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WHAT'S WEIGHING THEM DOWN? AN EXPLORATORY STUDY ON OPPORTUNITIES AND CHALLENGES OF WOMEN ENTREPRENEURS

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ABSTRACT

Recent years have witnessed a growth in women's entrepreneurship. Women entrepreneurship has broken the shackles of age-old traditions and is exploring new avenues of economic participation. The women entrepreneurs take the initiative to scan the environment for opportunities, conceive a business idea, test the feasibility of the idea, plan the setting of an enterprise and finally implement the business idea to set up an enterprise. In this process they face problems such as lack of access to productive resources, limited risk-taking ability, family responsibilities etc. They have to strive hard to make their presence felt in a predominantly male business world. The present study is undertaken with an objective to identify the problems and prospects of women entrepreneurship. The sample for the study consisted of 110 women entrepreneurs engaged in small businesses in Indore city. The responses were collected with the help of a structured questionnaire using a five-point Likert scale. The study explored six factors namely competency, demotivation, conducive, resilience, support and risk averseness. The study will be helpful to the Government and Entrepreneurship Development institutions for framing policies for the growth and development of women owned enterprises.

Keywords: Women Entrepreneurism, Shackles, Risk taking Ability, Perception, Challenges, and Opportunities.

INTRODUCTION

Entrepreneurship had been a more widespread phenomenon on a worldwide scale long before India started to take notice of its growth. As a matter of fact, our nation is viewed as one of the Asian nations that are par excellence with the rest in terms of expanding entrepreneurship. However, understanding of the route of entrepreneurship is only now gaining momentum in India. Women are the driving forces of the economy in most of developing Asian countries. There has been a continuous rise in the contribution of women in providing job opportunities in the business sector. Women are involved in enterprises at various levels, as entrepreneurs, managers, investors and owners. Women today are

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contributing their fullest towards the economic growth of the nation as with the help of education and technology. From the past few decades the growing interest of women towards opting for entrepreneurship as a career option has gained importance. These female entrepreneurs take the initiative to scan the environment for opportunities, conceive a business idea, test the feasibility of the idea, plan the setting of an enterprise and finally implement the business idea to set up an enterprise.

Since the 1950s, the Indian government has provided initiatives to boost indigenous entrepreneurship, including a government program of reservations and a subsidy system for university graduates. A significant step in this regard is creation of a specialized institution for creating awareness, and imparting training for development of entrepreneurship. The necessity for professionalism and entrepreneurship among women has arisen as a result of the worldwide ripples that a free and market-oriented economy is causing. Women entrepreneurs have surprised the world by accepting challenges and working against odds. Women have gloriously risen to challenges in times of crises and in times of immense emotional stress. Moving from infrastructure roles from the 1960s to managerial duties and responsibilities, they have demonstrated success in top management positions.

The role of women worldwide is undergoing a dramatic change. Women are now more confident, determined to achieve their goals in life, and they openly voice their concern apart from being independent in their approach. In practically every profession today—whether it be in the kitchen or the military—women and men share the leadership positions. Now acknowledged as a vital component of the workforce, working women are no longer a rare occurrence**.** Women are known to be more dedicated, innovative, determined and tackle challenges with the spirit of perseverance at their work place. Women entrepreneurship plays a very important role in making women economically self-dependent and provide new challenges for self-fulfilment.

LITERATURE REVIEW

With the passage of time women have made their presence felt in the male dominated world of entrepreneurship. They are performing exceptionally well in the conventional areas of

entrepreneurship as well as some specifically male dominated fields (Vinesh, 2014; Matharu and Juneja, 2021). The participation of women is seen in every field in this century. It is not that they are just actively participating but their performance in every field is remarkable. They are putting their best foot forward in every pitch across the world. However, it is observed that there are many factors that are still weighing them down. In a research project conducted by Rudhumbu et al. (2020) on 400 women entrepreneurs in Botswana to explore the challenges and opportunities facing them it was found that women entrepreneurs deal with a web of complex challenges that includes access to finances, lack of technical knowledge and trainings, difficulties to get financial assistance, highly competitive market and lack of market knowledge. It was further highlighted that having good entrepreneurial education can help them to overcome a lot of challenges.

In Asia the concept of women entrepreneurship is not new. Women-owned small and medium enterprises are on the rise in Asian developing nations. The enterprises contribute a major proportion of the total business across all industries. However, low level of education, challenges in the acquisition of funding, religious and cultural restrictions are a few challenges faced by the women entrepreneurs in the Asian countries as stated by Tambunan (2009). Self-employed women have their distinct identity as compared to the women employed on wages or salaries. These women are more enthusiastic as compared to other women in terms of attaining higher levels of education and skills required for up-scaling their business and adding to their revenues from business (Darrene et al., 2008).
Singh (2008) outlines the causes and governing variables that led to the introduction of women into entrepreneurship. In addition to describing the peculiarities of their enterprises in the Indian setting, he also discusses problems faced by women entrepreneurs. Lack of interaction with other business owners, lack of social acceptance of women as business owners, family responsibilities, gender-based discrimination, low networking, and low priority for lending loans to women entrepreneurs by the bankers were the some of the barriers faced by the women entrepreneurs. He proposed corrective actions including supporting microbusinesses, dismantling institutional frameworks, projecting and pulling for growth and winners' support, etc.

Jalbert (2008) in his study states that women business owners are significantly improving the state of the global economy, national competitiveness, and local commerce by

introducing innovative products. These entrepreneurs are competent enough for establishing and maintaining good networking and long-lasting relationships. They are capable of organizing effectively and are good communicators. Sensitivity to the environmental concerns and conservative attitude towards managing finances have made these entrepreneurs excel in their fields of business.

Women who operate their own business possess a special set of traits that foster their creativity and help them come up with novel concepts and methods. Focus on a goal, a high level of energy, personal motivation, being socially adept, good interpersonal skills, etc. are some of the traits (Greene et al., 2003). Women entrepreneurs encounter several challenges related to gender discrimination, personal characteristics, financial difficulties, business unit, context, and feminist perspectives. For the past many years the challenges faced by the women entrepreneurs are similar. A number of government institutions, private institutions and societies are playing a significant role by supporting the women entrepreneurs in overcoming the challenges faced (Shaikh et al., 2021). Still, if we investigate some of the recent studies we will find that the challenges still persist.

Basit et al. (2020) in their research conducted in Malaysia to identify the challenges faced by women entrepreneurs in 21st century, found that women entrepreneurs lack the major entrepreneurship competencies. This is due to lake of knowledge/skills. One of the reasons for the same can be lack of proper education opportunities. They state that many of the past research raised concern regarding the inequality in formal education and work-experiences with respect to gender. In this patriarchal society, it is often seen that women entrepreneurs also lack in other business aspects such as human capital. Further exploration found that emotional intelligence, gender stereotype, knowledge, and risk-taking behaviour along with family support are the major factors that impact the success of women entrepreneurs.

According to Shastri and Pareek (2019), one of the major reasons that held back women entrepreneurs is not getting enough recognition from society. There are still a lot of role conflicts existing in society, where women are being blamed of not taking care of the family enough if they get involved in their work. This leads to poor work-life balance. A study conducted by Yacus, Esposito, & Yang, (2019) also supports the argument that women entrepreneurs get less family support. They also found that women deal with more financial crisis and are generally successful in feminine based industries only.

Another study conducted by Agrawal et al. (2020) on identifying crucial factors for sustainable development of women entrepreneurship mentioned that women entrepreneurs need more business competencies so that they can learn more about the market, customer products and trends, and respond to the changing need of the market in the right manner. This is one of the biggest challenges and at the same time the biggest opportunity for them. As suggested by Kyrgidou et al. (2021) women entrepreneurs certainly need a conducive environment to grow and flourish. Though a lot of research talks about the opportunities and challenges of women entrepreneurs, not many studies elaborate on the differences in the challenges and opportunities faced by married and non-married women. Also, the present research is a humble contribution to dig deeper into the challenges and opportunities of Indian women entrepreneurs in this era.

OBJECTIVES

- To identify various opportunities and challenges faced by women entrepreneurs.
- To compare the differences in the perception towards various entrepreneurial factors of women entrepreneurs on the basis of marital status.

Hypotheses

H_{01}: There is no significant difference in the perception of married and unmarried women entrepreneurs towards Competency factor

H_{02}: There is no significant difference in the perception of married and unmarried women entrepreneurs towards Demotivation factor

H_{03}: There is no significant difference in the perception of married and unmarried women entrepreneurs towards Conducive factor

H_{04}: There is no significant difference in the perception of married and unmarried women entrepreneurs towards Resilience factor

H_{05}: There is no significant difference in the perception of married and unmarried women entrepreneurs towards Support factor

H_{06}: There is no significant difference in the perception of married and unmarried women entrepreneurs towards Risk Averseness factor

METHODOLOGY

The research is exploratory in nature and utilizes the survey methodology. The study sought to understand the perception of women entrepreneurs towards the prospects and

numerous obstacles that women entrepreneurs experience while starting or running their businesses as well as the differences in attitudes toward various entrepreneurial characteristics based on marital status. A sample of 110 women business owners were selected on the basis of purposive sampling technique.

Data for the study were collected with the help of a self-structured questionnaire comprising of 24 items using the Likert scale. The variables for the scale were arrived at after an in-depth review of the existing literature on women entrepreneurs.

The respondents were women small-scale entrepreneurs operating their own ventures in the city of Indore. The questionnaire consisted of two parts. Part A consisted of general information of women entrepreneurs like marital status, age, education level etc. Part B consisted of statements related to the various prospects and challenges faced by women entrepreneurs in the process of initiating and operating their ventures.

Cronbach's alpha was used to evaluate dependability of the measures. The reliability of the questionnaire in the present study was 0.782 (Annexure 2). Any value greater than 0.70 is considered as a reliable indicator and is satisfactory enough to validate the dependability of the variables. The Kaiser-Meyer-Olkin measure of sampling adequacy for the items under study was 0.872 (0.872>0.6), this indicates adequate inter-correlation with the Barlett's test of sphericity. This value is significant as less than 0.05.

Out of the total of 110 questionnaires distributed, only 102 responses were received. Out of the received responses two were discarded on account of being incomplete. Finally, 100 responses were considered for analysis of data. Data were collected for 24 items, and item-total-correlation was performed to determine which items significantly contributed to the stated objective. Three variables were found to be non-significant in the first iteration at the 0.05 level of significance. These variables were dropped. In the final scale, the remaining components were retained. Finally, the Principal Component Method of Factor Analysis was applied to the data. The Statistical Package of Social Science (SPSS 22.0) was used to analyze the data. The inter-relationships among the variables for identifying the challenges and opportunities for women entrepreneurs was determined with the help of Factor analysis. According to Pallant (2007) the selection of factor analysis is justified on account of its suitability for identification of correlation among the variables in a complex set of data. The factors were further subjected to varimax rotation with the help of Kaiser Normalization.

RESULTS AND DISCUSSION

The study explored six factors (Annexure 3). These factors explain the perception of women entrepreneurs towards the challenges faced and the prospects of entrepreneurship.

Factor 1: Competency is constituted of 5 items namely: There is sufficient moral support from the family, Can easily manage my work and family life together, Family always encourages me to do my best in business, Regularly update my knowledge with the help of available sources and Good bargaining and negotiation skills. In these items "There is sufficient moral support from the family" has the highest item load of 0.744. Total load of this factor is 3.151. Financing issues and work life balance emerge as the main challenges faced by the women in the process of initiation and operation of a business. Disturbance in the work life balance is seen as the major cause of failure of women led enterprises.

Nuthall (2006) states that the development and survival of any business, especially small business, is largely dependent on the competencies of entrepreneurs. While examining an array of competencies in women a significant linkage was observed between the performance of the business and entrepreneurial competence of the business owner (Lerner & Almor, 2002).

Factor 2: Demotivation is constituted of four items i.e. Many times have faced discriminate treatment in the society, Lack of adequate motivation for women entrepreneurs in the society, Society has negative attitude towards women entrepreneurs and There are fewer opportunities for women entrepreneurs. Among these items "Many a times I have faced discriminate treatment in the society" has the highest factor load of 0 .796. Total load of this factor is 2.899.

According to Matharu and Juneja (2021) the women entrepreneurs in India have to face unfavourable conditions as compared to those in other developed economies. They are exposed to cultural bias and patriarchal nature of the society is also a challenge. The enterprises owned and operated by women are vulnerable to be discontinued owing to financial crunch and low profitability or running into losses. Singh and Saxena (2000) found that family responsibilities, shyness, introvert nature, low need of achievement, risk aversiveness, patriarchal nature of society, are some of the challenges that contribute towards reducing the motivation of female entrepreneurs.

Factor 3: Conducive is constituted of four items i.e. I could easily avail financial

assistance, Sufficient support of my employees, Technology has helped in improving skills and abled me to achieve desired status in the society. In these items "I could easily avail financial assistance" has the highest factor load of 0.788. Total load of this factor is 2.428. A significant reason attracting women to venture into entrepreneurship is to become economically independent and gain control over their lives.

In this zeal the women entrepreneurs are also interested in making a significant impact on society and leading to the development of their fellow beings. Women entrepreneurs tend to focus more on creation of business for addressing the challenges faced by society and the environment (Dutta, 2016).

Factor 4: Resilience is constituted of two items i.e. Building networks and collaborations and High level of resilience. In these items "High level of resilience to face challenges" has the highest factor load of 0.747. Total load of this factor is 1.415. Confidence in self when faced with adverse or challenging situations is the inevitable characteristic of successful women entrepreneurs. This ability is termed as resilience (Matharu & Juneja, 2021). Many internal and external variables are responsible for the building of resiliency in entrepreneurs. Internal variables are within the control of the entrepreneurs. However, the optimum utilization of external variables can be made through networking (Williams & Nadin, 2012)

Factor 5: Support is constituted of three items namely Government initiatives for supporting women entrepreneurs, Insufficient institutional support for encouraging women entrepreneurship, Able to win the trust of customers by my services. In these three items "Government takes enough initiatives for supporting women entrepreneurs" has the highest factor load of 0 .836. Total load of this factor is 1.973. Willingness to take risk, assertiveness and persuasiveness are some prominent characteristics of women entrepreneurs. These women entrepreneurs have a strong drive to succeed. They are not deterred by obstacles coming in their way. Various schemes have been introduced by the Government of India for extending support to women entrepreneurs and thus motivate them towards achieving success in the initiation and operation of their ventures.

Factor 6: Risk averseness is constituted of three items i.e. Professional competence and leadership skills, confidently handle difficult situation and Have been able to survive business due to risk taking capacity. Among these items "Professional competence and

leadership skills." has the highest factor load of 0.787. Total load of this factor is 1.887. Humbert and Brindley (2015) found that entrepreneurs who are willing to face more risks are generally

found to be motivated by the support and training offered at the initial level of start-up. Similarly, the risk-bearing attitude of an entrepreneur is significantly influenced by family background of self-employment or micro entrepreneurship.

The results of independent sample t-Test and calculated p value for the impact of marital status towards the perception of Competence, Demotivation, Conducive, Resilience, Support and Risk Averseness variable is statistically insignificant (P values 0.821, 0.111, 0.104, 0.467, 0.857 > 0.05). The overall results state the acceptance of the Null hypothesis H_{01}, H_{02}, H_{04}, H_{05}, H_{06} i.e. There is no significant difference in the perception of married and unmarried women entrepreneurs towards Competency, Demotivation, Resilience, Support and Risk averseness factors. The impact of marital status towards the perception of Conducive variable is statistically significant (as P = 0.008 < 0.05). Therefore, the null hypothesis H_{03} is rejected. i.e. There is significant difference between married and unmarried women entrepreneurs in their perception of Conducive variable. It may be due to the reasons that married women entrepreneurs get support from their spouse in almost every field and experience factor also counts a lot for successful and smooth conduct of business.

CONCLUSION

For a society or a nation to experience overall economic growth, women's social and economic development is essential. Every woman has an entrepreneurial mindset, but it has not received the proper amount of attention in India. The climate has changed, and although there are still some outliers, people are now more open to the idea of women playing a major position in our society. The study sought to determine how diverse groups of people differed with regard to the key elements that affect the prospects for women entrepreneurs in general. These elements may change from location to location and business to business, but women's entrepreneurship is essential to the expansion of any economy, big or small.

Continuous efforts should be made to inspire and motivate female entrepreneurs. Effective policies should be put into place by the government and other entrepreneurship development institutes to raise the educational standards of women

and to provide them with career training and personality development. By providing training facilities for improving their capacities to take risks, develop their talents, and increase their degree of work knowledge, the capabilities of women entrepreneurs can be improved. In addition, the society's mindset needs to change, and there is a need to raise awareness and consciousness about the self-development strategy for female entrepreneurs. Women are not psychologically prepared for a transition into a career in entrepreneurship owing to many caste-based restrictions, societal and cultural norms, restrictions to mobility, and lack of access to resources.

These restrictions can be overcome by offering proper instructions, supervision and training to the women entrepreneurs (Maradi & Dasar, 2013).

The study can be useful to the government and entrepreneurship support institutions for framing and implementation of policies for the support and development of women entrepreneurs in India. Women entrepreneurs play a significant role in the development and economic growth of an economy; proper institutional support and encouragement can motivate them to come forward and offer their contribution in the development of the economy.

The study is limited to women entrepreneurs engaged in small business in Indore; further studies can be conducted to include the women entrepreneurs engaged in the MSME sector in India. Various schemes and policies framed by the government for development and support of women entrepreneurs in India can also be researched upon for analysis of the actual implementation of these schemes and the benefits availed by the entrepreneurs.

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APPENDICES

Table 1- Group Statistics

	Marital status	N	Mean	Std. Deviation
Competency	Married	51	7.627451	1.948956
	Unmarried	49	7.530612	2.319321
Demotivation	Married	51	8.529412	2.540496
	Unmarried	49	9.285714	2.179449
Conducive	Married	51	7.431373	2.220404
	Unmarried	49	6.693878	2.053494
Resilience	Married	51	4.039216	1.636591
	Unmarried	49	3.571429	1.172604
Support	Married	51	5.901961	1.473159
	Unmarried	49	6.122449	1.549632
Risk Averseness	Married	51	5.137255	1.625049
	Unmarried	49	5.081633	1.455403

Table 2: Reliability Statistics

Number of items	Cronbach's Alpha
21	0.782

Table 3- KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.872
Bartlett's Test of Sphericity	Approx. Chi-Square	2212.44
	Df	98
	Sig.	.000

Table 4- Factor Analysis

Factor	Item	Item Load	Factor Load	Eigen Value	% of Variance
Competency	There is sufficient moral support from the family	.744	3.151	2.978	14.182
	I can easily manage my work and family life together	.683			
	My family always encourages me to do my best in business	.676			
	I regularly update my knowledge with the help of available sources	.570			
	I have good bargaining and negotiation skills	.478			
Demotivation	Many a times I have faced discriminate treatment in the society	.796	2.899	2.738	13.037
	There is lack of adequate motivation for women entrepreneurs in the society	.725			
	Society has negative attitude towards women entrepreneurs	.724			
	I feel there are fewer opportunities for women entrepreneurs	.654			
Conducive	I could easily avail financial assistance	.788	2.428	2.285	10.879
	I got sufficient support from my employees	.631			
	Technology has helped me in improving my skills	.604			
	I have been able to achieve the desired status in the society	.405			
Resilience	High level of resilience	.747	1.415	1.763	8.394
	Network and collaboration	.668			
Support	Government takes enough initiative for supporting women entrepreneurs	.836	1.973	1.612	7.679
	There is sufficient institutional support for encouraging women entrepreneurship	.694			
	I am able to win the trust of customers by my services	.443			
Risk Averseness	I have professional competence and leadership skills	.787	1.887	1.470	7.000
	I confidently handle difficult situations	.707			
	I have been able to survive my business due to risk taking capacity	.393			

Table- 5- Independent Sample t-Test

		Levene's Test for Equality of Variances	Sig.	t-test for Equality of Means	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Competency	EVA	0.223	0.638	0.226	98	0.821	0.9684	-0.75204	0.945722
	EVNA			0.225597	93.78347		0.096839	-0.75548	0.94916
Demotivation	EVA	1.766655	0.186	-1.59489	98	0.111	-0.7563	-1.69734	0.184737
	EVNA			-1.5998	96.78344		-0.7563	-1.6946	0.181997
Conducive	EVA	1.571848	0.212	1.72255	98	0.008	0.737495	-0.11214	1.587128
	EVNA			1.725266	97.86107		0.737495	-0.11082	1.585805
Resilience	EVA	2.687493	0.104	1.637248	98	0.104	0.467787	-0.09921	1.03478
	EVNA			1.64792	90.7254		0.467787	-0.0961	1.031674
Support	EVA	0.115054	0.735	-0.72942	98	0.467	-0.22049	-0.82035	0.379377
	EVNA			-0.72867	97.1965		-0.22049	-0.82103	0.380052
Risk Averseness	EVA	0.969652	0.327	0.180054	98	0.857	0.055622	-0.55742	0.668662
	EVNA			0.180454	97.52736		0.055622	-0.5561	0.667341

A SYSTEMATIC ANALYSIS OF INVESTORS' DECISIONS IN INVESTMENTS IN MUTUAL FUNDS THROUGH SYSTEMATIC INVESTMENT PLAN (SIP) DURING DIVERSE MARKET CONDITIONS

Dr. Deepika Gautam[1]

ABSTRACT

Mutual funds enable masses to enter the Indian Financial Market with great ease. This study aims at finding out the factors affecting investment decisions on mutual funds through systematic investment plan and the impact of behavioural factors on an investor. The study also aims at finding out about the factors that prevent people from investing in mutual funds through systematic investment plan. It is important to understand a few basic factors such as level of awareness regarding safety, liquidity, returns and tax benefits, which play a significant role in guiding the investment decision making process of a retail investor.

***Keywords*:** Mutual Funds, Portfolio Management, Safety, Return and Tax Benefits

INTRODUCTION

A mutual fund (MF) is a 'portfolio' of different financial instruments. It is a pool of money from numerous investors who wish to save money. Investing in an MF can be a lot easier than buying and selling individual stocks and bonds. An MF is an investment security type that enables investors to pool their money together into one professionally managed investment. MFs can invest in stocks, bonds, cash and other assets. These securities are called holdings, which combine to form one MF, also called a portfolio. MFs can be considered baskets of investment. Each basket holds dozens or hundreds of security types, such as stocks or bonds. Therefore, when an investor buys MFs, they are buying a basket of investment securities.

A Systematic Investment Plan (SIP) deals with investing the same amount of money every month for a stipulated time. During systematic investment, the investor has to invest the same amount every time irrespective the condition of the market. The market condition, whether up or down, does not affect the amount invested in the SIP. The SIP helps the investors to invest their money in various stocks without entering each directly. The investors gain more units when the market is up, and less units when the market is down, this is the basic issue with MF investments.

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Through this study, an attempt has been made to identify and analyze the behavioural aspects which influence the investment decisions of investors and to analyze the attitude of investors towards investment options and MFs. SIP hedges the investor from market instability and derives maximum benefit as the investment is done at regular basis irrespective of market conditions.

LITERATURE REVIEW

Investor perception towards MF and Systematic Investment Plan

Various studies on investors' perception/decision on investing on MFs through SIP have been conducted by various authors worldwide. India's MF market is underpenetrated and India's AUM to GDP ratio is only 16%, compared to the global average of 74% (Parekh, 2022), which suggested great scope for growth in this sector. However, according to estimations by Financial Express (2022) bank deposits would face competition from MFs as households get more market savvy and are willing to take their chances in the capital market. Abey (2017) contemplated the different elements impacting investment choice in MF plans and found that age and instructive capability do not influence the investment disposition. The paper upheld MF investments for better enhancement of income. Retirement pay plans are more preferred by investors relying on their assignment or pay level. The expert management framework additionally impacts MF investment choices as investment portfolios by giving applicable monetary data. Saini, Anjum and Saini (2011) in their research study analyzed the MF investments in relation to investors' behaviour and investors' opinion and perception, that has been examined pertaining to diverse issues like type of MF scheme, objective of investing, role of financial advisors/brokers, sources of information and various services provided by the MF managers, etc. Another study conducted by Sharma (2012) attempted to investigate the causes responsible for under-identification of MFs as a primary investment option. The study inspects the investor's perception pertaining to different features of MF schemes to attract them for investing in particular funds. The paper investigated three factors i.e., fund attributes, sponsor attributes and monetary benefits, which should be offered to investors for securing their long-term association for building investor loyalty. The study gave suggestions and insights to MF companies for moulding their offers according to the requirements and expectations of Indian investors.

Investors' Decisions through Systematic Investment Plan (SIP) during Diverse Market Conditions

Chen and Stockum (1986) and Ferson and Schadt (1996) found that information on various economic factors affecting portfolio returns is available publicly. A fund manager can act upon anticipated changes in states of economy and alter the risk of the portfolio to his/her advantage. Although portfolio turnover can lead to outperformance or underperformance of outcomes (Chou, Huang, & Lai, 2016), the only skill needed here will be macro-economic literacy which is not what fund managers get paid for as it can be replicated by investors too. Senthil (2010) conducted a study to identify the most preferred investment option from all the financial options available to investors. The study concluded that MFs were the more preferred investment option among the investors compared to stock market investments. This is because in the stock market the risk is higher, and that risk is lowered by investing in MF schemes. However, over the period of time through various researches, it has been found that Indian investors usually preferred low risk, high return and liquidity to return alone. A lot of ground is yet to be covered in the direction of individual investor behaviour with respect to MFs and their patterns of investment through SIP. Hence, it is important to identify the investors' decision processes in investments in MFs through SIP during diverse market conditions. The present study has been taken up specifically with this idea in mind.

RESEARCH METHODOLOGY

The present research is empirical in nature and a sample of 120 individual investors was identified through convenience sampling. Data were collected through a questionnaire and primary as well as secondary data have been used. The scope of the study is restricted to respondents of Shimla city who invest in MFs through SIP. The present study also examines various articles written by experts on investment in share capital. The collected data were analysed with the help of descriptive statistics, exploratory t test and factor analysis.

ANALYSIS & RESULTS

From Table 1, it is seen that, out of 200 respondents, 35 (17.5%) respondents stated that

they invest in MFs directly from AMCs, 52 (26%) respondents invest in MFs through share/stockbrokers, 9 (4.5%) through banks, 89 (44.5%) through financial distributors / advisors, and 15 (7.5%) through third party applications.

The objective (s) behind investing in Equity MFs through SIP

There are various investment avenues, where people can invest their hard-earned money. While making investments there are many considerations that the respondents have considered. From Table 2, it is seen that 200 respondents have given their choices for the various objectives behind investing in MFs through SIP. The choices on various objectives have been selected from most preferred to least preferred. Table 2 throws light on the ranking of five most preferred investment avenues by the people in the study. Analysis of the table reveals that the vast majority of respondents have given first preference (with mean value 2.87) to invest their savings in equity MF through SIP, to meet the expenses towards higher education of children, 2nd objective for the respondents is to invest in equity MFs through SIP (with mean value 2.72) is to meet contingency expenses, the 3rd objective (with mean value 2.17) is to diversity their investment portfolio, 4th objective is to have a comfortable corpus for retirement and the 5th objective (with mean value 1.99) is to reduce tax burden. Their preferences were averaged, and based on the mean value ranks have been given to various objectives as follows:

ONE SAMPLE TEST

To understand the reasons for not investing in MFs we applied a one-way t-test by using bootstrap. Table 3 shows the results stating reasons for not investing in the MFs. The reasons are lack of knowledge about MFs, lower returns expected from the MFs, high risk, time consuming, no regular analysis and other reasons.

Since the significance level for various stated reasons is less than 1 percent, it can be concluded that mean value is significantly different from the test value. Further, the mean difference of various statements shows disagreement with the statement and we can say that the stated reasons are not the main reasons for them for not investing in the MFs. Hence, it can be concluded that in the one-sample t-test as the first two variables such as lack of knowledge and lower returns are not the main reasons for the investors to not invest

in the MFs and the negative mean difference shown in Table 3 also shows the disagreement from the respondents. Hence, respondents do not invest in the MFs because they feel that MFs carry high risk and there is no safety of their money. They also feel that it is a time-consuming process and there are various other reasons as well.

Total Variance Explained

The attitude of investors towards the investment options is changing with the financial liberalization and dynamic business environment as every investor expects that he would get a reasonable return on his investment with minimum risk. It is observed that investors are more devoted and finicky in their investment choice and preferences. So, it is imperative to study the factors in light of socio-economic factors that force them for selecting these investment options.

The factors which are actually extracted. As seen from the Rotation Sums of Squared Loadings, those factors which have eigen values greater than 1 are selected in final factor analysis. The % of variance shows the total variability (in all of the variables together) can be accounted for by each of these summary factors. As seen from the table, factor 1 accounts for 12.296% variability, factor 2 is related to returns accounts for 9.156 % variability and factor 3 accounts for only 5.715% variability.

Rotated Component Matrix

Table 4 exhibits the results of the rotated component matrix. The table reports the loading of different statements on three identified factors. Statements S1-S10 have been loaded on factor 1 i.e. Safety Factors. Statements S11-S20 have been loaded in factor 2 (Return Related Factors) and the variables which are loaded in factor 3 (Tax Saving Factors) are S21- S30.

From Table 5, it is seen that total three factors have been extracted.

Factor 1, identified as Safety, comprises of ten statements: Risk involved in MFs is considerably less than other investment instruments, having factor loading 0.656, Principal amount in MF remains always safe, having factor loading 0.717, Investors' interests remain well protected by SEBI, having factor loading 0.701, MFs are typically considered a safer investment than purchasing individual stocks having factor loading 0.745, Offers

more diversification having factor loading of 0.778, Good way for investors to diversify with minimal risk, having factor loading 0.822, Investors are comfortable with MF investments due to safe approach, having factor loading 0.852, Flexibility in Funds Management, having factor loading 0.658, It aims to diversify unsystematic risk, having factor loading 0.709 and Fair degree of stability, having factor loading 0.746.

Factor 2, identified as Return, comprises of ten statements: Volatility in market helps to gain better returns, having factor loading 0.532, Modern measurement methods are used for returns, having factor loading 0.434, Flexibility in SIP mode helps in getting higher returns, having factor loading 0.495, Returns are calculated on the basis of value of Investment, having factor loading 0.498, Different ways to get the return, having factor loading 0.437, Investors may get fixed return on MFs, having factor loading 0.409, Equity MFs may give more than 100% return, having factor loading 0.432, Achievement of financial goals, having factor loading 0.329, Better returns than traditional saving options, having factor loading 0.438 and Risk and Returns are closely correlated, having factor loading 0.415.

Factor 3, identified as Tax Benefits, comprises of ten items: Higher Tax benefit can be availed as compared to other financial instruments, having factor loading 0.835, Tax rebate can be availed as per requirement, having factor loading 0.826, It reduces taxable income, having factor loading 0.772, certain SIP comes under EEE (Exempt, Exempt and Exempt) category, having factor loading .954, Investing in MFs is eligible under Section 80C of the Income Tax Act, having factor loading 0.951, Exempted from wealth tax, having factor loading 0.030, Investing through SIPs in balanced MF schemes is completely tax-free, having factor loading 0.749, It serves different segments of society, having factor loading 0.746, Investor may get a maximum tax deduction of Rs 1.5 lakh per year, having factor loading. 616 and MFs invested in government bonds are referred to as tax-exempt funds, having factor loading .713.

The study identified the important factors which affect the MF investment through SIP during diverse market conditions. From the factor analysis it can be concluded that safety was one of the important factors in MF investment through SIP so MF companies should provide proper information and knowledge to their valuable customers regarding the various safety features provided by them as now-a-days SIP is one the innovative products launched by Assets Management companies. MF companies should formulate the

schemes in view of the behaviour of investors as the findings suggest that equity market conditions have reduced the satisfaction level. So, companies should provide the information related to their MF SIP investments during the diverse market conditions.

CONCLUSIONS AND IMPLICATIONS

The present study is an in-depth analysis of Investors' Decision in Investments in MFs through Systematic Investment Plan (SIP) during Diverse Market Conditions. The analysis is done with the help of various statistical tools. The collected data have been interpreted and the following conclusions have been drawn: Most of the respondent investors' objective in investing in MFs through SIP was to meet the expenses towards higher education of children. So, it is necessary to develop the MF schemes that suit such investors' needs. From the analysis, it is also found that, investors are comfortable with MF investments due to safe approach. So, the AMCs should frame strategy to ensure safety of the investors. The study has significant new work/knowledge as compared to already published work. Further the study contributes to helping MF companies to identify the areas required for improvement and to make marketing strategies during diverse market conditions.

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Tables and Figures

Table 1: Sources to Invest in an MF (via SIP mode)

Investment Sources	Frequency	Percent
Directly from AMCs	35	17.5
Share / Stockbrokers	52	26
Bank	09	4.5
Financial Distributor / Advisor	89	44.5
Third Party Applications	15	7.5
Total	200	100.0

Source: Primary Probe

Table 2: Objective(s) Behind Investing in MFs through SIP

Investment Avenues	Mean	Standard deviation	Coefficient of variation	Skewness	Kurtosis	Ranks
To have a comfortable corpus for Retirement	2.11	.913	43.27	.172	-1.061	IV
To diversity Investment Portfolio	2.17	.921	41.05	.209	-.767	III
To meet the expenses towards Higher Education of Children	2.87	.960	31.29	-.432	-.752	I
To meet Contingency Expenses	2.72	1.275	48.57	-.421	-1.711	II
To reduce Tax Burden	1.99	.899	46.35	.168	-1.044	V

Source: Primary Probe

Table 3: Reasons for not investing in MFs through Systematic Investment Plan (SIP)

Variables	*t*	*df*	*Mean Difference*	*Sig. (2-tailed)*
Lack of Knowledge	*-3.283*	*60*	*-.317*	*0.000*
Lower Returns	*-12.714*		*-.758*	
High Risk	*19.414*		*1.417*	
Time Consuming	*16.302*		*1.149*	
No Regular Analysis	*13.261*		*1.032*	
Any Other Reason	*13.559*		*1.147*	

Source: Primary Probe

Table 4: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	20.11	67.055	67.055	20.117	67.055	67.055	12.296	40.987	40.987
2	5.43	18.128	85.184	5.438	18.128	85.184	9.156	30.520	71.506
3	1.61	5.373	90.557	1.612	5.373	90.557	5.715	19.050	90.557
4	.687	2.292	92.848						
5	.416	1.385	94.233						
6	.341	1.137	95.370						
7	.278	.926	96.296						
8	.229	.764	97.060						
9	.190	.634	97.694						
10	.175	.583	98.277						
11	.140	.466	98.743						
12	.118	.393	99.136						
13	.093	.310	99.446						
14	.074	.245	99.691						
15	.041	.138	99.829						
16	.032	.107	99.936						
17	.019	.064	100.000						
18	016	-016	100.000						
19	-017	-016	100.000						
20	-017	-016	100.000						
21	-017	-016	100.000						
22	-017	-017	100.000						
23	-017	-017	100.000						
24	-018	-017	100.000						
25	-018	-017	100.000						
26	-017	-017	100.000						
27	-017	-016	100.000						
28	-017	-016	100.000						
29	-016	-016	100.000						
30	-016	-016	100.000						

Source: Extraction Method
Principal Component Matrix

Table 4: Rotated Component Matrix

S1	Risk involved in MFs is considerably less	.656		
S2	Principal amount in MF remains always safe.	.717		
S3	Investors' interests remain well protected by SEBI.	.701		
S4	MFs are typically considered a safer investment than purchasing individual stocks	.745		
S5	Offers more diversification	.778		
S6	Good way for investors to diversify with minimal risk	.822		
S7	Investors are comfortable with MF investments due to safe approach.	.852		
S8	Flexibility in Funds Management	.658		
S9	It aims to diversify unsystematic risk	.709		
S10	Fair degree of stability.	.746		
S11	Volatility in market helps to gain better returns.		.532	
S12	Modern measurement methods are used for returns		.434	
S13	Flexibility in SIP mode helps in getting higher returns		.495	
S14	Returns are calculated on the basis of value of Investment		.498	
S15	Different ways to get the return		.437	
S16	Investors may get fixed return on MFs		.409	
S17	Equity MFs may give more than 100% return		.432	
S18	Achievement of financial goals:		.329	
S19	Better returns than traditional saving options		.438	
S20	Risk and Returns are closely correlated		.415	
S21	Higher Tax benefit can be availed as compared to other financial instruments.			.835
S22	Tax rebate can be availed as per requirement			.826
S23	It reduces taxable income			.772
S24	Certain SIP comes under EEE (Exempt, Exempt and Exempt) category			.954
S25	Investing in MFs is eligible under Section 80C of the Income Tax Act			.951
S26	Exempted from wealth tax			.030
S27	Investing through SIPs in balanced MF schemes is completely tax-free.			.749
S28	It serves different segments of society			.746
S29	Investor may get a maximum tax deduction of Rs 1.5 lakh per year			.616
S30	MFs invested in government bonds are referred to as tax -exempt funds			.713

Extraction Method: Principal Component Matrix
Rotation Method: Varimax with Kaiser Normalization
Rotation converged in 5 iterations

ZERO FATALITIES AMONG CONTRACTORS' WORKMEN IS ACHIEVABLE BY POSITIVE SAFETY CULTURE

Harbans Lal Kaila[1]

ABSTRACT

Contractors' workmen work at great heights with very little safety equipment and awareness. What they need from managers are care and concern, welfare and wellbeing. Emotional care and support are crucial as contractors' workmen lack proper rest places, clean water, dining space and so on. Managers often do not feel concerned about the need for emotional support for workmen. Workmen's personal health and hygiene are critical as they work in oil, water, mud, foul smells and at heights. In this regard, recommendations are made to overcome fatalities amongst workmen by inculcating a supportive safety culture. This study (based on field visits to around 54 site locations and interactions with 609 managers and 2500 contractors' workmen during two years 2022-2023) highlights contractors' workmen's safety culture issues and solutions. The ground reality of safety culture is different from what is reflected in documents. Hence it is vital for each HOD as well as in-charges of each section/area/shift in organisations to visit site areas daily for maintaining regular safety conversations with the workers. All serious and non-serious incidents are manageable and preventable depending upon how many positive safety conversations happen daily between workers and managers at all levels specifically with the top management such as business and site heads.

Keywords: Contractors, Safety, Culture, Organisations, Workmen

INTRODUCTION

It was observed that approximately 48000 workers die every year due to occupational accidents, and one in four workers die in the Indian construction sites. It is a well-known fact that accidents on sites are unavoidable and keep recurring although the severity and the number of accidents has been reduced marginally now (Patel & Jha, 2016).

All serious and non-serious incidents are manageable depending upon how many positive safety conversations happen daily between workers and managers at all levels including specifically the top management such as business and site heads. It helps workmen not only to be aware of their safety but also raises their self-esteem if the managers respect and listen to them. It impacts the business perspective, excellence, and sustainability in the long run. Observations and spot-correction build safety culture, but conversations build safety mindset and beliefs amongst the workers. The senior-most employees' positive connection with the lowest level workers impacts human virtues and business values such as respect and care which go a long way in the life of an organization (Lal, 2021).

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Most of these fatalities across the world happen to the contractors' workmen. Eliminating fatalities and serious injuries is the main challenge for the industry globally. The focus is to provide the industry with actionable recommendations and passionate leadership guidance to create safer and healthier workplaces (World Steel Association, 2022).

Industrial accidents kill hundreds of thousands of people and permanently disable thousands each year. A federal minister told parliament in 2021 that at least 6,500 workers had died while working in factories, ports, mines and construction sites in five years. Labour activists, who worked in the field for years, reported that the figures could be higher as many incidents are not reported or recorded (Shukla, 2022).

It is observed that often contractors and workmen are not included by companies in building safety culture processes, which affects workmen's mindset for safe working leading to incidents. Low employability and low job opportunities lead to low environmental health and safety (EHS) compliance amongst the workmen (Lal, 2022). Safety culture is about employees' / workmen's observation and spot-correction network of positive safety culture which gradually involves everyone till the last person in an organization. This organization-wide network turns into safety culture activism (Lal, 2022a).

Companies have given contract workmen a place to work, but not a place in their hearts. This disconnect creates a hurdle in safety culture transformation as well as business sustainability. Senior casual workmen should train new casual workers, but nobody sees that these trainers develop workmen as active observers, nobody cares about the toolbox talk (TBT). Whether the workmen are being observed or not it is essential to have a conversation with workmen about the importance of safe behaviours after corrections of at-risk behaviours. Workmen need to observe each other for actual safety culture transformation. Hence the primary focus has to be on workers. Managers sit inside their cabins and leave safety culture to the subcontractors and workmen (Lal & Choueiri, 2023).

India reported 1109 deaths and more than 4000 injuries in registered factories, on average, each year between 2017 and 2020 (Paliath, 2023). Although about 90% of workers in India are employed in the informal sector, underreporting of incidents from the informal and the formal economy mean these figures are underestimates. India has passed occupational

safety and health law reforms in 2020, but experts feel that the new Occupational Safety and Health (OSH) Code is less stringent than the Factories Act, of 1948 (Paliath, 2023).

OBJECTIVES OF THIS SURVEY

- To explore the contractors' workmen's safety culture mindset and fatalities issues.
- To explore ways to overcome issues about the contractors' workmen's safety culture mindset and fatalities.

(Fig. 1)

Figure 1: Site location example of work-at-height

DATA COLLECTION

Primary data were collected by interviews and discussions to explore the contractors′ workmen's safety culture mindset and fatalities issues. Interviews based on open-ended questions, focus group interviews, and personal in-depth discussions were conducted over almost two years during 2022-2023.

Sample and Data Collection Procedure

Field visits were conducted to almost 54 site locations (Figure 1, 2, 3). Interactions were held with 609 managers and 2500 contractors′ workmen who comprised the sample for this

research. Industry professionals participated in the study as part of an action field survey with the researcher. These research participants had been implementing behavioural safety compliance culture at their work sites. The research participants included the Directors, Managers, Heads of Departments, and EHS/HR Professionals belonging to the public and private industrial sectors, including chemicals, construction, gas, power and steel, across Indian locations. The sampling method used was random sampling.

Statistical analysis

The responses to the relevant questions were collated. Thematic analysis was performed and themes were identified from the quantitative data.

The study results and implications are reflected below from a rigorous review of safety culture literature and experiences / case studies shared by industry leaders across Indian organisations.

(Fig. 2 and Fig. 3)

Figure 2: Site location example

Training programme on 'Behaviour Based Safety'

Senior officials, along with faculty and participants

Paniput Refinery & Petrochemicals Complex (PRPC) organised a training programme on 'Behaviour Based Safety' on October 30, 2023, at L&D Centre through in-house expert faculty from Mathura Refinery (MR) & PRPC. Mr M K Ray, DGM (MS, L&D), MR, is PhD in BBS and is having vast knowledge on Behaviour Based Safety. The objective of this training programme was to help each participant to understand on the introduction to Behaviour Based Safety; Behavioural Modification, Basic Principles & Techniques; Developing Enterprise Level Behavioral Based Safety Management System; at Risk Behaviour, role of positive feedback and overview of BBS implementation in PRPC through ICC. The training programme started with inaugural address by Mr Utpal Deka, CGM (HSE), wherein he touched upon the importance of Behaviour Based Safety aspects and to implement the same at PRPC. He urged all the participants to interact more & more with the faculty during the training programme to gain maximum learnings. Earlier, Mr Sulochan Sen Kumar, DGM (F&S), PR, delivered the welcome address and gave brief introduction about the programme. Mr Baljeet Singh, GM (MS, L&D) & executives of Fire & Safety were also present during the inaugural session. The programme was compered by Mr Kuldeep Baldia, Mgr (L&D). A total of 32 participants from PRPC attended the programme. The programme received an overwhelming response and appreciation from the participants for its vitality in reinforcing the behavioural safety at PRPC. **(Vivek Sharma, SM (Corp Comm & CSR), PRPC)**

Figure 3: Site location example

प्रशिक्षण शिविर में सुरक्षा नियमों की दी जानकारी

प्रशिक्षण में शामिल पदाधिकारी व जवान।

प्रतिनिधि, हसनपुर

सुरक्षा नियमों का पालन करने के लिए दो दिवसीय प्रशिक्षण शिविर हसनपुर पीजी मिल सभागार में लगाया गया. मौके पर मुंबई रोप्टी कलर के डायरेक्टर डॉ शिवेश लखोत्रा ने अधिकारियों एवं कर्मचारियों को व्यवहारिक सुरक्षा के नियमों का पालन करने की जानकारी दी.

उन्होंने कहा कि खुद की सुरक्षा के साथ-साथ साथी कर्मचारियों की सुरक्षा का ध्यान रखें. इसको लेकर सी तौर पर व्यवहारिक दृष्टिकोण से अपनाने की जरूरत है. फैक्ट्री में काम करते समय हेलमेट पहने, रोप्टी बेल्ट का उपयोग करने की नसीहत दी.

वाहक चलाते समय हेलमेट व मोबाइल पर बात नहीं करने को प्रेरित किया. पहले दिन प्रशिक्षण शिविर में टीकम सिंह, डॉ रामवीर सिंह, पीके मुरा, सहायक महाप्रबंधक मन्ना सुग्रीव फाटक, नवाब सिंह, उदय राज, मोहित अग्रवाल आदि थे.

Figure 4: Example of corporate safety culture training

RESULTS AND DISCUSSION

This paper dwells on ten aspects of the contractors' workmen's fatalities, mindset and safety culture issues as below. Table 1 highlights contractors' workmen's safety culture issues and solutions.

1. Long hours of work, no holidays, and stinking toilets for contractors' workmen affect their health and safety culture. Providing portable toilets helps the construction site to be a healthy space to work. It also helps the workers to learn that they are respected. In the absence of toilets at construction sites, workers have to defecate in open areas which violates the sanitation guidelines. Workmen often work long hours without a holiday which impacts their personal and family health and well-being. Brynn Bourke, executive director of the BTC (Building Trades Council), who lobbied for the change said, "The shift to flush toilets means construction workers will be given the dignity they deserve at work. Nearly every other industry has found a way to bring clean, flushing toilet facilities to mobile sites. Construction workers deserve flush toilets now." (Wilson, C., 2023). Also, they should be allowed holidays as per rule like other employees.

2. Risk blindness or zero perception of risk: About 20 percent of people remain exposed to risk with a lack of understanding of its effects. Risk exposure is everywhere but its

perception and control are important to save oneself. Risk-taking and unsafe behaviours in an organization are partly a result of how the culture is shaped. Culture can contribute to either unsafe or safe behaviours in an organization. Culture is however not behaviour per se and should not be confused as such. Culture and behaviour are distinguishable, and not to be oversimplified by saying that culture is the way we do things around here. It is interesting to discuss how cultural norms and practices are related to behaviour since they do specify what kind of behaviour is acceptable or wanted. Safety culture is one factor that contributes to behaviour, but there are many other factors. Working on routine and being blind-to-flaws results in more risk-taking (Hasse, et al, 2015).

3. Close relationships among managers, immediate next level employees and associates affect safety culture in organizations. Their expectations from each other, matters in safety and assertive behaviours must be clear, as also what are their preferences, matters in delivering these safety responsibilities. Maximum involvement of top management in safety activities significantly influences the supervisory practices of a company's line managers (Hsu, 2012).

4. Safety culture improvements: the visualised safety culture can enable group discussions about safety on many organizational levels and can constitute a sizeable input to the continuous improvement processes for safety and safety culture (Ek, et al, 2014). consider the following ten aspects for safety culture improvements:

- Is it a compliance or a value?
- Is it documentation or behaviour?
- Is it by the safety officer or everyone?
- Is it by workmen or managers or both?
- Is it by management or Director?
- Is it daily or rarely?
- Is it only a slogan, a banner on the wall?
- Is it reviewed and monitored?
- Is it to please the client or the customer?
- Is it only training, or implementation?

5. Authoritarian or reactive organizations are not favourable for business or safety culture either, like authoritarian families are unfavourable for positive growth of children. There is room for both proactive and reactive safety management within all organizations, but proactive safety management (Safety 2.0) serves the organization for better results in our understanding of human safety from incidents (Thraen, 2022).

6. Risk perceptions, risk exposure and risk awareness are closely associated. The employees who are not aware of the risk, do not perceive it, and are more exposed to it, and vice versa. Risk perception refers to people's judgments about the probability of negative occurrences like injury, illness, disease, and fatality. Risk perceptions and risk communications are important because they determine which hazards people care about and how they deal with them. Risk perception has two major dimensions: the cognitive dimension, which relates to how much people know about and understand risks, and the emotional dimension, which relates to how they feel about them (Paek & Hove, 2017).

7. What is lacking at sites are the management's visible leadership, corporate tracking, Directors' regular communication on safety culture down the levels, and HODs' presence at site areas. Safety culture implementation doesn't become a daily practice. The project manager attends the safety culture training but leaves its implementation to the safety officers. The safety culture transformation team is established but it hardly meets or reviews the progress regularly. Strong leaders at all organizational levels are critical for the prevention of sustained injury and fatality (Quality Safety Edge, 2023).

8. Safety culture vision and its implementation: In most organizations, the vision is very strong, but implementation is weak. Positive body language and the regular presence of top management at the site are essential for sustaining a safety culture. If leaders wish to see change amongst employees on the shop floor, they must go there amongst employees and workmen (Lal, 2022). The intervention requires management presence, interaction, and openness with workers (Cooper, 2006).

9. Safety performance behaviours are to be assured by the project site head, and it must be

ensured that daily behavioural safety observations/spot-correction are linked to individual KPIs, appraisal and increments. Then only, every employee/workman would complete daily BBS expected results. Safety KPIs are performance indicators that serve as metrics for specific company efforts in health and safety. Tracking health, safety and environment key performance indicators (KPIs) allows a business to determine how safe the work environment is for employees and whether the company is within regulatory compliance. The utilisation of KPIs can assist an organisation in achieving significant business goals (Tekmon, 2023).

10. What should be our goal in safety culture - focusing on zero fatalities, zero incidents, zero harm, or attending to zero unsafe behaviours, not the outcomes? If you do believe that no one should get hurt at work, and you believe that all incidents are preventable, leaders should set the expectation that everyone does whatever they must to prevent incidents. Safety is not the only dimension of performance where zero should be the expectation; it should also be the expectation as a best practice of companies that achieve operational excellence (Wilson, P., 2023).

CONCLUSIONS, PRACTICAL IMPLICATIONS AND RECOMMENDATIONS

This study (based on field visits to almost 54 site locations and interactions with 609 managers and 2500 contractors' workmen) highlighted the contractors' workmen's safety culture issues and solutions as below.

1. Provide portable toilets, and allow holidays like other employees.
2. Strengthen close relationships between managers, immediate supervisor and associates.
3. Retrain and re-build Safety culture.
4. Consider ten aspects for re-building safety culture.
5. Build a positive organization.
6. Improve risk perceptions and risk awareness.
7. Focus on management's visible leadership, corporate tracking, and directors' regular communication.

8. Reinforce safety culture vision and its implementation.
9. Safety performance behaviours to be linked to individual KPI.
10. Focus on the zero unsafe behaviours goal, not the outcomes.

Based on issues and solutions of the contractors' workmen's safety culture, the practical implications and recommendations are framed as below.

Safety Culture and Subcontractors:

Engineers, vendors, and subcontractors in remote areas normally think that safety is meant only for vehicles, machines, equipment, etc. whereas safety culture is about everything in one's life, and they should understand it well when it is clarified to them.

It is never too late and always good wisdom for an organization's leadership to choose a planned long-term positive safety and work culture over fires and fatalities, and save people and plants for achieving a better economy (Lal, 2023). This can be fast-tracked as follows, by conducting an hour's brief to top management, three hours of interaction with site heads, one day of practical training with the site safety culture steering team, monthly progress tracking on behavioural trends, and quarterly monitoring by a company director. The focus is on behaviour, not outcomes. Sudhir Kumar, safety head of Jindal Steel said, "Positive thought and appropriate direction are needed to keep the plant safe" with a BBS time commitment of 5 minutes daily for every person on site.

No reason stands valid for Non-compliance. Let employees create an environment of spot-correction and a culture of big brother safety (BBS) with love not reactive behaviour. BBS is an accurate, fast and complete solution for behavioural risk control and leading positive safety culture at sites. There is a positive relationship between safety culture and organizational performance, indicating that a more positive perception of safety culture by the workers translates into a greater level of safety performance (Davyda, et al, 2023). As an observation, it is noticed that even the managing directors' circular for 'safety culture' is avoided for compliance, when it is not reinforced by the site head. Hence it is absolutely necessary that site heads reinforce the 'safety culture' which often gets ignored as a normal practice of sites.

Twelve main fundamentals of positive safety culture for workmen are recommended below:

a. Introduce a culture of spot-correction safety. Follow 6Cs.
b. Understand the psychology of at-risk behaviour.
c. Know twelve behaviour observation categories.
d. Practise twelve observers' own approach behaviours.
e. Let workmen know what is BBS and what it is not.
f. BBS steering team must function towards interdependent culture.
g. Analyse monthly BBS score.
h. Track behavioural changes each month.
i. Develop an action plan to review weekly progress.
j. Make plant/site rounds for BBS practice by everyone.
k. BBS should not replace safety systems.
l. Last person must be an observer.

Fatal incident at site: A dumper at site hit the camper vehicle which had overtaken and parked just in front of it, also the camper was driven by an unauthorised person accompanied by another two persons at the end of their shift who were in a hurry to go home. Three persons were killed on the spot at a mining site by the dumper that could not apply the brake all of sudden. This was purely an unsafe behaviour that took the life of three employees. Standard Operating Procedures (SOPs) must be developed for all critical activities and be shared with the contractors and their workmen.

The companies must target zero at-risk behaviours. HODs' daily round is absolutely necessary (OISD, 2023).

Corporate unsafe practices: Unsafe behaviour seeps into all corporate practices, e g. any delays in important decisions about safety culture implementation are considered intentional and business delays which must be replaced with immediate corrections. In a positive safety culture, everyone becomes an active observer. Management must make safety culture a mission, review it every month, and reward best observers, says a HR Head, Mr Setty of Lloyd Metals.

Safety Culture and Human Values go together. Fire and fatalities are common on roads and factories of India due to lack of active safety culture, systems and enforcement. Safety

reinforcements by government, public and citizens' safety groups are the need of the day. An obligation to work safely and keep employees safe is a direct result of a fundamental human value of caring for people (Berkley, 2020).

Many questions need answers as below.

- Why did some companies lose international business orders due to fatalities at site?
- Why do managers promise emphatically for implementation of safety culture during the training, but later lack energy to implement it? Is it due to lack of monitoring by management? Or because management focuses more on production targets than safety culture?
- Why do organizations expect international safety culture from local subcontractors - how to build it?
- Leaders at top management level are not even aware that people practise reactive safety culture. One of the Executive Directors asked surprisingly, “Is anyone reactive here”?
- How to build 5P for positive safety culture: Passion, Patience, Perseverance, Practice, Perfection.

According to Mr Rajeev Mokama of Afcons, “definitely providing knowledge, experience and inputs to sub-contractors would help in transforming safety culture of the industry globally”. Prof Jitendra Mohan said, "I wish our railway and road transport ministers, officials and users could follow safety protocols". Ex-GM IOCL Ramdas Jadhav, "In our country, law should be made applicable for each and every industry to follow positive safety culture procedures.

Build risk perceptions among workers. For example, how they must care when they enter confined areas where oxygen is less. According to a manager, “Risk exposure is like being at gunpoint which can be closed with emotional support and connect with workers”. BBS is like changing personal nature, how to talk, how to behave, using power of listening. Positive safety culture means all come in unity for increasing internal risk control in organizations as per ISO-45003. It depends largely upon how ready and committed the organizations are. Understanding risk and how it is perceived is a crucial aspect towards

creating programmes and campaigns to raise awareness and make communities and workplaces safer (The Campbell institute, 2017).

Though the construction industry is one of the biggest sectors of employment in India, it is also the second riskiest, with an average of around 38 fatal accidents a day. Construction in India is a dangerous business. With fatalities on construction sites a daily occurrence, the central and state governments must increase safety inspections and ensure that the workers can access the social security benefits they are entitled to (Bandyopadhyay, 2022).

For building workmen's mindset for safety culture, it is important to know what goes on inside the hearts of workmen in order to develop bonding and positive safety culture partnership with a sense of connectedness like a family culture of a company. Know the mind of workmen, talk to them. Help each other in burning unsafe behaviours, and keeping the environment safer and healthier. Let people update their positive psychology software/experiences by increasing safety learnings/conversations at site (Lal, 2021).

The primary focus must be on workers. Have conversation with workmen after corrections of at-risk behaviours about importance of safe behaviours. The in-charges need to include 'daily BBS observation per employee /workmen' in KRA/objective target (Lal, 2023).

In the last five years, Pune district reported 119 deaths of construction workers, emphasising the issue of worker safety in the real estate business. According to the authorities, the tragedies occurred due to crane and scaffolding failure, as well as the absence or malfunction of safety belts/nets, etc. According to experts, such occurrences highlighted the negligence of contractors as well as the lack of a strong regulatory framework (Deshpande, 2023). As these data reveal clearly that these fatalities happen every month in each constituency of the respective politicians, the political parties and government agencies have done almost nothing to stop these incidents. The construction sites should not only be considered as fund raising sources for political parties. They must be reinforced to stop fatalities amongst the contractors' workmen by adopting positive safety cultures by the political parties as well as government agencies for enforcement of safety laws.

The number of industry accidents is rising as the services boom. But the industry has hidden safety records with help from its chief regulator (Seth, 2020). Safety professionals from industry (Personal Communications, 2023) make it clear that most companies focus only on zero fatality, not zero unsafe behaviour or zero incident. In case a fatal incident happens, they can hide it, they can manage it by paying rupees five hundred thousand and gifts to authorities on festivals. If they employ safety experts, it would cost heavily, hence they explore a middle way to manage business first, safety second. In speech expressions, it is safety first, production next. This is a norm for most private and multi-national organisations. The critical question is how to stop these fatal practices so that workers and employees in plants/sites do not lose lives. This paper has thrown light on developing positive safety culture without great financial implications and employee time. Several companies (such as ITC, SAIL, GAIL, ESSAR, RIL, Colourtex, Everest, Galaxy, Reliance Energy, Ultratech, CFCL, Sandoz, Tata Motors, M&M, BPCL, ONGC, Suzlon, TUV, DNV, Bajaj Auto, Bayer CropScience, Serum, SMC, NPC, GE, IOCL, BHEL, Oil India, Privi, DRB-HICOM, HPCL, HCC, Kalpatru, Torrent, CTEA, Greentech, ICC, Pidilite, Aarti, Volkswagen, Jindal, Sterlite, Vedanta, L&T, RCF, DCM Shriram, Solaris, Agrocel, Piramal, Dorf Ketal, TRL Krosaki, Sembcorp Energy India Ltd, Uflex, Afcons, Hikal, Sunshield, Gunnebo, Amara-Raja, Hindalco, Ampacet Tata Projects, Toyota, NTPC, Vaaman, Baerlocher, Gharda, CPCL, Godrej, Hirschvogel, Asian Paints, Vasudha, ThyssenKrupp, Grasim, OTPC, Birla Sugar, OPaL, NFIL, Thermax, Everest, Toshiba, Kirloskar) achieved almost zero fatalities/reportable incidents over the years by adopting and practising widely accepted worldwide important tools like positive/supportive safety culture with collective leadership for interdependent work culture by implementing zero-blame zero-harm practices. Supportive safety culture presupposes that we (everyone at the workplace) actively care about our people, places and cultures, which is a daily journey and practice not a destination (Manufacturing Today, 2022).

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Table -1: Contractors' workmen's safety culture issues and solutions

Contractors' workmen's safety culture mindset and fatalities issues:	Solutions for Contractors workmen's safety culture mindset and fatalities issues:
1. Long hours of work, no holiday, stinking toilets (92%)	1. Providing portable toilets, and allow holidays like other employees.
2. Risk blindness or zero perception of risk (90%)	2. Strengthen close relationships between managers, supervisor and associates.
3. Relationships between managers, immediate supervisor and associates (88%)	3. Retrain and re-building Safety culture.
4. Lacking effort on safety culture improvements (86%)	4. Consider ten aspects of safety culture improvements.
5. Authoritarian/reactive organization (85%)	5. Building positive organisation.
6. Risk perceptions, risk exposure and risk awareness (84%)	6. Improve risk perceptions and risk awareness.
7. Lacking management visible leadership, corporate tracking, directors' regular communication (82%)	7. Focusing on management visible leadership, corporate tracking, and directors' regular communication.
8. Lacking Safety culture vision and its implementation (80%)	8. Reinforcing safety culture vision and its implementation.
9. Safety performance behaviours not linked to individual KPI (79%)	9. Safety performance behaviours to be linked to individual KPI.
10. Focus on outcomes, not the zero unsafe behaviours goal (78%)	10. Focus on zero unsafe behaviours goal not the outcomes.

RISK AND RETURN ANALYSIS OF SELECTED AUTO, PHARMA AND IT SECTOR COMPANIES DURING THE YEARS 2019-2022

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ABSTRACT

Investment in shares is one of the common options for earning extra income. With the change of the environment in the context of COVID, the investment scene has also shown some new normals. Investors now a days are much concerned with the amount of risk involved in the share market and on the other hand they also want better returns. The risk and return analysis related with any sector reveals the risk involved with that sector. So, in view to this, the objective of the present study is to analyze the risk and returns of selected sector companies basically Automobile sector, IT sector and Pharmaceutical sector and to analyze and compare the performance of these companies. In this study the researchers have found that under Inter sector comparison, the Automobile sector is performing good whereas, in intra sector comparison Bharat Immunological & Biologicals Co. Ltd. is performing respectable.

Keywords: *Risk, Return, Stock Market, Alpha, Sharpe, CAPM, etc.*

INTRODUCTION

Risk is the likelihood that an outcome will not be as expected, particularly in relation to returns on investment in finance. However, there are various types of risk, such as investment risk, market risk, inflation risk, company risk, liquidity risk, and so on. In the context of investing, risk is the level of uncertainty an investor is willing to accept in terms of the future returns they expect from their investment. Risk tolerance, on the other hand, is the amount of risk that the investor is willing to take with an investment, and it is usually decided by factors such as age and disposable money. With every type of investment or business, there is always some level of risk involved. Risk is a big issue to evaluate and comprehend before going into the market, whether it is the risk of increased inflation or a volatile stock (or even as a business or corporation). In recent years, with trade wars and uncertain interest rates, it appears that risk is becoming a more frequent issue when it comes to investing your money - or even establishing a business.

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Return is determined as a percentage by adding the income and the change in value, then dividing by the starting principle or investment amount. Divide the percentage return by the number of years you've held the investment to get the annualized return. For example, if you purchased a stock for Rs. 25, that paid no dividends, and sold it for Rs. 30 after five years, your profit would be Rs. 5 However, because the 20% gain is split by five years rather than one, your annualized return would be 4%. You may compare the returns produced by different assets or investments you have held for different periods of time using percentage returns and yearly percentage returns. The presence of risk does not imply that you should not invest; rather, you should be aware that each investment has some risk, which should be taken into account when determining whether the projected returns are worthwhile. As a result, the larger the risk of the investment, the higher the return. This is because return is stated as a percentage and relates to the profits or losses earned from an investment, whilst the risk factor is linked to the return's volatility. As a result, while evaluating the appropriateness of any investment, you must be aware of both the expected returns and the associated risk. Your financial objectives will determine the best risk-return mix. Some people choose a low-risk, consistent income stream, while others are willing to take on greater risk in exchange for the possibility of bigger profits. So, key investment idea is the link between risk and return.

OBJECTIVES

- *To analyze the investments in selected Auto, Pharma and IT sector Companies.*
- *To compare inter and intra sector risk and return analysis of selected Companies*
- *To understand how to use ratios like Alpha, Sharpe, and Treynor etc*

LITERATURE REVIEW

In a 2009 study, Vikkraman and Varadharajan stated that the Automobile Industry is a very important sector that propels the economy and is the fastest growing sector and also plays a major role as a catalyst in developing the transport sector on one hand and helping the industrial sector on the other.

The risk and return analysis linked with any industry reveals the intricacies involved with the particular industry which facilitates investment and right balance between both and helps the investor to take key decisions.

In a 2011 study, Zhou and Yang said that the empirical works related to risk and return analysis of the pharmaceutical industry are rarely found but as the pharmaceutical industry is considered to be of high profitability and competition, it was intended to investigate how the stock return movements behave in the pharmaceutical industry around the world. The main objectives of this paper was to analyze stock returns of pharmaceutical industry itself and with world markets, historical trends and impacts of macroeconomic variables on the stock returns of a wide range of pharmaceutical companies. The researchers fulfilled the mentioned objectives by examining a sample of cases.

A study by Ren, & Dewan. (2015) was an attempt to diagnose the risk and return profile of equity stocks of IT companies. Motivated by the wide dispersion in the returns on the use of information technology (IT) across industries, the researchers had conducted an industry-level examination of IT return and risk, focusing on the moderating role of industry competition, regulation, and technological change. The results shed light on factors that drive variation in IT performance across industries, and provided useful industry-level performance benchmarks of the return and risk impacts of IT investments.

Shetty, & Devaraj. noted that one of potential industries considered by investors for investment in this decade is the Indian Pharmaceuticals industry. This market is the third largest in terms of volume and thirteenth largest in terms of value, as per a report by Equity

Master. Even though the pharmaceutical industry is doing well, it does not come up to the level of market returns. The objective of the study was to analyze the risk and returns of investment made in the Indian pharmaceutical industry. The study was carried out by selecting a sample and examining stocks of the pharmaceutical sector listed in NSE.

In their study, Bhaskar, & Srinivas (2020) said that automobile industries provide the technical backbone to developed and developing economies and in order to improve the importance of the firms, risks and returns should be examined intensely. This study carried out risk and return analysis of some selected auto companies by applying statistical tools. It precisely showed the relationship between risk and return, proving that there is a relation between risk and return of the most effective companies among the selected companies.

The study by Bantwa, & Ansari, (2021) was an attempt to diagnose the risk & return profile of equity stocks of selected Indian IT companies listed on IT Index of NSE. Risk and return analysis play a most important role while making any investment decisions. The risk return profile of selected IT companies was examined on various parameters including the absolute return, abnormal return, required rate of return as per CAPM model, volatility of return, systematic risk and risk adjusted return. Researchers found that the Companies have offered highest rate of return.

RESEARCH METHODOLOGY

This research paper is a descriptive one, which obtains its data mainly from secondary sources. The researcher selected the Auto, Pharma and IT sectors and include the following companies: MARUTI, TATA, CIPLA, BIBCLBO (Bharat Biotech), TCS, WIPRO.

The opening and closing share prices of these companies were taken day wise from authorized sources. Yahoo Finance Website was visited for this purpose. Risk and Return analysis was conducted by using Capital Asset Pricing Model (CAPM) as described by esteemed scholars. Researchers calculated various important CAPM ratios like Alpha, Sharpe, Treynor, RSQ etc.

The shares' opening and closing prices were taken for the period of three years from April 2019 to March 2022. The data was edited, tabulated and processed as required to conduct the financial tests.

An Inter-Sector and Intra-Sector analysis was conducted. This comparison would help potential and present investors to take investment decisions in the selected companies and also give them insights into the selected sector's market conditions.

Risk and Return Relationship

Higher the average return, better it is performing in according to the average benchmark return. Further, high annualized return of the shares goes according to with the annualized benchmark return.

A high Beta (β) values signifies higher risk for the share than the market and vice-versa. The stock with high Beta (β) value needs to outperform for the return in the market.

Co-efficient of determination R-*Squared* shows how a security behaves or moves against the benchmark index. High R- *Squared,* correlates highly with the benchmark index and vice versa.

Sharpe ratio depicts excess returns earned above risk-free return.

Per unit of standard deviation values of schemes indicate better performance. It explains existence of satisfactory returns in opposition to the level of risk involved.

Treynor ratio represents the surplus return earned over risk-free return per unit of Beta (β) value. It shows that these stocks performed very well against the Beta (β) risk.

High Jensen's alpha (α) values indicate better performance and vice-versa. It is the risk-adjusted performance measure that signifies the average return of the stock above or below that predicted by the benchmark return.

RESULT AND DISCUSSION

As per the objective of the study, the Intra sector comparison of selected sector companies are calculated hereunder. The data of Maruti Suzuki and Tata Motors were taken for the intra sector CAPM analysis.

From Table 1, on the comparison of the average return with the average benchmark return

and further annualized return of the shares with the annualized benchmark return it was observed that Tata Motors showed an impressive growth more than the benchmark return.

The Tata's stock showed high Beta (β) risk as compared to Maruti's stock. High R-*Squared* value was observed in Maruti's shares over Tata's shares.

The Sharpe ratio was more than 1 in both the companies; however, Tata's Sharpe ratio is more than Maruti's share which indicates better returns of Tata's shares and depicts excess returns earned above risk-free return over Maruti's share.

The high SD value is not considered good, here it is observed that Maruti's SD is lower than that of Tata. It explains the existence of satisfactory returns in opposition to the level of risk involved.

High Treynor ratio indicates that the share is more suitable for investment. Maruti's Treynor's value is negative and Tata's value is positive; it shows surplus return earned over risk-free return per unit of Beta (β) value.

High alpha (α) values indicate better performance and vice-versa. Here, both the companies have negative alpha value. It means the returns may not be according to the market's performance in future. So, it is can be concluded that in intra-sector comparison Tata is performing beetteer over Maruti because it will give more return with less risk and will be profitable in the long run but if an investor wants less risk and returns in short term, Maruti would be a better choice.

From Table 2, on the comparison of the average return with the average benchmark return and further annualized return of the shares with the annualized benchmark return it was observed that BIBCLBO showed an impressive growth more than the benchmark return.

The BIBCLBO's stock showed high Beta (β) risk as compared to Cipla's stock. High R-*Squared* value was observed in Cipla's shares over BIBCLBO's shares.

BIBCLBO's Sharpe ratio is more than Cipla's which indicates better returns of BIBCLBO's shares and depicts excess returns earned above risk-free return over Cipla's share.

BIBCLBO's SD is higher than that of Cipla's. This does not go in the favor of BIBCLBO.

High Treynor ratio indicates that the share is more suitable for investment. BIBCLBO's Treynor's value is less than Cipla's.

High alpha (α) values indicate better performance and vice-versa. BIBCLBO's alpha value is higher than Cipla's.

It is concluded that in the Pharma sector BIBCLBO (Bharat Biotech) is giving return far more than Cipla but if an investor wants less fluctuation in returns, Cipla shares are advisable.

From Table 3, on the comparison of the average return with the average benchmark return and further annualized return of the shares with the annualized benchmark return, it was observed that TCS showed an impressive growth more than the benchmark return.

Wipro's stock showed high Beta (β) risk as compared to TCS's stock. High R- *Squared* value was observed in Wipro's shares over TCS's shares.

Wipro's Sharpe ratio is more than TCS's share which indicates better returns of Wipro's shares and depicts excess returns earned above risk-free return over TCS's share.

Wipro's SD is higher than that of TCS. This does not go in favor of WIPRO.

High Treynor ratio indicates that the share is more suitable for investment. TCS's Treynor's value is less than Wipro's.

High alpha (α) values indicate better performance and vice-versa. TCS's alpha value is higher than Wipro's.

So, it is concluded that in the IT sector TCS is better than Wipro, based on the collective analysis of Table 3.

Table 4 depicts that the Automobile Sector has beta value more than 1, it means they are riskier, because they have more reactivity and react instantly. While, Pharmaceutical Sector and IT Sector has moderate beta value, i.e., lower than 1. It means, Automobile Sector companies will give good return in the long run, while Pharmaceutical and IT sector companies may give good return in the short run. If Sharpe ratio is more than risk free rate it is better so, The Sharpe is more in Pharmaceutical and Automobile Sector and in IT Sector It is less than the risk-free rate. In Automobile Sector Treynor is negative, so it the worst as per this criterion. While in Pharmaceutical and IT Sector, Treynor is Below 1 but not negative. So, here the Treynor is moderate. SD shows the spread of risk.SD is highest in the

Automobile and Pharmaceutical sector, it means it has more deviations and unexpected returns. So, as per this criterion it is comparatively riskier. While, SD is moderate in IT Sector. So, it has Stable returns because the spread is less.

So, it is concluded that IT sector is good to invest as it is less risky and less volatility is there in it.

CONCLUSION

Taking the results and discussion into consideration, it is concluded that the best companies which is performing as per the parameters is Tata i.e., Inter sector and Intra sector BIBCL.BO is performing well. The riskier company to invest will be Maruti and the Companies which we can consider without seeing are Wipro and TCS because these are IT sector companies of which the services run 24/7 and did not majorly be impacted by any deformity. We can also refer that Cipla is a moderate performer in the selected companies as per the data analysis.

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Annexures

Table 1: Intra Sector comparison of Automobile Sector Shares

Ratios	MARUTI	TATA
Alpha	-0.30	-0.23
Beta	1.16	1.65
Sharpe	3.15	8.61
Treynor	-0.47	0.21
RSQ	0.42	0.36
SD	5.14	7.98
Annualize SD	37.04	57.55
Average	-0.05	0.16
Annualize Return	-2.68	8.37
Return's Sum	-8.03	25.11

Table 2: Intra Sector comparison of Pharma Sector Shares

Ratios	CIPLA	BIBCL.BO
Alpha	0.24	0.98
Beta	0.67	0.77
Sharpe	4.96	10.75
Treynor	0.04	0.02
RSQ	0.17	0.04
SD	4.65	10.66
Annualize SD	33.55	76.88
Average	0.33	1.11
Annualize Return	17.36	57.52
Return's Sum	57.09	172.57

Table 3: Intra Sector comparison of IT Sector Shares

Ratios	TCS	WIPRO
Alpha	0.48	0.14
Beta	0.60	0.67
Sharpe	3.83	4.96
Treynor	0.02	0.06
RSQ	0.23	0.18
SD	3.65	4.53
Average	0.56	0.24
Annualize Return	29.21	12.32
Return's Sum	87.63	36.97
Annualize SD	26.32	32.66

Table 4: Inter Sector Comparison of selected companies

Ratios	MARUTI	TATA	CIPLA	BIBCL.BO	TCS	WIPRO
Alpha	-0.30	-0.23	0.24	0.98	0.48	0.14
Beta	1.16	1.65	0.67	0.77	0.60	0.67
Sharpe	3.15	8.61	4.96	10.75	3.83	4.96
Treynor	-0.47	0.21	0.04	0.02	0.02	0.06
RSQ	0.42	0.36	0.17	0.04	0.23	0.18
SD	5.14	7.98	4.65	10.66	3.65	4.53
Annualize SD	37.04	57.55	33.55	76.88	26.32	32.66
Average	-0.05	0.16	0.33	1.11	0.56	0.24
Annualize Return	-2.68	8.37	17.36	57.52	29.21	12.32
Return's Sum	-8.03	25.11	57.09	172.57	87.63	36.97

APPROPRIATE TECHNOLOGY AND AGRI-START-UPS IN INDIA: A DESCRIPTIVE ANALYSIS

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ABSTRACT

Previous studies claimed that use of technological advancement and appropriate technology (AT) help to increase agri-startups and sustainable agricultural development. Also, technology incubators introduced by research institutions have a significant impact on the start-up ecosystem. However, limited studies could provide the current position of agri-startup set up by Indian research organizations in the agricultural sector. The present study, therefore, describes the overview of AT in the background of the agricultural sector. It provides the review of 100 agri-start-ups promoted by incubators in India during 2008 - 2017. Thereupon, it segregates available agricultural technologies discovered by Indian Council of Agricultural Research India as per their usages. The results claim that 7 agri-industries have association with incubators established by research institutions in India. Agri-industries have proper association with research organizations. Agri-industries are capable of creating agri-start-ups in India. These industries are using various channels like direct marketing, direct marketing and service, direct marketing distribution, online marketing and marketing through dealers to distribute their products among the consumers. Thereupon, this study checks the viability of 807 technologies developed by ICAR. Only 217 technologies out of 807 are found most suitable for cultivation. This study suggested that users should use those technologies that are appropriate for them.

Keywords: *Appropriate technology, Agri-startup, Entrepreneurial activity, Agricultural sector, India.*

INTRODUCTION

Applications of appropriate technology (AT) provide numerous benefits in all sectors. Science provides the conceptual and scientific process to increase understanding of enterprises on technology (Ananth & Kartikeyan, 2014). Science is the origin point of any kind of technology. At present, the local community is using various technologies to solve

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various problems of society which are known as AT. AT has minimum adverse impact on environment and ecosystem services (Zhou et al., 2017). AT also the economic and social acceptability by the users (Jyoti et al., 2023). Hence, use of AT in the production sectors have a positive contribution to increase resource sustainability Singh et al., 2023a). While sustainability in ecosystem services provide extensive possibilities to increase production and efficiency of all sectors (Ashraf & Singh, 2022). In general, AT is the composition of social viability, economic affordability and environmentally effectiveness (Singh et al., 2023a). Also, AT is a labour-intensive technology that meets the needs of the local manufacturing sector. AT is a knowledge or idea or method or process that is available for the local community.

Using any method, way, technique and process to produce gas at micro level; to save water, electricity, and food; to reduce waste materials; re-use of resources; and to increase energy conservation are the examples of AT (Ashraf & Singh, 2022). AT is small-scale technologies that maintain environmental sustainability. It is also helpful to increase the technical efficiency of the farming sector (Singh et al., 2019). AT helps to increase self-sufficiency for local stakeholders who produce various goods and services in rural areas. AT incentivizes to increase production without decreasing the productivity of inputs (Costanza et al., 2012). AT is essential to meet the demand of people rather than their needs. AT is beneficial to satisfy three aspects of all production systems: (i) it maintains the sustainability of natural resources, (ii) it meets the desired goals of users, and (iii) it does not have a negative impact on human health (Jyoti et al., 2023). AT therefore, is effective to increase food production, rural ecosystem; to create employment opportunities; and make social and economic inclusion (Ananth & Kartikeyan, 2014). AT is also useful to develop the energy industry that is the fruit of renewable sources. Consequently, advanced technology has a significant impact on human well-being and livelihood security of all people.

In the agricultural sector, AT is effective to maintain sustainable agricultural development in agriculturally intensive countries like India, China and Brazil. Agricultural technologies can be used for various purposes like ploughing, soil fertility, implementing seeds, watering the land, methods for irrigation, planting of seed and fertilizer (Saurabh, 2016; Ashraf & Singh, 2022). Agricultural utensils, better-quality of seeds and mineral fertilizer

are also beneficial to increase sustainable agricultural development (Pasa, 2017). Agricultural technologies are supportive to improve cultivation process, reduce use of fertilizer and improve water retention. Saurabh (2016) divided agricultural technologies in two parts i.e., land supplementing technological alteration and labour supplementing technologies. It includes hybrid varieties of seeds that have high yield capacity, minimum use of fertilizer and irrigation, and plant protection. Labour augmenting technological change includes mechanical change like agricultural operation that reduce human efforts and increase the marginal productivity of inputs.

The AT is one kind of innovation that is an important factor to increase India's growth and to overcome the stress of poverty and maintain the living standard of rural communities (Dutz, 2007). Innovation makes mechanization economically feasible for small holders in India. Therefore, the main objective of AT is to increase socially equitable, economically efficient, and ecologically sustainable manners. There are several examples which show the progress and impact of AT in the agricultural sector of India (Ashraf & Singh, 2022; Jyoti et al., 2023). India is a third largest country that has around 8.4-million-hectare arable land genetically modified in only cotton crop (Suryavanshi & Singh, 2014). Thus, technological advancement could provide a positive return in the Indian agriculture sector (Kapur, 2018). While the USA, Brazil, Canada, China and South Africa also introduced various crops under genetically modified crops as applying various technologies in cultivation.

In India, farmers are using various agricultural technologies to increase yield, cropped area, and production of crops in the post-independence period (Saurabh, 2016; Ashraf & Singh, 2022). In India, use of new technology has seemed effective to increase production and productivity of agriculture. While technological advancement is useful to sustain quality and quantity of natural resources in the agricultural sector (Kumari, 2014). Larson et al. (2004) also observed that India could achieve food sufficiency due to implementation of green revolution technologies in cultivation. Suryavanshi and Singh (2014) noticed that biotechnology has provided several ways to sustain the productivity of crops and nutritional quality of food-grain products in India. Singh and Nayak (2018) observed a positive relationship between farm productivity and modern technology in India. Kapur (2018) also claimed that application of technological development is useful to reduce cost of cultivation and increase economic return of farmers in India. Similar results are also produced by Kumar

and Singh (2023) in the agricultural sector of Himachal Pradesh (India).

India is the second largest agrarian country. While limited studies could consider aforesaid points in their investigation in Indian agriculture (Dhehibi et al., 2020). There is significant scope of usages of AT in the farming sector of India (Jyoti et al., 2023). Furthermore, India also needs to apply AT in cultivation to increase food security, food quality, yield of crops, and economic profit of farmers. India can also develop Agri-start-ups, and increase natural resource sustainability through AT and technological development (Saiz-Rubio & Rovira-Más, 2020). So, the usages of AT may be useful to increase agriculture growth in a sustainable way in India. Furthermore, application of AT would be useful to create the Agri-start-ups in the Indian agricultural sector. However, the past studies could not examine the progress of agri-startups and segregate available agricultural technologies as per their usages in India. Therefore, the main aim of this study is to provide the current position of Agri-start-ups in India using secondary data. Thereupon, it explains the various usages of available agricultural technologies in the cultivation. The secondary data of number of agri-startup and agricultural technologies are taken from the Indian Council of Agricultural Research, New Delhi.

THOUGHT OF APPROPRIATE TECHNOLOGY

Firstly, the concept of AT was used by Mahatma Gandhi in India. Mahatma Gandhi is known as the father of the movement for AT and he introduced the concept of village-based technology in a practical manner. The main vision of Mahatma Gandhi was to increase the rural economy in India through application of AT at micro level. Mahatma Gandhi also desired to increase rural development by creating small industries in India. In 1962, Dr. Ernst Friedrick also introduced the word as "*Appropriate Technology.*" Thereafter, an intermediate technology word emerged instead of AT in the theoretical literature (Jyoti et al., 2023). Accordingly, several names used for AT by existing researchers, scientists and developmental thinkers in India and other countries. AT was adopted by private and public players, local governments, and the global community in the 1970s (Moon & Hwang, 2018; Patnaik & Bhowmick, 2018). The concept of AT, therefore, is very old and humanity has been using several methods and techniques as an AT to meet their requirements in different sectors since more than one century.

Basically, AT is essential to satisfy human needs in various aspects. In ancient times humanity was using different methods and techniques as an AT to complete their goals. These methods were known as AT. In modern times, the scientific research community and social thinkers provided different definitions on AT. AT do not have specific and uniform indicators which may be generalized. Therefore, academicians could not provide the uniform and acceptable definition and indicators of AT. The existing researchers and scientists defined AT as per their own view and availability of related information. A group of researchers argued that AT is an idea, object, process or practice which are useful to meet the human requirements for maintaining the sustainability in natural resources (Singh & Jyoti, 2023). As human needs are unlimited, therefore, any idea or method which is applied by a person or group of people to satisfy their own his/her need is known as AT. The scientific research community also connects AT with cultural, economic, and environmental conditions which are essential to meet the needs of humans (Jyoti et al., 2023). AT, therefore, is an integration of three components like social, economic and environmental sustainability (Dunn, 1978; Ashraf & Singh, 2022). These three components are also crucial components of sustainable development (Singh et al., 2020; Singh et al., 2021). Hence, sustainable development may not be achieved without application of AT in production activities.

Previous studies segregated various components of agricultural technologies based on their functions and usages in the agricultural sector. Vitale and Sanders (2000) identified three components of agricultural technologies such as improved cultivars, inorganic fertilizer, and improved water retention techniques. Science & technology (S&T) is useful to increase sustainable farming, rural upliftment, and agrarian livelihood and farmer's empowerment. Furthermore, technology revolutionized the path of sustainable agricultural development through increasing eco-friendly resources. Plant biotechnology and Bt-cotton are crucial examples of agricultural innovation in India. Technological advancement or applications of AT is directly associated with mechanization of farms. However, mechanization of farms must be conducive to maintain the sustainability in inputs. Mechanization of farms means the use of machines and modern techniques for agricultural production instead of traditional methods.

Farm mechanization is based on capital intensive technology and it helps to increase

agricultural productivity. It includes use of tractor, thresher, etc., for levelling, spraying, weeding application of fertilizers, pesticide, bio-fertilizers. It can be divided in three parts: first, chemical technology-plant protection, second, hydrological technology-tube wells, and third, mechanical technology- tractors, threshers, and bulldozers. Farm mechanization is useful to increase the agricultural production and quality of products in cultivation. It creates opportunities for multiple cropping and crop diversification in the farming. It is useful to increase the efficiency of land and labour as to maintain the timeliness of farm activities. It is also useful to increase effective use of inputs such as seeds, pesticide, fertilizer, mechanization, labour and water in the agricultural sector. Furthermore, the mechanization technologies help to increase industrial growth and socio-economic advancement of the farmers (Ghadiryanfar et al., 2009). For instance, productivity per unit of cropped area has increased due to applications of new technology and use of High Yielding Variety (HYV) of seeds in the agricultural sector of West Bengal, India (Chakrabarti et al., 2002).

Innovation based enterprises and AT are helpful to diminish the negative consequences of different activities on society and community as providing the several alternatives or options (Dunn, 1978). Innovation, therefore, is capable of addressing the problems of society. AT emerged as per the requirement of the local community and it has solutions for multiple problems. Thus, AT is considered as a grassroots innovation which is useful to sustain the activities of small-scale enterprises in rural areas. Innovation brings new processes to solve the existing problems of society and provide a way for better development of entrepreneurship (Singh & Bhowmick, 2015). Rural innovation is also vital to create new economic opportunities and develop rural entrepreneurship (Singh & Bhowmick, 2015). Traditional industries such as small cottage industries and others help to create entrepreneurship ecosystems in the developing economies (Bhattacharjya et al., 2019).

Moreover, AT is highly effective to increase agricultural production. Siddick (2019) used land preparation, transplanting techniques, weeding, fertilizer and pesticide application, packing and labour involved to assess their influence on income of paddy farmers in India. Singh et al. (2023b) described the AT as beneficial to increase the farm productivity and reduce negative consequences of climate change in the farming sector. Accordingly, the scientific research community developed several models to assess the impact of AT or

technological advancement of technologies on production activities. It is accepted that growth of the agricultural sector could be improved due to application of AT. Automatic pilot technology has provided greater success in sugarcane agriculture in Brazil (Silva et al., 2011). Shanthy (2011) claimed that smooth and effective dissemination of AT provided success to the sugarcane growers in India. AT in agricultural sector is also useful to increase stability in production of crops (Deb et al., 1991), to reduce environmental pollution (Hou, 1998; Prasad & Pal, 2014), to increase managerial skills, to improve yields (Silva et al., 2011; Pasa, 2017), to promote water efficiency (Prasad & Pal, 2014), to increase commercialization of farming, to increase income of farmers, to create self-employment (Pasa, 2017), and to reduces per unit cost of inputs (Gandhi, 1997). AT has also increased the efficiency, productivity, and marketing process (Ananth & Karthikeyan, 2014; Swain, 2016; Singh & Ashraf, 2020).

AT has multi-dimensional aspects which includes technology transfer, knowledge-transfer mechanism and capacity-building (Lee et al., 2018; Singh & Kumar, 2022). Subsequently, transfer of technologies across regions prepares an effective platform to create new business opportunities and entrepreneurship ecosystems. AT also includes creation of an entrepreneurship ecosystem, better market possibilities and commercialization of technologies (Pearce, 2019). Information and communication technology (ICT) provides the facility for entrepreneurship development by collecting the traditional technologies from various sources (Singh, 2018). In India, Rural Technology and Business Incubator (RTBI) was established in 2006. RTBI provided greater success in establishing new enterprises in Rural India. Singh (2018) identified the role of ICT in entrepreneurship success in India using a survey of 400 grassroots entrepreneurs. This study observed that ICT is useful to increase new learning performances and provide better return for the entrepreneurs. Thus, ICT works as important determinants for creation of entrepreneurship development and conducive ecosystem for it.

Technological advancements are helpful for farmers to improve their crop production and income through agriculture industries (Parke, 2013; Ashraf & Singh, 2021; Jyoti et al., 2023). Lee et al. (2018) observed AT affecting factors using a modified combined concept of its acceptance. It also examines the intention of people towards AT and its usage in water

purification in Vietnam using a field survey of 296 respondents. It found that all constructs significantly affect the social intentions of AT. Moon and Hwang (2018) identified appropriate technology affecting factors using a crowdfunding platform method. This study recommended that social impact, energy expectancy, and apparent trust have an important impact on the use of backers AT. Ashraf and Singh (2022); Jyoti et al. (2023); Singh and Jyoti (2023) explained the conceptual and empirical framework of AT and its further implications in the Indian agricultural sectors using field-based surveys.

DEVELOPMENT OF AGRI-START-UPS IN INDIA

Agricultural technologies have a significant impact on agricultural production. It is also useful to create agri-start-ups and agri entrepreneurship. Therefore, the present study reviewed 100 agri-start-ups to examine the role of agricultural technologies in their creation in India. The information on agri-start-ups is taken from the published report by Indian Council of Agricultural Research (ICAR), New Delhi (Srinivas et al., 2018). It considers different agri-business incubators which are providing support to the agri-start-ups in India. The association of different agri industries with research institutions is presented in Table: 1. Year-wise number of agri-start-ups set up by different industries in India is also presented in Table: 2. It demonstrates that the number of agri-start-ups continuously increased during 2008- 2016. The number of agri-start-ups declined in 2017.

Table 1: Associated industries with incubators in Indian research institutions

Institute/ Industries	Agril Engineering Machines/ Tools	Biopesticides and Crop Nutrition	Crop Protection and Product	Fish Products and Processes	Food Products and Processes	Seed and Planting Material	Textile Industry	Total
CIBA, Chennai	0	0	0	6	0	0	0	6
CIFT, Kochi	0	0	0	1	0	0	0	1
CIPHET, Ludhiana	2	0	0	0	2	0	0	4
CIRCOT, Mumbai	0	1	0	0	0	0	2	3
CPCRI, Kasaragod	2	0	0	0	10	0	0	12
CPRI, Shimla	0	0	1	0	0	2	0	3
IARI, New Delhi	2	3	4	0	3	3	0	15
IIHR, Bengaluru	0	4	2	0	1	5	0	12
IIMR, Hyderabad	0	0	0	0	2	0	0	2
IISR, Calicut	0	3	0	0	0	5	0	8
IVRI, Izatnagar	0	2	0	0	0	0	0	2
NAARM, Hyderabad	0	1	4	2	8	0	0	15
NDRI, Karnal	0	0	1	0	10	0	0	11
NIRJAFT, Kolkata	0	0	0	0	0	0	3	3
NRC on Meat and Pig Hyderabad	0	0	0	0	3	0	0	3
Total	6	14	12	9	39	15	5	100

Source: Indian Council of Agricultural Research, New Delhi (Srinivas et al., 2018).

There is a requirement to give appropriate attention to setting up more agri-start-ups through creating student Agri-start-ups in agricultural research institutions in India. Number of licensing teams of agri-start-ups of research institutions is given in Table: 3. It infers that the food products and processes industry have a largest number of start-ups and this industry has established the largest number of agri-start-ups. While CPCRI, Kasaragod and NDRI, Karnal. IARI New Delhi and NAARM Hyderabad provided support to establish the largest number of agri-start-ups in both the industries.

Table 2: Year-wise progress of agri-start-ups in India

Institute/ Industries	Agril Engineering Machines/ Tools	Biopesticides and Crop Nutrition	Crop Protection and Product	Fish Products and Processes	Food Products and Processes	Seed and Planting Material	Textile Industry	Total
2008	0	0	0	1	0	0	0	1
2010	0	0	0	0	3	0	0	3
2011	0	2	0	0	0	1	0	3
2012	2	2	0	0	1	2	0	7
2013	0	0	2	1	2	0	2	7
2014	2	1	2	2	8	1	1	17
2015	1	4	3	2	8	2	0	20
2016	1	3	4	2	10	3	1	24
2017	0	2	1	1	7	6	1	18
Total	6	14	12	9	39	15	5	100

Source: Indian Council of Agricultural Research, New Delhi (Srinivas et al., 2018).

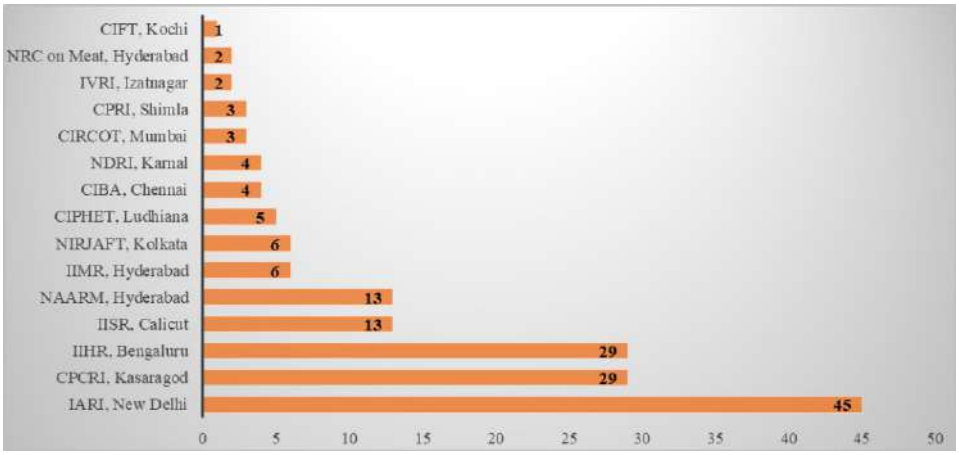
Table 3: Number of licensing team of Agri-start-ups of research institutions

Licensing Team	Acceleration support	Incubation support	Incubation support	Non exclusive	Own technology	Tota l
CIBA, Chennai	0	0	1	4	1	6
CIFT, Kochi	0	0	0	1	0	1
CIPHET, Ludhiana	0	0	0	4	0	4
CIRCOT, Mumbai	0	0	0	3	0	3
CPCRI, Kasaragod	0	0	0	12	0	12
CPRI, Shimla	0	0	0	3	0	3
IARI, New Delhi	0	1	8	6	0	15
IIHR, Bengaluru	0	0	0	12	0	12
IIMR, Hyderabad	0	0	0	2	0	2
IISR, Calicut	0	0	0	8	0	8
IVRI, Izatnagar	0	0	0	2	0	2
NAARM, Hyderabad	7	0	7	1	0	15
NDRI, Karnal	0	0	7	4	0	11
NIRJAFT, Kolkata	0	0	0	3	0	3
NRC on Meat and Pig Hyderabad	0	0	1	2	0	3
Total	7	1	24	67	1	100

Source: Indian Council of Agricultural Research, New Delhi (Srinivas et al., 2018).

It is also found that 7 different industries i.e., Agril Engineering Machines/Tools, Biopesticides and Crop Nutrition, Crop Protection and Product, Fish Products and Processes, Seed and Planting Material and Textile Industry have 6, 14, 12, 9, 39, 15 and 5 agri-start-ups, respectively in India. The number of licensing teams for each research institution is given in Table: 3.

Figure 1: Number of technologies licensed by institutes=



Source: Indian Council of Agricultural Research, New Delhi (Srinivas et al., 2018).

Table 4: Distribution channels of agri-industries in India

Distribution Channels	Agril Engineering Machines/	Biopesticides and Crop Nutrition	Crop Protection and Product	Fish Products and Processes	Food Products and Processes	Seed and Planting Material	Textile Industry	Total
Dealers/Distributors	0	0	1	0	0	0	0	1
Direct Marketing	3	12	11	4	18	13	3	64
Direct Marketing and Service	0	0	0	1	0	0	0	1
Direct Marketing/ Distribution	0	0	0	0	2	0	0	2
Direct/Internet	0	0	0	0	1	0	0	1
marketing								
Distributors	2	2	0	1	8	1	1	15
Marketing through Dealers	1	0	0	2	9	1	1	15
Word of Mouth	0	0	0	1	0	0	0	1
Total	6	14	12	9	39	15	5	100

Source: Indian Council of Agricultural Research, New Delhi (Srinivas et al., 2018).

The various categories of licensing teams are also included in this table. IARI has the largest number of licenses. While CIFT Kochi has one license to support agri-start-ups in India. Institute-wise number of technologies licensed issued to the different industries is presented in Figure: 1. It is suggested that IARI has issued the largest technology license, while CPCRI Kasaragod and IIHR Bengaluru have issued licenses for 29 technologies. NAARM Hyderabad and IISR Calicut have 13 technologies that could be licensed. Distribution channels of industries are presented in Table: 4. It is recommended that 64% industries have a direct marketing system. While 15% industries are providing their services through local distributors. Furthermore, 14% industries are doing their business through Dealers.

SEGREGATION OF AVAILABLE AGRICULTURAL TECHNOLOGIES IN INDIA

Total 807 technologies in agricultural and allied sectors (i.e., various product, process, knowhow, plant varieties, genetic resources, design and software) are collected from the website of Indian Council of Agricultural Research, New Delhi. The segregation of these technologies in various forms is presented in Table: 5. It shows that 7 types of innovations (i.e., design, genetic resources, plant varieties, process, product, software and machine) are found in various categories.

However, the authors of this study selected only 217 technologies out of 807, which were found most useful for the agriculture sector. These technologies have more viability with regard to AT. The specific use of selected technologies is presented in Table: 6. Furthermore, the scientific research community have discover various technologies for various purpose such as to abate greenhouse gases, suitable for dry sowing of seed, multi-purpose tool seed, sowing of pre-germinated of seed in puddled field, achieve optimum yield of crop, improve cropping pattern, increase juice quality in crop, increase seed production, increase soil quality and fertility, increase soil contents, prepare powder of food-grain product, sowing of pre-germinated rice crop, weeding and thinning, fertilizer, conserve water for irrigation, modified crops, reduces the cost of cultivation, use of fertilizer, manual rice transplanter, increase germination of seed, water conservation for irrigation, planting of seeds in soil, maintained and dropping of seeds, soil testing, maintains smooth cutting of crops during harvesting, provides potassium, pillowing, seeding and weeding, and increase productivity of crops in the agriculture sector.

Table 5: Segregation of collected technologies

Category of technologies	Frequency	Percentage
Design	1	0.1
Genetic resources	28	3.5
Plant varieties	196	24.3
Process	72	8.9
Product	140	17.3
Software	2	0.2
Technology (Machine)	368	45.6
Total	807	100.0

Source: Indian Council of Agricultural Research, New Delhi.

Table 6: Usage of technologies in cultivation

Specific use of technologies	Frequency	Percentage
To reduce greenhouse gases	1	0.92
Suitable for dry sowing of seed	1	0.46
Multi-Purpose Tool Seed	1	0.46
Sowing of pre-germination of seed in puddled field	2	0.92
Achieve optimum yield of crop	1	0.46
Improve cropping pattern	1	0.46
Increase juice quality in crop	1	0.46
Increase seed production	1	0.46
Increase soil quality	1	0.46
Increase soil contents	2	0.92
Prepare powder of food-grain product	1	0.46
Weeding and thinning, fertilizer	1	0.46
Increasing seed yield	2	0.92
Sowing of pre-germinated rice crop	2	0.92
Conserve water for irrigation	2	0.92
Controlling disease, insects and weeds in crops	3	1.38
Modified crops	3	1.38
Reduces the cost of cultivation	3	1.38
Use of fertilizer	3	1.38
Increase germination of seed	3	1.38
Water conservation for irrigation	3	1.38
Planting of seeds in soil	4	1.84
Manual rice trans planter	5	2.30
Maintained and dropping of seeds in hills	6	2.76
Provides potassium	6	2.76
Seed sowing	8	3.69
Soil testing	8	3.69
Implementing the technology for enhanced productivity of crops	10	4.61
Maintains smooth cutting of crops during harvesting	10	4.61
Field preparation for seed planting in land	18	8.29
Protecting seeding and weeding of seed	21	9.68
Increase productivity	82	37.79
Total	217	100

Source: Indian Council of Agricultural Research, New Delhi.

CONCLUSION AND POLICY IMPLICATIONS

The descriptive results based on review of 100 agri-start-ups, show that 7 Agri industries (i.e., Agril Engineering Machines/Tools, Biopesticides and Crop Nutrition, Crop Protection and Product, Fish Products and Processes, Food Products and Processes, Seed and Planting Material and Textile Industry) have appropriate association with research organizations. CIBA Chennai, CIFT Kochi, CIPHET Ludhiana, CIRCOT Mumbai, CPCRI Kasaragod, CPRI Shimla, IARI New Delhi, IIHR Bengaluru, IIMR Hyderabad, IISR Calicut, IVRI Izatnagar, NAARM Hyderabad, NDRI Karnal, NIRJAFT Kolkata and NRC Hyderabad are providing various supports to agri-industries to create agri-start-ups in India. Furthermore, these industries are using various channels like direct marketing, direct marketing and service, direct marketing distribution, internet marketing and marketing through dealers to distribute their products among the consumers. Hence, research institutions should collaborate with agri-industries to create agri-start-ups in India. Research institutions, agricultural universities and agri-industries should create awareness among the farmers towards new technologies in India.

Total 807 technologies were found suitable for the agriculture sector according to available technologies at the website of Indian Council of Agricultural Research, New Delhi. These technologies are in the domain of design, genetic resource, plant varieties, process, product, software and machine. However, these technologies cannot be used by farmers due to several reasons such as low economic capacity of users, most technologies have industrial usages, low technological skills of farmers, small size of land holdings, and applicability of these technologies at large land size (Ashraf & Singh, 2022). Thus, only 217 technologies out of 807 are found most suitable for cultivation. Also, these technologies can be used to reduce greenhouse gas, and to increase crop yield, improve cropping pattern, increase juice quality, increase soil quality, conserve water for irrigation, and maintain smooth cutting of crops, Furthermore, it is also essential to select only those technologies which are appropriate and farmers can bear the cost of these technologies in cultivation.

Indian farmers have a low understanding of technology due to their low literacy rate. Moreover, most farmers are unable to use technologies in cultivation due to their financial

restriction in India. The government should provide financial support to medium and small farmers to bear the high cost of technologies. The farmers should be associated with Agri-industries to get more scientific knowledge on available technologies and their usage in crop farming. The government should organize seminars and workshops for farmers to get more understanding on usages of technology in various dimensions. Indian farmers should focus on labour intensive AT in farming. The government should also improve agricultural marketing to get better advantages of modern technologies. Farmers can also opt for technology enabled farming tools for small farms. Farmers should also focus on those technologies that have a positive impact on the environment, natural resources and human health. The agricultural universities and institutions should also promote agri-start-up as per the current need of farmers.

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IDENTIFICATION AND COMPARISON OF CHALLENGES FACED BY RURAL CONSUMERS AND URBAN CONSUMERS IN ONLINE SHOPPING

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ABSTRACT

In the twenty-first century, information is literally at your fingertips. E-commerce has thrived because of the increasing importance of time in today's world. Rural and urban regions alike have enormous potential to grow into sizable, self-sufficient communities, much like the rest of the nation's metropolitan districts. They only need to be nudged in the correct way and encouraged to be receptive to the possibility of change. This study discusses how e-commerce and other forms of information technology can bridge the digital divide between urban and rural areas. Knowing how rural and urban customers feel about their online purchasing experiences is an important part of our study.

***Keywords*:** Online, Rural, Urban, Shopping, Challenges

INTRODUCTION

Although India has a sizable population, it is expected to lag behind other key Asia-Pacific economies this year in terms of online retail sales, including China, Japan, South Korea, and Australia. E-commerce sales in Australia have historically been higher than in India, however owing to explosive growth between 2018 and 2022; India may pass Australia as soon as 2019. India's vast infrastructural gap between cities and rural areas is the country's biggest challenge to the growth of e-commerce.

When compared to other established Asian economies, India's Internet penetration, the industry's primary driving force, is significantly lower than in the rest of the region. In 2017, the rate of Internet connection was about three times greater in big cities than in rural regions, despite the fact that total Internet penetration is expected to rise in metropolitan areas. Over 90% of people who use the internet do it through a mobile device, and this is true in both regions.

The lack of a solid logistical infrastructure is another problem area for India's online marketplace. Over two-thirds of India's population lives in rural areas, which include a hundred times more villages than cities. B2C E-Commerce businesses' existing delivery coverage of these locations is inadequate, limiting purchasing opportunities for a large number of prospective online consumers. However, industry leaders like Amazon and

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Flipkart are addressing the issue by providing Omni-channel services, which allow customers to make purchases online and then pick them up at a physical location.

One of the primary motivations for B2C E-Commerce growth over the next several years is expected to be the increasing Internet and online shopper penetration rates in rural India. Half of all e-commerce sales will come from places other than big cities by 2020.

I. BUYING MANNERS OF RURAL AND URBAN CONSUMERS

Buying manners of rural consumers

Some decades ago, the rural consumer was a quiet customer who bought things without question. Now the customer is choice empowered. Businesses have now begun to see the value in serving customers in rural areas. Companies have been compelled to revamp their marketing methods in response to the evolving consumer base, increased levels of education and per capita income, and rapid expansion of the rural economy. They have started focusing on the shifting preferences and demand of the new contemporary rural customers. This shift in consumption pattern is noticed owing to greater knowledge, growth of information technology, changes in consumer taste, preference and income at micro level, it eventually influences the buying behaviour of customers. The research study reveals that the rural customers are increasingly quality concerned in their food consumption, such going out for supper and desire for fast food, ready-made foods are growing thereby saving woman's time. Now the new generation of rural India travelling out to city area and foreign region for education and work consequently got affected by modern latest trends, western fashion and they are selecting for branded clothes and latest fashion trends. A bigger tendency of outings and trips to restaurant and cinema halls have started developing rural portion. This new way of shopping and eating has been greatly influenced by the media, particularly television. The rural folks are highly brand loyal contrasted to its dynamic metropolitan counterpart.

Customers in rural areas aren't as likely to transfer brands because they're concerned about being scammed by another company or because they aren't familiar with the availability of other options. In the rural region certain isolated locations are also present where the people still doesn't have technology, awareness so they recognize the goods not on the basis of

brand name but on the basis logo, symbol, colour, packaging, structure. According to the report the Indian rural consumers have cut their expenditure on food goods and boosted expenditure on non-food products. Before creating a product for rural consumers, marketers should make an effort to get inside their heads. When it comes to making a purchase decision, people in rural areas are more likely to listen to the recommendation of someone they respect and trust. Most rural male heads of households are influenced to make purchases and learn about new products by the opinions and information provided by their wives and children. Rural consumers place a premium on routine. Routine is guided by natural season not by calendar and clock. Most people in rural areas work seven days a week, whenever it is needed, thus the notion of a "weekend" is foreign to them. Instead, they buy as needed every day of the week. Many individuals in rural areas like to shop by touching and seeing an item before they buy it.

Buying Manners of Urban People

The present shopping habits of India's urban middle and upper classes are heavily influenced by the West. A more optimistic view of the West may be observed. The typical urban customer is more willing to try new things and embrace diversity. Beverages, packaged foods, ready-to-eat foods, pre-cooked foods, canned foods, personal care goods, audio/video products, clothing, footwear, sportswear, toys, and gifts are only few of the categories in which foreign companies have found widespread success. How city dwellers spend their money on goods and services has shifted in recent years. The proportion of income going toward the basics (food and drink) is decreasing. A study conducted on urban Indian consumers divided their monthly budgets into food and nonfood categories. A person's food budget may contain items such as cereals, cereal alternatives, milk, milk products, milk substitute, vegetables, edible oil, and others. Expenditures on things other than food included things like heating and lighting, as well as apparel and footwear. Rich urban Indians prefer to splurge on fashion and luxury items rather than on quick moving consumer goods. The middle class spends more money on luxuries than the wealthy do.

II. RESEARCH METHODOLOGY

Sample Site

Customers from a subset of Karnataka state's cities and villages who have made purchases online are the focus of this study.

Research design:

The research employs a descriptive methodology. Information about and details about the nature of a problem may be gleaned via a descriptive analysis.

Sampling techniques:

Researcher used Convenient & Stratified Sampling techniques for sample selection.

Sample size:

300 Customers who had shopped online before were randomly selected. Customers in 150 rural regions and 150 urban areas were chosen at random from Karnataka state for the 300 samples.

Tools & technique used for analysis:

Data was examined with the aid of Microsoft Excel. Data is analyzed using a Chi-square test for inference and descriptive statistics (mean, standard deviation).

Limitation of the study:

1) The results and findings are confined to a limited are i.e., selected urban & rural areas.
2) The opinions of the respondents may be biased.
3) Time and resource constraint.

III. DATA ANALYSIS & INTERPRETATION:

Socio Economic Status of the Respondents

The socioeconomic status of the respondents is a significant factor in predicting their purchasing behaviour and their level of happiness. Respondents' socioeconomic status is

Table1: Socio Economic Status of the Respondents

broken down in Table 1.**Table1: Socio Economic Status of the Respondents**

Classification	No. of Respondents	Percentage to Total
Gender		
Male	165	55.00
Female	135	45.00
Total	300	100
Age		
Upto20years	120	40.00
20-40years	105	35.00
Above40years	75	25.00
Total	300	100
Educational Qualification		
Up to HSC	63	21.00
Graduate	114	38.00
Diploma/Technical	63	21.00
Professional Courses	60	20.00
Total	300	100
Occupation		
Student	120	40.00
Homemaker	60	20.00
Business/Profession	66	22.00
Salaried Employee	54	18.00
Total	300	100
Domicile		
Rural	150	50.0
Urban	150	50.0
Total	300	100

Respondents Faced Problem While Making Final Purchase

Table 2: No. of respondents faced problem while making final purchase

S. No	Opinion	No. of Respondents		Percentage to Total	
		Rural	Urban	Rural	Urban
1	Yes	105	111	70.00	74.00
2	No	45	39	30.00	26.00
Total		150	150	100	100

Table 2 shows that, among those living in rural regions, 70% have experienced difficulties making a final purchase, whereas 30% have had no such issues. 74% of respondents have had difficulties with urban internet goods purchases.

Problem Faced by the Customers after Ordering the Product

Table 3 explains the problem faced by customer after ordering the product online.

Table 3: Analysis of Problem Faced After Ordering the Product

Sr. No.	Problems	Mean Rank		Standard Deviation		Rank	
		Rural	Urban	Rural	Urban	Rural	Urban
1	Quality Issue	21.67	35.67	15.19	15.79	2	1
2	Wrong product Delivery	17.67	28.83	15.18	15.70	3.5	4
3	Delivery of Damage product	17.67	30.17	15.18	15.68	3.5	3
4	Problem in tracking Customer location	23.17	31.83	15.24	15.68	1	2
5	Poor packaging	16.83	28.50	15.20	15.70	5	5

According to the data in the table above, the issue of pinpointing customers' whereabouts ranks first in remote places and second in densely populated cities. Quality is an issue that ranks higher in urban centres than it does in rural ones. In all the sections Problem of tracking client location and Quality issue gets top scores among all the aforesaid difficulties.

I. CONCLUSION

The ordinary Indian customer has found place for internet merchants alongside the conventional offline establishments that he/she visited. According to the study, most people in urban areas prefer to purchase online since it is a relevant and easy method to shop, and because delivery is not a major problem in urban India owing to well-equipped logistic features. They also welcome supplementary features like discount vouchers for entertainment and special deals from internet retailers. People in remote areas oftentimes still choose buying in physical stores because they believe they would save money on delivery because they will be able to physically handle the product. Customers who know they have an easy way to get their money back in the event of a product problem are far more likely to make a purchase. As a result, the e-commerce industry has an uphill battle to win over sceptics in rural areas and raise awareness about the safety of shopping online. However, the biggest challenge facing marketers today is adapting to the changing tastes of a country that is undergoing a profound cultural shift. Many new businesses launching in ndia will depend critically on the purchasing habits of Indian consumers.

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Yahya, Wan Kalthom &Tajuddin, Norulhuda & Mat Dangi, Ts. Mohamad Ridhuan. (2017). URBAN AND RURAL CONSUMERS: UNDERSTANDING THEIR ONLINE SHOPPING BEHAVIOR.

EVALUATING CONSUMER PERCEPTION AND ADOPTION OF ECO-FRIENDLY PRODUCTS: A LOOK AT GREEN MARKETING STRATEGIES

Dr. Amrita Baid More[1]

ABSTRACT

Green advertising is an inevitably significant area of concentration for organizations as buyers become earth-cognizant. The motivation behind this exploration paper is to examine buyer insights and reception of eco-accommodating items inside the setting of green advertising systems. The review utilizes a complete hypothetical structure that coordinates ideas from natural brain research, buyer conduct, and promoting, including the hypothesis of arranged conduct and the worth conviction standard hypothesis. That's what the discoveries recommend even though customers by and large have uplifting outlooks toward eco-accommodating items, genuine reception rates remain lower than anticipated. Key drivers of reception incorporate eco-naming, item data, value responsiveness, and normal practices assume a critical part in molding green buy conduct. This examination offers significant bits of knowledge for advertisers, stressing the significance of clear and dependable eco-marking, straightforward item data, and evaluating methodologies in advancing manageable utilization. It likewise highlights the job of normal practices in affecting green buy choices, proposing expected roads for social promoting efforts.

This exploration makes a huge commitment to the field of green showcasing by consolidating laid-out speculations with current buyer conduct patterns and offering common sense direction for organizations and policymakers looking to advance practical utilization.

Keywords: Green Marketing, Marketing Strategies, Consumer Perception, Eco-friendly products

INTRODUCTION

The mounting natural worries and expanding eco-awareness of purchasers have made the crossing point of business and maintainability more significant than at any time in recent memory. The direness to resolve issues like environmental change, asset exhaustion, and contamination has moved customer inclinations towards eco-accommodating items, turning into a central member of market elements.

This examination paper, named "Green Showcasing Systems: Evaluating Buyer Discernment and Reception of Eco-Accommodating Items" investigates the connection between organizations' manageability drives and buyers' discernments and ways of behaving. As maintainability turns into a central principle of business techniques worldwide, understanding the subtleties of buyer insight and reception of eco-accommodating items is pivotal.

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For organizations, this presents a valuable chance to line up with developing customer values and assumptions, while for buyers, a reliable decision might drive far-reaching change and add to the worldwide maintainability plan. This paper plans to give important experiences by investigating observational examination and scientific bits of knowledge, uncovering the variables that impact shopper' view of green showcasing drives and their resulting reception of eco-accommodating items.

By revealing insight into the mind-boggling connection between green showcasing techniques and customer conduct, this exploration means to assist organizations with exploring the advancing scene of maintainability-driven commercialization. It depends on a combination of scholastic grants, market patterns, and genuine contextual analyses that plan to unwind the intricacies of green showcasing in this present reality where ecological cognizance is as of now not a periphery philosophy but a standard assumption.

Background

Maintainability has turned into a basic worry for buyers around the world, with ecological issues, for example, environmental change, contamination, and asset consumption driving a change in values and inclinations. Accordingly, brands are progressively embracing green advertising techniques to advance their items and administrations as eco-accommodating and socially dependable. This approach addresses a critical takeoff from customary promoting works on, underlining the significance of manageability in buyer navigation.

Vital to green advertising techniques is the reception of eco-accommodating items, which are situated as answers for squeezing natural difficulties. In any case, understanding purchaser discernment and reception of these items is a complex and developing field. Factors like individual qualities, social setting, and the adequacy of showcasing efforts all impact purchaser conduct around here.

This examination paper aims to investigate shopper discernments and reception of eco-accommodating items by checking on existing writing and researching the hindrances and drivers of green item utilization.

By revealing insight into the elements that impact buyer conduct, this examination will offer pragmatic ramifications for organizations trying to adjust their techniques to the advancing customer scene. As supportability turns out to be progressively basic to corporate obligation, the capacity to successfully showcase eco-accommodating items turns into an upper hand. Hence, an exhaustive examination of shopper discernments and ways of behaving in this setting is opportune and essential.

The title of this paper is a basic and opportune theme in the present business scene. This paper's importance and pertinence lie in its expected commitments to the scholarly world, industry, and society.

The paper is pertinent to contemporary worries as it investigates the viability of green showcasing techniques in moderating squeezing natural issues, for example, environmental change, asset exhaustion, and contamination. As customers become progressively ecologically cognizant, organizations are constrained to take on green-promoting methodologies. This paper can give important bits of knowledge into the viability of these methodologies, empowering organizations to settle on informed choices and foster more compelling manageability drives.

The paper's attention to surveying buyer insight and reception of eco-accommodating items is indispensable as it comprehends customer conduct, empowering advertisers to configure showcasing efforts that resound with interest groups and line up with purchaser values and assumptions. The paper adds to the field of advertising by growing comprehension we might interpret purchaser conduct with regards to green items, helping the two scholastics and specialists.

The examination can likewise have strategy suggestions as it can give observational proof to illuminate and uphold ecological arrangements and guidelines around the world. By revealing insight into the variables affecting purchaser decisions towards eco-accommodating items, this exploration can add to the decrease of fossil fuel byproducts, asset protection, and in general natural conservation, lining up with worldwide endeavors to accomplish maintainability objectives.

The discoveries of this exploration paper can be applied across different areas, making it pertinent to a large number of organizations. Besides, this paper can act as an establishment for future exploration in the field of green promoting, rousing further examinations that

dive further into explicit parts of eco-accommodating item reception and giving a constant stream of information around here.

OBJECTIVES OF THE STUDY

This exploration paper covers five fundamental regions. Right off the bat, it means surveying the viability of green showcasing techniques in impacting buyer discernments and perspectives towards eco-accommodating items.

Besides, it explores the variables that drive or impede shopper reception of eco-accommodating items as distinguished in the exploration paper.

Thirdly, it distinguishes key patterns and bits of knowledge concerning shopper conduct and inclinations concerning green advertising and eco-accommodating item reception.

Fourthly, the paper examines the examination procedures utilized in the review and their commitments to figuring out the elements of green showcasing.

Lastly, it offers basic experiences into the ramifications of the examination discoveries for organizations and Policymakers looking to advance feasible utilization and harmless to the ecosystem items.

LITERATURE REVIEW

The green advancement has procured extending significance of late due to creating regular concerns and customer regard for legitimacy. As associations attempt to change their practices to natural principles, understanding buyer experiences and the gathering of eco-obliging things becomes fundamental. The motivation behind this writing audit is to look at the current examination on eco-accommodating showcasing techniques and customer impression of and reception of eco-accommodating items. By dissecting key subjects, procedures, and revelations in the composition, this review implies giving pieces of information into the scene of green displaying.

Headway of Green Advancing

Green displaying has grown all through the long haul. To start with stages, it fixated on the

progression of innocuous biological system things. In any case, contemporary green displaying strategies consolidate a greater scope of sensibility works, including green thing plans, pragmatic packaging, and corporate social commitment

(CSR) drives. Specialists like Ottman (1992) have underlined the meaning of a widely inclusive method for managing green displaying, highlighting the prerequisite for associations to integrate viability all through their value chains.

Client Perspective on Eco-Obliging Things

Understanding client knowledge is basic for the result of green exhibiting frameworks. Specialists like Peattie and Peattie (2003) have recognized various components that influence customers' perspectives on eco-obliging things, including regular data, individual characteristics, and saw thing credits.

Research suggests that buyers with higher normal care will undoubtedly see eco-obliging things determinedly and embrace them into their lifestyles. Besides, the stamping and affirmation of things, for instance, normal or Energy Star, can basically affect client impression of a thing's natural sincerity (Magnusson et al., 2001).

Factors Impacting Client Gathering

Client gathering of eco-obliging things is impacted by different factors. Cost responsiveness stays an immense deterrent to gathering, as various eco-obliging things are viewed as more exorbitant (Thøgersen, 2000). Regardless, research has shown that customers are continuously ready to pay a premium for things with displayed regular benefits (Chan, 2001). The availability and transparency of eco-obliging things, as well as the solace of their usage, moreover expect imperative parts in gathering (Luchs et al., 2010).

The Occupation of Correspondence and Advancing Methodology

Strong correspondence and promoting frameworks are basic for progressing eco-obliging things. Kotler et al. 's study (2002) stresses the meaning of including the natural properties of things through clear and strong data. Virtual amusement and mechanized exhibiting have emerged as convincing channels for giving green messages to clients (Polonsky and Rosenberger III, 2001). Besides, associations partaking in greenwashing - the precarious headway of innocuous to the environment practices - can crumble buyer trust and deter the

gathering of eco-obliging things (Delmas and Burbano, 2011).

Social and Regional Assortments

Purchaser bits of knowledge and gathering approaches to acting with eco-obliging things are not uniform generally. Social and regional components can in a general sense influence these components. For instance, research by Chan and Lau (2000) highlights contrasts in purchaser motivation for green use among

Western and Asian social orders. Understanding these assortments is urgent for associations working in grouped markets.

Suspicion of Green Promoting Cases and Greenwashing

As the market for eco-accommodating items has developed, so has buyer incredulity of green advertising claims. While clients continuously need affordable things, they are moreover cautious about deceiving displaying procedures and greenwashing (Peattie and Peattie, 2003). Greenwashing happens when an association deceptively addresses its things or undertakings as innocuous to the biological system. As per Delmas and Burbano (2011), this peculiarity can bring about shopper doubt, which sabotages the viability of green advertising endeavors. As such, associations should ensure the legitimacy and validity of their acceptability affirms to create and stay aware of purchaser trust (Polonsky and Rosenberger III, 2001).

Effects of Acknowledged Practices and Reference Social events

Buyer direct is moreover framed by typical practices and reference social events. As per a few examinations (Schwartz, 1977), when shoppers see prevalent burden from their companions or reference gatherings, they are bound to embrace eco-accommodating items.

This effect loosens up to internet based casual associations, where individuals share their green usage choices and effect others to make a move likewise (Biswas et al., 2019). Understanding these social components is fundamental for arranging convincing green exhibiting endeavors that impact the power of social effect.

Informal regulations and Game plans

Informal regulations and methodologies expect a fundamental part in trim buyer perceptions and gathering of eco-obliging things. Environmental rules, similar to

petroleum derivative results standards and limitations on single-use plastics, can drive the new development and gathering of down to earth things (Darnall et al., 2008).

Additionally, government-drove eco-naming and declaration activities can give buyers clear and trustworthy information about a thing's normal credits, working with informed choices (Magnusson et al.,

2001). Hence, it is principal for associations to change their green exhibiting strategies to winning managerial frameworks.

Acceptability Uncovering and Straightforwardness

Logically, customers are mentioning straightforwardness and acceptability declarations from associations. Corporate practicality reports give accomplices, including purchasers, information about an association's biological and social execution (Dull et al., 1995). The exploration suggests that associations partaking in clear uncovering will by and large value more unmistakable customer trust and commitment (Delmas and Burbano, 2011). Subsequently, associations should consider sensibility specifying as a key piece of their green elevating system to further develop customer acumen and support brand reliability.

The Occupation of Preparing and Care

Enlightening drives and care missions can essentially impact customer insight and lead. Informational undertakings that raise regular care and advance viable lifestyles have been shown to unequivocally influence green usage (Thøgersen, 2000). Moreover, schools and universities can have an impact in trim future customer direct by organizing sensibility into their instructive projects and developing biologically discerning graduated class (Magnusson et al., 2001).

MATERIAL AND METHODOLOGY

Research Plan

The exploration plan for this paper follows a deliberate and far reaching way to deal with dissecting existing writing on green showcasing and buyer conduct. The primary goal is to integrate and basically assess applicable investigations to acquire experiences into buyer insights and reception of eco-accommodating items.

The accompanying advances frame the examination plan:

Data Collection Methods

As a survey paper, the essential focal point of information assortment is on investigating and deciphering data from existing examination studies. This includes a precise and extensive pursuit of important scholarly information bases and sources utilizing suitable hunt terms. The following stage includes extricating key information from chose articles, including concentrate on attributes, strategies, and discoveries. The removed information is then dissected and integrated to recognize examples, patterns, and bits of knowledge connected with buyer insights and reception of eco-accommodating items.

Incorporation and Rejection Models

To guarantee the determination of suitable examinations for this survey, certain incorporation and rejection measures have been laid out. Coming up next are the consideration measures: concentrates on should be distributed in English and should be peer-evaluated articles or scholastic papers that attention on green promoting procedures and buyer conduct towards eco-accommodating items. Then again, the prohibition models incorporate non-English distributions, dim writing, for example, gathering edited compositions, reports, and non-peer-checked on sources, as well as studies that are not straightforwardly connected with the exploration targets.

Moral Contemplations

As we lead this survey, it is essential to focus on moral contemplations to guarantee the honesty and precision of our discoveries. We will rigorously comply with moral rules in regards to counterfeiting and legitimate reference of sources to stay away from any encroachment of copyright. We will likewise focus on research respectability by guaranteeing that the information introduced in the survey precisely addresses the discoveries of the first examinations.

To safeguard the characters of scientists and study members, we will keep up with classification while talking about unambiguous examination review. Endeavors will likewise be made to limit predispositions in article determination, information extraction, and information union to guarantee a goal audit.

At last, any possible irreconcilable circumstances among the creators will be uncovered straightforwardly in the paper to keep up with complete straightforwardness and validity. By focusing on these moral contemplations, we can with certainty present a survey that is both precise and dependable.

RESULTS AND DISCUSSION

As a survey paper, the essential focal point of information assortment is on investigating and deciphering data from existing examination studies. This includes a precise and extensive pursuit of important scholarly information bases and sources utilizing suitable hunt terms. The following stage includes extricating key information from chose articles, including concentrate on attributes, strategies, and discoveries. The removed information is then dissected and integrated to recognize examples, patterns, and bits of knowledge connected with buyer insights and reception of eco-accommodating items.

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The Role of Innovation in Green Marketing

The examination paper proposes that development is a pivotal consider the outcome of green showcasing systems, as it can assist with resolving issues connected with cost and quality. By tracking down ways of decreasing the expense or improve the nature of eco-accommodating items, organizations can acquire an upper hand. Development can include headways in materials, creation cycles, or even production network the executives. Besides, organizations need to put resources into innovative work to stay at the cutting edge of eco-accommodating item contributions and advertising procedures. This incorporates creating innovative and useful green promoting efforts that catch buyer consideration and drive reception. In this way, development assumes a critical part in advancing supportable utilization and adjusting organizations to advancing customer values and assumptions.

Worldwide and Neighborhood Contemplations

It is vital for feature that the adequacy of green promoting techniques and customer discernments might vary essentially among worldwide and neighborhood settings. Albeit certain patterns might hold at a more extensive level, neighborhood social, financial, and ecological elements can essentially influence purchaser conduct. In this way, policymakers and organizations should adjust their techniques to take care of these varieties and guarantee the compelling execution of manageable practices.

Future Exploration Roads

While this examination paper offers a thorough examination of the elements of customer discernment and reception of eco-accommodating items, it likewise features a few regions for future examination. One of these region is the life span of the perspectives and ways of

behaving distinguished in the review. It would be important to investigate whether shoppers keep up with their eco-accommodating inclinations over the long haul, or on the other hand on the off chance that there is a gamble of 'green exhaustion'. One more area of interest could be analyzing the particular credits that make eco-accommodating items seriously engaging, like accreditations or naming.

Furthermore, there is potential for investigating the utilization of arising advances, for example, blockchain, to check supportability claims in the store network. This could reinforce shopper trust and further help green showcasing endeavors. By and large, this examination paper gives an establishment to additional investigation and examination concerning the perplexing transaction between green showcasing methodologies and customer conduct.

CONCLUSION

This examination paper gives a complete investigation of green showcasing systems, with an emphasis on evaluating shopper insights and reception of eco-accommodating items. The experiences acquired from this study shed light on basic components of feasible promoting and shopper conduct. One of the key discoveries is that purchaser view of eco-accommodating items assumes a vital part in forming their reception. To plan successful green promoting efforts, it is fundamental to comprehend that eco-cognizant customers view these items as having positive natural effects, medical advantages, and moral qualities.

The concentrate additionally features the meaning of trust and straightforwardness in green advertising. Buyers are bound to embrace eco-accommodating items when they see organizations as truly dedicated to supportability as opposed to participating in 'greenwashing.' Consequently, organizations should take part in real economical practices and convey these endeavors straightforwardly to acquire and keep up with buyer trust.

Besides, the exploration paper underlines the requirement for training and mindfulness missions to shape customer conduct. By cultivating a superior comprehension of natural issues and practical ways of life, organizations and legislatures can decidedly impact buyers' decisions towards eco-accommodating items. This requires the joint effort of different partners, including industry players, instructive establishments, and policymakers.

Another significant finding is that social and segment factors impact buyer inclinations and

discernments. To make progress in this space, green showcasing systems should be customized to various buyer portions. Perceiving that not all shoppers share similar qualities, concerns, and inspirations connected with eco-accommodating items can help organizations in planning more designated and successful missions.

Taking everything into account, this study enlightens the perplexing transaction between green promoting systems and buyer insights, underlining the significance of adjusting showcasing endeavors to the advancing qualities and inclinations of naturally cognizant customers. As manageability acquires conspicuousness in the worldwide purchaser scene, organizations that take on smart, straightforward, and truly reasonable practices are ready to flourish in a market that undeniably esteems moral and eco-accommodating decisions. This examination fills in as an important asset for scholastics, advertisers, and policymakers trying to explore the unique scene of green showcasing and cultivate more manageable utilization designs in our general public.

This examination paper gives a far reaching investigation of green promoting procedures, with an emphasis on evaluating customer insights and reception of eco-accommodating items. The bits of knowledge acquired from this study shed light on basic components of maintainable promoting and purchaser conduct. One of the key discoveries is that customer impression of eco-accommodating items assumes an essential part in forming their reception. To plan successful green promoting efforts, it is fundamental to comprehend that eco-cognizant shoppers view these items as having positive natural effects, medical advantages, and moral qualities.

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IMPACT OF AGE AND MARITAL STATUS ON RISK ATTITUDE TOWARDS INVESTMENT OF WORKING WOMEN IN INDORE: AN EMPIRICAL STUDY

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ABSTRACT

There has been a remarkable development in the changing role of women in the Indian workforce. Women have broken down boundaries and achieved noticeable success in professions that have historically been dominated by males. This has led to a significant boost in the economy. This advancement shows that the social standards have changed and gender equality has been accepted. Despite all this, women still face significant difficulties and limitations when it comes to handling and spending their hard earned money. Risk attitude, or the degree to which an individual is willing to take risks while investing, is one of the most crucial elements of financial decision making. Risk attitude is a critical factor in developing investment patterns and strategies because it affects the decision making processes, risk tolerance levels and also investment inclinations. It is important to understand the risk attitude and investment pattern of working women for numerous reasons. Research shows that younger women tend to be risk takers and older women tend to be risk averse. Also single women have greater risk tolerance as compared to married women. The current study aims to investigate how risk attitude of working women in Indore region is influenced by demographic factors, such as age and marital status.

***Keywords**: Savings, Risk Attitude, Working Women, Income, Marital Status, Age, Investment Behaviour.*

INTRODUCTION

Recent years have seen a rising interest in how working women make decisions about their money. Women must regularly save; even the smallest percentage of their additional money must be invested wisely. For countries with insufficient economic growth, savings and investment programs are crucial (Zahera& Bansal, 2018). Women have a special inclination for saving, which is increasingly accompanied by an interest in investing (Hanaoka et al., 2018; Kuzniak et al., 2015a; Sharma & Chaturvedi, 2021; Trujillo-Barrera, Pennings, &Hofenk, 2016). It is important to understand what determines a woman's risk attitude as it has great impact on investment behaviors and financial outcomes. Another important subject that needs to be explored further is the relationship of age and marital

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status of working women with their risk attitudes. Age and marital status are two major social factors, which are likely to influence people's perception towards risk. Views of individuals on financial risk are bound to change during various phases of life characterized by different family and personal milestones passed through by an individual.

More so, marital status may also complicate things because it may mean more than just personal risk preferences; it can also reflect shared financial obligations or goals within a marriage.

Our purpose in this research is to explore more deeply concerning age, marital status among working women and risk attitude. By examining if there exists a correlation between these demographic variables with respect to investing behavior and perception of risk, we contribute significantly in adding new knowledge into the area of research about gender and finance. Through this research we want to reveal complex patterns and dynamics through thorough analysis that could guide financial education programs and specialized financial planning techniques catered to the requirements of working women. This research aims to provide working women with the knowledge and resources needed to make wise financial decisions and successfully traverse the challenging terrain of investment opportunities by revealing the complex interactions between age, marital status, and risk attitude.

Investment

Investment is putting your surplus funds in an asset with the aim of generating income or appreciation in value. Investment is done for securing financial future. Some common investment options are term deposits, mutual funds, stocks, bonds, real estate, etc. Investments are made with the primary objective of achieving financial objectives such as retirement planning, capital appreciation and funding future expenses.

Investment decisions are influenced by various factors, including risk tolerance, investment goals, economic conditions, time horizon of investment and market trends. Investors weigh the potential risks and rewards associated with each investment option in order to build a balanced portfolio that matches their financial goals and risk tolerance. By making informed investment decisions and following a disciplined approach to portfolio

management, individuals can work towards achieving their financial goals and securing their financial future.

Risk Attitude

Risk attitude is the state of mind or behavior of individuals towards uncertainties while making investment decisions. It shows the level of risk tolerance of an individual, his/ her perception of risk and the expected rate of return. The risk appetites of individuals may greatly vary depending on their personal characteristics, financial goals, past experiences and time horizon. The following three risk attitudes are frequently seen in individual investors:

Risk-Averse: The investors who are risk averse are more careful and less willing to take risks. They give priority to capital safety, even if it means foregone smaller gains for higher safety. Usually such investors look for low volatile investments with predictable returns like government bonds or fixed deposits. The threat of losing money is generally more worrisome than the possibility of making money.

Risk-Neutral: Risk-neutral investors are indifferent to risks and show a moderate level of risk tolerance. They attempt to balance risk against return by evaluating prospective earnings vis-a-vis likely losses. This indicates that they can accept measured risks projected to generate substantial returns while tolerating a certain degree of volatility.

Risk-Taking (Risk-Seeking): The risk taker investors have high degrees of risk tolerance and tolerate considerable fluctuation and unpredictability in the selection of their portfolios. Because they want the highest possible returns, they will put their money into risky assets such as individual equities, growth mutual funds or alternative investments among other risky asset classes. Investors who take more risk may have more confidence in their ability to manage market swings and are more willing to endure temporary losses in exchange for the possibility of long-term returns.

Working Women

Working women are those who earn a salary, wages or other income through regular employment, usually outside the home. They are employed in manual or industrial labour (Random House Kernerman Webster's College Dictionary, 2010). All women who are

involved in paid employment or self-employment, and carry out economic activities outside their household chores are called working women. The term "working women" is used to describe those employed on either full time or part time basis across various professions, sectors and industries.

For the past few decades, working women have made strides in their careers by challenging gender stereotypes thereby leading to global economic growth. They play a crucial role in promoting innovation, developing industries as well as expanding the entire economy. In history, women encountered entry and advancement barriers in workplaces such as limited education opportunities, unfair hiring process, cultural beliefs that supported traditional gender roles among others. Nonetheless, the establishment of work environment that encourage inclusivity plus equality have enhanced chances for ladies to pursue careers and become financially independent.

Working women often have to take care of several things at once: their professional careers, family duties and responsibilities, personal development etc. There are issues like work-life balance; unequal pay; gender discrimination; limited access to higher positions that working women deal with every day. Nevertheless despite these difficulties faced by them it is clear that working women demonstrate an amazing sense of resilience, determination, and leadership in pursuing their career aspirations and contributing to their communities and the economy. Globally, women's economic and personal positions have seen substantial change in recent years. Women have the key to their own happiness, thus they must carefully manage their finances and assets (Kuzniak, Rabbani, Heo, Ruiz-Menjivar, & Grable, 2015a).

The empowerment of working women is associated with numerous benefits, including increased household income, improved standards of living, greater financial independence, and enhanced social mobility.

RATIONALE OF THE STUDY

Understanding the risk attitudes of working women holds great significance for several reasons. Firstly, it provides valuable insights into the financial decision-making processes of women and the factors that influence their investment choices. We can have a better understanding about people's risk tolerance, risk aversion, and risk perception by determining and analyzing their risk attitudes. These factors are all very important in

determining how they behave while making investments. With this information, financial organizations and policymakers may better tailor financial services, products, and regulations to the unique requirements and preferences of working women.

STATEMENT OF THE PROBLEM

Women's participation in workforce has increased considerably making them an important component of world economy but Indore region lacks empirical analysis of how complex relationships between risk attitude and choice of investments involve female workers. The study seeks to examine how certain factors such as age and marital status affect the ability of these women to develop their behavior in terms of undertaking risks which ultimately governs how they invest their money. By analyzing these components, the study hopes to add to the body of knowledge and the creation of policies by offering insightful information about how working women make financial decisions.

RESEARCH QUESTION

Is there any impact of age on risk attitude of working women?

Is there any impact of marital status on risk attitude of working women?

HYPOTHESIS

$H0_1$: There is no impact of age on risk attitude of working women.

$H0_2$: There is no impact of marital status on risk attitude of working women.

LITERATURE REVIEW

The current study aims to investigate the influence of age and marital status on the risk attitude of working women. Demographic factors play an important role in influencing the risk attitude and investment patterns of investors. Age is a significant demographic factor that affects risk attitude and investment patterns. According to Grable and Lytton (1999), risk tolerance decreases with age. Older people are often more risk averse and choose safer financial options. This is due to factors such as lower earning capacity and a greater desire for financial security and stability in retirement.

As women progress through different life stages, such as marriage and parenthood, their risk preferences may evolve (Akhter & Hussain, 2014). For example, younger married women may engage in risk-taking behavior similar to their unmarried counterparts, whereas elderly married women may choose financial stability and security, resulting in

increased risk aversion.

A study by Sharma and Sharma (2018) examined the impact of age on the risk attitude and investment patterns of working women. They found that younger women have a higher risk tolerance and have more willingness to invest in riskier assets such as equities. Whereas, older women have a more conservative investment approach and they prefer safer investment options such as fixed deposits. Similar findings were revealed in the study conducted by Imtiaz et al. (2019). The study highlighted the impact of life stage transitions on risk attitude, with younger women displaying a greater tendency of investing in riskier assets as compared to older women.

Lassoued et al. (2020) studied risk attitude among working women across demographic segments. In this regard, the major predictors of risk preference were age and marital status where unmarried young females exhibited higher propensity for risk taking than older married ones. Therefore, it is necessary to develop specialized financial education and investment strategies that would be suitable for different working women with diverse risk profiles.

Other demographic factors include marital status and family responsibilities which also shape the risk-attitude of working women and their patterns of investment. Research has indicated that married women are more careful in their investing activities often preferring safer investments since they have a responsibility to provide for their families (Graham et al., 2002). Kumari (2017) argued that married mothers usually have conservative portfolios as they strive to maintain safety and predictability rather than take on high levels of risks. However, single female employees without any dependent may choose to invest more freely due to their flexibility and inclination towards unforeseen risks in making choices about investments.

Marital statuses had a significant effect on women's attitudes toward risky behavior according to Sierminska and Doorley (2012). Single women tend to invest more in risk assets as compared to their married counterparts. Grinblatt and Keloharju (2009) in their extensive analysis of the link between marital status and investment behavior found that being married is associated with less risky behavior as compared to being single. They attributed this to shared financial responsibilities and cooperation in making financial decisions by married couples. Similarly, Hanna & Lindamood (2010) conducted studies

that led to similar results.

On the other hand, Truong et al. (2020) investigated how marital status influences women's investment decision-making processes within a labor market context. The study discovered that married women were concerned about their economic stability and hence had a conservative attitude towards investments compared to unmarried counterparts. According to them, this difference in risk propensities resulted from shared financial obligations as well as collective approaches to wealth management inherent in marriage.

Evidently, all these studies highlight various risk attitudes manifesting among working women; however, age and formal marital ties are reported as significant determinants of female perception of financial risk and patterns when investing money. This information can be used for developing targeted financial literacy programs and personalized investment strategies designed specifically for individualistic growth objectives.

OBJECTIVES

To study the impact of age on risk attitude of working women in Indore region.

To study the impact of marital status on risk attitude of working women in Indore region.

RESEARCH DESIGN

Research design is in the basic framework which provides guidelines for the research process. Present study focuses on the data collected from the working women investors in Indore district in the state of Madhya Pradesh. Descriptive research study is used to carry out the research with target population. The sample size in the current study is 260. Primary data is collected from the population through scheduled questionnaire. Cross tabulation using chi square test and chi square test for goodness of fit will be used on convenient sampling to reveal the impact of age and marital status on risk attitude of working women in Indore city.

ANALYSIS AND DISCUSSION

The distribution of respondents according to their age groups is given in table 1 and its graphical representation is given in Figure 1. (See table 1 and figure 1 in Annexure 1)

The distribution of respondents according to their marital status is given in table 2 and its graphical representation is given in Figure 2. (See table 2 and figure 2 in Annexure 1)

The distribution of respondents according to their risk attitude is given in table 3 and its

graphical representation is given in Figure 3. (See table 3 and figure 3 in Annexure 1)

Regarding Age, as per Cross tabulation using chi square test (table 4) and chi square test for independence of attributes analysis (table 5), there is an impact of age on risk attitude of working women. With increasing age, the risk tolerance of working women in Indore decreases. Hence, the null hypothesis has been rejected in the present study (if the calculated p values is less than 0.05 at significance level of 95 percent, then Hypothesis is rejected) (See table 4 and table 5 in Annexure 2).

Regarding Martial Status, as per cross tabulation using chi square test (table 6) and chi square test for independence of attributes analysis (table 7), there is an impact of marital status on risk attitude of working women in Indore. Married women are more risk averse as compared to unmarried women (if the calculated p values is less than 0.05 at significance level of 95 percent, then Hypothesis is rejected) (See table 6 and table 7 in Annexure 3).

DISCUSSION

Impact of Age on Risk Attitude

The identification of a significant association between age and risk tolerance, specifically noting a decrease in risk tolerance as age increases, contributes to the broader understanding of how life stages may influence financial decision-making. Our findings are in line with studies conducted by Sultana and Pardhasaradhi (2012), which suggest that that age plays a crucial role in shaping the risk attitudes of working women. They observed that older women tend to exhibit more conservative investment behavior and prefer low-risk investment options. This trend could be attributed to factors such as increased financial responsibilities, nearing retirement age, and a desire for stability and capital preservation.

The above reasoning can be attributed to the fact that, as individual's age, the investment time horizon also shortens, leading to a natural tendency to adopt more conservative approaches when it comes to investing in an attempt to focus on capital preservation, and reduce volatility risk. For example, in the case of older women, capital preservation and income generation may become a priority to ensure future financial stability during retirement, as they shift from the wealth accumulation to the wealth preservation phase. In addition, with time, life stages, and varied financial obligations, age can affect risk attitude among women. As older women have accumulated some form of assets and wealth over

time, they may become more sensitive to the potential loss of the same and less likely to take financial risk. Moreover, older women may have health problems requiring additional expenditures of financial resources. In this regard, they are less likely to be interested in maximum risk-taking due to the desire to secure their future and have enough money to provide for basic needs and support health. Additional factor contributing to the increased risk aversion of older women are their caregiving role and readiness for retirement.

Impact of Marital Status on Risk Attitude

The finding that marital status impacts risk tolerance and that married women are more risk averse as compared to unmarried women carries significant implications for financial planning and investment strategies. This result aligns with studies conducted by Sierminska and Doorley (2012), who found that women's risk attitude varied significantly depending on their marital status. Single women were found to invest more in risky assets compared to their married counterparts.

Married individuals often have shared financial responsibilities which may contribute to their more conservative approach towards risk-taking. Moreover, the presence of dependents, such as children or elderly parents, can further contribute to risk aversion among married women. This is because they prioritize financial stability and security for their families.

CONCLUSION

There is a significant relationship between risk attitude and age among working women, and as age progresses, risk tolerance declines. Working women in Indore are known to have a lower risk tolerance as they get older. This phenomenon can be linked to a variety of factors, including changes in financial priorities, increased knowledge of the need of financial security, and a decreased ability or desire to recover from possible losses. Older women frequently prioritize capital preservation above high-risk, high-reward investments as they approach retirement and strive to protect their acquired assets. Furthermore, a natural need for stability and a shorter time horizon for financial recovery may contribute to a more cautious approach to investing selections.

Risk attitude and marital status of working women are also significantly associated and married working women tend to be more risk averse as compared to unmarried working

women. Married women have shared financial responsibilities which contribute to their conservative risk attitude. Also they might have dependents such as children which further make them risk averse. They prioritize financial security for themselves and their families.

SUGGESTIONS

- It is crucial for financial institutions and advisors to consider age and marital status when coming up with investment strategies that are suitable for women who are working. Investment outcomes can be improved by tailor-made investment plans based on different risk attitudes resulting from age group and marriage.
- Targeted financial education programs should be developed to address awareness and understanding of investment risks and opportunities among diverse marital statuses and age groups. Working women must be empowered with necessary knowledge and skills so as to make informed decisions about investments in line with their risk appetites.
- Diversification of investment portfolios is encouraged among working women especially those with varying risk attitudes due to age and marital status. This includes the importance of managing risks such as asset allocation, periodic portfolio rebalancing, etc.

IMPLICATIONS

- Implications of age-related differences in risk tolerance go beyond individual financial decision-making into wider society considerations like retirement policy, and designing of financial products. Policymakers and financial institutions need to keep in mind that older women have specific risk aversions and come up with specific retirement planning options aimed at addressing their needs as well as preferences. Financial advisors are important in guiding elderly women on proper investment strategies that are compatible with their risk tolerances levels and long-term financial objectives.
- Implications of marital status related differences in risk attitude extend beyond individual financial decision making to broader societal issues notably within the context of financial planning, wealth management. Policymakers must take note that married women possess greater dislike for risks compared to unmarried women, thus

tailoring their services towards such distinctive risk profiles is needed by these groups for enhanced customer satisfaction. Consequently, developing programs on targeted financial education or investment solutions that reflect the risk appetites of wives could improve their literacy about money leading them to make informed decisions concerning wealth accumulation and retention.

- Various aspects of financial planning such as retirement planning and insurance coverage are influenced by marital status. Married women usually prioritize financial security for themselves and their families. Therefore, they adopt more conservative investment strategies that reduce risk. Policymakers should take married women's specific requirements into consideration when developing retirement policies and social safety nets to ensure equitable access to financial resources and support throughout their lifetime.

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Table 1 Distribution of respondents according to their age groups

Age Group of Women in Years	No. of Women	Percent
20-30	74	28.5
30-40	82	31.5
40-50	63	24.2
More than 50	41	15.8
Total	260	100

Source: Primary Data

Figure 1

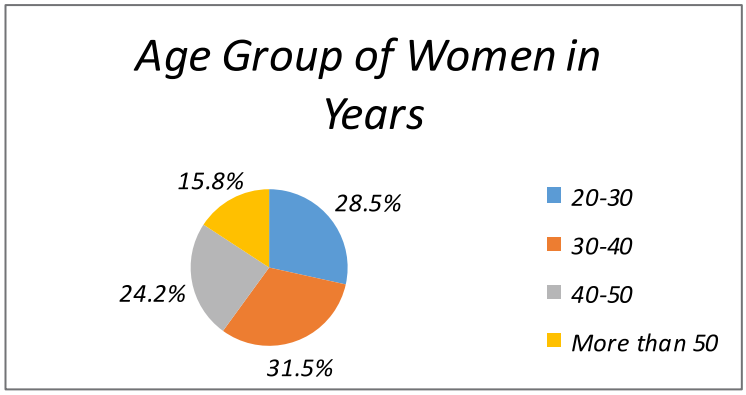


Table 2 Distribution of respondents according to their Marital Status

Marital Status	Frequency	Percent
Married	181	69.6
Unmarried	79	30.4
Total	260	100

Source: Primary Data

Figure 2

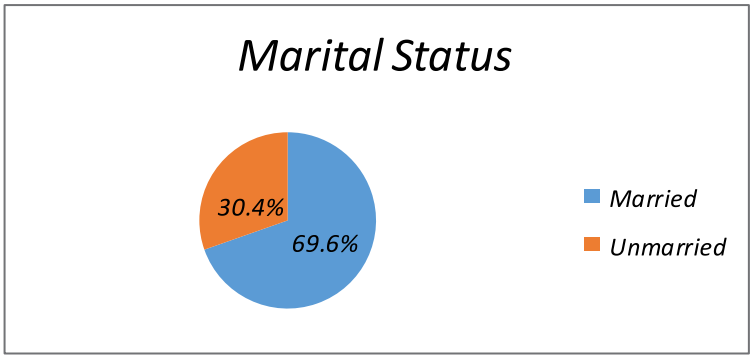
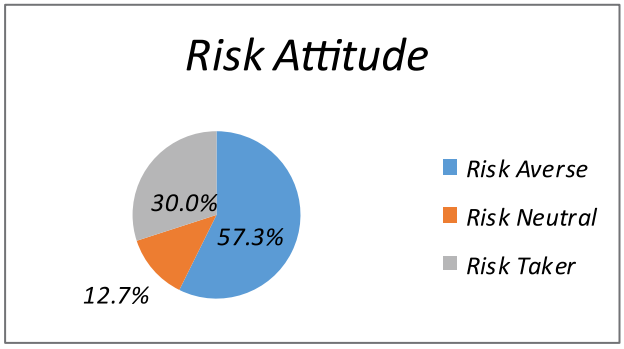


Table 3 Distribution of respondents according to their risk attitude

Risk Attitude	Frequency	Percent
Risk Averse	**149**	**57.3**
Risk Neutral	**33**	**12.7**
Risk Taker	**78**	**30.0**
Total	**260**	**100**

Source: Primary Data

Figure 3



ANNEXURE 2

Cross tabulation using Chi Square Test and Chi Square Test for Independence of Attributes regarding age

Table 4 Risk Attitude * Age Crosstabulation

			Age				Total
			20-30	30-40	40-50	More than 50	
Risk Attitude	Risk Averse	Count	22	49	47	31	149
		Expected Count	42.4	47.0	36.1	23.5	149.0
		% within Risk Attitude	14.8%	32.9%	31.5%	20.8%	100.0%
		% within Age	29.7%	59.8%	74.6%	75.6%	57.3%
		% of Total	8.5%	18.8%	18.1%	11.9%	57.3%
	Risk Neutral	Count	8	10	9	6	33
		Expected Count	9.4	10.4	8.0	5.2	33.0
		% within Risk Attitude	24.2%	30.3%	27.3%	18.2%	100.0%
		% within Age	10.8%	12.2%	14.3%	14.6%	12.7%
		% of Total	3.1%	3.8%	3.5%	2.3%	12.7%
	Risk Taker	Count	44	23	7	4	78
		Expected Count	22.2	24.6	18.9	12.3	78.0
		% within Risk Attitude	56.4%	29.5%	9.0%	5.1%	100.0%
		% within Age	59.5%	28.0%	11.1%	9.8%	30.0%
		% of Total	16.9%	8.8%	2.7%	1.5%	30.0%
Total		Count	74	82	63	41	260
		Expected Count	74.0	82.0	63.0	41.0	260.0
		% within Risk Attitude	28.5%	31.5%	24.2%	15.8%	100.0%
		% within Age	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	28.5%	31.5%	24.2%	15.8%	100.0%

Table 5 Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	50.666[a]	6	<.001
Likelihood Ratio	51.885	6	<.001
Linear-by-Linear Association	41.348	1	<.001
N of Valid Cases	260		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.20.

Since p value is less than 0.05, therefore, null hypothesis is rejected.

ANNEXURE 3

Cross tabulation using Chi Square Test and Chi Square Test for Independence of Attributes regarding Marital Status

Table 6 Risk Attitude * Marital Status Crosstabulation

			Marital Status		
			Married	Unmarried	Total
Risk Attitude	Risk Averse	Count	130	19	149
		Expected Count	102.6	46.4	149.0
		% within Risk Attitude	87.2%	12.8%	100.0%
		% within Marital Status	72.6%	23.5%	57.3%
		% of Total	50.0%	7.3%	57.3%
	Risk Neutral	Count	18	15	33
		Expected Count	22.7	10.3	33.0
		% within Risk Attitude	54.5%	45.5%	100.0%
		% within Marital Status	10.1%	18.5%	12.7%
		% of Total	6.9%	5.8%	12.7%
	Risk Taker	Count	31	47	78
		Expected Count	53.7	24.3	78.0
		% within Risk Attitude	39.7%	60.3%	100.0%
		% within Marital Status	17.3%	58.0%	30.0%
		% of Total	11.9%	18.1%	30.0%
Total		Count	179	81	260
		Expected Count	179.0	81.0	260.0
		% within Risk Attitude	68.8%	31.2%	100.0%
		% within Marital Status	100.0%	100.0%	100.0%
		% of Total	68.8%	31.2%	100.0%

Table 7 Chi-Square Tests

	Value	df	P value
Pearson Chi-Square	57.473[a]	2	<.001
Likelihood Ratio	58.541	2	<.001
Linear-by-Linear Association	56.194	1	<.001
N of Valid Cases	260		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.28.

Since p value is less than 0.05, therefore, null hypothesis is rejected.

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