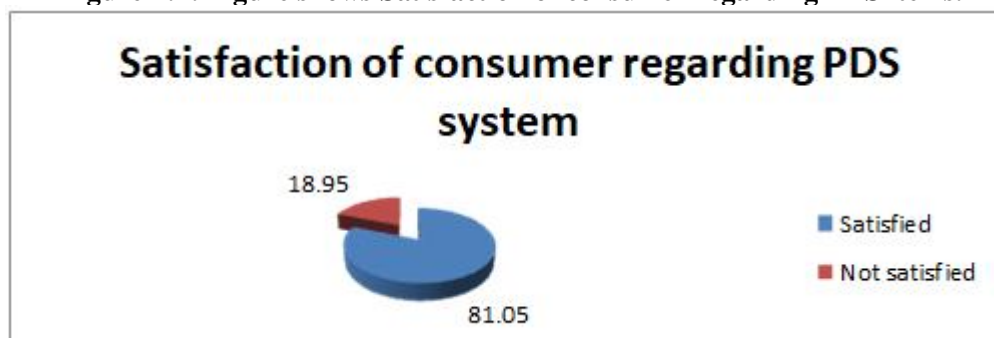
## 7. Satisfaction of consumer regarding PDS system

**Table-1.7: Satisfaction of consumer regarding PDS system**

Sl. No.	Response	Rural	
		No. of Respondents	% Respondents
1.	Satisfied	242	80.67
2.	Not satisfied	58	19.33
	Total	300	100

Source: primary data

The above table 1.7 highlights the evaluation of satisfaction level of the respondents with regard to PDS outlets. When they were asked their level of satisfaction regarding the PDS functioning, 80.67 percent said that they were satisfied with the quality of, rice, supplied in the FP shops. However 19.33 percent respondents were not satisfied with the items of atta Thus we can say that majority of the respondents were satisfied (with the quality of, rice, supplied by the govt) existing PDS system.

**Figure-1.7: Figure shows Satisfaction of consumer regarding PDS items.****MAJOR FINDINGS**

1. Majority of the respondents are belonging to 18-35 age groups i.e. 51.33%.
2. The present study revealed that the majority of the respondents 55%) annual Gross Income is Below Rs 18000.
3. It was found that majority of the respondent's i.e. 79.22% have thorough knowledge about the FPS and PDS items.
4. Majority of the respondents have maximum working days for which the consumer able to get available items according to their convenience.
5. The result of the study depicts that majority of respondent said that behavior of the FPS Keeper is good. It is found that the relationship between consumer and FPS is professional.

**SUGGESTIONS**

Few suggestions to improve the Functioning of PDS and FPS are:

1. There should be proper selection of BPL, APL and AAY category people so that the right people get the right benefits.
2. Government should keep monitor on the FPS and evaluation should be conducted from time to time.
3. Awareness camps regarding 'Food Security Act' should be conducted among the people.
4. Misuse of ration cards should be stopped so that the actual beneficiaries are benefitted with the available items in the FPS.
5. Government should launch a drive to cover the poorest of the poor living in unauthorized location in urban areas that have been denied ration cards.

**CONCLUSION**

Thus it can be said that the present study examined the functioning of PDS particularly in Lahoal Development Block, Dibrugarh Assam. Several studies have shown several defects in the Public Distribution System. For the effective functioning of the system it is utmost necessary for the government and the people to work with dedication, sincerity and should be duly trained for their respective jobs.

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**THE SURFACE AREA, ELEMENTAL AND PHOTO LUMINESCENCE STUDIES OF  $\text{Sr}_2\text{P}_2\text{O}_7$  NANO PHOSPHOR**

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**ABSTRACT**

*Strontium pyrophosphate finds application as phosphor material. The nano-particles of strontium pyrophosphate were synthesized by the surfactant assisted technique. The Brunauer–Emmett–Teller (BET) measurements were performed for the surface area and the particle size. The majority of particles were found to be in the range of 10 nm to 40 nm. An elemental analysis was carried out by employing EDAX which confirmed the elemental composition. Photoluminescence (PL) study of nano  $\text{Sr}_2\text{P}_2\text{O}_7$  phosphor was conducted using the excitation of 244 nm wavelength; the PL emission showed two peaks at 420 nm and 439 nm with good intensity in blue colour range. This indicated down conversion and possible application as bio imaging material and lighting material.*

*Keywords: BET measurement, EDAX, Photoluminescence, down conversion.*

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**INTRODUCTION**

Strontium pyrophosphate has been suggested as adhesive in luminescent screens [19]. Photoluminescence and thermally stimulated luminescence has been reported in europium doped strontium pyrophosphate by Natarajan et al [9]. Divalent europium doped strontium pyrophosphate phosphor giving emission at 420 nm is considered to be a potential candidate for use in lamps for photo-therapy for treating infants jaundice. Strontium pyrophosphate activated by europium has been used in the fluorescent lamps in photocopying system, which enables higher production rates [9, 19]. There are several patents obtained based on strontium pyrophosphate phosphors [16] and europium activated strontium-magnesium pyrophosphate phosphors [4].  $\text{Sr}_2\text{P}_2\text{O}_7$  Doped with  $\text{Sm}^{3+}$ ,  $\text{Ce}^{3+}$ ,  $\text{Mn}^{2+}$ , has been reported great potential for high resolution display devices [13, 8]. Altogether, the thermo-luminescence properties of strontium pyrophosphate doped with metals [5] as well as luminescent properties of strontium-zinc pyrophosphate co-activated by silver [2] have been reported. The down conversion materials  $\text{Sr}_2\text{P}_2\text{O}_7:\text{Eu}^{2+}, \text{Y}^{3+}$  and  $\text{SrCaP}_2\text{O}_7:\text{Eu}^{2+}$  exhibits long lasting bright blue phosphorescence which find its application in blue-emitting solid-state lighting useful in bio-imaging and phototherapy [11, 6]. The structural, FTIR and UV–NIR spectroscopy, dielectric, thermal and TEM studies have been reported earlier by the present authors [14, 15]. As the nano-particles possess high surface to volume ratio and that affects the nature of the various properties, the present communication further characterizes strontium pyrophosphate nano particles by BET surface area measurements, EDAX for compositional confirmation and Photoluminescence spectroscopy for different phosphor applications.

**MATERIALS AND METHOD**

Synthesis of strontium pyrophosphate ( $\text{Sr}_2\text{P}_2\text{O}_7$ ) nano-particles was carried out by using surfactant assisted technique [17]. Equal amount of 0.25 M aqueous solution of freshly prepared  $\text{Na}_4\text{P}_2\text{O}_7 \cdot 10\text{H}_2\text{O}$  and 0.5 M aqueous solution of  $\text{SrCl}_2 \cdot 6\text{H}_2\text{O}$  were used.  $\text{Na}_4\text{P}_2\text{O}_7$  solution was added in a drop-wise manner into the mixture of 100 ml  $\text{SrCl}_2 \cdot 6\text{H}_2\text{O}$  and 20 ml triton-X 100 surfactant with constant stirring at room temperature. The resulting precipitates were quickly filtered by Whatman filter paper; washed with de-ionized water and air dried.

**EXPERIMENTAL**

The specific surface area of  $\text{Sr}_2\text{P}_2\text{O}_7$  is measured by Brunauer–Emmett–Teller (BET) measurement with use of volumetric adsorption equipment (Micromeritics, ASAP 2010, USA) at 77 K. The presence of the elements Sr, P, O was identified from the EDAX spectra obtained on equipment (ESEM EDAX XL-30, Philips, Netherlands). Photoluminescence emission spectrum was recorded at room temperature, using spectrofluorometer, (Horiba Jobin, Japan) with monochromator of 330 nm and 550 nm PMT detectors.

**RESULTS AND DISCUSSIONS****Brunauer–Emmett–Teller (BET)**

Qingbo Liu et al [12] employed the BET analysis to rare earth pyrophosphates to study the catalysis in the production of acrolein from vapour phase dehydration of glycerol. The specific surface area of a powdered sample or nano-particle sample is determined by physical adsorption of a gas on surface of a solid and by calculating the amount of adsorbate gas corresponding to a monomolecular layer on the surface. This physical adsorption results from relatively weak forces, i.e., van der Waal's forces, between the adsorbate gas molecules

and the adsorbent surface area of the test powder. For the specific surface area measurement of  $\text{Sr}_2\text{P}_2\text{O}_7$  nano-particle, the Brunauer–Emmett–Teller (BET) study was conducted. The sample was degassed under vacuum at 373 K for the data collection. The  $\text{N}_2$  adsorption–desorption isotherms of  $\text{Sr}_2\text{P}_2\text{O}_7$  nanostructures are shown in fig-1, where Volume Adsorbed versus Relative Pressure ( $P/P_0$ ) plots are drawn for adsorption and desorption. The specific surface area of  $\text{Sr}_2\text{P}_2\text{O}_7$  was determined by a multipoint BET method using the adsorption data in the relative pressure  $P/P_0$  range of 0.06– 0.20 as shown in fig-2, where the plot of  $1/[VA*(P_0/P-1)]$  versus Relative pressure ( $P/P_0$ ) is drawn. The BET surface area of  $\text{Sr}_2\text{P}_2\text{O}_7$  nanostructures was found  $1.9537\text{m}^2/\text{g}$  from  $\text{N}_2$  adsorption–isotherms. The pore-size distribution was determined by using the Barrett–Joyner–Halenda (BJH) method. This method is applied to nitrogen desorption data measured at 77 K on porous material. It employs modified Kelvin equation to relate the amount of adsorbate removed from the pores of the materials to the size of pores. The BJH adsorption and desorption curves are shown in fig.3 in terms of plots of Pore Volume versus Pore Diameter. The desorption isotherm was used to calculate the pore- size distribution. The average pore diameter of the sample is found in range of 2.0 – 9.5815 nm, which is attributed to the nano-particles assembled. This data corresponds to our earlier results of the average crystallite size calculated from the powder XRD patterns using Scherrer's formulation and Williamson and Hall formulation [13], which was found to be 33.57nm and 32.80nm, respectively. It is important for nano-particle samples to determine the average surface and average crystallite size because many physical properties are governed by large surface to volume ratio of nano-particles.

#### Energy Dispersive X-RAY Analysis (EDAX)

An elemental analysis was carried out for strontium pyrophosphate ( $\text{Sr}_2\text{P}_2\text{O}_7 \cdot 6\text{H}_2\text{O}$ ) by employing the EDAX, fig-4 shows the EDAX spectra of  $\text{Sr}_2\text{P}_2\text{O}_7 \cdot 6\text{H}_2\text{O}$  in which the presence of Sr, P and O are clearly identified from the spectral data. The atomic percentage and weight percentage of Sr, P, O elements in the sample is found to be 11.75 %, 10.43 %, 77.82 % and 39.64 %, 47.92 %, 12.44 %, respectively. The theoretical values of atomic percentage and weight percentage are 11.76%, 11.76%, 76.47% and 39.36%, 46.72%, 13.91% respectively, for Sr, P and O, which corresponds to the EDAX results. This suggests the highly pure compound.

#### PHOTOLUMINESCENCE STUDY (PL)

Most of the strontium pyrophosphate PL spectra are studied for rare earth or lanthanide ion doped systems [7, 3]. However, very few reports are available on the PL study on un-doped pyrophosphates [10]. The PL measurements were performed under an excitation power 20 mW using the UV-244 nm line of a continuous wave  $\text{Ar}^+$  Laser frequency doubling unit at room temperature. When the sample was kept at continuous excitation of 244 nm, the emission peaks appeared at 313 nm, 420 nm and 439 nm. Fig. 5 shows the emission spectrum for different wavelengths. The intensity of the emission peak at 313 nm is as low as four times as compared to 420 nm and 439 nm peaks. A strong and narrow emission peaks are observed in the wavelength range 420 nm - 445 nm reveals the emission in the blue region. The PL spectra can be attributed to the oxygen vacancies in the absence of dopant rare earth ions. The possible role of the oxygen vacancies in the visible PL observed is considered [1]. The UV luminescence is expected to be accompanied with Sr-O charge transfer and is related to radiation decay of self-trapped excitons, where the electron component is located at  $\text{Sr}^{+4}$  and the hole is at  $\text{O}^{2-}$  ion. The visible luminescence character can be explained on the basis of the structure of  $\text{Sr}_2\text{P}_2\text{O}_7$ . In  $\text{Sr}_2\text{P}_2\text{O}_7$  each  $\text{Sr}^{+2}$  cation is coordinated by nine  $\text{O}^{2-}$  anions belonging to five different phosphate groups. These  $\text{Sr}^{+2}$  cation sites can be divided into two different types. The higher energy component can be due to radiation decay of excitations localized at a defective Sr octahedron  $\text{SrO}_5$  plus oxygen vacancy. The low energy component may be due to the recombination processes with the participations of F centres formed on the basis of oxygen vacancies of two types; i.e.; one is the vacancy of 'bridge' oxygen and other is the "non-bridge" positions. Further the low energy component can be due to recombination processes with the participation of F centres.  $6\text{H}_2\text{O}$  phosphor shows good photoluminescence in the blue region, may be useful in lighting applications.

#### CONCLUSION

The surface area of  $\text{Sr}_2\text{P}_2\text{O}_7$  nanostructures was found  $1.9537\text{m}^2/\text{g}$  by multipoint BET method. The average pore diameter of the sample determined by BJH method was found in range of 2.0–9.5815 nm. An elemental analysis carried out using EDAX confirmed the presence of Sr, P and O and the formation of the compound. The PL excitation spectra of the un-doped  $\text{Sr}_2\text{P}_2\text{O}_7 \cdot 6\text{H}_2\text{O}$  phosphor exhibited strong and narrow emission peaks in the wavelength range 420 nm - 445 nm revealed the emission in the blue region indicating the usefulness in lighting applications. It was suggested that the oxygen vacancies of two different locations in the structure of the compound playing important role in the low energy photoluminescence.



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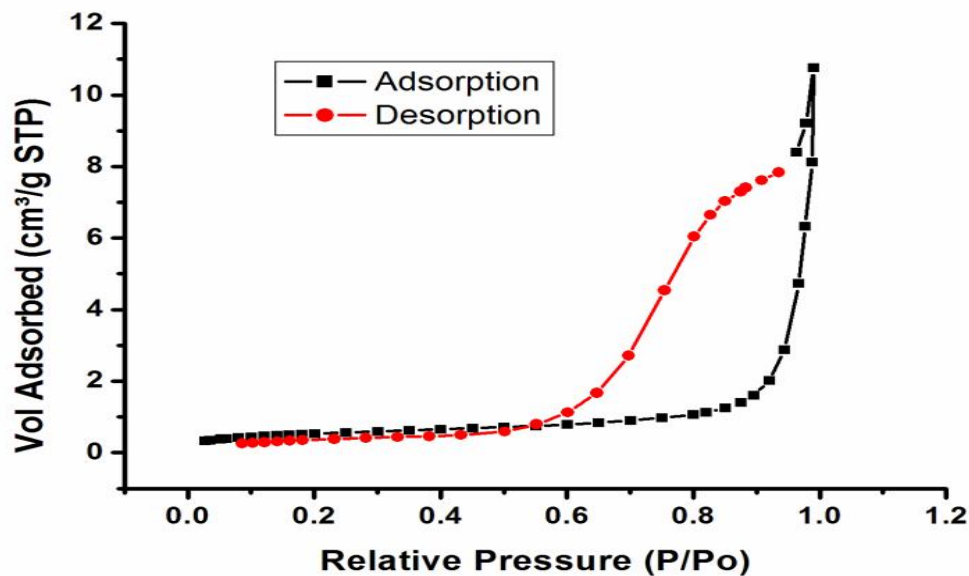


Figure-1: BET adsorption and desorption curves of Volume Adsorbed versus Relative Pressure (P/Po).

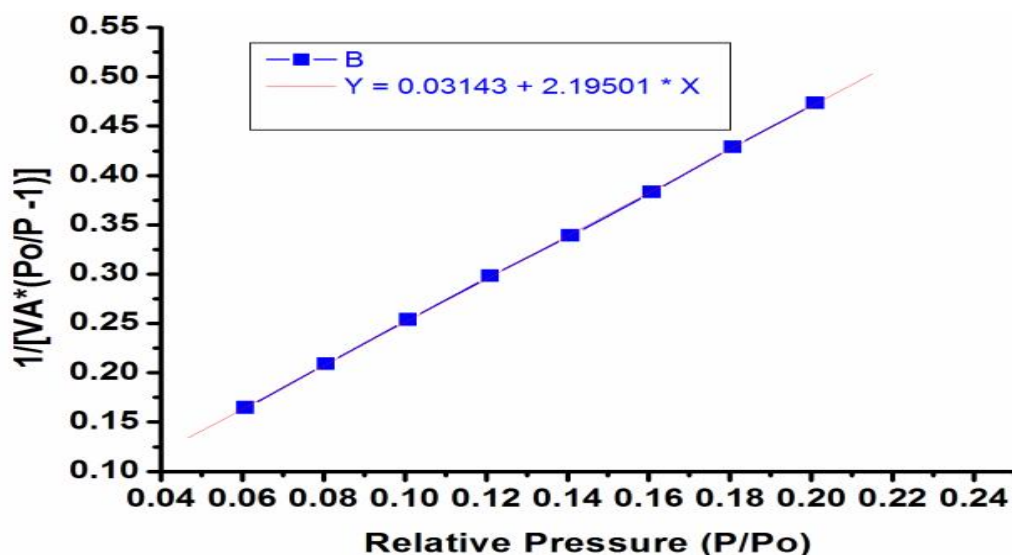


Figure-2: Plot of  $1/[VA*(Po/P-1)]$  versus Relative Pressure(P/Po)

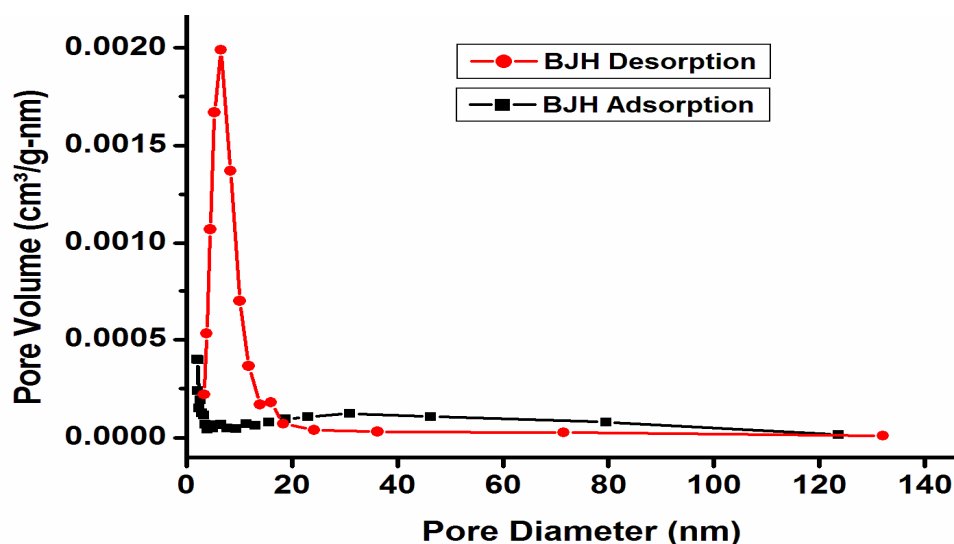


Figure-3: Plots of Pore Volume versus Pore Diameter for BJH adsorption and desorption curves.

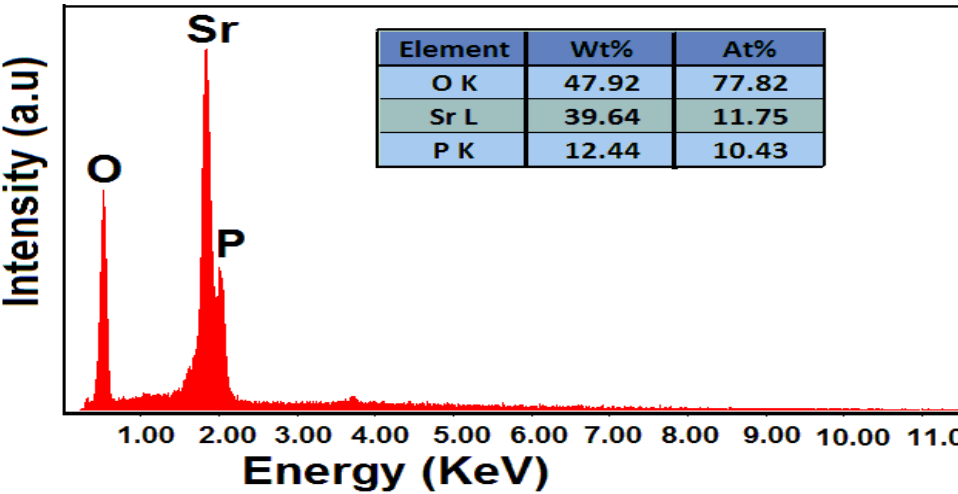


Figure-4: EDAX spectrum

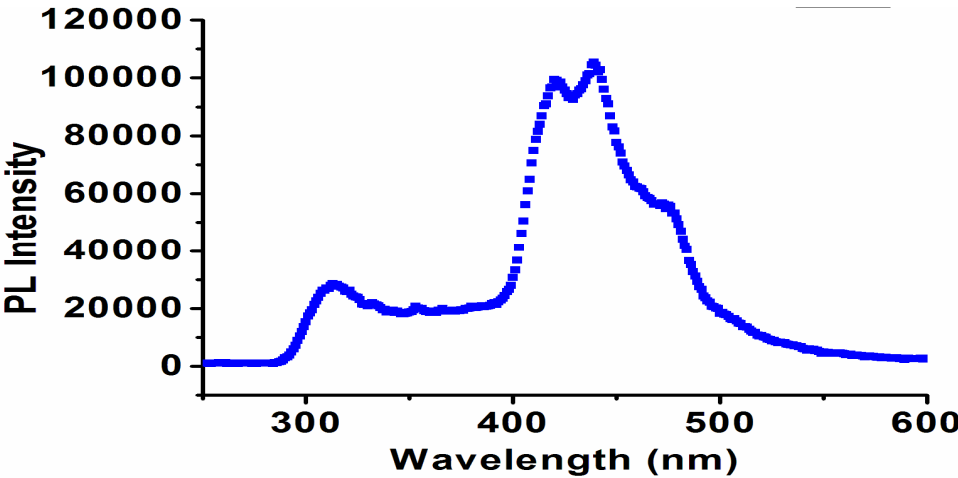


Figure-5: Photoluminescence emission spectrum of PL intensity versus wavelength for un-doped strontium pyrophosphate.

**MULHOLLAND DRIVE' (2001): A CASE STUDY OF THE PRIMACY OF DREAMS OVER REALITY****Sunayan Bhattacharjee**

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**ABSTRACT**

*David Lynch's 'Mulholland Drive' (2001), often stylized as 'Mulholland Dr.', constitutes a perplexing journey along the slippery isles of the human subconscious. It belies the very concept of cinematic logic in all its available dimensions. Critics and scholars often categorize the movie as a mystery thriller and rightfully so. However, the mystery does not stem from unanswered questions asked by the film's ingrained diegesis. In contrast, the mystery lies in the entire film being a question mark on the established notions of human sense and sensibility.*

*Just as dreams seldom paint a coherent narrative, 'Mulholland Drive' hardly drives a point home, at least a point that can be singularly identified. It might as well be argued by some that reality also barely makes sense. While an overgeneralization of the above nature might at times hold some grounds, the fact remains that Lynch makes his intentions clear with his portrayal of Hollywood and its unique culture through 'Mulholland Drive' – that of creating a dreamy maze, a maze that could scarcely be deciphered with the help of everyday logic.*

*This paper tries to critically analyze 'Mulholland Drive' from diegetic, thematic and theoretical perspectives and find out how dreams beat reality in playing the primordial role in its making. In doing so, it would consider the interpretations of the movie given by other experts and scholars while establishing the fact that it certainly falls within the surrealist genre, something that seldom follows the linear narrative structure.*

*This paper will also look at the movie in terms of Lynch's other cinematic works, all of which have broken the established cinematic norms in some form or the other.*

*Keywords: David Lynch, Dreams, Mulholland Drive, Reality, Surrealist Cinema*

**INTRODUCTION**

“‘Mulholland Drive’ is not like ‘Memento’ (2000), where if you watch it closely enough, you can hope to explain the mystery. There is no explanation. There may not even be a mystery”, and so writes renowned film critic Roger Ebert in his review of the movie (Ebert, 2001). He could not have been any truer in his assessment of the film. While scholars, reviewers and audiences continue to debate on the movie's intended message, Lynch himself has persistently refused to offer any explanation.

While the dominant elucidation divides the film into two unequal segments with the first and bigger segment representing the world of wishful dreaming while the second and considerably smaller segment providing a window to the real world (Tang, 2002). However, this explanation is only tentative and fails to plug many resultant loopholes.

Anyone who has seen and appreciated the other works of David Lynch would maintain that the first segment makes a lot more sense than any prior Lynch venture. However, it is equally true that the second segment discards the possibilities of any plausible rationalization. There are multiple vignettes and symbolisms in the movie that provide apparent clues for unlocking the seemingly tantalizing narrative. Notwithstanding, any attempt to claw a way through ‘Mulholland Drive’ is bound to annoyingly throw up numerous subways thereby establishing its open-ended nature beyond any perceptible doubt.

In his attempt to deconstruct ‘Mulholland Drive’, well-known film theorist Todd McGowan makes a rather interesting case study. He says, “In ‘Mulholland Drive’, David Lynch creates a filmic divide between the experience of desire and the experience of fantasy, thereby revealing that, at the same time that it disguises the real, fantasy also offers us a privileged path to it” (McGowan, 2004). While people might violently disagree with this conjecture, it offers as much a valid explanation of the plotline as any other competing theory. He goes on to add, “The narrative coherence of the opening section is especially pronounced when we contrast it with what follows. The first part of ‘Mulholland Drive’ portrays the experience of fantasy, while the second part depicts the experience of desire” (McGowan, 2004).

Interestingly enough, the 2002-DVD release of the movie contained a card insert entitled ‘David Lynch's 10 Clues to Unlocking This Thriller’ (Lynch, 2001). The clues that were mentioned in the card read thus:

1. Pay particular attention in the beginning of the film: At least two clues are revealed before the credits.
2. Notice appearances of the red lampshade.

3. Can you hear the title of the film that Adam Kesher is auditioning actresses for? Is it mentioned again?
4. An accident is a terrible event – notice the location of the accident.
5. Who gives a key, and why?
6. Notice the robe, the ashtray, the coffee cup.
7. What is felt, realized and gathered at the Club Silencio?
8. Did talent alone help Camilla?
9. Note the occurrences surrounding the man behind Winkie's.
10. Where is Aunt Ruth?

Again, different critics have deciphered the clues differently thereby reducing the chances of a unilateral solution to the plot. There have also been opinions that point out that all these clues are actually meant to deviate the primary line of thought. Lynch might have used his fertile imagination to ensure that people are engrossed with clues rather than trying to understand the meaning of the movie. One of the reasons for believing so is the abstract nature of the clues. These clues might mean something or chances are that the clues do not mean anything at all. While one might find the answers to some of these questions, it is rather difficult to find the answers to all these questions. While the intent of this discourse is not to find out as to what the movie actually connotes, there will be an innate attempt to display the fact that each attempt to explain the narrative singularly goes up in smoke and brings out something unnoticed. Following the release of the movie, hundreds of explanations have been offered. However, none of the explanations offers a solution that plugs all the plot loopholes that surface in an attempt to deconstruct the movie.

**The Movie:** In many ways, 'Mulholland Drive' is Lynch's tribute to Hollywood and its culture. It cannot possibly be forgotten that Lynch himself is a product of Hollywood, a sub-culture that he equally loves and despises. The fact that Lynch has not made a single feature film ever since 'Inland Empire' was released in 2006 bears a testimony to the fact that Lynch was not really in love with Hollywood. At the same time, Lynch has always been fascinated by the fantastic world that Hollywood helps him conjure. It provides the window of escape for Lynch, who is more of a surrealist artist than a filmmaker.

'Mulholland Drive' bears many similarities with Billy Wilder's 1950 film noir 'Sunset Boulevard'. While the premise of 'Sunset Boulevard' was quintessentially bleak, 'Mulholland Drive' is more of a personal musing than anything else. This becomes more than clear when we consider what Lynch himself had to say about the making of the movie. It goes like, "One night, I sat down, the ideas came in, and it was a most beautiful experience. Everything was seen from a different angle ... Now, looking back, I see that (the film) always wanted to be this way. It just took this strange beginning to cause it to be what it is" (Mulholland Drive - Production History - Filming, 2001).

If we carefully look at the film and its fundamental conjecture, we would be able to appreciate that it talks about the promises that the glitzy world of Hollywood makes and the obvious pitfalls in the apparent glitz. Naomi Watts; who plays the dual roles of Betty Elms (in the first segment) and Diane Selwyn (in the second segment); herself went through a rough phase while being a struggling actress. This struggle is given the form of a reel narrative through the film. This becomes all too apparent when we consider Lynch's tagline for the film, "A love story in the city of dreams" (Macaulay, 2001). In fact, this tagline could be considered a major clue to unravel the mystery that is 'Mulholland Drive'. However, no single clue is enough in an effort to decipher the movie. It requires an understanding of all the Lynchian elements to make sense out of the enigma that is 'Mulholland Drive'.

It is ironical that the film was actually conceived in the form of a television pilot. The ending was kept deliberately open-ended in order to convert it into a probable series (Pulver, 2001). However, as it is, the programming executives rejected it for reasons that are not too difficult to understand if someone has an idea on how television decision-making functions. It was way too cerebral for television audiences.

In more ways than one, the movie represents the essential Hollywood dream and the obvious consequences of that dream. Now, there is a possibility that we consider the entire movie as a collection of two different dreams, where the first dream drums up the element of hope while the second dream harps on despair. It could be argued that both hope and despair make up the two most important ingredients of the Hollywood existence. In any case, the dream element gets preeminence over the real component. No wonder then that Lynch creates a dream world to highlight the starkness of the real world. Contrary to popular perceptions, dreams at times provide us

with the much-needed window to reality, reality that cannot be immediately made sense of. It would not be an exaggeration to note that the definition of reality sometimes is not enough to explain everything real around us. This is the point where Lynch comes in handy.

While there are multiple theories on simulated reality, Lynch's reality beats all those. He creates a world that is so divorced from our imagination that we start questioning our imagination itself. Even though we are unable to fathom the movie with our existing imagination, we start extending it to the limits. This is exactly where Lynch succeeds. He makes us redraw the contours of our imagination.

**Surrealism, the Concept of Dreams, the Specter that is Reality and 'Mulholland Drive':** In order to critically dissect any David Lynch movie, it is rather vital to understand the concept of surrealism. This is particularly true for 'Mulholland Drive', which essentially takes a viewer down the dark annals of the world of dreams. In layman's terms, surrealism could be categorized as a cultural movement that made an attempt at combining the hitherto contradictory conditions of dream and reality. In simpler terms, surrealism tries to unify the two apparently conflicting worlds (Surrealism, n.d.).

The movement spread its wings in the 1920s and was best depicted through avant-garde paintings and writings. During the initial years of the movement, artists expressed themselves through seemingly illogical and shocking images, either visual or written, that constituted morphed and modified versions of everyday objects. There was an instinctive effort at letting the unconscious express itself. The concerned works were beset with multiple elements of surprise, non sequitur and bizarre juxtapositions. Some of the pioneers of the movement actually dubbed it as a philosophical one with the artworks being mere artifacts of expression. Slowly but gradually, the trend started to influence other broad areas such as music, social theories, political practices and even films (Surrealist Film, n.d.).

The renowned French writer and poet André Breton, who is largely credited with founding surrealism, categorized it as a revolutionary movement. The movement played a very important part in liberating human imagination and giving it a degree of acceptability. The proponents of surrealism were aided in their efforts by the works of Austrian psychoanalyst Sigmund Freud on dream analysis, unconscious state of the mind and free association. While welcoming idiosyncrasy as a valid way of expression, the surrealists rejected the ascription of unhindered and ingrained madness (Dalí S. , 2009).

Cinema, an art form that significantly draws from the contemporary society, could not have remained aloof. Consequently, we started having films that were inspired by surrealist elements. In a 2006 book titled 'Surrealism and Cinema', renowned film expert Michael Richardson maintains that surrealist movies cannot really be distinguished by either style or form. On the contrary, Richardson argues that such films constitute the results of practice of surrealism (Richardson, 2006). In fact, surrealist auteurs over the years have tried their bit in reclassifying the human idea of reality by establishing that the ambit of the real world is much more than what is generally construed as real. In other words, reality cannot be limited within the confines defined by mankind. Surrealist cinema constituted an abject attempt to defy the absolute rule of order in our society. Disorder or randomness is very much a part of the material word and hence neglecting disorder is tantamount to neglecting nature. To put it in another form, surrealism attempted to oppose absolutism and resultant conformity. Thus, surrealism and surrealist cinema try to document the quintessential human resistance to accept inhumanity, often created at the behest of orderly social forces.

'Mulholland Drive' essentially takes a viewer down the dark annals of the world of dreams. As could be seen through the projections of multiple frames, shots, scenes and sequences in the movie, Lynch exposes the limitations of reality and emphasizes on the importance of the dream state. Multiple references in the film display beds and the sleeping condition. He draws a metaphorical similarity between conscious dreaming and unconscious dreaming. The subtle differences are blurred by the film's diegesis and we are rewarded with an assay, which is a clever juxtaposition of all the stages of human consciousness. In many ways, Lynch lets his subconscious and illogical existence to come out in the open and challenge the dominance of rationality.

Even if we are to accept the theory that the first part of the film highlights the dream world of a failed actress and the second part represents the reality around her, the emphasis on the dreaming element is too pronounced for anyone to ignore. The interpretations start to differ significantly when we try to understand as to whose dream the first part of the movie represents. Given the conditions, it might be an individual dream or it might be a collective one as well. What does not essentially change is the fact that there is a continuous debate about the actual placement of the dream in the movie. Some theories even pin the entire movie as a dream. Whatever it is, it becomes more than clear that Lynch tries to get us into a world that we are uncomfortable dwelling not because it is terrifying but because it gets us sucked in into a quagmire of rationality and irrationality.

As we move ahead in the movie, the characters are blurred and the message becomes increasingly hazy while the plot continues to develop. In a revealing critique, author and film theorist Martha P. Nochimson says, "As a matter of course, Lynch centers himself in the expansive energy of the dreaming subconscious and looks with sadness, horror, and confusion at the (often darkly comic) grotesque results of the tyranny of a very reductive form of reason fabricated by our culture" (Nochimson, 2004). If we are to put it in simple words, Lynch rejected the apparently simplistic yet intrinsically complex concept of rationality while making 'Mulholland Drive'. A number of anti-establishment artists have maintained that rationality reduces working class movement to smithereens. Being the anti-establishment person that Lynch is, it is but anybody's guess that 'Mulholland Drive' was just an outlet for Lynch to express his resentment with the current system. While Hollywood constitutes the broad framework based on which Lynch constructs his basic premise of the film, the malleability of dreams and its dominance over reality form the broad structure. Even when we decipher the movie, there remains multiple non-deciphered elements. The beauty of Lynch's movie is exactly that. Even when one finds a coherence in the narrative structure used, the premise remains an elusive entity.

**Deconstructing 'Mulholland Drive':** While there can be umpteen ways to make sense out of the movie, it is important that we zero in on one. To get the process going, it is important that we pin the protagonist of the movie. In that compartment, there can practically be no doubt that Diane Selwyn is the one we are looking for. She is at the crossroads in her life. For reasons that are multifarious, she has reached a stage where she is desperate and anxious. In fact, it will not be an exaggeration to note that she has come to a point where she has become suicidal. One of her desperate acts fuels her depression. In fact, she is taken over by guilt. However, who is Diane and why is she in such a desperate condition? Diane is a failed Hollywood actress, who is madly and hopelessly in love with another actress. While Diane was involved with the other woman, there comes a point in her life when the other woman insults and humiliates her. Jolted and heartbroken, Diane hires a contract killer to murder the other woman. When the act is completed, Diane is completely taken over by remorse and despair.

It is important to note that all this while; we were only discussing the last quarter of the movie. The rest of the movie (the first part) actually specifies a dream that Diane experiences when she gets to know that her estranged lover has died. The last segment of the movie that shows the real character of Diane actually narrates all the incidents that lead to the murder of the other woman.

The first part of the movie is actually a fantastic representation of Diane's wishes. Her internal conflict is shown in the form of a passionate and linear narrative, which is nothing but a dream. It is important to understand that the dream plotline and the reality plotline seem like two distinct narratives when even the identities of the characters stand changed. However, if we look at it carefully, we are able to appreciate the interlinked nature of the two narratives. The two narratives are apparently disjointed. However, both the narratives tell the same story thematically. In some way or the other, there is a focus on the tragedy that befalls Diane's life.

Interestingly though, Diane's mind is an ocean of emotional undercurrents. This causes the complexity of the movie. All these emotions are expressed in different forms thereby forming the story that is 'Mulholland Drive'. Lynch tried expressing all those emotions in the form of separate characters. Consequently, there seems to be an assortment of ideas and characters that create the intentional mess in the movie. However, a closer look at the movie may offer clues to the puzzle.

It is important to understand that the other woman is the centre of Diane's dreams. She sees the other woman being constantly in danger. In fact, she becomes the other woman's saviour at multiple points in the movie. This clearly illustrates the strange dichotomy that is created in Diane's mind. Lynch makes us enter the fantasy world of Diane when there is an assassination attempt on one of the major characters in her dream, who is modelled after the other woman. It is important to remember here that the other woman plays a critical role in Diane's life. Hence, Diane sees her as the root reason for all her problems. Precisely, that is the reason why Diane sees the other woman the way she does in her wishful world of dreaming. Diane is a failed actress and hence all her thinking revolves around Hollywood. This could be one of the reasons why Diane perceives that there are people who are tasked with killing the persona of the other woman. Mulholland Drive, the road where the assassination attempt takes place in the dream world, is more of a metaphor. It represents the glitzy world of Hollywood and all the promises that it beholds.

Well, the narrative becomes interesting from this point as it takes a definite direction. While the assassination attempt does not succeed, the persona of the other woman is injured and loses her memory in the process. People who planned the assassination try to find the replacement for the persona of the other woman. Lynch makes it intentionally difficult at this point. He involves a demonic character in the movie when a couple of persons meet at a place called Winkie's.

The dream narrative of Diane takes an interesting turn here. When Betty Elms, the character that Diane adopts in her dream, and the other woman's persona (who calls herself Rita) try to find out more about the assassination attempt, a waitress by the name of Diane serve them at Winkie's. This makes Betty to remember her actual name and both of them try to trace Diane Selwyn using the phone book. However, on calling Diane's number, nobody picks up the phone. In the meantime, Betty is appreciated at an acting audition. Consequently, a director plans to cast her in a movie called 'The Sylvia North Story'. At this point, Betty leaves saying she needs to meet a friend of hers. This sequence can be explained using the unfulfilled desires of Diane. Diane wanted to be a successful actress but failed miserably. This failure reflects in her dreams where she sees herself as a promising young actress. At the same time, she cannot take the humiliation that she had to face from the other woman. Therefore, in her dreams, Diane finds the other woman helplessly dependent on her. This is the most interesting part of the narrative. The dream aspect offsets the personal failures of Diane as she finds herself in a different avatar altogether.

The next part of Diane's dream sequence is even more interesting. As Betty and Rita make their way through to the apartment of Diane, they find nobody there. In fact, they find the dead body of a woman, who has been dead for many days. Concerned and frightened, both of them return to the apartment of Betty. Subsequently, Betty and Rita have sex, something that could be considered the culminating point of the movie. The romantic fantasies of Diane find expressions through her dream. Late in the night, Rita emphasizes that they should go to a place called Club Silencio. At this point, Betty discovers a blue-coloured box that matches the key of Rita. Once back to the apartment, Betty finds that Rita is missing. When Rita unlocks the box, it falls on the ground making a loud noise. This is exactly the point when the dream sequence ends and the real sequence begins. Thus, we shall not be wrong if we say that this point represents the end of the dream.

Lynch uses a very interesting cinematic device here. Usually, other filmmakers use dream after showing reality. Lynch changes the trend and uses dream before showing reality. This is what creates the confusion and results in so many questions. Even though there are two conflicting plotlines in the movie, when we look at it from a rational perspective, we start understanding the obvious relationship.

Let us try to look at the movie from another angle. 'Mulholland Drive' is not really a detective story. It makes the audiences turn into detectives. Throughout the movie, the audiences are busy making a sense of the narrative. Like all other Lynch movies, the movie continually eludes the rationality of the audiences. In fact, it will not be a mistake to note that any viewer while watching 'Mulholland Drive' is always entangled in a cat-and-mouse game. Eventually though, the viewer is bound to be behind the narrative. One of the reasons why all rational explanations fail is the fact that all the characters meet dead ends. In a detective movie, the characters themselves try to solve the mysteries. However, in 'Mulholland Drive', the characters stop solving the mystery at a point thereby pointing at the end of the road for the viewers as well.

While our discourse banks on the interpretation that the first part of the movie represents a dream while the last part represents the reality, there are enough reasons to believe that the interpretation can be faulty as well. The last images in the movie actually move between reality and fantasy. It is important that we try to catch the metaphysical vive of the movie as well.

Another interesting angle that tumbles out is the life of Naomi Watts, who plays the role of Diane Selwyn. When Naomi came to Hollywood, she also had to endure a string of failures before she could get a grip of the industry. In strange ways, the movie represents the life of Naomi. In fact, it is the story of everybody, who tries to get a hold in the glitzy world of Hollywood. Hollywood offers a strange dichotomy, a dichotomy that Lynch tried capturing on multiple instances. On one end, we have deceit, treachery, false promises, broken hopes and desperation. On the other hand, though, we have hope, aspiration, success and glamour. While Lynch tries to capture both the world with some expertise, there remains yet another obscure side of the story. Nostalgia is another side of the Hollywood story. It would not be utterly wrong if we were to say that 'Mulholland Drive' is as much a staunch critique of the cinema culture as much as it is a celebration of everything cinematic. Lynch is known to use popular culture references in his movies. 'Mulholland Drive' is an attempt to create the America of the 1950s, something that Lynch has always been fascinated by.

Another aspect of the movie is its emphasis on the relationship between the two leading woman. It could be alternatively described as heavenly, beautiful, spontaneously or even evocative. However, the chemistry that works between the two characters is electrifying to say the least. Nowhere in the movie is it felt that the relationship is being forced on to the viewers. This is the beauty of the depiction. We can actually go to the extent of saying that this is the only non-diabolical romantic relationship that has been shown in any of the Lynch movies. It is pertinent to mention here that Lesbianism in American cinema has always taken a very



guarded route. The depiction has always followed some unspecified yet fixed trajectory. Lynch breaks all such conventions and comes out with something that is novel and beautiful at the same time. In fact, the point where Betty and Rita are indulging in sex for the first time in the movie is so spontaneous that nobody even winks. It is as if everyone was anticipating it to go this way only.

However, there is a tragic angle to the relationship. The relationship always seems to be in some danger of not being consummated, of not being realized. What strikes though is the absence of eroticism when both the women engage sexually. Both the women are radiantly beautiful and hot. However, there seems to be an element of paranoia that permeates through both of them. Consequently, the viewers are on the edge and they expect something unwanted to happen along the way. Actually, the dominance of heterosexual relationships converts every homosexual relationships into a tragic tale. Lynch probably used the movie to express his unconditional support for the homosexual movement across the world. Above everything else in the movie, the relationship between Diane and the other woman comes through. This is what makes the movie beautiful. Some people might also contend that the relationship adds a dash of sleaze to the movie. However, one thing is for sure. Nobody, who watches the movie, can remain unaffected.

One of the most important symbolisms in the movie is the presence of the blue box and the blue key. These two things provide interesting insights into what the movie stands for. Probably, one of the explanations of the two things is the assassination of the other woman. May be, it means that when the blue box and the blue key meet, the plotting is complete and the assassination takes place.

Another interesting angle that comes out of the movie is the mafia connection in the movie industry. Pretty much a global phenomenon, it has been proven repeatedly that the underworld has a strong influence on the film industry. At times, members of the underworld, who have stakes in a particular movie, decide the casting of a movie. In fact, the plotline of the first part is heavily dependent on the functioning of the goons, who want an actress replaced. Consequently, they do not stop at anything. The first part of the dream sequence actually delves on the planned assassination of an actress. Even during the latter parts of the movie, the nexus between the underworld and film production companies comes to the forefront. Lynch actually makes a statement concerning the industry that he loves through this movie.

Lynch has always used colours in expressing meanings. 'Mulholland Drive' is no exception. We can see the intermittent use of several colours throughout the film's diegesis that add to the meaning forwarded by the movie. Some such colours include red, blue, pink and black. In the movie, black symbolizes both death and power. Both the women wear black dresses when they are in the limousine. Red signifies drama, tension and sex. The red lampshade used in the movie resembles the Red Light areas. Red lipstick and red robe point towards the inhabitability of sex. Pink is used to express innocence at multiple points in the movie. Betty, in an effort to create a contrast with the character of Diane, uses pink in order to express her state of mind. Last but not the least is the intelligent usage of blue. It represents the transition between the dream state and the real state. This can be understood when we look at the blue objects in the movie – the blue box, the blue van, blue keys and the woman's blue hair at Club Silencio. Blue can also signify a state of unconsciousness and sleep.

It would be injustice done to the movie if we do not analyze the soundtrack. While doing so, it is pertinent to remember that the soundtrack is as important to a movie as its dialogue or perhaps more. At times, clarity is provided when a certain piece of music plays. At other times, music can also be used to confuse and create intrigue. We remember many movies purely because of their haunting tracks. Let us take an example to illustrate this point. The bathtub scene from the movie 'Psycho' reverberates in our conscience purely because of the soundtrack used.

The soundtrack used in 'Mulholland Drive' strangely enhances the eerie effect. An impending mystery, an anticipation of the unknown, an unsolved riddle and more – the soundtrack strangely creates an ambience that signifies all of these. In fact, the title sequence used in the movie starts the ingrained mystery in the movie. The base soundtrack ably supports the title scene. We cannot even imagine the movie without the haunting track that accompanies. Lynch has always been paranoid about the sound designs in his movies. The paranoia shows in 'Mulholland Drive' as well. The resultant is one of the best examples of accompanying soundtracks.

## **CONCLUSION**

David Lynch is enigmatic, he is unfathomable and he is complex as well! Yet, he has a pristine and simplistic aura about himself that makes his films memorable. 'Mulholland Drive' is not a film that can be deciphered with the help of intelligently placed film theories and analyzed inside the classrooms. In fact, there are times when people should just forget that they are watching a movie and it needs to be understood. 'Mulholland Drive' is an opportunity to immerse oneself into an audiovisual marvel. It moves, it makes us cringe, it makes

us want more and it makes us emphathize. In the clamour for deconstructing the movie, such a beautiful experience should not be wasted. It requires the originality of the human soul and the purity of the human heart to uncover its seemingly bizarre and apparently twisted plotline. It might be the case that our idea of what constitutes twisted is what actually is twisted. Hitherto used logic and the oft-repeated methods of analyzing films are not enough to untie the mystery in 'Mulholland Dr'. This is precisely the reason why the movie is so dreamy and is a riot on our conscious senses. One needs to unmask his subconscious and probably even his unconscious to comprehend the film's diegesis.

'Mulholland Drive' is not just about dreams and the world of dreams. It is a dream in itself, a dream that takes some doing to understand. In the midst of all the scholarly discourses, one thing is for sure. 'Mulholland Drive' would continue to haunt cinema enthusiasts for years to come. In its effort to demystify the movie, *The Guardian* asked six renowned film critics about what it is basically all about. While all the critics provided one critical insight or the other, BBC's Jane Douglas provided the most interesting answer and probably the most befitting one too. She said, "I do believe that in some ways it is better to just watch it without constantly trying to work out what it means. If it were a painting, it would be hanging in Tate Modern rather than Tate Britain" (Lewis R. , 2002).

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**IDENTIFICATION OF ORGANIZATIONAL FACTORS INFLUENCING JOB SATISFACTION OF THE FACULTY MEMBERS: A STUDY WITH RESPECT TO THE PRIVATE UNIVERSITIES OF EASTERN INDIA**

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**ABSTRACT**

*There has been a significant change in the employment as well as Psychological Contract between the employer and employees with the advent of Liberalization. Previously Government was a major employer under whom employees used to enjoy secured job. But with the advent of Liberalization and Privatization, private sector started taking a predominant role in economy. Now instead of "security", "performance" has become the driving force influencing employees' sustainable stay in the organizations. This has also impacted the education sector. A lot of private institutions in addition to the Government institutions are serving the society making academia, an industry. To consider, the evergreen change happening in the education industry, the role of manpower is also changing. Now-a-days, working in the academia is one of the most challenging jobs. Employers are constantly expecting the employees to perform and the same applies for the employees also. This actually led to the increasing need of psychological contract between the employer and the employees to create a healthy organizational environment. This research paper tries to identify the organizational factors which influence the Job satisfaction of Faculty Members with respect to private universities of Eastern India using Exploratory Factor Analysis. The findings so obtained will certainly help to state the guidelines to the management of the private universities to create loyal employees which will ultimately improve the profitability of the institutions.*

*Keywords: Organizational Factors, Psychological Contract, Job Satisfaction, Private Universities, Faculty Members, Management.*

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**1. INTRODUCTION**

The modern academia industry has been undergoing a sea-change for the last two decades. There was a time when only government institutions were present to offer education to the mankind. So according to the principles of Economics, huge demand was there, whereas supply was limited. So, students need to fight through a very strict procedure to get a chance to study. But the time has changed.

Now, a lot of private institutions in addition to the Government institutions serving the society make academia as an industry. To consider, the evergreen change happening in the education industry, the role of manpower is also changing. Previously, working in academia was being considered as a satisfying and less stressful job. But, now-a-days, working in the academia is one of the most challenging jobs. Employers are constantly expecting the employees to perform and the same applies for the employees also. This actually led to the increasing need of psychological contract to create a healthy organizational environment. Psychological contract emphasizes the organization and the individual worker's cognition of their mutually fulfilling responsibilities and obligations. This cognition may come from the formal employment contract or hidden multiple expectations. But in a narrow perspective, psychological contract reflects the collection of employee beliefs about the responsibilities and obligations of both sides based on perception, commitment and trust in the employment relationship. So from the above discussion, we find that psychological contract (between the management of the educational institutions and the employees) will ultimately influence the job satisfaction of the faculty members working in the educational institutions.

So, in this research paper, we will try to identify the factors influencing the job satisfaction of the Faculty Members with respect to the private universities of Eastern India.

**2. LITERATURE REVIEW**

Psychological Contract is a buzzing word in today's organizational scenario where the employment relationship has been modernized. This term was first coined by **Argyris (1960)**. **Levinson (1962)** is the father of the concept and defined psychological contract as an "unwritten contract, the sum of the mutual expectations between the organization and employees". The psychological contract can be defined as "an individual's beliefs about the terms of the exchange agreement between employee and employer (**Rousseau, 1989**). Again, **Rousseau (1995)** defined Psychological Contract as "individual beliefs, shaped by the organization, regarding terms of an exchange agreement between individuals and their organization."

*Smithson and Lewis (2000)* reported, job insecurity and perceived uncertainty are positively correlated in case of young men and women's expectation. *MacDonald and Makin (2000)* stated that the levels of relational and transactional contracts of permanent and temporary staff did not differ significantly. In addition they had higher, rather than lower, levels of job satisfaction and commitment to the organization. It had been found from literatures that intention to quit jobs, neglect of in-role job duties positively influences psychological contract (*Turnely et al., 2003*). Again *Guest (2003)* have related Psychological contract in respect to employee's attitude and behavior. *Willems et al., (2004)* establishes the unique nature of psychological contracts in the public sector by comparing evidences from several empirical studies on private and public sector enterprises.

*Nelson et al (2006)* explored the effects of casual employment on a group of university students using the psychological contract as an interpretative framework. *Patrick (2008)* have established the relationship among these factors relational contract, transactional contract, employer's commitment/obligation to employee, employee's commitment/obligation to employer, employer's relationship with employee, and employee's relationship with employer. According to Krivokapic-Skoko, the professional aspects of commitment to make a contribution to the society, their discipline and student learning frequently play a prominent part in in the development and moderation of the academic's psychological contracts (*Krivokapic-Skoko et al., 2008*). While, *Bal et.al (2008)* have mainly focused on the age factor in relation between psychological contract breach and the development of job attitudes.

*Bhattacharya (2009)* stated that tenure and historical perceptions of employer obligations influence the psychological contract for the employees of the Indian outsources call centre sector. *Berger (2009)* has mainly focused on the influence of Personality on the relationship between perceived psychological contract breach and work-related attitudes of employees.

*Joshy(2010)* analysed the importance of psychological contact and its relevance in understanding employment relationships on the basis of Promotions, High pay, Pay based on performance, Training, Job Security, Career Development and Support with personal problems. His study area was the Banking Sector of India. As a result he found psychological contract violations have a negative impact on employee's organizational behaviours (by using ANOVA). In another study, the impact of both the employee's type of employment relationship and exclusive talent segmentation on the psychological contract content(perceived employee and employer obligations) and possible consequences for the employee's affective commitment had been studied (*Ophelders, 2011*). *Agarwal (2011)* have tried to establish the relationship between Psychological Contract and Organization Commitment (value commitment and employee's intent to stay) in the Indian IT industry. *Ballou (2013)* reported the effects of psychological contract attitudinal and behavioral job breach on outcomes including job satisfaction, intention to remain with one's organization, perceived organizational support, and organizational citizenship behaviors. There is a negative relationship between Organizational citizenship behaviour and Psychological contract violation (*Sadiq2014*). *Jianwu Zhou (2014)* analysed in literature the effect of knowledge worker's psychological contract on organizational commitment and work satisfaction. Again *Agarwal (2014)* have reviewed the individual Factors, Organizational factors and the outcomes of psychological Contracts. *Alcover et al (2016)* reported an integration of the existing literature by adopting a multiple-foci exchange relationships approach.

### 3. METHODOLOGY

The study was based on quantitative data to identify the organizational factors influencing job satisfaction of the faculty members of the different private universities of Eastern India (Jharkhand, Bihar, Orissa, West Bengal). Data was collected both in online and offline format. All the respondents were briefed about the project before they respond.

In case of the online format, the data was collected with the help of mail-based questionnaire. The questionnaire was sent to the respondents selected specifically from the faculty members working in the private universities of Jharkhand, Bihar, Orissa and West Bengal. A cover letter was also sent along with the questionnaire. A total of 345 respondents had submitted the filled in questionnaires, out of which 323 responses are considered for this paper. To improve the success rate, the questionnaires were sent repeatedly to the prospective respondents.

The questionnaire was formulated by reviewing existing literature (e.g. Branka, 2008; Alcover, 2015). The questionnaire uses a five point rating scale stating the following things (1 = Very Poor, 2 = Poor, 3 = Average, 4 = Good, 5 = Very Good) for measuring the agreement level of the faculty members with respect to the various factors. The socio-demographic information of the faculty members is also collected.

The collected data for all the parts of the questionnaire is analyzed using Exploratory Factor Analysis to uncover the underlying structure of a relatively large set of variables. The IBM SPSS (version 19) is used for the purpose.

#### 4. DATA ANALYSIS AND FINDINGS

Rotated Component Matrix <sup>a</sup>						
	Component					
	1	2	3	4	5	6
Career_dev	.446	.195	.261	-.021	-.706	-.239
Prof_dev	.646	.256	-.041	-.002	-.512	.068
Res_prof_dev	.261	.048	.850	-.126	.011	.045
Attend_activity	-.193	-.060	.812	.013	.111	.358
Safe_env	.396	.125	.057	-.010	.029	.784
Acad_free	.441	.626	.432	-.131	.254	.062
Good_mgmt	.892	.266	.050	-.076	.154	.119
Good_lead	.898	.324	.062	.048	.029	-.130
oppo_ethic	.709	.071	-.325	.128	-.268	.298
Resp_fam_pr	.892	.266	.050	-.076	.154	.119
Flexibility_pers	.087	-.021	-.046	.947	-.069	.081
Time_family	-.145	.151	-.203	.838	.053	.090
Autonomy_prof	.669	.349	.301	-.068	-.100	-.084
Autonomy_dec	-.004	.169	-.622	.434	.233	.240
Flexibility_work	-.209	.172	.206	.307	.227	.794
pace_chng	.027	.748	.009	.466	.013	-.097
fair_treat	.446	.798	.015	.236	-.114	.010
staff_coll	.414	.149	.163	.002	.104	.832
emply_contrct	.247	.793	-.183	.025	.060	.219
growth_employ	.378	.725	-.197	-.047	-.056	.299
Extraction Method: Principal Component Analysis.						
Rotation Method: Varimax with Kaiser Normalization.						
a. Rotation converged in 8 iterations.						

Component	Variables	Description	Name of the Components
1	Career_dev	Provides opportunities for career development	Management's attitude towards employees
	Prof_dev	Supports ongoing professional development	
	Good_mgmt	Provides good management	
	Good_lead	Provides good leadership	
	Oppo_ethic	Provides opportunity to act ethically	
	Resp_fam_pr	Respect the demands of family/personal relationships	
	Autonomy_prof	Allow you autonomy to act as a professional academician	
2	Acad_free	Provides opportunity to maintain academic freedom	Management's Commitment towards employees
	Pace_chng	Manage the pace of change so that it does not adversely affect you	
	Fair_treat	Be fair and equitable in its treatment of academics	
	Emply_contrct	Provides facilities as committed in the employment contract	
	Growth_employ	Provides growth as committed during the time of employment	
3	Res_prof_dev	Allows to access the resources for professional development (e.g: Research Assistance, Travel Funds etc)	Career Progression
	Attend_activity	Allows to attend the conference/seminar/Workshop/FDP for	

		professional development	
4	Flexibility_pers	Provides flexibility to prioritize and seek balance between personal needs and work demands	Work Life Balance
	Time_family	Allow sufficient time (after work hours) to look after my family & personal needs	
	Autonomy_dec	Provides autonomy in taking decision as per the job role	
5	Staff_coll	Ensure that staff act collegially	Comfortable Work Environment
	Safe_env	Provides a safe and comfortable work environment	
	Flexibility_work	Provides flexibility in the workload	

Source: - Researcher's analysis

The above table is derived from the Rotated Component Matrix output of Exploratory Factor Analysis constructed using IBM SPSS (Version 19). It creates components using the factor loadings which is derived from all the independent variables used in the questionnaire.

#### The following variables are grouped together according to the values of the factor loadings

- Provides opportunities for career development
- Supports ongoing professional development
- Provides good management
- Provides good leadership
- Provides opportunity to act ethically
- Respect the demands of family/personal relationships
- Allow you autonomy to act as a professional academician

All the above mentioned variables are associated with the Employer's attitude towards their employees. So this component is named as "Management's attitude towards employees".

#### Same way the following variables are grouped together as per the values of their factor loading

- Provides opportunity to maintain academic freedom
- Manage the pace of change so that it does not adversely affect you
- Be fair and equitable in its treatment of academics
- Provides facilities as committed in the employment contract
- Provides growth as committed during the time of employment

All the above mentioned variables symbolize the Employer's Commitment level during the establishment of contract. So this component is termed as "Management's Commitment towards employees".

#### The Component 3 consists of the following variables

- Allows to access the resources for professional development (e.g: Research Assistance, Travel Funds etc)
- Allows to attend the conference/seminar/Workshop/FDP for professional development

The above mentioned variables state about the career progression of the faculty members and is named as "Career Progression"

#### Likewise, the component 4 consists of the following variables

- Provides flexibility to prioritize and seek balance between personal needs and work demands
- Allow sufficient time (after work hours) to look after my family & personal needs
- Provides autonomy in taking decision as per the job role

So the above mentioned variables can be grouped together and stated as "Work Life balance" since they are mentioning about the work life balance of the faculty members of the surveyed private Universities

According to the factor loadings, no variable became part of the component 5(as per SPSS output sheet).

### The last component 5 consists of the following variables

- Provides a safe and comfortable work environment
- Provides flexibility in the workload
- Ensure staff act collegially

These variables state about the working environment of the faculty members of the private universities. So these are being named as "Work environment".

## 5. CONCLUSION

In order to meet the purpose of the study, exploratory factor analysis is used to identify the factors which contribute more significantly as compared to other for making the employees of the private universities of Eastern India more satisfied regarding their work, specifically with respect to the organizational factors. On the basis of the SPSS output, 20 variables are grouped together to form components based upon the factor loadings. The output enables to create 5 components which are "Management's attitude towards employee", "Management's Commitment towards employees", "Career Progression", "Work Life balance", and "Work environment". So the management of the private academic institutions, specifically the private universities can give importance to the above mentioned facets to make the faculty members satisfied which will help to create loyal employees, reduce attrition rate and help in the overall development of the employees and the private universities. Although this study is limited to the employees of the private universities of Eastern India, but the findings will definitely state the guidelines to the management of the private universities to create loyal employees which will ultimately improve the profitability of the institutions. So, this study gives a new dimension to the study of work organization in the institutes of higher education (Universities) particularly in Private Sectors.

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**IMPACT OF ONLINE ADVERTISING ON CONSUMERS BUYING BEHAVIOUR: A STUDY WITH REFERENCE TO KARKALA TALUK**

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**ABSTRACT**

*With the advancement of internet, Web has become the most preferred medium for the business firms to promote their products and services. The modern business world has become digitalized and people prefer to buy stuff online, which is easier, faster and considered more convenient than the traditional modes. Online advertising offers a wide spectrum of recognition, which is incomparable to any other modes of advertising. Here, the researchers have used random sampling method for distributing the questionnaire in order to study the impact of online advertising on consumers buying behaviour with special reference to Karkala Taluk. The study was carried out involving a survey on 100 sample size and chi-square analysis was used to test the hypothesis. Findings reveal that online advertisement do generate positive attitude on consumers buying behaviour.*

*Keywords: Online advertising, E-advertising, Buying behaviour, Consumer.*

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**INTRODUCTION**

Online advertising is also known as online marketing, internet advertising or web advertising. This form of marketing and advertising uses the internet to deliver promotional marketing messages to customers. Internet is an ongoing emerging source that tends to expand more and is growing exponentially in both its application and number of user due to its unique characteristics of flexibility, interactivity and personalisation. Internet as a strong advertising medium is versatile that is why it stands apart from traditional advertising mode e-advertising is highly flexible mode that allows consumers to make changes during the course of campaign as and when required without increasing much additional cost. This makes internet more important and in a country like India where the business scenario is highly dynamic.

The users of internet in the world are increasing very rapidly day by day and it is used by all age and all types of people. Internet has become one of the major medium of communication. Traditional marketing forms such as radio, newspaper, magazines, television etc., are becoming a thing of the past. Most of the companies and organisations nowadays are relying in digital advertising and marketing techniques to improve their overall sales and revenue. Online marketing is so far proved to be effective and efficient when compared with other forms of advertising and marketing.

E-advertising includes email advertising, search engine advertising, social media advertising, display advertising, mobile advertising etc., like other advertising media online advertising frequently involves both the publisher who integrates advertisement into online contents and an advertiser who provides the advertisement to be displayed on the publisher content.

**OBJECTIVES**

- To project the future growth of online advertising in India.
- To understand the significance of online advertising.
- To analyse what extent the online advertisement affects the consumer buying behaviour.

**RESEARCH METHODOLOGY****Sampling**

The random sampling method was used by researchers for distributing questionnaire. The total samples collected were 100 covering the area of Karkala Taluk.

**Tools used for the study**

For the present study researchers used both primary and secondary data. Secondary data was collected from internet, journals, articles, books. Primary data has been collected through structured questionnaire. For scaling purpose, Likert's scale was used for certain questions. For analysis and interpretations, researcher used simple statistical tools and some of the relevant and interesting data are presented in the tabular form. Chi-square test was used for testing the hypothesis.

**HYPOTHESIS**

**H<sub>0</sub>:** There is no relationship between e-advertisement and consumer buying behaviour.

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**H<sub>1</sub>:** There is relationship between e-advertisement and consumer buying behaviour.

### **SCOPE OF THE STUDY**

Nowadays company's website is the most useful tool for promoting various products. The study is important for new customers those who are coming forward to purchase through online advertisement. It also covers various aspects of online advertisement and customers' perception on online advertisement. The information has to be right there when you need and should be compelling enough to capture the audience.

### **LIMITATIONS OF THE STUDY**

The sample size is little less due to the time constraint and hence the result of the study cannot be taken as universal. Findings of the study are based on the assumptions that the respondents have given correct information.

### **SIGNIFICANCE OF THE STUDY**

The study is very important to analyse at what extent online advertisement effects the consumer buying behaviour. It is necessary for the companies to know the consumers purchase behaviour. The present study is an attempt to highlight the perception of the consumer towards online advertisement. It also deals to project the growth of the online advertising in India.

### **LITERATURE REVIEW**

- Muhammad Aqsa& Dwi Kartini (2015) found that the continuous development of technology increases the internet users drastically. The internet is operated by the gadgets like PC, Laptop, Mobile phone, Tablets etc. so to capture the large strength of consumers' online advertising is very compulsory. The study also found that although online advertising is effective but it can only be targeted to those only who used the internet continuously.
- Harshini C.S (2015) found that the social media is changing traditions of people. People are increasingly using social media to search for information instead of other media such as television, magazine, and radio. So the companies need to create effective online advertising strategies because internet is now the best platform to capture large number of consumers. Therefore, online advertisements play an important role in current scenario.
- The school of thought believes that the web advertising creates the negative and positive perception among the consumers. It is interesting to study that where so much of research has been conducted regarding future of online advertising and the consumer behaviour towards it. Though people enjoy looking at online advertisement, its formativeness and utility for making behavioural purchasing decisions also plays role.(Ann E.Schlosser, Sharon Shavitt& Alaina (1999).

### **FINDINGS OF THE STUDY**

#### **➤ To find the growth of e-advertising in India**

The online advertising spend is estimated to growth at a compound annual growth rate of 30%. The consumers have started tracking online advertisements. The proportion of internet user who believe that online ads are informative and that they help them in finding the right product or service they were looking for. Marketers also exploring in online advertising lines and it is believed to fetch better monetization. Video ads are considered to take a great branding tort as they have a power to connect with the consumers.

#### **➤ To understand the significance of online advertisement**

To achieve an increase in the business online advertising plays a vital role. Consumers are increasingly using the internet to look up information. According to search engine giant Google, 97% of consumers search for business in the internet.

#### **Some of the significance of online advertising is:**

##### **▪ Target Consumers**

Powerful online advertising tools such as, SEO (Search Engine Optimization), Online Display ads, geo targeting and social networking make it easier to reach target audience compared to offline advertising methods.

##### **▪ Quick and Easy**

Online advertising gives advertising campaign global coverage. Which helps online campaigns of the firm reach more audience? This allows reaching campaign goals quickly and effectively.

##### **▪ Saves Money**

The main advantage of the online advertising is, it saves money because there is no need to spend millions of money compared to online advertising method.

### ▪ Automated and Tech-savvy market

E-advertising where marketers delegate various tasks to the best hands and talents, internet marketing takes the advantage of tech-savvy method.

**Table-1: Respondents Profile**

Question Number	Questions/Statements	Number of Respondents	Percentage
1	<b>Gender of respondents</b>		
	Male	27	27%
	Female	73	73%
<b>Total</b>		<b>100</b>	<b>100%</b>
2	<b>Age of respondents</b>		
	18-27	75	75%
	28-37	15	15%
	38-47	05	05%
	48-57	05	05%
<b>Total</b>		<b>100</b>	<b>100%</b>

Source: Field survey data

Out of those 100 respondents 75% were under the age group of 18 to 27, 15% were under the age group of 28 to 37, 5% were under the age group of 38 to 47 and remaining were under the age group of 48 to 57. The survey was conducted on 100 people and among them most of the respondent are females.

**Table-2: Views of respondents on various kinds of E- advertisement**

Serial Number	Online advertisements	Number of respondents
1	Social Media	65
2	Video advertisement	02
3	Display advertisement	11
4	SEM and SEO	19
5	Others	03
<b>Total</b>		<b>100</b>

Source: Field Survey

Table 2 indicates that out of 100 samples, 65 people like Social media advertisement, 2 people like video advertisement, 11 people like Display advertisement, 19 people like SEM & SEO and other 2 people like other kind of online advertising.

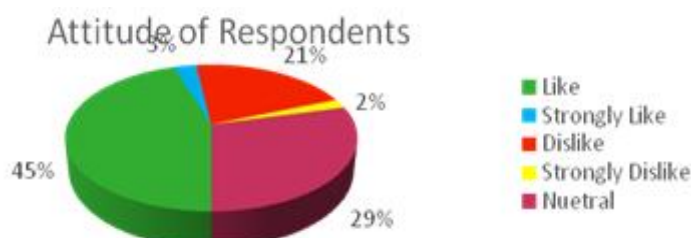
**Note:** SEO (Search Engine Optimization), SEM (Search Engine Marketing).

**Table-3: Respondents attitude towards online advertisements**

Likert's Scale	Frequency
Like	45
Strongly Like	03
Dislike	21
Strongly Dislike	02
Neutral	29
<b>Total</b>	<b>100</b>

Source: Field survey data

Table 3 indicates the attitude of the respondents towards e-advertisement. Out of 100 respondents 45 people likes and 3 people strongly likes the e-advertisement, 21 people dislikes and 2 people strongly dislikes the e-advertisement and remaining 29 are neutral.



**Table-4: Influence of online advertisement on purchase**

Question Number	Questions/Statements	Number of Respondents
1	Online advertisement influence on shopping trends	
	Yes	89
	No	11
<b>Total</b>		<b>100</b>
2	Respondents purchase decision after seeing online ads	
	Very Often	7
	Often	37
	Sometimes	31
	Rarely	24
	Never	1
<b>Total</b>		<b>100</b>

Source: field survey

Out of 100 samples, 89 respondents felt that online advertisements increased their shopping trends. 7 people make purchase decision very often after seeing online advertisements, 37 people Often make purchase decision, 31 respondents make purchase decision sometimes, 24 respondents make purchase decision rarely and 1 respondent never makes any Table 4 states that, among 100 respondents 89 of them feel that the online advertisement has purchase decision after seeing online advertisements.

### TESTING OF HYPOTHESIS

**Table-5: Chi-Square Analysis**

Chi-Square Test	Table Value	Level of Significance
10.114	9.488	Highly Significant

Source: field survey data

The Chi-Square analysis shows that the null hypothesis, i.e., there is no relationship between the online advertisement and consumer buying behaviour is rejected and the alternative hypothesis is accepted. Thus we can conclude that there is a relationship between online advertisement and consumer buying behaviour.

### CONCLUSION

The study provide in depth and very comprehensive picture on 'Impact of online advertisement on consumer buying behaviour'. The study reveals that most of the respondents were influenced by online advertisements and it is observed that online advertising is considered as the most important factor to predict consumer buying behaviour. Though traditional advertising methods have their own importance in the minds of consumers most of the respondents feel that online/internet is the perfect platform for business firms to advertise their product or service.

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### WEB RESOURCES

- [WWW.Onlineadvertising.com](http://WWW.Onlineadvertising.com)
- [WWW.Shodhganga.inflibnet.ac.in](http://WWW.Shodhganga.inflibnet.ac.in)
- [WWW.Knowonlineadvertising.com](http://WWW.Knowonlineadvertising.com)
- [WWW.allresearchjournal.com](http://WWW.allresearchjournal.com)
- <https://www.Slideshare.net>rahulyadav96>

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**A STUDY OF AWARENESS AND ACCEPTABILITY OF EMERGING TRENDS IN THE INDIAN INSURANCE SECTOR**

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**ABSTRACT**

*This study is concerned with the “Awareness and acceptability of emerging trends in the Indian Insurance Sector”. This study focuses on awareness about emerging trends in insurance sector amongst people. The research methodology used is survey method of 50 respondents. Our findings express the behavior of people towards the new trends in the insurance sector. There are only few countries which support new trends in the insurance sector. As a nation, we are increasingly adopting new trends. As insurance sector is increasingly becoming more business focused, they are looking for easy and techno-friendly methods to process and protect the huge amounts of customer based data generated by insurance companies. With the increasing literacy more and more avenues are being opened by the Insurance Regulatory and Development Authority of India, and insurance is now being considered essential. Along with the growth in the insurance industry, companies are inclined to manage their operations in line with the emerging trends. The claim assessment and disbursement is too hectic and difficult and insurance industry is a slow growing industry. Hence, in this research we tried to find out the awareness and acceptability of emerging trends.*

*Keywords: Emerging Trends, Insurance Sector, Cyber Insurance, Blockchain, Claim assessment.*

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**INTRODUCTION**

Insurance companies across India might have to accept the emerging trends in the insurance sector. According to the latest information, the Government is planning to roll out a directive under which all big business institutions will be required to carry out all huge monetary transactions using the blockchain method and as part of this initiative; companies will not be able to make transactions without making the use of blockchain.

Cyber-insurance is an insurance product used to protect businesses and individual users from internet-based risks, and more generally from risks relating to information technology infrastructure and activities. Blockchain helps reduce administrative costs through automated verification of claims/payments data from third parties. Now, insurance companies can quickly view past claims transactions registered on blockchain for easy reference.

Blockchain can ensure that they are rebalancing their exposures against specific risks. Like many businesses nowadays, insurance companies are using drones in their day-to-day operations. Insurers began experimenting with unmanned aerial vehicles (UAVs) about five years ago and found them useful for adjusting property claims.

Since 2016, when the FAA loosened the regulations on drones used commercially, more insurers have begun using them. Soon drones may be as ubiquitous at insurance companies as computers and cell phones.

All-in coverage is a type of insurance coverage that applies to communally used features in residential multi-family buildings as well as the structures inside the individual units. All-in coverage, also called all-inclusive coverage, is used for condominiums (or condos), a type of residential property in which some common elements, such as the entryway or light fixtures, are used by all residents of the building.

National Health Protection Scheme under Ayushman Bharat launched in 2018 to provide coverage of upto Rs.500,000 to more than 100 million vulnerable families. The Insurance Regulatory and Development Authority of India (IRDAI) plans to issue redesigned Initial Public Offering (IPO) guidelines for the insurance companies in India, which are to looking to divest equity through the IPO route.

Demographic factors such as growing middle class, young insurable population and the growing awareness of the need for protection and retirement planning will support the growth of Indian Insurance sector. In April, 2016, the Government of India had launched Pradhan Mantri Fasal Bima Yojana (PMFBY). The future looks promising for the insurance industry with several changes in regulatory framework which will lead to further changes in the way the industry conducts its business and engages with its customers.

This study therefore intends to find out the perception of people towards the emerging trends in Indian insurance sector. We will further analyze how they think about it at this moment and what are their views on recent developments. It will also throw a light upon awareness about cyber insurance and secured blockchain transactions.

## REVIEW OF LITERATURE

Neil Kokemuller has been an active businessman, finance and education writer and content media website developer since 2007. In his research paper, he has further explained the meaning of insurance management and also the how services are offered in the insurance industry. (Neil Kokemuller, 2017)

The Geneva Papers on Risk and Insurance—Issues and Practice has a long tradition of publishing special issues on emerging topics in the insurance industry. Recent topics include extreme events and climate risk, microinsurance and longevity. There have also been several special issues devoted to the fields of pensions, health, and regulation. Currently, the growing economic and social importance of cyber risk is seen in the media on a daily basis. In addition, businesses are facing cyber risks that can lead to considerable corporate losses (Eling Geneva, 2018)

Robert Cumming explains the importance of blockchain in insurance sector. The insurance industry will still have obstacles to overcome, but blockchain's ability to provide complete accountability, transparency and superior security will help insurers save time and money, as well as improve customer satisfaction. (Robert cumming, 2018)

## OBJECTIVES OF THE RESEARCH

- To understand the point of view of people towards emerging trends in the insurance sector.
- To get a better idea if people are aware about the emerging trends
- To create an awareness about the emerging trends such as cyber insurance, blockchain.

## HYPOTHESIS

H<sub>0</sub> People are not aware about the emerging trends in the Indian insurance sector

H<sub>1</sub> People are aware about the emerging trends in the Indian insurance sector.

## RESEARCH METHODOLOGY

1. The research is to gain a perspective of people towards the emerging trends in the Insurance sector.
2. Primary data has been collected in the form of a questionnaire which was filled by 50 respondents (of different age groups which consisted more of youth).The questionnaire consists of Likert scale type questions.
3. The sample of 50 respondents is analyzed by percentage method and hypothesis was tested.
4. Secondary data is also collected through various e-journals, articles, newspapers etc. and due credits have been given by means of references and bibliography.

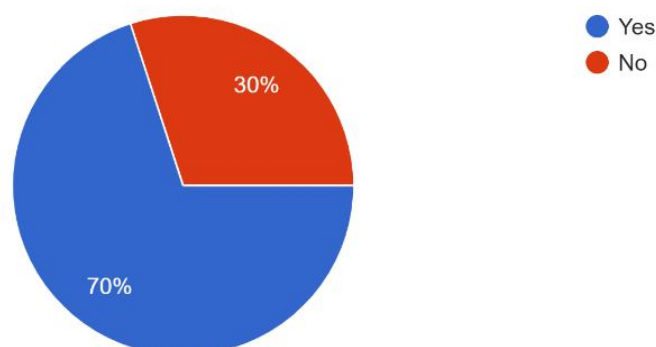
## LIMITATIONS OF THE STUDY

1. The present study is limited to only 50 respondents of different age groups.
2. The research is bound to Mumbai region only.
3. The research was conducted only for people of different age groups and not for below 18 years of age.
4. Time constraint to complete the research might have led to incomplete or inaccurate research findings. Further research is recommended.

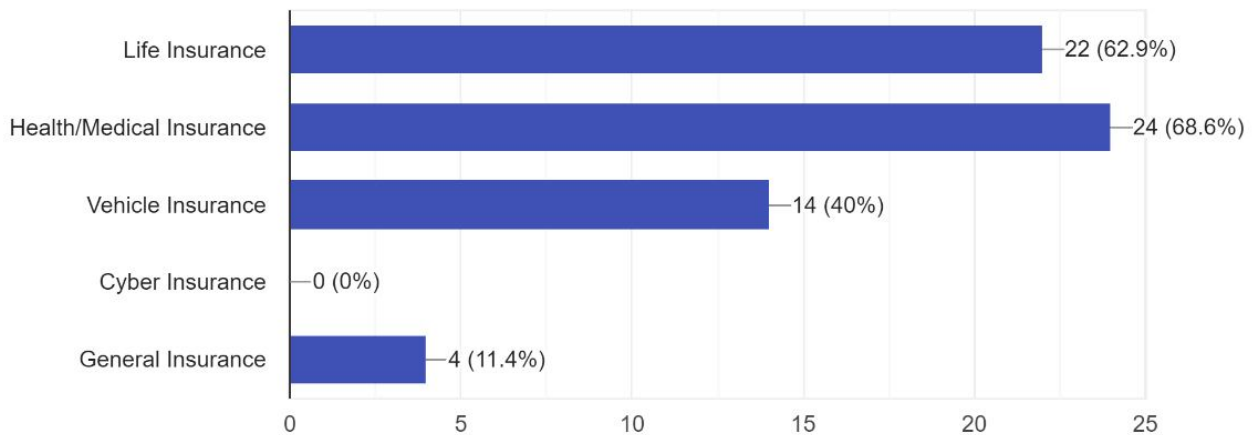
## OBSERVATION

The respondents are mainly between ages from 18 to 55 & above.

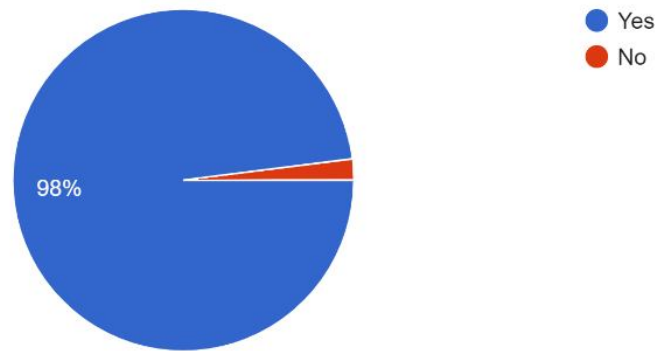
### Q.1. Do you have an insurance?



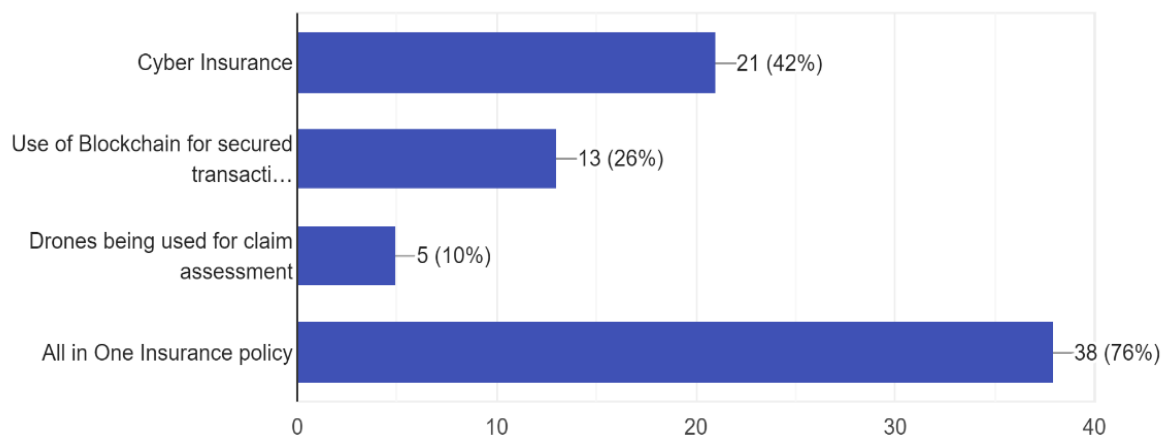
**Q2. If yes, which type of insurance**



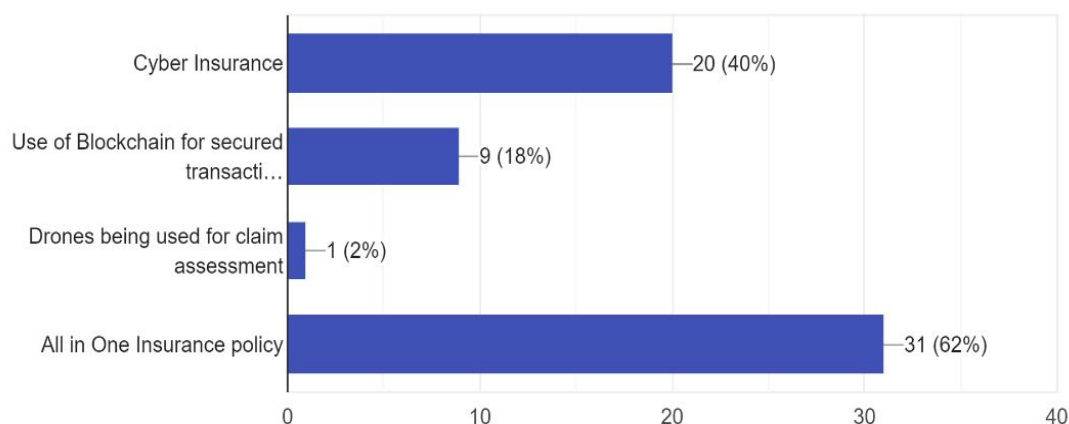
**Q3. Do you think it is important to be insured?**



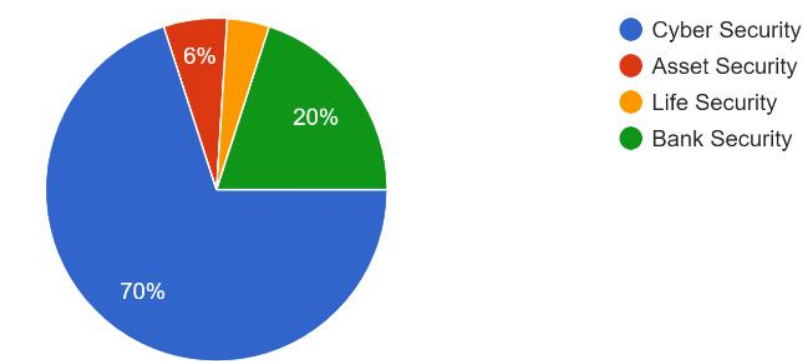
**Q4. What are the emerging trends in the insurance sector that you are aware of?**



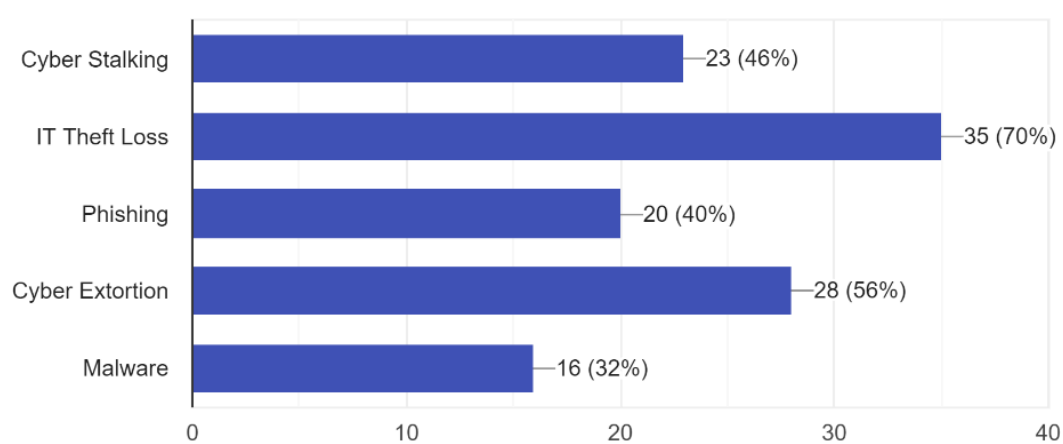
**Q5. According to you, which insurance trends exist in India?**



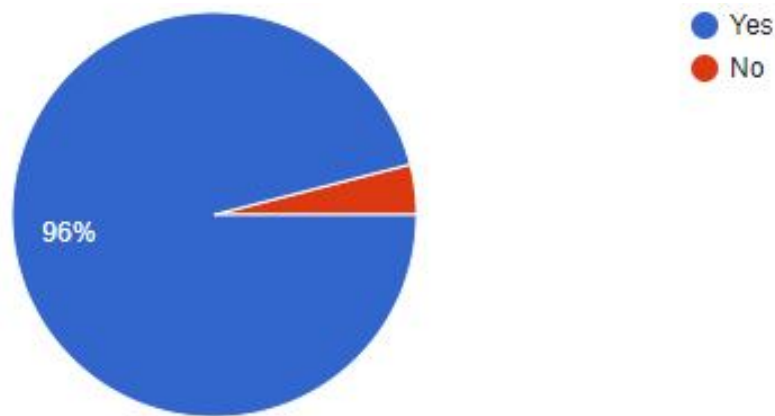
Q6. According to you cyber insurance is designed for?



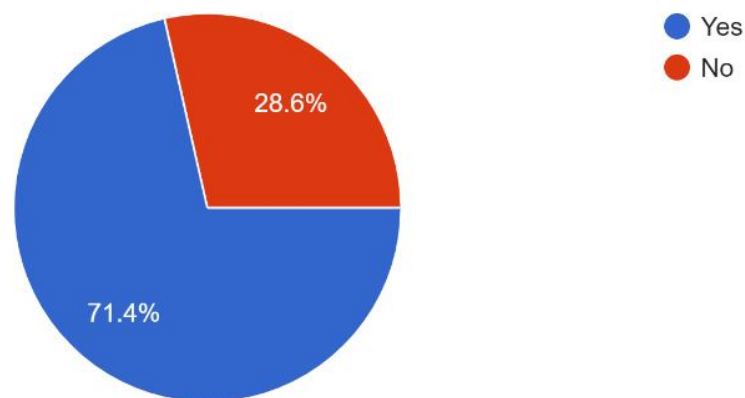
Q.7. According to you cyber insurance covers?



Q.8. Do you think cyber insurance is important?

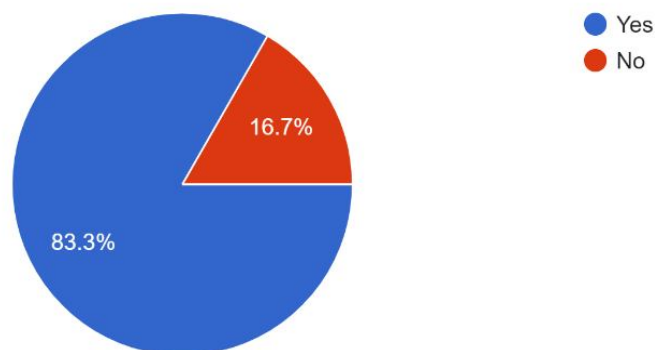


Q.9. Do you think Blockchain transactions are secured transactions?





**Q.10. Do you think use of drones for claim assessment and All in One Insurance policy can be adopted in India?**



### FINDINGS AND CONCLUSION

After a thorough analysis, it was proved that  $H_0$  was rejected. It was highlighted that people are aware about the emerging trends such as cyber insurance, use of blockchain for secured transaction, drones for claim assessment and augmentation of all in one insurance policies.

People give importance to buying an insurance and most of them are having it. The findings of the research reveal that people do not have cyber insurance. They prefer purchasing Life insurance, Medical/Health insurance and Vehicle Insurance. However, they do find cyber insurance to be important but they fail to accept it. They also think blockchain transactions may lead to secured transactions.

In spite of the awareness about cyber insurance, people are hesitant to purchase it. The primary reason would be that they do not want to spend on such type of an insurance. A finding suggests that people do know what cyber insurance covers and for what it is designed for. A finding also shows that they aren't aware about the emerging trends which exist in India.

A glaring finding also proves that people are aware about cyber insurance, but it is not accepted by them, as they think it is not as important as other insurances.

IRDAI can make guidelines which make it mandatory for insurance companies to implement such new developments to ease the process in insurance industry.

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4. Robert Cummings (2018, August 28), Financial Innovation.

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## A STUDY ON CONSUMER ACCEPTABILITY OF AUTOMOBILE SALES THROUGH E-COMMERCE PLATFORMS

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### ABSTRACT

*E-commerce platforms have revolutionalized sales. The customers, who once used to purchase goods and services through physically going to the stores, are now gradually moving towards purchasing goods and services through online modes. However, the customers have lost a touch of personal experience of buying since shift towards online buying. This research targets online buying of automobiles and consumer apprehensions while making purchases of automobiles and automobile parts online. E-commerce operators have also been hesitant while selling such products online as their sales are quiet low on their platforms. This research analyses whether customers prefer purchasing automobiles online or through physically visiting showrooms.*

*Keywords: Automobiles, e-commerce, Sales, Online*

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### INTRODUCTION

There has been a significant shift of consumer buying behaviour since the introduction of e-commerce platforms viz. Flipkart, Amazon, Snapdeal etc. However, the marked change in the behaviour is seen only in certain sectors or categories of products and services. Consumers usually tend to buy products which can be used and not utilised. Consumers buy products which need not require a personal buying experience. For example, consumers readily buy electronic products online. However, when it comes to buying clothes online, consumers are little hesitant in making impulsive purchases. This stems from the fact that buying such things online may land the consumer in more hassles later on, just in case the product / clothes do not fit properly.

This scenario is also true in case of purchasing automobiles and automobile accessories online. Consumers prefer buying cars and vehicles through traditional offline modes like visiting showrooms rather than purchasing it online due to high cost involved in making such a purchase and lack of consumer buying experience. This entire thing has motivated the researchers to do an analysis of it.

### OBJECTIVES OF THE RESEARCH

1. To assess the consumer perception while making purchases on automobiles online
2. To gauge the reasons why customers do not prefer buying automobiles through e-commerce platforms
3. To analyse the shortfalls of purchases of automobiles through e-commerce platforms

### HYPOTHESIS

H<sub>0</sub> Consumers do not prefer purchasing automobiles through e-commerce platforms as compared to purchasing through showrooms

H<sub>1</sub> Consumers prefer purchasing automobiles through e-commerce platforms as compared to purchasing through showrooms

### RESEARCH METHODOLOGY

1. The research is an exploratory research to gain an insight into the acceptability of automobile sales through e-commerce platforms
2. Primary data has been collected in the form of questionnaire which was filled by 50 respondents (the respondents were customers who have already purchased automobiles / automobiles accessories across Mumbai). Questionnaire consisted of Likert scale type questions.
3. The sample of 50 respondents was analysed by chi-square test and hypothesis was tested. The level of significance is 5% which is normal for any social science research.
4. Secondary data is also collected through various e-journals, articles, newspapers etc and due credits have been given by means of references and bibliography.

### LIMITATIONS OF THE STUDY

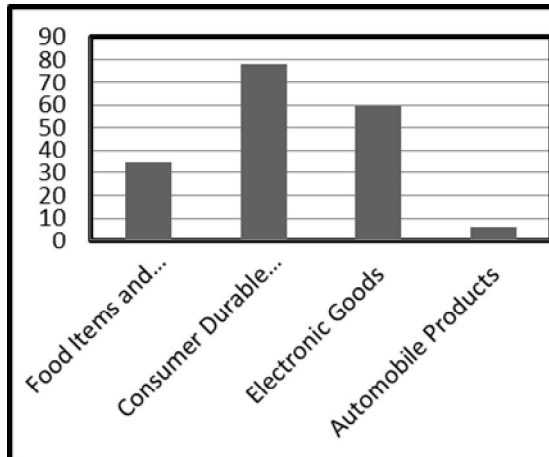
1. The present study is limited to only 50 respondents in Mumbai region only.
2. Research has been focussed only on people who have purchased automobiles.

3. Time constraint to complete the research might have led to incomplete or inaccurate research findings. Further research is recommended.

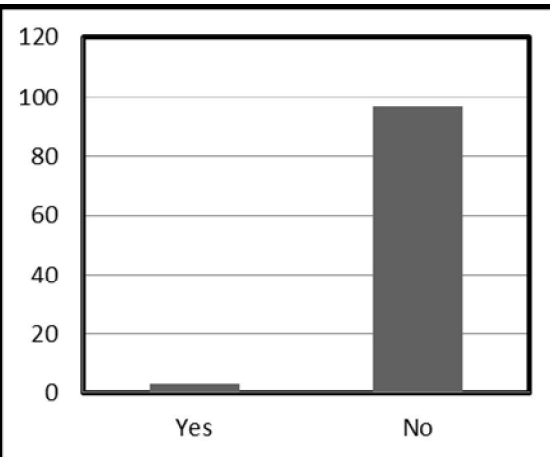
### OBSERVATION

The observations and analysis of the survey conducted were as follows:

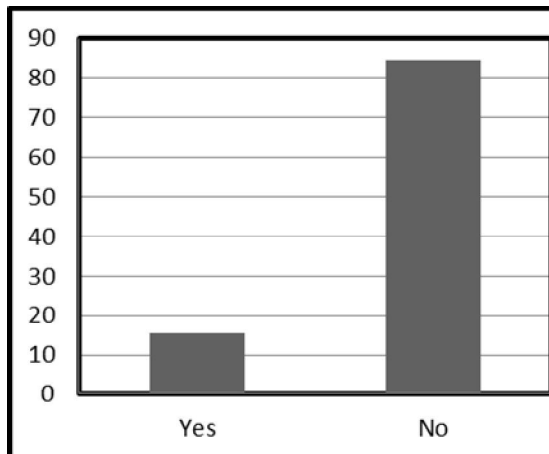
Q 1. What are the products that you usually purchase online?



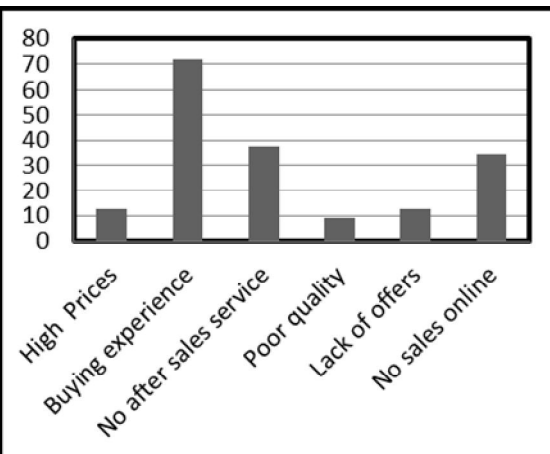
Q 2. Have you purchased automobiles online?



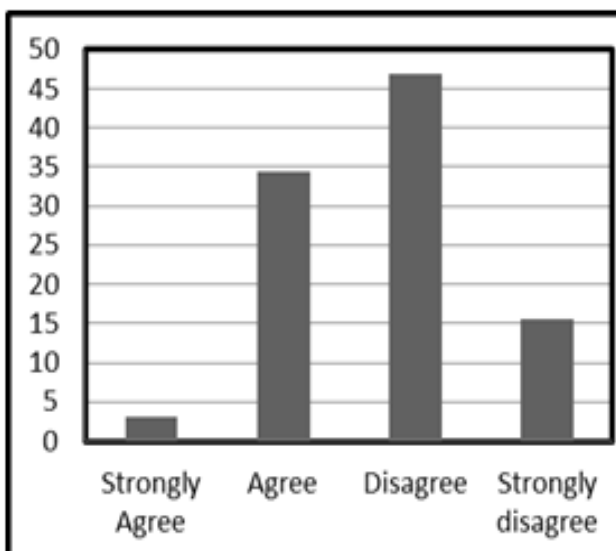
Q 3. Have you purchased automobile products online?



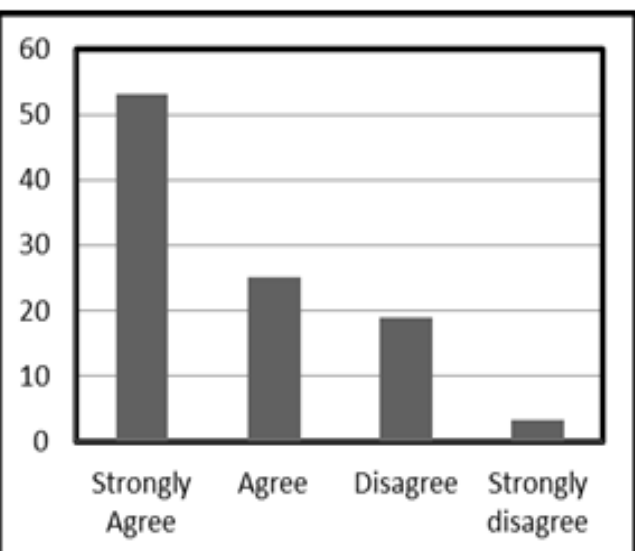
Q 4. What has influenced your choice of not buying automobiles online?



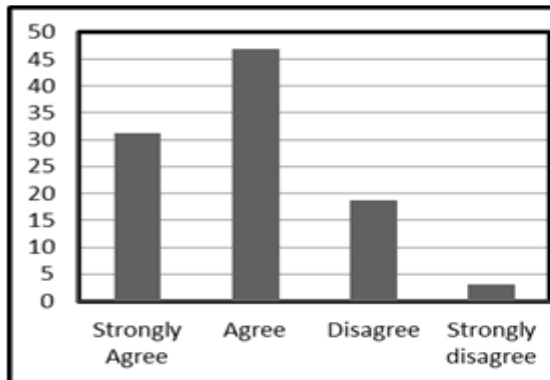
Q 5. The prices of automobiles increases while purchasing online.



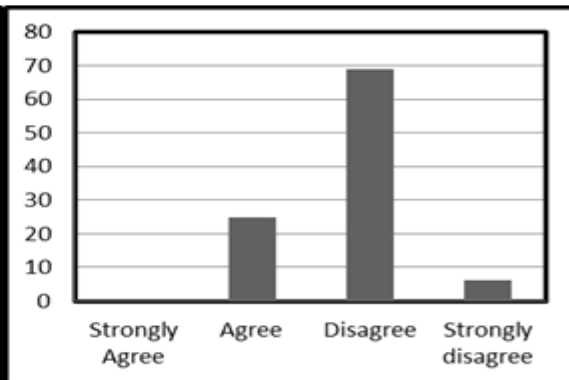
Q 6. There is no consumer buying experience while buying automobiles online.



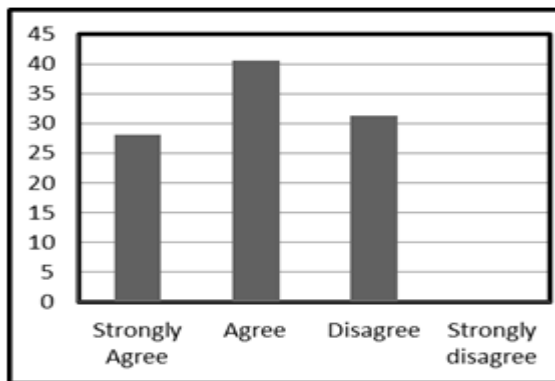
Q 7. There is a high risk involved while purchasing automobiles online.



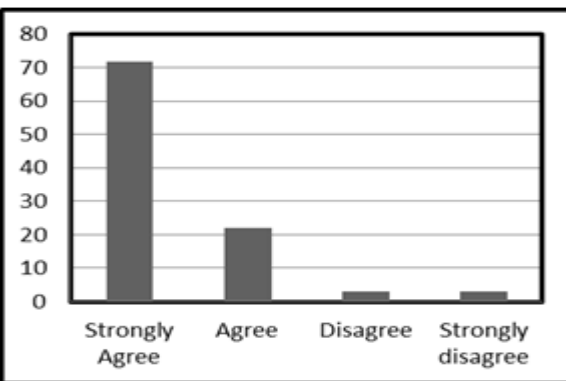
Q8. Quality of automobiles sold online is usually poor



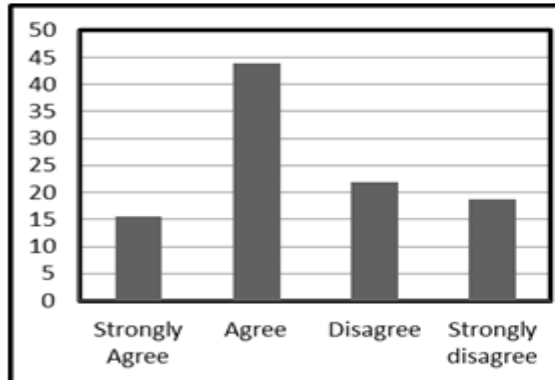
Q 9. Usually second hand / used automobiles are sold online.



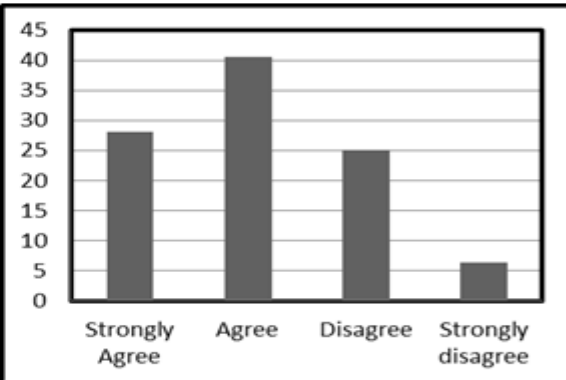
Q 10. Physical verification of automobiles is necessary while buying.



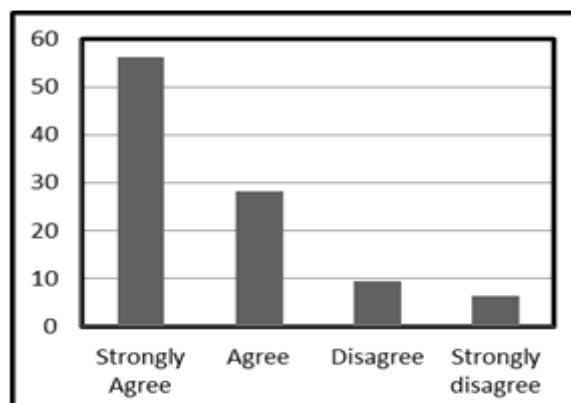
Q 11. E-commerce operators do not offer the option of buying automobiles online



Q 12. Buying automobile accessories online is better than buying automobiles online.



Q 13. If given an option, I will prefer buying automobiles through automobile showrooms rather than e-commerce operators.



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**CONCLUSION**

On using the chi-square test,  $H_0$  was accepted. Thus, it was proved that Consumers do not prefer purchasing automobiles through e-commerce platforms as compared to purchasing through showrooms.

A point to be noted is that customers who were reviewed had already purchased products online. However, they usually purchased consumer durable goods and electronic products online. Only 6.3% people reviewed purchased automobiles or automobile products online. To bifurcate further, people purchased automobile products more than automobiles through e-commerce platforms.

Consumers fear a lack of consumer buying experience while purchasing online. This was the main reason for not buying automobiles online. Also, their choice of not buying automobiles online was influenced by e-commerce operators' decision of not pushing such sales aggressively through their websites. Lack of automobile after sales service was also a prominent reason for not buying such products online.

The consumers rarely felt that prices increase when they purchase automobiles online. This, coupled with risk involved in buying online, tend to deviate the consumers from such websites and enforce the theory of buying automobiles through showrooms.

Consumers strongly felt that automobiles have a good quality, whether sold online or through traditional modes. However, still they detracted from buying online because most the vehicles sold were used / second hand. Consumers want to purchase new products instead of old products through e-commerce platforms. Additionally, consumers also want physical verification of such vehicles before finally paying the amount which is not feasible for e-commerce operators commercially.

All these reasons combined prove that if given a choice, consumers tend to purchase automobiles through traditional showrooms than e-commerce operators.

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**PERCEPTION TOWARDS DIGITAL PAYMENT: A STUDY WITH REFERENCE TO UDUPI TALUKA**

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**ABSTRACT**

*In the last decade there has been tremendous growth in use of internet and mobile phone in India. After demonetisation, most of the people in India started using electronic payments modes for their transaction. The digital payment has helped the people to do transaction digitally. It removed the fear of loss and theft of cash. Now-a-days, the debit cards and credit cards are most preferable modes of digital payment. So researcher made an attempt to do the study on respondents' perception towards digital payment: A study with reference to Udupi taluk. Here, the researcher had found the level of awareness of digital payments among the young adults and middle aged adults with the sample size 160 out of which 102 respondents of young adults and 29 respondents of middle-aged adults are aware about the digital payment. Whereas, remaining respondents were not aware about the digital payment modes.*

*Keywords: Online transaction, Digital payment, Cashless economy, Digital literacy, e-Payment*

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**INTRODUCTION****'Cashless India, Future India'**

Cash may no longer be king. The adoption of digital payment is being the path towards the development. In 1979 Michael Aldrich introduced a technology which allowed the consumers to make direct purchases over the phone and electronic medium. Cashless trading is leading the world. The digital payment save time, as the handling money and transportation cost is expensive.

An opportunity for huge growth of digital payment in India is created by demonetisation. 'Digital India' is a flagship program where the motive is to convert India into a digitally empowered country. The paperless and cashless transaction is one of the functions of digital payment.

India is moving on the path of the major digital revolution. Digital revolution will be considered as the milestone in the era of cashless future economy. The objective of this study is therefore to investigate and determine the perception awareness level towards digital payment in young adults and middle aged adults.

**OBJECTIVES**

- To know about the advantages of the digital payment
- To highlight the types of the digital payment
- To project the respondents' perception towards digital payment

**RESEARCH METHODOLOGY**

**SAMPLING:** For this study, the researchers used simple random sampling method to distribute the questionnaire among respondents covering the area which comes under Udupi taluk with sample size of 160.

**TOOLS USED FOR THE STUDY:** This study is descriptive in nature. The study is based on primary data and the secondary data. Primary data was collected through the questionnaire and the secondary data was collected from internet, books, and articles. Tabular form and the diagrams (various charts) are used for presenting the data and for testing the hypothesis chi - square has been used.

**HYPOTHESIS**

**H<sub>0</sub>:** There is no significance difference in the level of awareness between the young adults and middle-aged adults

**H<sub>1</sub>:** There is a significance difference in the level of awareness between the young adults and middle-aged adults

**NEED OF THE STUDY**

The digital payment has led to the drastic changes in the growth of the economy. The digital payment had helped to make the transactions electronically. It helped to reduce the theft and loss of the cash. Thus, there is need to study the benefits of the digital payment and various ways to do the transactions digitally. Hence researcher made an effort to study the respondents' perception towards digital payment.

**LITERATURE REVIEW**

**Kalakota and Whinstone (1997)**, sees digital payment as a financial exchange that takes place online between the seller and the buyer.

**Bamasak**, in Saudi Arabia found that there is bright future for mobile payment. Mobile payment transactions, security were the great concern to the mobile phone user. In this study the major concerns for the consumers is security and privacy which affects the adoption of digital payment solutions.

**Dennis (2004)** defines electronic payments as a form of financial commitment that involves the buyer and the seller facilitated via use of electronic communications.

**Peter and Babatunde (2012)**, explain digital payment system as any form of fund transfer via the internet.

**FINDINGS OF THE STUDY****Advantages of digital payment:**

- **Lower risk:** - Digital transactions are much more secure than traditional transaction. There is no fear of loss of cash or any theft. It can be done through various mobile apps or other digital payment modes.
- **Faster, easier and more convenient:-** It is one of the biggest advantage of the digital payment. The transaction in the digital payment modes is easier to do once you understand. And it is faster than traditional payment or payment through cash. There is no need to carry the cash so it is also convenient to use.
- **Discounts and cash-backs:-** If the customer uses the digital payment for the transaction the customers gets the attractive cash-backs and also various discounts.
- **Helps to keep black money under control:** - As in digital payment transactions are done digitally or using electronic modes. So there is no need of money. So the circulation of money does not take place which helps to keep black money under control.
- **Time saving:-** In the digital payment the transaction is done faster and there is no need to travel or stand in a queue for paying any bill or transaction. So it is time saving. As sitting at home we can do the transaction.
- **Lower cost:-** In traditional payment system we need to travel to pay bills or post the cash to some other place but due to digital payment there is no need to travel or post the money. So it reduces the cost as well.
- **24×7 service availability:** - In digital payment the service is provided for 24×7 if there is any emergency with regards to cash than we can do the transaction which is not possible in traditional payment.

**Table-1: sample size**

Ages	Number
18 - 35	122
36 - 55	38
Total	160

Source: Primary data

Table 1 indicates that out of total 160 respondents 122 respondents belongs to 18 - 35 age groups whereas, 38 respondents belongs to 36 - 55 age groups.

**Table-2: Respondents convenience to make payment**

Ages	Cash	Digital payment	Total
18 - 35	41	80	121
36 - 55	27	12	39
Total	68	92	160

Source: Primary data

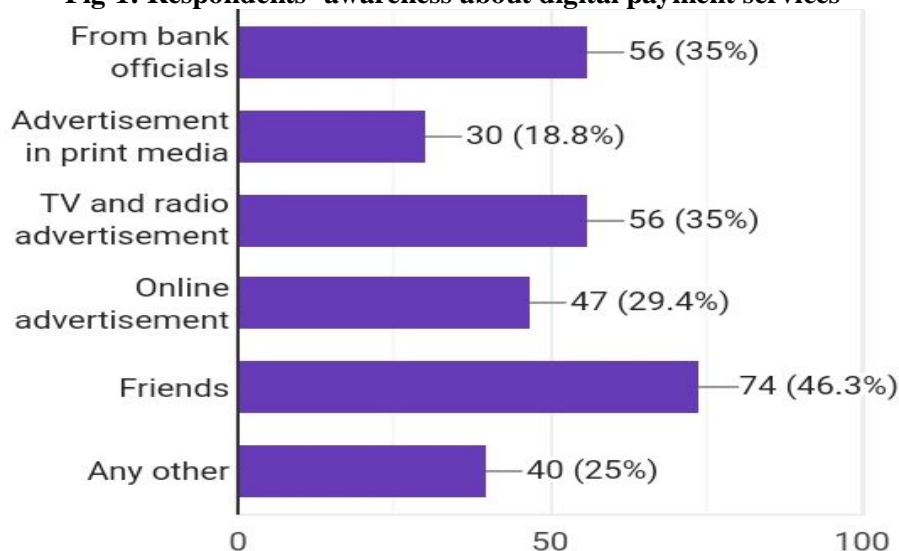
Table 2 indicates the respondents convenient way to pay where for age group 18 - 35 , 41 prefer cash whereas remaining 80 respondents prefer digital payment, for the age group 36 - 55, 27 respondents uses cash and remaining 12 respondents uses digital payment.

**Table-3: Respondents opinion towards digital payment**

Ages	Vital	Essential	Desirable	Cannot say exactly	Total
18 - 35	16	49	18	40	123
36 - 55	1	9	19	8	37
<b>Total</b>	17	58	37	48	160

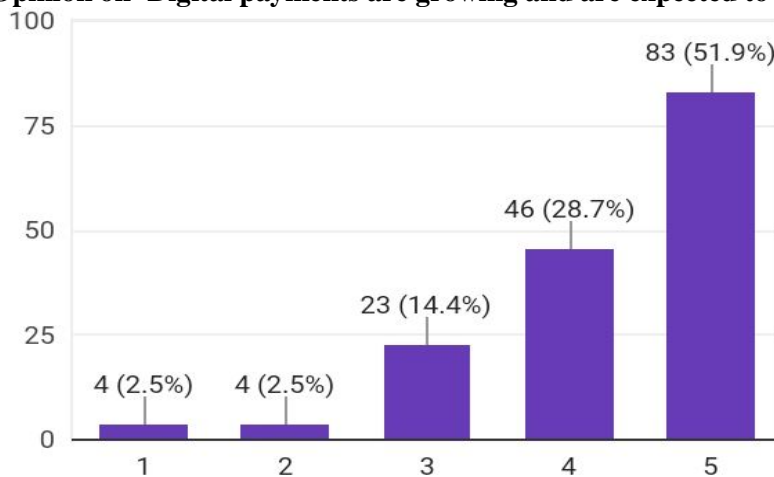
Source: Primary data

**Table 3** indicates the respondents' opinion towards digital payment where for age group 18 - 35, 16 respondents feel that digital payment is vital, 49 respondents feel it essential, 18 respondents feel it as desirable, and 40 respondents were not able to say exactly. Whereas age group 36 - 55, 1 respondent feels that digital payment modes are vital, 9 respondents feels essential, 19 respondents feels desirable, 8 respondents were not able to say exactly.

**Fig-1: Respondents' awareness about digital payment services**

Source: Primary data

**Fig 1** indicates that respondents come to know about the digital payment services through various sources. Out of 160 respondents, 35% respondents came to know through bank officials and also through TV and radio advertisement, 18.8% respondents came to know through advertisement in print media, 29.4% respondents came to know through online advertisement, 46.3% respondents came to know through friends, 25% respondents came to know through others.

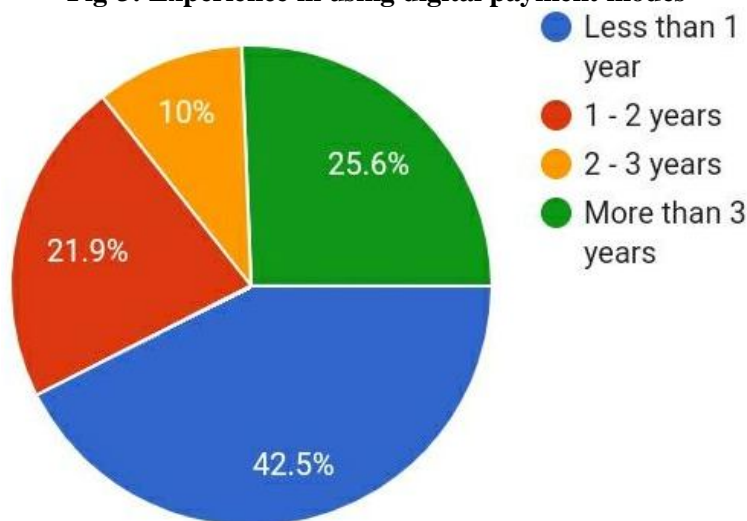
**Fig-2: Opinion on 'Digital payments are growing and are expected to continue'**

Source: Primary data



**Fig 2** indicates that out of 160 respondents, 83 respondents strongly agrees with the statement, 46 respondents agrees with the statement, 23 respondents has neutral opinion with the statement, 4 respondents disagrees with the statement, and remaining 4 strongly disagrees with the statement.

**Fig-3: Experience in using digital payment modes**



Source: Primary data

**Fig 3** indicates that usage of digital payments modes, Out of 160 respondents, 42.5% respondents are using digital payment for less than 1 year, 21.9% respondents are using digital payment between 1 – 2years, 10% respondents are using digital payment between 2 - 3years, and 25.6% respondents are using digital payment for more than 3years.

### TESTING OF HYPOTHESIS

**H<sub>0</sub>:** There is no significance difference in the level of awareness between the young adults and middle-aged adults

**H<sub>1</sub>:** There is a significance difference in the level of awareness between the young adults and middle-aged adults

**Table-4: Level of awareness of digital payment modes among the respondents**

Age	Yes	No	Total
18 - 35	102	20	122
36 - 55	29	9	38
Total	131	29	160

Source: Primary Data

Degrees of freedom is 1

Level of significance is 5%

Calculated value	Critical value
1.04	3.84

Chi -square value=1.04 is less than 3.84, **H<sub>0</sub>** is accepted.

**Interpretation:** The chi square analysis shows that null hypothesis “no significance difference in the level of awareness among the young adults and middle adults” is accepted. Hence, the alternative hypothesis is rejected

### CONCLUSION

The digital payment is improving and developing very fast. The usage, comfortability is being wider and wider day by day. Government support electronic payments system for the development. Some of the respondents

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were aware about the digital payment by various advertisements, friends and family, while some were not aware about digital payment. The digital payment has lots of advantages as we can do transaction without travelling, it is easy to do and many more. But, in spite of that there are some disadvantages that are security though there is enough security provided still we have to be careful while doing transaction electronically. As per the study there is the equal level of awareness of digital payment modes among young and middle age adults.

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**WEB RESOURCES**

- [www.markettest.co.uk/market-research-questionnaire/548/consumer\\_payment\\_methods](http://www.markettest.co.uk/market-research-questionnaire/548/consumer_payment_methods)
- [HTTPS://www.surveymonkey.com/r/LQCX7Q8](https://www.surveymonkey.com/r/LQCX7Q8)
- [www.icommercial.com/open-access/study-of-consumer-perception-of-digital-payment-mode.pho?aid=86419](http://www.icommercial.com/open-access/study-of-consumer-perception-of-digital-payment-mode.pho?aid=86419)
- [www.google.com](http://www.google.com)
- [www.bankbazaar.com](http://www.bankbazaar.com)

## SIGNIFICANCE OF SHATKRIYAKAL IN THE MANAGEMENT OF VRANASHOPHA

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Medical Officer (IM)<sup>2</sup>, Institute of Medical Sciences, Banaras Hindu University, Varanasi**Abstract**

In Ayurveda aetiopathogenesis of a disease i.e. progression of a disease is explained under the heading “shat-kriyakal” viz. *sanchaya*, *prakopa*, *prasara*, *sthanasanshraya*, *vyakti*, and *bheda*. These six stages are basically the six occasions for a clinician to treat the ailment before it reaches to severity. It conceives that at every stage the disease can either be aborted or cured without leading to the successive stages with the help of proper and needful treatment. Thus, the concept of shat-kriyakala is helpful in diagnosis, prognosis, prevention and treatment of diseases and it was described by Sushruta in the context of *vrana* (wound) and *vrnashopha* (inflammatory swellings). Present article reviews the significance of shatkriyakala in the manifestation and management of *vrnashopha*.

**Keywords:** *Vranashopha*, *shat-kriyakala*, inflammatory swellings, *shashti upakrama*, *vrana*.

**Introduction**

Inflammation or swellings are described in Ayurveda by the term *shotha*. It is very wide term used for both local as well as internal organs' swellings and inflammations. *Shvayathu* and *shopha* are the other terms used in *samhita* to denote an unnatural elevation of a part or whole of the body. Detailed description of *shotha*, its classification, symptomatology, complications and management is mentioned in *Charaka samhita* also but as far as its surgical aspect is concerned, it is well defined by *Sushruta*, the father of ancient Indian surgery. *Sushruta* has defined *shopha* as a localized swelling in any part of body involving the skin and the underlying flesh which may be even or uneven, massive and knotty or nodular in consistency. As per the pathogenesis is concerned, it is described that the vitiated *vata dosha* first displaces *kapha*, *pitta* and *rakta* and pushes them to different channels of the body. Further, these morbid elements obstruct the path of *vayu* and causes accumulation of *kapha*, *pittta* and *rakta* in between *twak* (skin) and *mamsa* (muscle) which results in a swelling or *shopha*. *Sushruta* again cautions that differentiation should be made from other clinical entities such as glandular enlargements, abscesses etc. which are also associated with a swelling<sup>1</sup>. As far as the classification is concerned, *Charaka* mentioned three types of *shotha*; *vataja*, *pittaja* and *kaphaja*<sup>2</sup> while *Sushruta* mentioned six types of *shopha*; *vataja*, *pittaja*, *kaphaja*, *sannipattaja*, *raktaja* and *agantuja*<sup>3</sup>.

The production of any disease or lesion depends upon three factors; *nidana* i.e. the etiological factors and circumstances, *dosha* i.e. the body humors or forces and the *dushya* i.e. the tissue components. According to the theories of Ayurveda, the imbalanced state of *doshas* leads to pathogenesis of the disease. *Sushruta* believed that the process of the pathogenesis has a definite sequential pattern, consisting of six stages or what may also be called as the six occasions for the treatment called as *shat-kriyakala*<sup>4</sup>. He conceives that at every stage, the disease can either be aborted in its progress or cured without leading to the successive stages with the help of proper management. If the vitiated *doshas* are managed at the earliest, they do not progress to the further stages of pathogenesis, otherwise in the later stages they would become more and more severe and harmful<sup>5</sup>. Hence, the concept of *shat-kriyakala* describes the mode and the stages of development of a disease in particular. This article discusses the concept and significance of *shat-kriyakala* in the manifestation and management of *vrnashopha*.

**Shat-Kriyakala and Vranashopha**

1. **Sanchaya Awastha** (Stage of Accumulation) – It is the budding stage of disease wherein the vitiated *doshas* accumulate or intensify at their own site. *Dalhana*, the commentator on *Sushruta samhita*, has defined this stage as of intensification of *doshas*. At this stage, the symptomatology is usually vague and ill defined. Generally, there is malaise, satiety, decreased appetite, lethargy with a sense of heaviness in body and distaste develops towards the factors that may cause *dosha* accumulation<sup>6</sup>. This is the first sign that should gain the attention of a physician.
2. **Prakopa Awastha** (Stage of Aggravation) – In this stage, the previously accumulated *doshas* get excited and aggravated though they remain within their own sites. *Doshas* (*vata*, *pitta* and *kapha*) have their own causes of vitiation and this phase is stated to be characterized by the symptomatology specific to the *doshas* involved. There may be abdominal (cramping) pain, flatulence (due to *vata*), heart-burn, sour eructation, thirst (due to *pitta*), nausea with aversion to food (due to *kapha*). This is the second stage of the pathogenesis

of a disease<sup>7</sup> which gives a clinician a second opportunity to learn that vitiation of *doshas* is progressing and requires treatment to stop their further progression.

3. **Prasara Awastha** (Stage of Dissemination) – The term *prasara* means to spread out of the boundaries. At this stage, the previously excited *doshas* accumulate and aggravate to such an extent that they leave their original seats in the body and extend to other parts. Thus, they overflow the limits of their respective sites. The manifestation of this stage is again characterized by the *dosha* specific symptoms such as flatulence due to *vata*, feeling of thirst, burning sensation in the throat and body due to *pitta* and anorexia, indigestion, lethargy and vomiting due to *kapha*. This progressive aggravation of *doshas* may involve one, two or all the three *doshas* which may even involve *rakta* with them and expand all over the body in all the directions<sup>8</sup>. This is the third stage of pathogenesis of a disease or the third opportunity for treatment to abort the disease process.
4. **Sthana-Samshraya Awastha** (Stage of Relocation) – It is the fourth phase of *shat-kriyakal*, which is the stage of relocation or allocation of *doshas*. The word *sthana-samshraya* refers to localisation at some place. In this stage, the aggravated and spreading *doshas* interact with a particular *dushya* (which is said to be prone to a particular disease due to *kha-vaigunya*), get localized there and express the prodromal symptoms pertaining to a particular disease. The nature, site and the degree of manifestation of the disease is decided by the factors such as *nidana*, the *doshas* vitiated, the *dushyas* affected, and the *ashaya* where the *sthan-samshraya* or localization of the *doshas* has occurred<sup>9, 10</sup>.
5. **Vyakta Awastha** (Stage of Manifestation) – *Vyakta* means which can be visualized. In this stage, well differentiated and clear symptoms of a disease appear. *Dalhana* has called this stage as the stage of manifestation of disease. In this stage, clinical features are well produced and one can easily identify and differentiate the particular disease<sup>11</sup>.

In case of *vranashopha*, the disease may manifest in three stages; *amawastha* (stage of early inflammation), *pachyamanawastha* (stage of true inflammation) and the *pakwawastha* (stage of suppuration) with each have its own symptoms. While the *amawastha* is characterized by a mild localized swelling with mild pain and induration and a little rise in local temperature, the *pachyamanawastha* manifest with localized pain of varying degree and nature, burning sensation, skin discolouration and systemic features like pyrexia, anorexia and thirst. During *pakwawastha*, the symptoms of a well formed abscess appear like wrinkling of skin, fluctuation due to pus, pitting on pressure, itching etc.<sup>12</sup>

6. **Bheda Awastha** (Stage of Disruption or Complications) – The last stage of *shat-kriyakala* is defined as the stage of *updrava* i.e. complications which may occur if the disease is not treated in the previous stage. If not treated properly even in this stage, the disease becomes incurable<sup>13</sup>.

If a *vranashopha* or abscess is not attended even in the *pakwawastha*, it may either burst outside with drainage of pus and convert into an ulcerated lesion or may extend to the deeper tissues forming sinuses or fistulae and become difficult to treat<sup>14</sup>.

### Management of Vranashopha

The management of *vranashopha* should aim at to manage it in the early stage to avoid suppuration and more tissue harm. *Sushruta* has described seven principle measures for the management of inflammatory lesions<sup>15</sup> (Table 1). Apart from this, the initial twelve procedures of *shashti upakrama* (the sixty therapeutic principles or measures for wound management) have also been described for the management of *vranashopha*<sup>16</sup>, as it is often the preceding stage before the formation of a wound or ulcer. If we analyze carefully, these twelve procedures as well as whole of the *shashti upakrama* may be incorporated in the seven measures described below.

1. **Vimlapana** – It means a massage with gentle pressure over the indurated swellings with mild pain which denotes the stage of *amavastha*. It should be preceded by the local anointing (*abhyanga*) and sudation (*swedana*). These procedures improve the local circulation and helps in relieving the inflammation.

According to *Dalhana*, the procedures of *aptarpana* (absolute or relative abstinence from food), *aalepa* (application of local soothing pastes) and *parisheka* (spraying of liquid medicaments) described under *shashti upakrama* may also be included in this measure. While *apatarpana* tend to pacify the vitiated *doshas*, *aalepa* and *parisheka* are used to allay the pain and burning sensation in the lesion<sup>17</sup>.

2. **Avasechana** – *Avasechana* means the elimination of *vikrit doshas* (i.e. the pathogenic factors) from the body. This includes the measures like *visravana* (therapeutic bloodletting), *vamana* (emesis therapy) and *virechana* (purgation therapy). The therapeutic bloodletting decreases the local congestion and the local

pooling of inflammatory cytokines and thus relieves the inflammation and prevents its suppuration. While *vamana* is indicated in *kaphaja* lesions, *virechana* is indicated in *pittaja* or chronic lesions<sup>18</sup>.

3. **Upanaha** – This includes the use of poultice (*upanaha*) to relieve the *amashopha* or to induce suppuration in the *vidagdha* or *pachyamana shopha*. This measure also includes the application of medicines of hot potency like Moringa oleifera, sesame, mustard etc. (*pachana*) to induce suppuration in the *vranashopha* which does not relieve by the measures mentioned above<sup>19</sup>.
4. **Patana** – When the inflammatory lesion suppurates by itself or by *upnaha* or *pachana*, it requires surgical drainage by a small incision (*bhedana*) or completely laying it open (*patana*) to clear the pus and the other debris and may involve the use of other surgical procedures also. This results in the formation of a wound or ulcer.
5. **Shodhana** – After a wound or ulcer is resulted, it may either heal by itself after surgical drainage or it may require dressing with antiseptic or wound cleansing drugs as the wound will not heal if it is not clean. Several drugs and preparations have been advised by *Sushruta* for *vrana shodhana*.
6. **Ropana** – Once the wound is converted into a clean wound, the medications and drugs having wound healing property like *panchavalkala*, honey, sesame, neem etc. are used to dress the wound. These *shodhana* or *ropana* drugs may be prepared in the form of seven pharmaceutical preparations<sup>20</sup> viz. decoctions, powders, concentrates, medicated wicks or pastes or the ghee or oil based preparations depending upon the nature and character of wound bed.
7. **Vaikritapaham** – Wound or ulcer usually heals with a scar formation which may sometimes pose cosmetic problems in being hypertrophied, weak, devoid of hair follicles, depigmented and/or densely pigmented. *Sushruta* also gave due consideration to these and prescribed some cosmetic measures to treat these complications and restore the normalcy to the scar. The process of cosmetic corrections was termed as *vaikritapaham* and it is a special contribution of *Sushruta* to the surgical sciences.

## Discussion

The principles and practices of Ayurveda revolve around the theory of *tridosha* i.e. *vata*, *pitta* and *kapha*. They have been told to maintain the physiological processes of the body in their balanced state and to cause diseases in their vitiated states<sup>21</sup>. The process of development of disease involves various degree or stages of vitiation of *doshas* and their interaction with the body tissues or the *dushyas* resulting in manifestation of various symptoms. This six-stage process of development of disease i.e. the pathogenesis of disease is termed *shat-kriyakala* in Ayurveda. Each stage of this sequential process produces symptoms which need attention and treatment to disrupt this process to go to further stages. The symptoms produced in the first three stages, until the *doshas* have not localized to a particular site, are vague symptoms produced by *doshas* only and are not specific to a particular disease. Such symptoms are usually ignored by both the patients and the clinicians and result in manifestation of the disease. During the fourth stage when the *doshas* get localized to a particular part of body, the symptoms that manifest are not that of the involved *dosha* only but also that of the involved *dushya* and constitute the prodromal stage of any disease. Many a times, these symptoms are also ignored by the patient and the clinicians. They only attend and treat a disease in its *vyakta* or *bheda awastha*. The whole purpose of describing the concept of *shat-kriyakala* by the ancient teachers of Ayurveda is to emphasize upon to understand the importance of even these earlier stages and vague symptoms in the process of management of a disease. One must not wait until the *vyakta* or *bheda awastha* to treat but he/ she must be attentive even to small, vague and non-specific complaints of the patient as well.

*Vranashopha* is the preceding stage of *vrana* (wound or ulcer). Following the principles of *shat-kriyakala*, *Sushruta* has given much importance to the management of this prodromal stage also. It is evident that a *vranashopha*, if not treated at earlier stage (*amawastha*), will progress to become an abscess which may get complicated by the formation of ulcerated lesions or the deep seated sinuses or fistulae if not treated properly. *Sushruta* described seven principle measures to treat and manage various stages of *vranashopha* or *vrana* in the later stages which also follow the principles of *shat-kriyakala* i.e. the six occasions of treatment of a disease.

## Conclusion

*Shat-kriyakala* is very unique concept of Ayurveda which not only explains the pathogenesis of a disease but also reminds the clinician about the importance of an early and prompt diagnosis and treatment to avoid complications. If treated at the early stages, the disease does not progress further. Keeping these principles in mind, *vranashopha* may be treated or managed carefully and the complications like the formation of a chronic wound, sinuses or fistulae may be avoided.

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## A CONCEPTUAL FRAME WORK ON IMPACT OF INFORMATION TECHNOLOGY ON HUMAN RESOURCE PRACTICE

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### ABSTRACT

*In nowadays top leaders fully realize the power of technology tools for reaching business targets. The utilization of technological tools helps not only to fulfil defined company's goals but to optimize the work processes as well. Trends and results of the contemporary studies constantly confirm contribution of the technological tools in Human Resources (HR) area i.e. to accomplish assigned HR tasks by using the source of technological capabilities. There is no underestimation of importance and effect of the Human Resources management at all. Lately, management of Human Resources and its needs are becoming the centre of the attention of each individual employer in every organization. The orientation of company on human resources starts to be one of the key tasks of a strategic management and Human Resources play an important role in all strategic decisions.*

*Keywords: Information technology, Human Resources management, company's goals, recruiting, Human Resources development.*

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### INTRODUCTION

It is known that all departments, including human resources management work to achieve success and overcome the problems and crises, through scientific bases that lead to success and the adoption of correct ideas that lead and achieve scientific methods. Thus human resources management is the most important functional departments in the organization because they are dealing with the most important production and more resources of the Organization elements susceptible to changes of the internal environment or external, so organizations began to draw attention to human resources management, it is that department whose main work around the individual worker from the moment of searching for it in the labour market until the moment of the end of its relation to the organization through retirement, resignation, dismissal, or stop the services, but some writers go to expand the activity of human resources management.

Information technology has invaded various aspects of administrative work in business organizations and we do not find an organization devoid of databases of different administrative functions. Databases have become a modern organization's necessities and without it the Organization cannot continue to operate. Where human resources management in both the public and private sectors of the world as a whole faces enormous challenges on the threshold of the twenty-first century.

The traditional HR activities have started to become multi-dimensional. Apart from completing the administration work efficiently, HR professionals should have an adequate understanding and knowledge about their business, doing a good job in service work, and supporting the development of organizations. The roles of HR professionals are diversified to meet the multi-dimensional activities, while the roles are dissonant at the same time.

**E-HR Practice Goals:** The objectives of the application of Electronic Human Resources Practices system (E-HR) are:

1. Reduce costs by streamlining human resource management processes
2. Improve efficiency by improving the services provided by the Human Resources Management
3. Improve the strategic direction of the Human Resources Management department and thus convert human resources management to a strategic partner of the organization
4. Facilitate things, management and staff
5. Compilation, storage and dissemination of information about the organization staff. The researcher believes that the most important objectives of the E-HR system is to facilitate the performance of the functions of human resources, which leads to saving time and effort of the human resources department staff, and improve the services provided, reduce paperwork and eliminate the complexities of daily work. Further, collecting data and made it available to the decision-makers with high speed and accuracy.

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**INFORMATION TECHNOLOGY AND HUMAN RESOURCE**

The mobility of technical IT skill shows that such skills are explicit and easily modifiable, and thus cannot generate competitive advantage. IT managerial skills, which are a skill that is very tacit by nature, developed through years of understanding or realizing the ability of IT and requirements of business can become a source of sustained competitive advantage according to the researchers. Bhardwaj (2001) linked the IT capability with firm performance. IT capability according to her is the ability to mobilize and deploy IT-based resources in combination or co-present with other resources and capabilities. She classified IT resources into three categories: Firstly, IT infrastructure: This is simply the physical IT infrastructure that forms the core of the firm's IT assets. She criticized Mata et al.'s (1996) work that IT person cannot be a source of sustained competitive advantage. She mentioned that such view is nothing but reductionist that seeks to value the infrastructure solely in terms of individual components, ignoring the synergistic view of benefits from integrated systems. The author compares integrated versus non-integrated IT and mentioned that the non-integrated category constrains an organization's choices and clearly has little impact on a firm's overall performance. Secondly, human IT resources: It comprises both Technical and managerial skills. She agreed with Mata et al.'s view that managerial skills are tacit in its nature and cannot be codified. Some of the core functions of the Human IT resources were: integrate IT with business planning processes more effectively, develop reliable and cost effective applications that support business needs of the firm faster than competition, communicate and share work with other business units more efficiently, and anticipate future business needs of firm, innovate valuable new product features before competitors. Thus we see that it is from the Human IT resources that IT can start to become imperfectly imitable by making the link between resource and performance ambiguous and through sharing and collaboration construction of a socially complex procedure. Thirdly, IT enables Intangibles: Citing Brynjolfsson and Hitt (1998), Bhardwaj mentions that usage of IT can result in improved customer service, enhanced product quality, increased market responsiveness and better coordination between buyers and suppliers. The author integrates research findings and classified the Intangibles in three categories: customer orientation (IT-enabled relationship management through CRM), development of knowledge assets and synergy, that that is ability to collaborate and among departments (groupware systems). All these researchers use resource based view theory to show how information systems are used to improve firm performance. They have not investigated how it affects human resource practices though. This study will tackle this aspect.

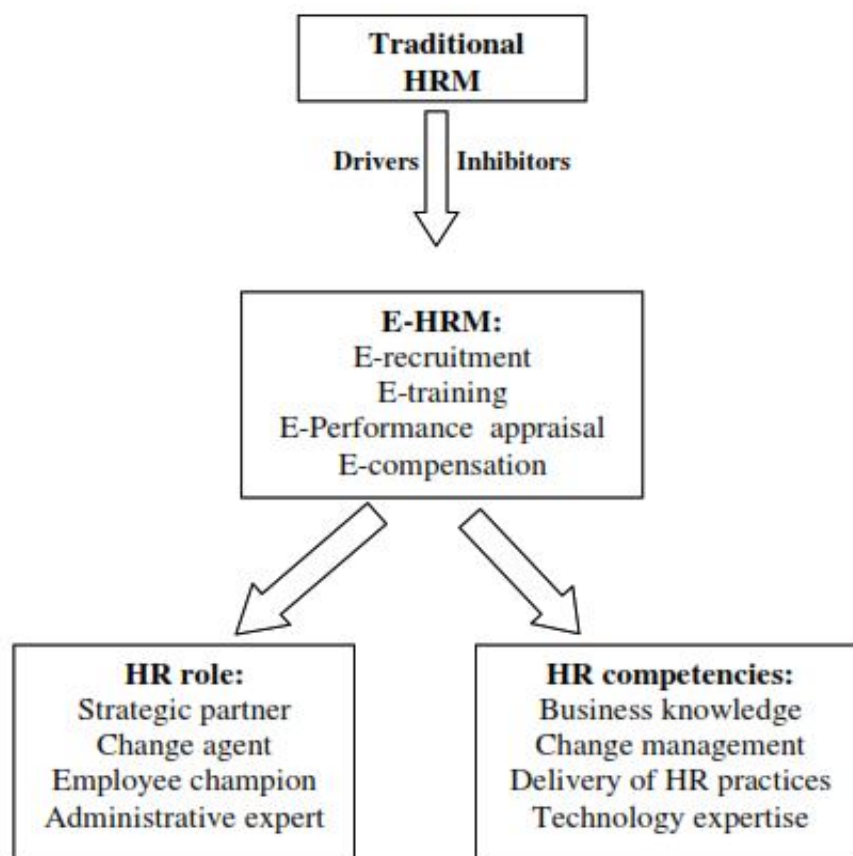
**CONCEPTUAL FRAME WORK OF E-HR**

E-HRM has been observed from different perspectives (for i.e., E-HRM practices – E-recruitment, E-training, E-Performance appraisal, E-compensation) and especially the impact of HR technology on HR professionals' competencies and roles has been focused on to partly answer the research question, in theory. Four main drivers leading to HR transformation, namely, the need of cost reduction, customer satisfaction, strategic business needs and technology development have been discussed specifically in the previous part which is followed by a presentation of inhibitors to the same change. HR facing many considerable barriers such as the shortfall of staff expertise, the availability of technology, the lack of support from the top management level and the difficulty in dealing with organizational and national cultures when attempting to reengineer its function (for i.e., adopting E-HRM strategy).

Much discussion in the academic literature refers to the potential of E-HRM transforming HR role and improving HR competencies, but few practical evidences support the idea. Academic literature concurs that further research will be needed to explore the actual impact of E-HRM. However, the introduction of E-HRM will undoubtedly lead to a devolvement of responsibilities from HR to line management. To respond to the changing role, HR professionals should be equipped with a new package of competencies including knowledge of the business, delivery of HR practices, personal credibility, change management and technology expertise.

The framework of the study as shown in Figure below illustrates the link between HR technology and HR roles and competencies.





### TECHNOLOGY AFFECTS HRM PRACTICES

Information technology plays a great role in this modern era of machines. It replaces humans with machines and efforts with electronic signals. Nowadays, informational technology systems are used by almost every business including leading entrepreneurs for the departments to run effectively and smoothly. Entrepreneurs have accredited the vitality of information technology tools in achieving business targets. It also helps in performing operational tasks efficiently. Human Resource Management consists of activities such as recruiting, training, developing and rewarding people in the organization. HRM must remain competitive by providing constant educational and training programs for the personal and professional development of the employees of the organization.

Like other departments, nowadays Information Technology is contributing a lot in the achievement of competitive objectives and fulfilment of personnel policies of the organization. IT enables the organization to improve its internal processes, core competencies, relevant markets and organizational structure as a whole.

It can contribute to fulfilment of business strategy in the case of HRM in order to push the business forward towards quality and to gain the competitive advantage in the market. Numerous researches declared that the HR goals, objectives and policies can be achieved moderately and efficiently by the implementation of HR information technology systems. Their utilization mainly in the HR department of the organization to attain defined key performance indicators can increase the efficiency of the business. The key to success is that you must be aware of the relevance of information system and objectives of the organization.

Information Technology may have greater impact on organizations that exist in a dynamic environment. Development in the technology is an important activity for the innovation process within the business. Technology may also include acquired knowledge. In the context, all activities may have some technical content, even if this is just acquired knowledge and results in greater technological advancement. This will lead to greater efficiency and effectiveness of the Human Resources. Hence, utilizing IT application for primary as well as secondary Human Resource tasks such as database management and advances recruitment system will increase the efficiency of the business. Innovation in Human Resource Management can manifest itself in a number of ways such as:

1. To identify solutions quickly and flexibly during a negotiation
2. To identify new ideas for products and services

### 3. To identify new markets

One of the leading management theorists of her time, Rosabeth Moss Kanter, argued that the re-birth and success of business organizations would depend upon innovation (developing new products, introducing new services, and operating methods), entrepreneurship (taking business risks) and participative management (encouraging all employees to participate in making decisions about work).

Some of the important factors are:

**1. New skills required:** As new technologies are developed and implemented, there is an urgent need to upgrade existing employee skills and knowledge if the organization wants to survive and flourish in a competitive world. Additionally, there will be growing demand for workers with more sophisticated training and skills especially in emerging 'hot' sectors like telecommunications, hospitality, retailing, banking, insurance, biotechnology and financial services. For example, service sector employee requires different skills than those utilized in manufacturing. They need strong interpersonal and communication skills as well as the ability to handle customer complaints in a flexible way.

**2. Downsizing:** New Technologies have decimated many lower end jobs with frustrating regularity. Increased automation has reduced employee head counts everywhere. The pressure to remain cost effective has also compelled many a firm to go lean, cutting down extra fat at each managerial level. The wave of merger and acquisition activity, in recent times has often left the new, combined companies to downsize operations ruthlessly. The positions that have been filled up with workers possessing superior technical skills and knowledge has also tilted the power base (in many emerging industries) from management to technical workers. It is not uncommon today for managers to have limited understanding of the technical aspects of their subordinates' work. Managing the expectations of knowledge workers is going to be major area of concern for all HR Managers in the years ahead.

**3. Collaborative work:** Technological change has resulted in hierarchical distinctions being blurred and more collaborative teamwork where managers, technicians and analysts work together on projects. Team based incentive plans have also made it necessary for all classes of employees to work in close coordination with each other.

**4. Telecommuting:** The rapid advances in technology have led to the relocation of work from the office to the home. Telecommuting has become the order of the day where employees work at home, usually with computers and use phone and the Internet to transmit letters, data and completed work to the home office. Companies have been able to increase their applicant pool through this mode and employees have also been able to live further away from cities and gain considerably due to savings in rents, transportation etc.

**5. Internet and intranet revolution:** Internet and information technology have enabled companies to become more competitive by cutting costs. Manufacturers, bank, retailers, and you name anything have successfully harnessed computer technology to reduce their costs and deliver what satisfying goods and services to customers at an amazing speed. Even in HR, internet and intranets are being used to handle training, benefit administration, performance management and out placement functions, in recent times. The cumulative impact of new technology is so dramatic that at a broader level, organizations are changing the way they do business. Use of the internet to transact business has become so commonplace for both large and small companies that e-commerce is rapidly becoming the organizational challenge of the new millennium. Managing virtual corporations and virtual workers in this technology driven world is going to pose tough challenges for HR Managers in the years ahead.

### CONCLUSION

In conclusion, E-HRM is a powerful vehicle to drive change. The near future will see a considerable number of changes in HR function though the speed of change might be slower due to objective causes from the company and subjective causes from the business context. Technology will not in itself create a strategic HR unless it is backed up by the behavioural changes from HR professionals and line management.

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**AN ANALYSIS OF THE STRESSORS FOR STUDENTS****Dr. KUSHAL DE**Assistant Professor, Dhruba Chand Halder College, South 24 Parganas

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**ABSTRACT**

*The students in schools today live in a state of perpetual insecurity due to conflicting expectations of parents, teachers, friends, family and society. Stress therefore can be said to be a normal part of student's life as they have to address to conflicting demands from various stakeholders. The present study tries to analyze the various stressors that are present in the students' lives by conducting a cross-sectional survey research on 910 students studying in Class X in Government Aided Secondary Schools representing the population and chosen from schools located in Kolkata and its adjoining districts namely Howrah, South 24 Parganas and North 24 Parganas. The stressors identified were Academic Stress due to performance anxiety, Academic Stress due to lack of self confidence, Academic Stress due to parental expectations, Academic Stress due to peer pressure, Academic Stress due to social/ personal relationships, Academic Stress due to financial condition and Academic Stress due to school environment. It is found from the study that all the identified category of stressors have impact on the student's Academic Performance as the score obtained for all categories are above 2.4. The scores range from 2.42 to 2.72 which clearly show that all stressors cumulatively impact a student's life.*

*Keywords: Academic Stress, students, performance, anxiety, peer pressure.*

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**INTRODUCTION**

It has to be accepted that in modern times, students in schools live in a state of perpetual insecurity due to conflicting expectations of parents, teachers, friends, family and society. The students have to perform in every sphere of life and satisfy various stakeholders in their lives to a considerable extent. This pressure of competition usually burn down the students emotionally, mentally and psychologically; and this calls for enhanced emotional support for the student when the challenges get tougher. The breakdown of the joint family system on the one hand and the homemaker-breadwinner model within the family on the other has deep ramifications on the emotional lives of the students. The nuclear family of present times results in lesser avenues for emotional gratification of the young especially when conflicting expectations are showered on them, leaving them helpless and confused. Lesser number of siblings at home and absence of mothers from homes due to employment and other compulsions has compounded the problems on young students and they have to address the challenges levied on them from various quarters of the society by themselves with their limited resources and means. Stress therefore can be said to be a normal part of student's life as they have to address to conflicting demands from various stakeholders.

Stress among the students is an important topic of discussion among the academic circle and the society. Many scholars have investigated the issue from various angles and carried out extensive research but it can easily be observed that high stress among students remain; and thus it can be concluded that the topic need more focus (Busari, 2014). The sources of stress are known as stressors and the students face various stressors which relate to all aspects of their lives including stress from the family, stress from friends, stress from society, stress from the school, stress due to interpersonal conflicts, financial stress, Academic Stress etc. The sources of stress in modern days are endless and keep on increasing with changing times but the means available to combat or cope with these stressors are few and they are also limited for a student. The helplessness and depression among the students can be comprehended by watching the news in print media and the internet whereby it is reported that cases of substance abuse, gender abuse, criminal activities, stress related ill health and suicides are rising among young students every year.

Students are stressed due to interplay of various factors in their lives but close review of various stressors would reveal that out of all stressors faced by them, Academic Stress emerges as the primary cause of concern (Rangaswami, 1995). Academic Stress encompasses all aspects in students' life which has the potential to jeopardize their Academic Performance and include all aspects relating to day to day activities of students like too many assignments, competition with other students, failures, lack of money, poor relationship with other students or teachers, problems at home with family (Busari, 2014). Chronic stress among students is usually associated with absence from classes, nervousness, tension, ill health, unstable behaviour and a decline in Academic Performance. Thus, stress is usually deemed to be detrimental for any individual's performance and assumed by commoners to reduce one's performance capacity. This has also been proved empirically through a number of researches (Clark and Rieker, 1986). Stress is usually condemned as harmful for organisms but it has to be understood that the adverse effects of stress are felt when the level of stress is excessive. Research has

shown that stress can also have positive effect on performances and Bataineh (2013) stated that all stresses are not harmful for humans as 'Stress encourages people to do things. It gets them off the chairs, think about things differently and find solutions to problems. Stress makes people aware and sensitive to what others think of their action and make them conscious to perform better.' Thus, a mild dose of stress is necessary for an individual to break free from his lazy attitude and to get his optimum performance.

### **OBJECTIVES OF THE STUDY**

The present study is based on the premises that stress is present in the present day educational system and the students severely suffer in the modern educational setup due to it. It is accepted that burnout at an early age leads to depleted psychological growth, emotional maturity and finally creates an unstable society. The present study tries to analyze the various stressors present in the formal schooling system from a representative sample of 910 students studying in Class X and due to appear in their school final examination. The main objectives of the present study are as follows:

1. To identify the various stressors that regular students face in the formal educational system.
2. To rank the various stressors based on their intensity and impact on the students.
3. To pinpoint the three most severe psychological stressors that the students have to deal with.

### **DATA AND METHODOLOGY**

The present study was conducted on cross-sectional survey research framework. A good number of sample representing the population are required to collect information from the target population and accordingly schools were chosen from Kolkata and its adjoining districts namely Howrah, South 24 Parganas and North 24 Parganas. 910 students studying in Class X in Government Aided Secondary Schools were interviewed for the purpose of study. The students were roughly from the age group of 15 to 17 years. The students were interviewed with the help of a close ended questionnaire containing 30 questions of various stressors that the students usually face in schools. The interviews were taken just before the selection test examination (the examination which decides if a student would be allowed to sit for the school final examination) to ensure that they face academic pressure in the said time of the year. The questionnaire Jiandong (2012) was used as guide to develop the questions. The questions were developed by the researcher in consultation with experts in this field. The questions were initially developed in English. The Bengali version was later developed using translation technique with the help of bilingual (Bengali and English) experts. The response format was a 4 point Likert Scale ranging from 4 (Strongly Agree) to 1 (Strongly Disagree). A higher score indicated a higher level of stress and vice-versa. Each student was asked to fill in the questionnaire by himself/ herself. Any requisite explanation or clarification of doubts was done by the researcher as and when demanded by the students. Each class took approximately 45 minutes or one period to fill in the whole response sheet. A pilot study to verify the items selected for the schedule was conducted on the similar types of sample under the study. A high correlation between the test retest (0.78) results (over a period of one month) indicated the reliability of this tool.

### **FINDINGS FROM THE STUDY**

A total of 30 questions were identified from the responses which could be distinctly classified as measuring 7 latent variables of stress and being possible indicators of Academic Stress of the students. The stressors were coined based on its nature and its impact on students' life and they were distinctly named. These were Academic Stress due to performance anxiety, Academic Stress due to lack of self confidence, Academic Stress due to parental expectations, Academic Stress due to peer pressure, Academic Stress due to social/ personal relationships, Academic Stress due to financial condition and Academic Stress due to school environment.

The four point Likert Scale was used to draw the responses and a higher score on the scale would indicate that the stress was more severe for the student and vice versa. Thus, a student answering all the questions could score a minimum of 30 and a maximum of 120 from the questionnaire used for survey. The responses of 910 students were rearranged in excel sheet to correspond to the 7 latent variables of stress identified for the purpose of the study. The total score obtained by each student in a specific class of stressor was obtained and it was divided by the number of questions in that particular segment of stressor. Each student thus obtained 7 scores representing the seven identified category of stressor. The cumulative score of 910 students were found and the mean score for each category was derived by dividing the cumulative score by 910.

Based on the scores these stressors were ranked in order of severity and the final result is displayed below:

Subjects	Serial No.	Competency	Mean Score and Stress Ranking
<b>Academic Stress</b>	1	Academic Stress due to Parental Expectation	2.7221 <b>Rank 1</b>
	2	Academic Stress due to Performance Anxiety	2.6316 <b>Rank 2</b>
	3	Academic Stress due to School Environment	2.6197 <b>Rank 3</b>
	4	Academic Stress due to Peer Pressure	2.5557 <b>Rank 4</b>
	5	Academic Stress due to Social/ Personal Relationship	2.5472 <b>Rank 5</b>
	6	Academic Stress due to Lack of Self Confidence	2.5442 <b>Rank 6</b>
	7	Academic Stress due to Financial Condition	2.4269 <b>Rank 7</b>

The various Academic Stressors were analyzed and ranked according to their level of severity and impact on the sample surveyed. It was found that Academic Stress due to Parental Expectation is the most severe stressor (Rank 1) among the sample which means that the students are heavily stressed due pressure from parents. Coming from middle or lower middle class families, the students shouldered huge expectations from their parents and often felt burdened by this. They at the tender age have realized the value which their families held for their education and they desperately wanted to satisfy their parents' expectations from them. Academic Stress due to Performance Anxiety is the second most severe stressor (Rank 2) on the sample students which means that the students are heavily stressed due to anxiety about the outcome of their performance. The students were due to appear for their school final examinations and they realize that the academic grades that they obtain would shape their entire career and so performance anxiety occupies the second most important position as stressor in their lives. The school environment also imposes stress on the sample as Academic Stress due to School Environment is found to be the third most significant stressor (Rank 3). Studying in Government Aided schools which are usually overcrowded, the students find it difficult to clarify their doubts. Lack of proper educational environment presents considerable threat to the students. It can also be presumed that proper care and support system is missing in the institutions surveyed. The other stressors in order of their significance are Academic Stress due to Peer Pressure (Rank 4), Academic Stress due to Social/ Personal Relationship (Rank 5), Academic Stress due to Lack of Self Confidence (Rank 6<sup>th</sup>) and Academic Stress due to Financial Condition (Rank 7).

### CONCLUDING REMARKS

It is found from the study that all the identified category of stressors have impact on the student's Academic Performance as the score obtained for all categories are above 2.4. The scores range from 2.42 to 2.72 which clearly show that all stressors cumulatively impact a student's life. It is accepted that a mild stress enhances performance but higher levels of stress are detrimental to performance. Higher stress also causes a host of other physical, mental and emotional problems leading to a degradation of the quality of human life.

The students are found to be over anxious regarding their results and seem to be concerned only of the outcome without enjoying the educational process. Parents' expectations and performance anxiety occupy the first two positions as stressors in their lives. School environment is also found to be an important stressor in the students' lives and is found to occupy third position. It is also interesting to note that the students coming from middle/ lower middle class families rank their financial condition to be the least probable cause of stress. This also shows that the parents were successfully able to manage the educational expenditures of their wards.

In conclusion, it can be said that the study throws light on one of the most important feature of an adolescent student's life and if the issue is properly addressed, many untoward incidents like depression, abuse and even suicides can be arrested leading to a better quality of life and hence a healthier society.

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- **Unpublished dissertation/ paper:**

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