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From the Editor's desk

The year 2021 has started with the hope and efforts to combat the pandemic. People have started getting back to their routine work but with precautions to avoid the chances of getting infected. They are adopting 'New Normal Lifestyle'.

A few researches have been carried out by the Home Scientists on the changing way of living and the measures the homemakers are taking for keeping the family members healthy. More in-depth, cross sectional and multidimensional study on this aspect would prove to have implications for various stakeholders as well as for all those who are concerned with the welfare of the society - the educational institutions, the NGOs, and the Government- to take up necessary actions.

The Indian Journal of Home Science would continue to be an important tool to disseminate the information and research findings.

Prof. Maneesha Shukul

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A COMPARATIVE STUDY OF SEWING PRACTICES BY WORKING AND NON-WORKING WOMEN OF CHANDIGARH

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ABSTRACT

Women have been exhibiting creative skills and developing utilities as well as ornamenting articles by sewing for several decades. Sewing was incorporated into her everyday regime. Her routine was to sew regular garments at home but for special occasions services of professional tailors was availed. Her home was her workplace. But with time she has stepped out of her home into the 'work world' to earn. This has impacted her time management to accomplish activities at home. Her status of being 'working' creates a time constraint to pursue sewing activity too.

The present study was therefore undertaken to find out and compare sewing skills, practices and value placed on sewing skills by working and non-working women of Chandigarh. A survey was conducted in which 100 women (50 working and 50 non-working) from Chandigarh completed a structured questionnaire. The results showed that women know stitching techniques, but working women do less sewing because of busy schedules in the workplace or at home. Many women stitch because of their interest in sewing. The analysis of data further demonstrates that there exists a significant difference of 'sewing practices' between working and non-working women of Chandigarh but there is no significant difference between working and non- working women with regards to 'value of sewing'.

Keywords: women, sewing skill, sewing practices, value

INTRODUCTION

Craft of joining plies of fabrics transforming two-dimensional surface into a three-dimensional form has been practiced since Palaeolithic era. The sewing activity was mainly carried out by hand and this was a slow and time-consuming process, but with the invention of the sewing machine in 1790, the revolution came and labour became easier and faster. Before 1920, sewing machine was one of the mass-marketed and consumer durables widely sold worldwide (Godley 2006). Nearly every middle-class woman owned a sewing machine at the end of the nineteenth century or early twentieth century.

Sewing has been viewed as a women's domain for years. "Sewing has also been predominantly associated with women throughout history, who, for centuries, have been exhorted to practice… hard work, prudence and virtue". These are the expressions of Thom (2015), who curated an exhibition entitled 'A stitch in Time' in which there was a display of decorative sewing and knitting tools with a feminist twist. Sewing has been seen as a requisite pastime for women for centuries. Women used to take care of their home while men used to go out for work or earnings.

She was socialized in a way that her role majorly confined to home. Sewing was one of the activities that she not only enjoyed but it encouraged her to express her creativity freely. It was also a requirement, as all members of the family needed clothes. Occasionally special clothing was given to a professional tailor. Long before the emergence of the ready-made fashion industry, learning sewing skills was an important part of training young women for home-making roles (Lahti, 2012), and developing their reputation as a successful home-maker. Long after that era, home-economic educators helped to spread the practice of sewing at home to boost the confidence of women and to make them able to earn money for themselves and their households. Creation and production with sewing can be empowering too (Andrews 2019).

Many scholars (Mitchell, 1959; Erwin and Kinchen ,1969; Geraldi, 2019; Martindale and McKinney, 2020) have emphasized benefits of sewing. Sewing contributes to improving hand-eye coordination, concentration, improving motor skills, maintaining good posture, lowering blood pressure, providing women with a sense of achievement, improving self-confidence, self-esteem and mood. It releases stress, develops patience and is also seen an activity for pleasure. Sewing for the family or nears and dears shows love for them. This skill may also boost the economic condition of the family, which in turn, helps to establish family relationships. Self-presentation and identity are synonymous with women's sewing. This enables them to gain control over their clothing's style, achieve additional originality, quality and fit. Self-sewing embodies personality and taste (Martindale and McKinney, 2020a). Sewing one's own clothes means being able to make what you need and when you need it (Lappin 2020), it is potentially less wasteful and can contribute towards saving of environment too.

Research study by York (1961) on sewing performed by homemakers showed that 70% of homemakers were interested in sewing. Russum (2016) analysed sewing practices of women in the digital age. Women have not been stopped from sewing by transition into the digital age, in reality digital platforms and pathways are used to create, produce, distribute sewn items, share information, showcase their handicrafts and sell their products. The results show that for women, sewing continues to be a very social activity, although collaboration and socializing frequently occur from geographically distant locations and are facilitated by online communication.

With changing times, sewing has shifted from home to professional tailors to mass production. Availability of garments in new styles, designs and at affordable prices have contributed to the purchase and consumption of ready-made clothing. This has certainly influenced the production of clothing at home. The role and contribution of women is not just confined to home with the changing times. She has always been supporting her family. Her move from home to work has brought changes in her life. A number of women have begun to work and earn in the past few decades. They were getting educated and their lifestyle was changing. They fulfilled dual responsibilities: they were both employed and managing their family. Stitching, cooking, etc., were the qualities traditionally expected in a homemaker, but the changed scenario has changed her ambitions towards life. She now wants to become a teacher, a doctor, an engineer, a lawyer, a designer, a leader, an entrepreneur, etc. This has also brought restrictions on her time: the time spent on sewing has decreased considerably, but a large number of women are still active in this artistic activity. Gordon (2004) studied the meanings of sewing in the late nineteenth and early twentieth centuries. As mass- produced clothing became accessible and desirable and more women

worked outside the home, fewer women sewed for survival. Nevertheless, sewing continued to resonate with understandings of feminine work, economic need, gender roles, cultural traditions, and artistic pleasure. The present research is an enquiry to find out whether sewing is domain of non-working women (women who do not go out to work and earn a living) or what are the sewing practices of working women vis-à-vis non-working women. This study is an endeavour to know the sewing skills and practices followed by women and what is the value of sewing for them.

OBJECTIVES

1. To study the sewing skills and sewing practices of working and non-working women of Chandigarh
2. To compare the sewing practices between working and non-working women of Chandigarh.
3. To study the value placed on 'sewing' by working and non-working women of Chandigarh.
4. To find out the correlation of sewing practices with the status of work/occupation between working and non-working women of Chandigarh.

HYPOTHESES

1. There will be no significant difference of sewing practices between working and non-working women of Chandigarh
2. There will no significant difference between working and non-working women with regards to value of sewing

METHODOLOGY

The present research involved a survey of the working and non-working women of Chandigarh. Sample for this research included 100 women: 50 working women and 50 non-working women in the 25-50 age group, selected at random. A structured questionnaire of 18 items was created to understand and compare the sewing skills and practices of working and non-working women in Chandigarh. It was divided into four parts seeking information and knowledge on various aspects:

Section 1- Sewing machine
Section 2- Sewing skills
Section 3- Sewing practices
Section 4- Value of sewing

Data was generated, coded, tabulated and analyzed. Degree of freedom (DF), Mean, standard deviation, t-value, p-value and chi-square value were calculated and results are discussed in the next section.

FINDINGS

Results of the study are discussed under following headings: demographics of respondents, owning a sewing machine, sewing skills and practices and value of sewing.

Demographics of respondents:

Table 1: Demographics of respondents

		Working		Non-working	
		Frequency	Percentage	Frequency	Percentage
Age	25-30	6	12	8	16
	31-35	7	14	11	22
	36-40	24	48	13	26
	41-45	5	10	8	16
	46-50	8	16	10	20
	Total	50	100	50	100
Marital status	Unmarried	8	16	2	4
	Married	42	84	48	96
	Total	50	100	50	100
Education of women	Diploma	0	0	5	10
	Graduation	12	24	34	68
	Post-graduation	38	76	11	22
	Total	50	100	50	100
Type of family	Nuclear	32	64	31	62
	Joint	18	36	19	38
	Total	50	100	50	100
Family income	<Rs. 50,000	5	10	8	16
	Rs. 50001-60000	16	32	39	78
	Rs. 60001-70000	9	18	3	6
	Rs.70001-80000	14	28	0	0
	Rs.80001-90000	6	12	0	0
	Total	50	100	50	100
Number of family member	3 members	2	4	4	8
	4 members	22	44	23	46
	5 members	9	18	5	10
	6 or more members	17	34	18	36
	Total	50	100	50	100

Table 1 indicates that respondents were between 25 and 50 years of age. The highest number of working women (48 per cent) and the maximum number of non-working women (26 per cent) were between 36 and 40 years of age. 80 percent of the women respondents were married. Maximum number of working women (76 percent) were postgraduates whereas maximum number of non-working women (68 percent) were graduates. Maximum respondents had a nuclear family. Maximum number of non-working women had a family income of Rs 50,000-60,000 per month, while the family income of working women varied: the maximum of them (32 percent) was in the range of Rs 50,000-60,000/- per month and 28 percent of the income of working women was Rs 71000-80,000/- per month.

Owning a sewing machine:

Both non-working female respondents and 88 percent of working women owned/possessed sewing machines. The USHA brand sewing machine was owned by the largest number of women, followed by the SINGER brand. Maximum number of women had one sewing machine. Most of the women had a sewing machine operated by hand, followed by a motorized sewing machine. It was either in their trousseau or was gifted to them for a large number of women, but many of the women have purchased it.

Sewing skills and practices:

Compared to working women (84 percent), more non-working women (96 percent) knew how to sew. 68 percent of working women and 50 percent of non-working women learnt the art of stitching from their mothers. 28 percent of the non-working and 10 percent of the working women learnt these skills as a part of their educational course. Another source for learning sewing for both categories was Tailor.

Women were asked to rate/grade themselves on their ability to sew (low, moderate, high). The ratings provided by working and non-working women for their sewing skills are represented in Table 2. Operations such as hemming, attaching buttons and making button holes were given the highest ranking. The highest number of working and non-working women answered that they could do hand sewing (hemming), button and hook attachment, prepare buttonholes and eyes for the hooks, so most women were skilled in these tasks. Formal garments were given the least ranking. For the stitching of formal garments, very few women ranked themselves high.

As reflected by the p-value in Table 2, it was revealed that there exists is a substantial difference between working and non-working women with regard to different sewing operations such as neckline preparation, collars and yokes, casual and formal clothing stitching and mending. There was a larger number of non-working women who replied that, relative to working women, they could do these activities or have the potential to do these. Hence, the first hypothesis "there will be no significant difference of sewing practices between working and non- working women of Chandigarh" is rejected.

Table 2: Rating of sewing skills and practices between working and non-working women

		Working women		Non-working women		chi-square value	df	p-value
		Frequency	Percentage	Frequency	Percentage			
I can only do hand sewing like Hemming	Low	0	0	0	0	0.34	1	0.56
	Moderate	2	4	1	2			
	High	48	96	49	98			
	Total	50	100	50	100			
I can attach button, hooks	Low	1	2	0	0	4.18	2	0.12
	Moderate	7	14	2	4			
	High	42	84	48	96			
	Total	50	100	50	100			
I can do button hole and make eyes for hooks	Low	2	4	0	0	4.89	2	0.09
	Moderate	8	16	3	6			
	High	40	80	47	94			
	Total	50	100	50	100			
I can prepare necklines, collars, prepare yokes	Low	18	36	4	8	12.9	2	0.00**
	Moderate	11	22	10	20			
	High	21	42	36	72			
	Total	50	100	50	100			
I can stitch Casual garments	Low	9	18	2	4	10.9	2	0.00**
	Moderate	14	28	6	12			
	High	27	54	42	84			
	Total	50	100	50	100			
I can stitch formal garments	Low	38	76	30	60	8.0	2	0.02*
	Moderate	8	16	5	10			
	High	4	8	15	30			
	Total	50	100	50	100			
I can do mending	Low	7	14	1	2	8.30	2	0.00**
	Moderate	13	26	7	14			
	High	30	60	42	84			
	Total	50	100	50	100			

**Significant at 0.01 and * Significant at 0.05 level

Further enquiry on sewing practices revealed that, only 24 percent of working women replied that if they get time, they stitch their clothes, and 76 percent replied that they do not stitch their clothes. As compared to working women, 64 percent of the non-working women stitch their garments. Women elaborated the factors that motivate them to sew at home. More non-working

women (42 percent) said that they sew because they love sewing, compared to working women, where just 10 percent said they sew because they love sewing. Equal number of working and non-working women believed that sewing at home saves money and sewing skills and practices can help the sewer to create at one's own wish.

They also elaborated the reasons that hinder women from sewing. The key reason given by 78 percent of working women that discouraged them from sewing was the busy schedule at the workplace. The most common fabric stitched by both types of participants was cotton. This was followed by georgette and silk. Most of the respondents were able to stitch casual clothing and could even do mending. Compared to working women (38 percent), more non-working women (68 percent) stitch casual garments. The inability to stitch formal wear was illustrated by the maximum number of working and non-working women.

Table 3 indicates that a higher number of non-working women had stitched women's shirts (82 percent), salwar (72 percent), pyjami (64 percent), plazzo (70 percent) and blouse (36 percent) compared to working women. This data reveals that, relative to men's clothing, the respondents stitched more women's clothes. Probably men's garments are structured and difficult especially coat, so most of the women denied stitching men's coat, though 16 percent of working and non-working women had stitched trousers; 12 percent of working women had stitched men's shirt. In addition, women demonstrate their interest in in showcasing creativity on their own garments by stitching.

Table 3: Different garments stitched by respondents*

Garments	Working women (n=50)		Non-working women (n=50)	
	Frequency	Percentage	Frequency	Percentage
Women's shirt	30	60	41	82
Salwar	29	58	36	72
Pyjami	22	44	32	64
Plazzo	24	48	35	70
Blouse	14	28	18	36
One-piece dress	07	14	11	22
Men's shirt	06	12	0	0
Trousers	08	16	08	16
Coat	0	0	0	0
Children garments	20	40	17	34
Any Other	16	32	07	14

*multiple response

Women respondents were asked whether they could repair or mend their clothing, and if they could not, then who did this job for them? In contrast to 36 percent of working women, more non-working women (72 percent) have repaired and mend their own clothing. Out of the working

women who were unable to mend their clothing, 23 respondents had tailor services where as the number of non-working women, availing tailor services for repair was very less (8). In addition to this the respondent's clothing was often repaired by mothers or mother-in-law or maids.

Discussions from Table 2 and Table 3 indicate that there exists a significant difference between sewing practices between working and non-working women.

On average, 28 percent of working women spend Rs 2000-3000/- on stitching clothes from tailors/boutiques in a month, while the maximum number of non-working women spend around Rs 500-1000/- on tailor/boutique stitching in one month.

Value of sewing

Various aspects related to sewing are appreciated by both working and non-working women: sewing is an enjoyable and creative practice, it allows one to use free time and produce what one wants, it saves money, it is useful to have sewing skills, and homemakers can learn to sew. This is shown in Table 4. Therefore, with regards to the importance and value of sewing, there exists no significant difference between working and non-working women.

Table 4: Significance of value of sewing between working and non-working women

Value of Sewing	Working		Non-working		t-value	df	p-value
	Mean	SD	Mean	SD			
Sewing is an interesting activity	4.16	0.82	4.32	0.74	-1.03	98	0.31
One can spend free time by sewing	4.00	0.73	4.18	0.69	-1.27	98	0.21
Sewing is creative	4.28	0.76	4.44	0.64	-1.14	98	0.26
Stitching your own clothes saves money	4.60	0.70	4.72	0.54	-0.96	98	0.34
It is beneficial to have knowledge about sewing skills	4.36	0.75	4.34	0.69	0.14	98	0.89
Homemakers should learn sewing	4.26	0.72	4.40	0.70	-0.98	98	0.33

CONCLUSION

Sewing is an important activity exercised by women whether working or non-working. But working women's busy schedule and more spending power enable them to get ready-made clothing or access tailors or shops. The study carried out showed that the sewing machine is owned by almost all women. More non-working women (96 percent) knew how to sew compared to working women (84 percent). Basic sewing operations were easily carried out by women but with regard to different advanced sewing operations, a major gap exists between working and working women.

There exists significant difference of sewing practices between working and non- working women of Chandigarh. Only 24 percent of working women and 64 percent of working non-working women stitch their clothing. High percent of non-working women had experience of handling different type of fabrics as compared to working women. Most of the respondents could stitch casual garments and could do mending too. Respondents had stitched more women's clothing than men's clothing. In terms of the importance of sewing, both working and non-working women value sewing, and there is no substantial difference between working and non-working women with regards to value of sewing. All of the women felt that sewing is an interesting and creative activity that it allows one to use free time and produce what one wants, that it saves money, that it is useful to have knowledge about sewing and that homemakers should learn to sew.

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THE TRADITIONAL SPINNING, DYEING AND WEAVING TECHNIQUES OF APATANI TRIBES OF ARUNACHAL PRADESH: A CASE STUDY

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ABSTRACT

India is famous for its prosperous heritage, traditional textiles and glorious workmanship. Each state in the country is unique by itself, as far as the textile is concerned. This is mainly because of the difference in the tradition of people, availability of the aboriginal textile materials, influence of ecosystem, customs, belief etc. The most common feature of the tribal costume is its fascinating vibrant colours and myriad patterns. The people of Arunachal Pradesh are creatively minded and talented with skilful hands and fingers. The Apatani Tribe of Arunachal Pradesh is blessed with beautiful traditions, culture and history. They have been successfully maintaining an ecological balance with the changing world. The elegant ethnic handloom of Arunachal Pradesh is world renowned for its striking design and the using of indigenous organic materials for weaving various indigenous apparels for different occasions. The ethnic spinning, dyeing and weaving are very tedious process. The old generation is practising weaving by using dyed yarns from the local markets. New generation is not bothered about the traditional practises and they are buying modern readymade garments from the local markets. Men and women wearing traditional garments only at the ceremonial and festival occasions. The traditional method of spinning, dyeing and weaving are not practising and these are in the stage of extinction. The present study focuses to find out the socio-economic background of the Apatani community and their traditional clothing culture.

Keywords: Apatani tribes, Tradition, Natural Dyeing, Spinning, weaving, backs trap loom

INTRODUCTION

Arunachal Pradesh, the Land of 'Rising Sun', that means 'Land of the Dawn-Lit Mountains' In Sanskrit, it is recognized as 'The Orchid State of India' or 'The Paradise of the Botanists'. Geographically, it is the largest among the North-east states generally known as the 'Seven Sister States'. It is located in the most north-eastern position among the states in the north-east region of India. Arunachal Pradesh shares its border with Assam and Nagaland to the south and shares international borders with China in the north, Burma in the east and Bhutan in the west. It has 20 major tribes and numerous sub-tribes and the majority of these communities are culturally unique and geographical division has crafted different characteristics in language, dress and customs etc. The refined ethnic handlooms of Arunachal Pradesh are world-renowned for its prominent designs and using indigenous organic materials for weaving a variety of traditional apparels. The culture, belief and spiritual aspects are inherently closed with weaving technology.

The Apatanis, are one of the major ethnic tribes of Arunachal Pradesh living at Ziro, the headquarters of Lower Subansiri District. They are blessed with beautiful tradition, culture, beliefs and history, which are the intrinsic values of these tribes and these are intermingled with bicultural resources. They have been successfully maintaining a balance with the changing world. Living in remote and diverse ecosystems, these tribes have developed location specific knowledge and skills needed for subsistence survival and livelihood system. The intricate motifs and designs, the colour combination, all reflect the ethnic uniqueness of the people. Women are the defenders of knowledge and do the elaborate process of spinning, dyeing and weaving. Varieties of culturally important traditional dresses are made by women. The traditional spinning and dyeing process are very tedious process. In the dyeing process the colours were organic, prepared from the plants from forests. The intricate motif, designs and colour combination reflects the ethnic origins of the people. Weaving and related art are considered to be a significant attribute of Apatani women. They are making very indigenous and complicated woven designs in their own traditional backs trap looms. Male and female of this community prefer to wear the indigenously made cloths during festivals and religious ceremonies. Only women folk are engaged in weaving. Some designs have spiritual value and are considered as sacred garments, which should not use randomly in normal time. The artistic designs are even very carefully preserved today. In Apatani society, a female person has more designs than a male. Today the back-strap loom is continuing only by the old generation and the natural dyeing and spinning process are following very rarely. The different coloured threads are locally available in the market. The older generation is not showing considerable interest in the traditional methods and it is also in danger of becoming extinct. The present study was undertaken with the aim to document the socio-economic background and the traditional spinning, dyeing and weaving techniques of Apatani tribe.

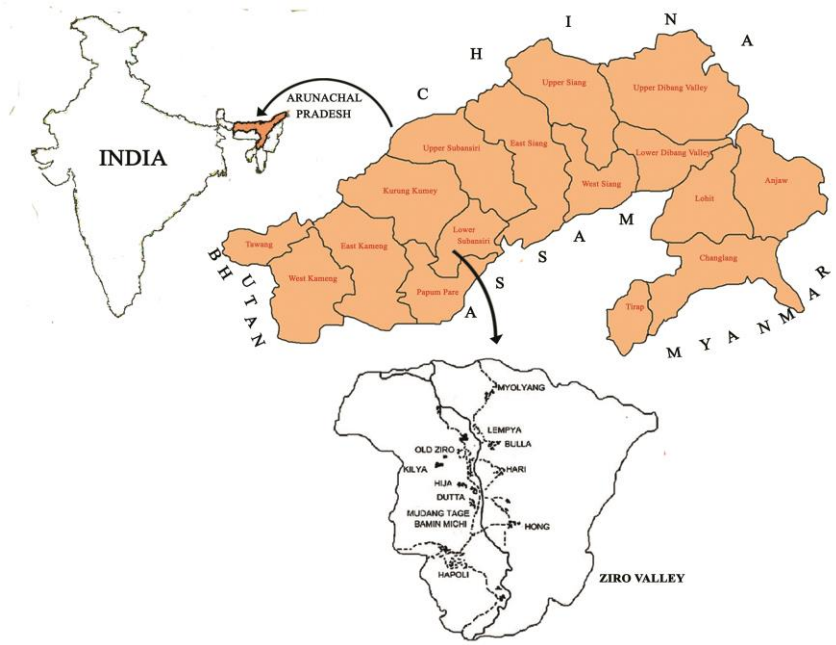

Figure 1: Map of Arunachal Pradesh

OBJECTIVES

The present study was conducted to fulfil the following objectives:

- To study the socio-economic background of the Apatani community
- To study the traditional spinning process of Apatani community
- To study the natural dyeing and the back strap (loin loom) weaving techniques of Apatani tribe.

METHODOLOGY AND DATA SOURCE

The Ziro village in Arunachal Pradesh consists of six villages. They are Hari, Bulla, Hija, Mudang Tage, Bamin Michi and Hong. Hong village is the largest village among these. The respondents were selected from Hong village in Ziro because of the high concentration of the Apatanis and many women are here engaged in traditional weaving in this village. A survey was conducted to find out the socio-economic background of Apatani tribe and their traditional spinning, dyeing and weaving process.

Tools for collecting data

The primary data is collected through the personal investigation with the help of a pre-structured questionnaire and participatory method, which comprised of close-ended and open-ended questions ranging from general to specific about the traditional process of textile production. The researcher gathered the information from the available literature and by having discussions with the people. The field study was conducted with the help of, Mr Hage D. Apa, Ms Aku Hage Bamin, and Mr Hage Pengi. Samples were selected through random sampling technique. The data collected from field study is supplemented to the secondary data. The data of the secondary sources were collected from the Directorate of Textile and Handicraft Industry-Itanagar, District Museum Ziro, Arunachal Pradesh State weaver's co-operative Federation Office - Ziro and Government of Arunachal Pradesh Craft Centre Ziro. Besides this, many existing pieces of literature on related topics were collected for the analysis of the study.

Sampling and sample size

Seventy-five Apatani women from Hong village were selected randomly. The respondents were women because traditional dyeing, spinning and weaving were done only by women. The respondents were selected from the age group 60 to 85 years, because, the authors realised that this group is more stabilized in their profession.

Table 1: Sample Details

Sample (Gender)	Age Group (Years)	Sample size (No:)	Total (No:)
Women	45-55	30	75
	55-65	30	
	65-75	15	

RESULTS AND DISCUSSION

The socio-economic background of the Apatani community is collected. The collected information is shown in Table 2

Table 2: Socio-Economic Background of the Respondents

Sl No	General Information	Category	Percentage of Respondents
1	Age	45-55 Years	38 %
		55-65 Years	35 %
		65-75 Years	27 %
2	Type of Family	Joint Family	60 %
		Nuclear Family	40 %
3	Educational Level	Illiterate	25 %
		High School	36 %
		Higher Secondary	24 %
		Graduate and above	15%
4	Name of Profession	Agriculture and Related Activities	65 %
		Weaving/ Other Craft	20 %
		Government /Private Employment	5 %
		Unemployed	10 %

The above table indicates that majority of the respondents were in the age group of 45-55 years. 35 % were about 55-65 years. 27 % belongs to the age group of 65-75 years. 60% of the respondents were from joint family and only 40% were from nuclear families.

The majority of the respondents were having only high school level of education. 25 % of the respondents were illiterate and 24 % have completed higher secondary education. Only 15 % were under the category of graduation and above. The main occupation of Apatani women were agriculture and related activities. Among the respondents, 65% were engaged in these activities. 20% of the respondents were engaged in weaving and other handicraft making activities. 5% were engaged in Government and other private jobs. Only 10% of the respondents were unemployed and were involved in some miscellaneous activities.

Specific information about textile production

During an interview with master weaver Hage Haley Yaniya, (Plate :1), she told cotton *(empya)* never seems to have been cultivated extensively in the valley due to unfavourable climatic conditions, but was usually exchanged or bought from neighbouring tribal group called Nyishis. They were purchasing raw cotton from Nishis and Apatanis doing all the spinning and dying process by using traditional process. The Nishis produce a huge amount of cotton in the Palin and Panior valley. They used to buy cotton from Nyishis, by bartering rice. Now they are also able to purchase imported yarn in the shops of Hapoli, and rarely from Nyishis. But, in the passage of time barter system came to an end in the transitional sociological system. Now women are purchasing readymade dyed thread from local market for weaving.

Plate 1: Master Weaver Hage Haley Yaniya describing the old cotton spinning process

It is believed that if these spiritual dresses are misused, the person will suffer from various illness. They believed that these dresses belong to God *Jilo* and *Lyayu*. It is also believed that the woman who makes such spiritual dresses should first pray to God *Jilo* and *Lyayu*. The woman should hang dry bacon meat and a pot of wine on the roof of the house called *lyayupallo*, which gives more spiritual power and wisdom to her to make highly spiritual designs on the cloths. They believed that if a woman does not follow such traditions while making spiritual designs, she will be suffering from back pain, paralysis of legs and hands or may cause many dilemmas in their lives because it is the violation of the holy norms of God *Jilo* and *Lyayu*.

Traditional process of cotton spinning

After purchasing raw cotton from *Nishi* tribe, it was spun into threads. For the spinning purpose Apatani ladies use four equipments like *lekho, tafo, pikhii and hornanii.* The raw cotton is placed on the wooden slab *empya dutin* (Plate 2) to remove the cotton seeds. The ginning process is done by using a thin and smooth surfaced stick locally called *lekho* (Plate 3). *Empya ali* is used to purify lumps and other impurities in cotton before rolling into threads. It is a bow made of bamboo and cane string (Plate 4).

Tafo is basically a stick inserted into an earthen ball used to combine and twist fibres together to form yarn (Plate 5). It is a spindle made out of a lump of clay and a bamboo handle. As this spindle is dropped downward with a twist, a thread is pulled from the pack and wrapped onto the stick.

Plying the spun rough thread into desired type of threads for various weaving purposes is made by using an indigenous tool called *pikhii, consisting* in a bamboo stick inserted into a nut obtained from a local tree (Plate 6). This process is necessary to collect the twisted thread which is used as yarn for the loom weaving. Once cotton fibres have been turned into thread or yarn, a bamboo frame known as *hornanii* (literally "making a loop of thread") is used for making loops. This thread is suitable for adding dyes.

After making the thread into skeins these are undergone starching. For this, the skeins are wrapping with rice and boiling in a big pot. After boiling, the skeins are taken out and put it in a *Sampya* (wooden plate). The resultant product is *tano abunii*, which are starched cotton skeins. Then keep it in the sunlight for drying. Loops are finally made into balls by means of a bamboo framework known as *piirii-e,* resembling a spinning wheel (Plate 7). The base is made up of square shaped wooden slab to fix on the ground and the wheel is operating by hand. *Pasu* is a bamboo needle for stitching clothes. In order to harden and tied up the threads, and avoid them from being crumpled *Apatani* use a wax derived from honeycomb, which is called *Ikun*.

Plate 2: ***Empya Dutin***

Plate 3: ***Empya Dutin & lekho***

Plate 4: Empya Ali

Plate 5: Spinning a thread from cotton using Tafo

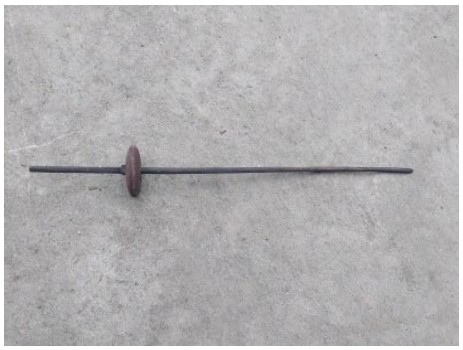

Plate 6: *Pikhii*

Plate 7: *Piirii-e*

Traditional dyeing process

In the earlier times Apatani people were using different leaves and plant resources for dying the cotton yarns in their traditional way. Yellow, red, black and blue were the colours used.

Yellow: A plant '*turku*' **(***Eurya acuminate DC. var. euprista*) was used for getting yellow colour (Plate 8). The first process is husking the leaves in a wooden pot. Then pouring the leaf powder into a pot and mixing the thread with leaf powder and boil it well. After some time the colour of thread turns into yellow.

Red: A creeper like plant *tamin* (*Rubia manjith*) was used for getting red colour (Plate 9). Its skin and roots produce reddish dye. Stem is sliced into small pieces and boiled in water. Its extract was used to dye the yarn. The most important thing is that *tamin* is boiling outside the village because it is considered as a dirty plant. The dying agents contained in *tamin* have poor affinity for cotton fibres, the two species *Rubia manjith* and *Eurya acuminate DC. var. euprista* are often combined to enhance the dye ability of *tamin* due to the presence of aluminium in its leaves.

Blue: The leaves of *movu pyaya* a local tree that produce blue colour after boiling its leaves. First the leaves were properly powdered in a wooden pot using a hammer. Then mixing the threads with

this leaf powder and boil well. Then the white colour thread turns into blue and then dried it in the sunshade.

Black: In order to get black colour, the yarns were first dyed with *movu pyaya* for getting blue colour. After that, the threads were placed inside the wet mud called *athing* and kept it for 1 month (Plate: 10), then the blue colour would have turned into black.

According to Hage Haley Yaniya, mistress weaver, these natural colours have very good colour fastness and quality compared to new threads available in the local market today. She is keeping 120-year-old natural dyed ritual head dress (Plate 11).

Plate 8: ***Sankhusanu*** ***(Eurya acuminata* var.*euprista)***

Plate 9: ***Tamin (Rubiacordifolia)***

Plate 10: ***Athing***

Plate 11: Natural dyed traditional head dress of men (120-year-old)

Traditional weaving

Lobu lome is the traditional waist loom of the Apatanis. The *Apatani* women are very expert in back strap weaving. They are making very indigenous and complicated designs in their traditional back strap looms. Some designs have spiritual value and are considered as sacred garments, which should not be used randomly in normal time. Once the yarn is dyed, it is ready for being woven on the loom.

The equipment *(lobu-lome)* is a simple back strap loom consists of bamboo and wood sticks. This loom occupies little space and normally fixed on the inside or outside wall of the house. Each element has its traditional name (Plate 12). It has a waist belt made of plaited cane or leather made up of animal skin called *chichin sehe.* This belt has tightly secured in the waist with the help of a bamboo stick. During the weaving process, the weaver sits on the floor with her legs keeping straight. She bends alongside the belt to continue the weaving process, while the lower end relaxes on her thighs.

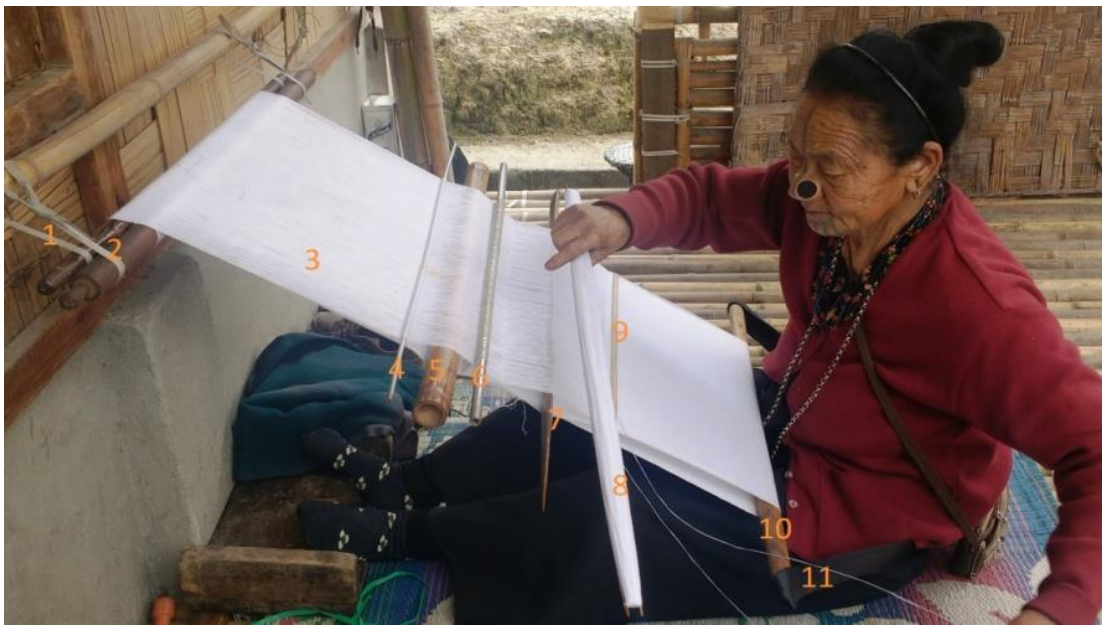

Plate 12: Different parts of traditional loom

1. *Chiniya* - Fastening rope
2. *Poting* - Warp beam
3. *Tano* - Warp Thread
4. *Lomeak ho* - Harness
5. *Lobu* - Bamboo stick
6. *Niiyi* - Harness
7. *Tapii* - Reed
8. *Lokho* - Shuttle
9. *Gochi nanii* - support stick for the woven cloth
10. *Akan Poting* - stick for fastening the belt
11. *Chichin Sahe* - Belt

The first process is the preparation of warp yarns. The warp is preparing by elongating cotton yarns strongly between two parallel bamboos sticks (*poting*). The warp yarns pass through the *lomeak* and *niiyi.* These acts as harnesses, consists of thin vertical threads, which have an opening. Each warp yarn is threaded through this opening which is controlled by *lomeak* and *niiyi*. The warp is passed above the upper bamboo stick (*poting*) of the loom, then behind underneath it again, and below and above the lower end, and then above and below the lower bamboo (*akan poting*). This procedure of winding the warp on to the loom is continued until enough number of threads are secured. The upper end is fastened with a strong horizontal bamboo stick. The bamboo stick fastened normally on to the outer wall of the house. A rope (*chiichinniipa*) is used to secure the warp beam on the wall and removed after weaving. The lower end is fastened with another stick (*akan potin*) which is held firmly by a strap (*chiichin sahe*) that goes around the weaver's waist.

The *lobu* is a bamboo stick which separates the upper and lower warp yarns. By raising or lowering *niiyi* (harness) create a space where the weft yarns can pass. This process is called shedding. The harnesses raise and lower the warp yarns to separate them onto an upper and lower group, creating a shed, through which the weft or filling yarns are inserted.

The weft**,** i.e. the yarn passing through the perpendicular to the warp, is threaded through the warp using a bamboo shuttle (*lokho*) on which the weft threads were wounded. After that the weft thread is pushed across the loom by a shuttle (*lokho*). Then pushing loose filling yarns upright into the cloth with the help of a reed *(tapii)*. The shuttle is passed over and under the warp threads by pushing and pulling, and the yarn is pressed against the previously woven portion with a smooth piece of wood called *tapii*. It is called the beating-up. A round stick (*gochinanii*) attached to the lower end of the warp serves as a support to roll the woven part of the cloth which otherwise would become loose. The width of the traditional loom is approximately 22 inches. This weaving process is much time consuming and needed skilled craftsmanship. The productivity of plain weave is a maximum of four inches per hour. Complicated designs are more time-consuming. The traditional priest head dress, shawls and women upper garment have more complicated designs and it is taking almost nine months to one year to complete. Figure 2 shows the structure of the traditional loin loom.

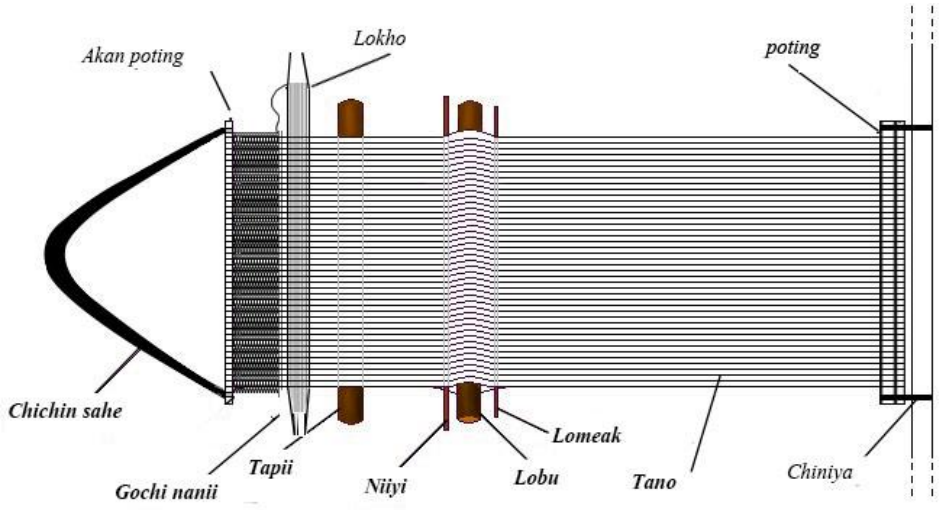

Figure 2: Structure of the Traditional Loin Loom

Apatani women's traditional single piece wrap-around skirt is called *Gale.* After making two pieces, these are joined together in the lengthwise direction by hand hemming. *Apatani* Women made their traditional gale skirt, upper garment, male waist cloth and priest's headdress in their traditional loin loom. They decorate their dress with beautiful woven designs, which are very complicated, and much time-consuming (Plate 13 and 14).

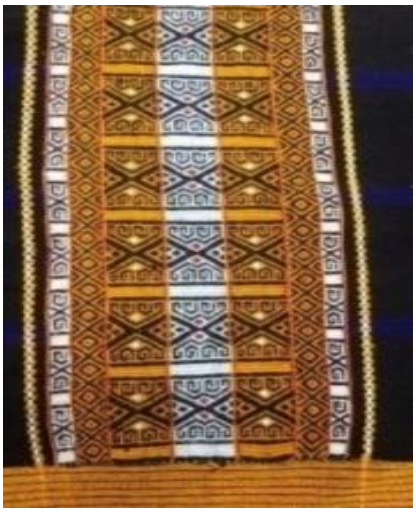

Plate: 13 Woven Design on Priest's Shawl

Plate: 14 Woven Design of Women's Traditional Upper Garment

The Apatani women were getting engaged in weaving activities after their household and agricultural activities. The traditionally woven cloths are considered culturally prestigious and are attached to the belief and spiritual aspects. The designs are in geometrical shapes. Although fly shuttles and handloom are now being introduced, the traditional loin looms are still used by the old generation and genuine textiles are products by their loin looms.

CONCLUSION

The Apatani women of Arunachal Pradesh have a distinct technique of spinning and dyeing. They have a distinct pattern or design in their traditional woven garments. Their indigenous culture and tradition could be found in their textile handicraft products. Their indigenous culture could be found in their gale skirt worn by the women and woven jackets or shawls worn by the men. The vibrant culture, history, nature and livelihood are amalgamated with their natural resources. The designs were inspired by their daily life, tradition, a spiritual and religious belief, that reflects their belief towards nature in abundance. These naturally dyed products found to be very long lasting and have good colour fastness. The significance of traditional weaving and craftsmanship of Apatani women have been depicted for its preservation and further development.

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ROLE OF WOMEN ARTISANS IN REVITALIZING BLOCK PRINTING- A TRADITIONAL TEXTILE CRAFT OF AHMEDABAD

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ABSTRACT

One of the oldest states in India, Gujarat represents Indian way of life at its best. Gujarat is blessed with a wealthy cultural and traditional past. The nation boasts of an age-old superb culture that has continued to exist till date. Gujarat ruled the seaborne cotton exchange (trade) through ages and is still today a noteworthy maker of cotton block prints. Block printing of Ahmedabad district is one such traditional textile craft that is vanishing slowly as screen printing and digital printing overtakes the market. Block printing on textiles is the method of printing patterns on textiles, usually of linen, cotton or silk, by means of incised wooden blocks. It is the earliest, handiest and slowest of all techniques of textile printing. Block printing is a slow technique but it is, capable of yielding quite creative effects, some of which might be unobtainable by means of other techniques. The main purpose of present research was to study socio-economic status of women artisans engaged in block printing and to develop products using this craft according to vogue for better selling and to create awareness regarding the craft. A descriptive research design was planned to fulfill the objectives of the study. The interview schedule and participatory observation technique were undertaken to get complete and authentic information. Data was collected with the help of both interview and observation method. 100 Women artisans of block printing belonging to *chippa* community of Ahmedabad district were selected for the study. It was found that the women artisans were more capable to earn and support their family in better way than before. An NGO "PATIYO", supports all of them to get work orders from the market.

Key words: Ahmedabad district, block printing, *chippa* community, NGO

INTRODUCTION

The rich Indian heritage of ethnic crafts and traditions is well known all over the world. Handmade crafts and creative arts have given livelihood to many rural Indians and fame to India across the globe. Diverse and rich cultural heritage make the handicrafts of India unique. (Singh, 2016)

Current scenario of traditional textile crafts in India is a reflection of its rich past which also reflects the modern-day requirements for day to day market demands. Some traditional textile crafts are highly expensive and are affordable only by the upper crust of the society. However, there is a huge demand for utilitarian items such as for bed covers, sheets, cushion covers, curtains, bags, table mats, furnishings, etc. in the domestic market.

Due to modernization and mechanization, some very exotic textile arts are at the verge of extinction. The traditional styles and methods are replaced by modern methods and mechanisms. Efforts are made by artisans and government to sustain them and revive them by setting up self-help groups and non-government organizations.

(http://www.academia.edu/2133459/Textile_Crafts_and_their_contribution_in_Indian_Fashion)

It is assumed that the art of ornamenting textile fabric using stamping and printing technique originated in the Far East countries, India and China. From here, it gradually made its way to the west. It reached far off to Germany, France and England, travelling through Persia. No other country in the world has as long a continuous history of dying and decorating fabrics as India does. Blocks were largely used to decorate fabrics in the ancient time. Roots of origination of block printing are difficult to trace. However, they are assumed to have origination in the middle ages (476 AD – 1453 AD) in China (Vats N, 2013).

Block printing is well known for its rich, vibrant lines. The art form goes back to its roots of almost around 2000 years, since then it is passed from one generation to another. Indian regions of Gujarat, Rajasthan and South India are known for their excellence in hand block printing. Since then, the seaborne cotton trade is dominated by Gujarat. Especially printing with mordant dying excelled in regions of Gujarat. Ahmedabad in Gujarat is a hub for block printed textiles. (http://www.academia.edu/2133459/Textile_Crafts_and_their_contribution_in_Indian_Fashion)

Gradually, as the fame of block printing spread far and wide, they got their names based on their origin place i.e. based on the name of their villages or "gaam", thus getting the title "gaamthi". Gaamthi prints were characterized by vibrant colors, contrasting prints and huge variety of patterns. Slowly chemical dyes and artificial colors took place of natural dyes. The colors/dyes used were produced from natural sources like henna, turmeric, indigo, and 27 different colors could be achieved through plant parts and metals (http://studiomoya.in/etheme_portfolio/block-print-3/).

OBJECTIVES

In this paper an attempt is made to focus mainly on the following objectives:

1) To study socio-economic status of women artisans engaged in block printing
2) To develop products using block prints according to vogue for better selling
3) To create awareness regarding the craft to the general public

METHODOLOGY

Being home based workers and constrained to 'pardah' system, female workers are credited for their skills and art far less than their male counterparts who have unchallenged accessibility to market and work places. Most women depend upon agents, the majority of whom are men, to bring work to them for which a substantial portion of the wage may be extracted.

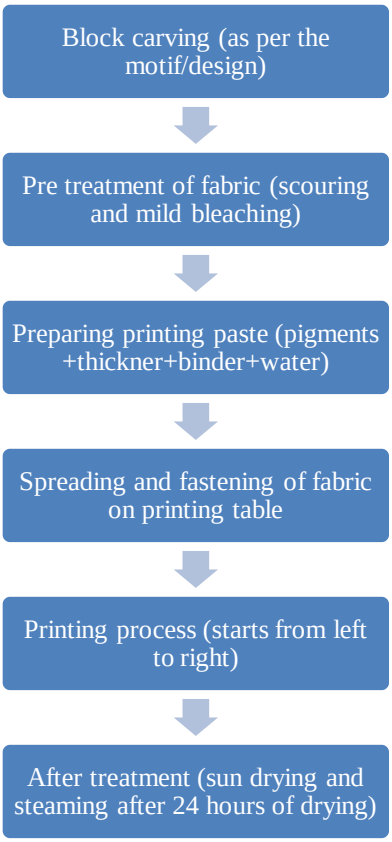
However, today many NGOs and SHGs are there to help women artisan who are home based workers and constrained to purdah to make them empower them and make them independent. They help them to get work and provide safe work place to work comfortably. One of them is "PATIYO" NGO which supports women artisans of Chippa community.

A descriptive research design was planned to fulfill the objectives of the study. The interview schedule and participatory observation technique were undertaken to get complete and authentic information. The data was collected with the help of both interview and observation method. The schedule was prepared with open and close ended questions, which dealt with demographic details, history, process, motifs, colors, etc. Sample selection was done through purposive sampling method. The questions revolved around details of their family background, educational status, marital status, wages earned and other skills known.

Women artisans of block printing of *Chippa* community of Ahmedabad district were selected for the study. 100 women artisans were selected as sample size for the present study.

For product diversification, products were categorized into two categories, which were apparels and household products. Two products of apparel: evening gown and dhoti salwar with western top and four products from household category: table runner and table mats, curtain, lampshade and sofa back cover were designed and constructed by the researcher. To exhibit these diversified products, three days exhibition was organized by the researcher at Ahmedabad Haat from 11th-13th April 2017, as an awareness program among the general public.

Block printing method:



RESULTS AND DISCUSSION

Since ages, Chippa community is practicing dyeing and printing of fabric. They hold this occupation and are emotionally attached to it. Children of this community go Madarsa (educational institute), where they learn about their religion. Women belonging to this community were not allowed to go outside their home for earning. They were supposed to do work at home and usually informal training of needle work, printing, dyeing and other techniques of surface ornamentation of fabric, starts from childhood. Craftswomen belonging to Chippa community were suppressed by the male dominating culture of their community. But, with the passage of time, formal education of girl child increased and now they are allowed to go outside for studies and even for earning purpose, to improve lifestyle and become independent.

Following are the points that were found and observed by the researcher while interviewing the craftswomen of Chippa community:

1) Age group:

The analysis of data revealed that the majority (35%) of the women artisans were from the age group of 41-50 years, and only 5% women fall under the age group of 21-30 years and above 70 years of age. (Fig-1)

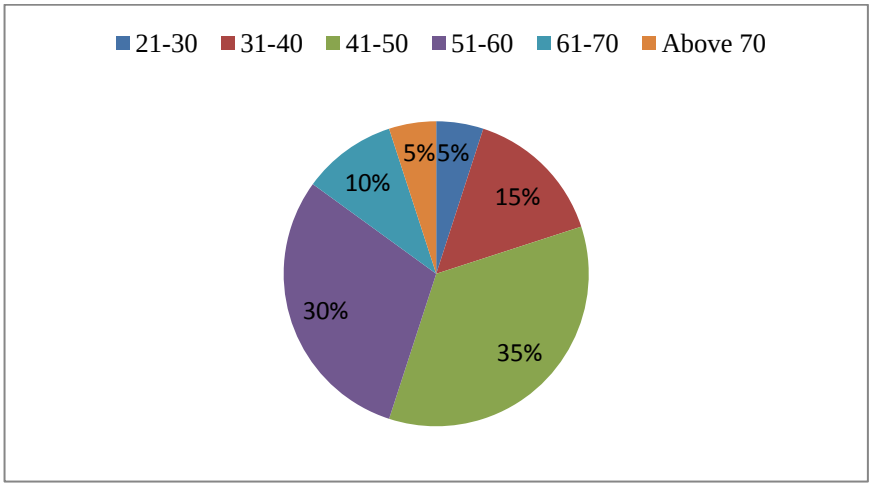


Fig-1: Age of artisans

2) Socio-cultural background:

The study revealed that more than half of the respondents (55%) owned their own house and rest of the respondents (45%) were living in rented house since many years.

70% of artisans under study were married, 10% were unmarried, 15% were widows and only 5%were divorcee. This crystallizes the rationale of marriage as a social institution in the Chippa community (Fig-2).

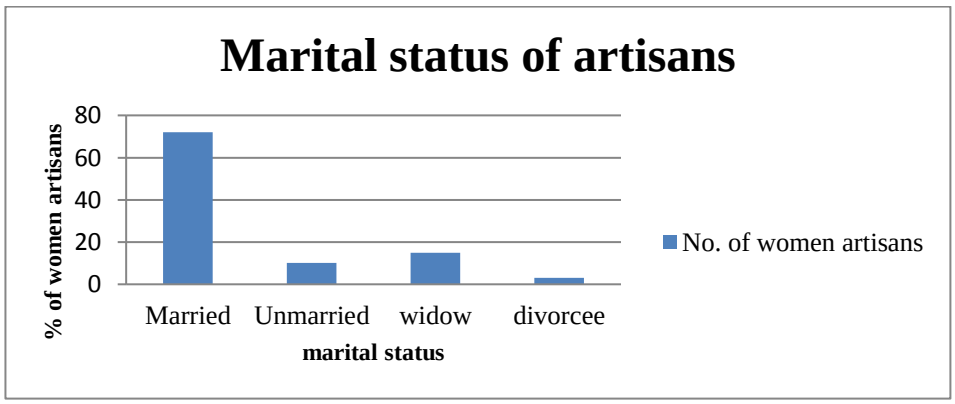


Fig-2: Marital status of artisans

The study showed majority (75%) of the artisans were illiterate. Of those few literates (25%), the education obtained was primary. This directly revealed the education status of girls in chippa community. (Fig-3)

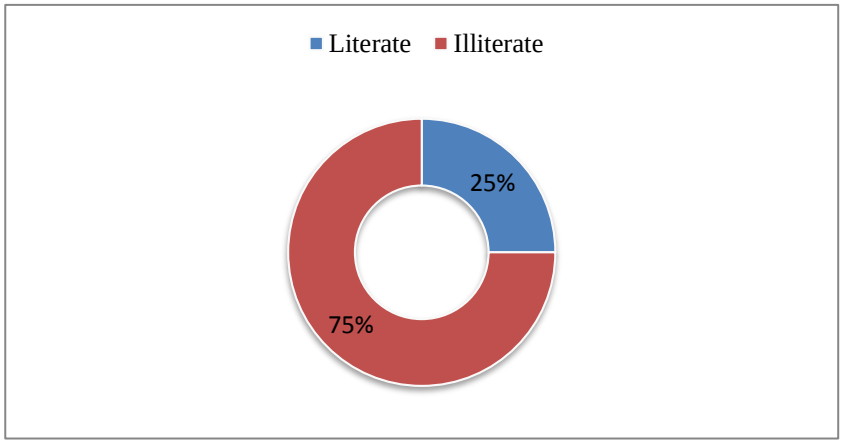


Fig-3: Educational level of artisans

Socio cultural factors had a great influence on their values especially for girls, since, for them, training in house hold chores and block printing were of prime importance compared to formal education. It was important to note that artisans of Chippa community though deprived of formal education acquired knowledge of reading Quran-e-Shareef as a result; they could read Arbi and Urdu scripts.

3) Wages

An important finding of the research stated that all the respondents work on weekly wages and their annual income ranges between Rs.72, 000/-- Rs. 96, 000/-. This shows that the women artisans of block printing are economically independent and help their family to lead better life.

4) Developed Products and Product preferences

Different products were developed with the application of hand block printing craft of Ahmedabad district. These products were divided into two categories: apparels and household products.

1) **Apparels:** Evening gown and dhoti salwar with western top were designed and constructed by the researcher. 100 respondents (college going young girls) were randomly selected and asked to give preferences to different features of the developed products. All the respondents belonged to the age group 17-25 years.

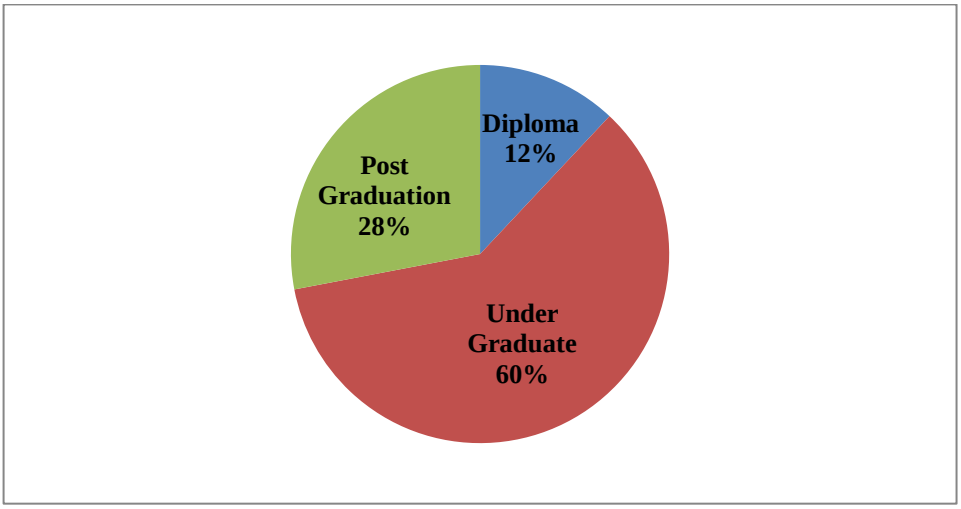


Fig-4: Educational Qualification of the respondents (young girls) for preference for apparels developed

Fig-4 shows the educational qualification of the respondents in which highest (60%) percentage of respondents were studying in under graduation program whereas 12 % respondents were doing their diploma course.

Preferences given by 100 respondents are as follows:

Product preferences:

Pattern 1: Evening Gown: A sleeveless, long, floor length evening gown with frills at bottom was designed and constructed by the researcher. White chiffon fabric with crepe fabric in lining was used for the flare/skirt portion of evening gown. For bodice, white velvet fabric was used. Bodice was made by using knife pleats. Navy blue, sky blue and purple colored floral motif with border was placed at the circular edge of the skirt.

Fig-5

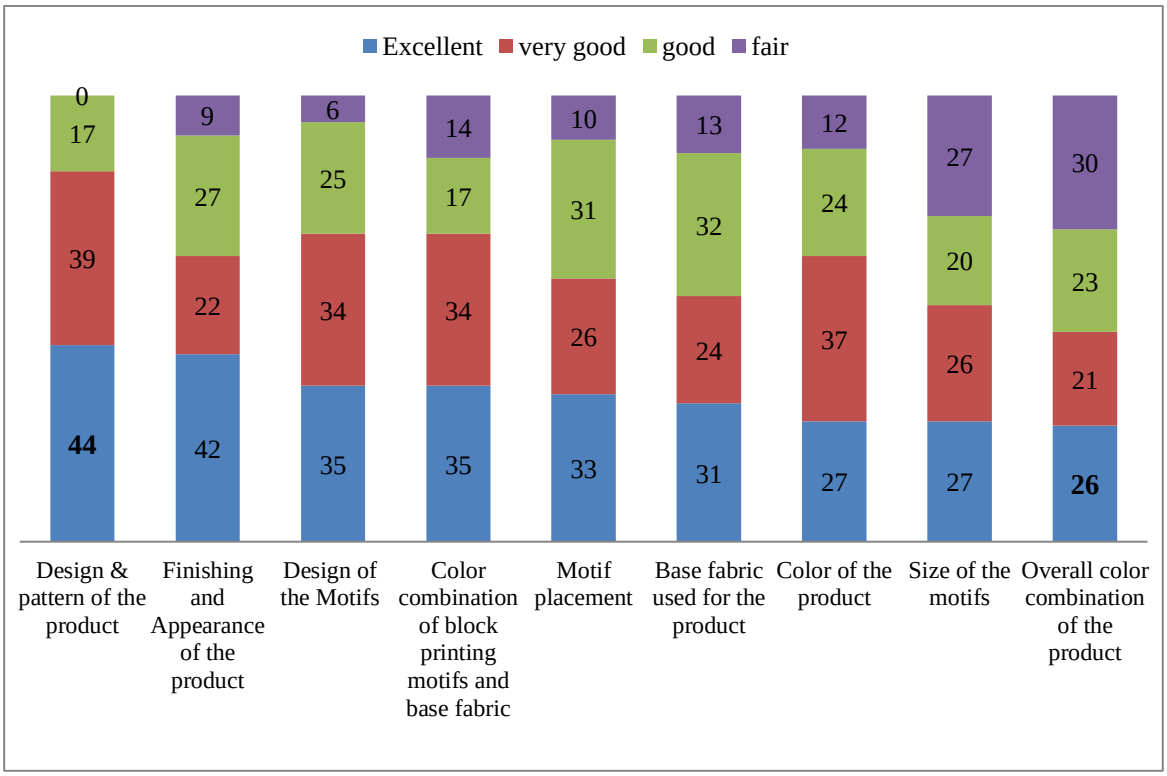


Fig-6: Pattern 1: Evening Gown

It is revealed from Fig-6 that according to 44% respondents, design and pattern of the product (fully flared, floor length, sleeveless, evening gown with V shaped neckline) was excellent while as per 26% respondents, over all colour combination (white base and blue coloured motifs) of the product was excellent.

Pattern 2: Dhoti salwar with western top: White coloured crepe fabric was used for both dhoti and top. A sleeveless top with boat neck and anarkali style circular skirt of net fabric with front opening, attached at the edges of top was designed and constructed. All over floral motif placement was used for dhoti and floral border was placed inside leg of the dhoti. Floral motif was placed at neckline and border of top.

Fig-7

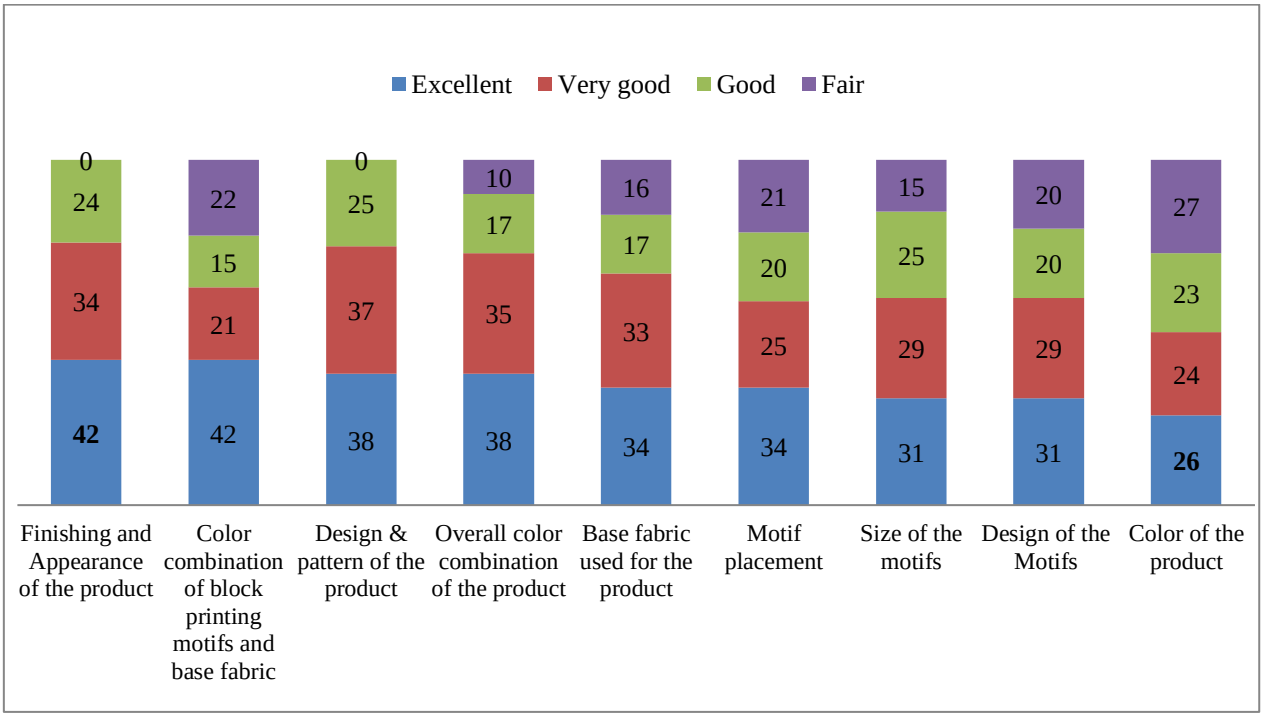


Fig-8: Pattern 2: Dhoti salwar with western top

Fig-8 shows that finishing and appearance of the product was extremely liked by 42% respondents. As per 42% respondents colour combination (white base with purple coloured motifs) was excellent whereas only 26% respondents revealed that colour of the product (white colour of the base fabric) was excellent.

2) Household Products

Household products were developed with the application of block printing craft of Ahmedabad. Design, style and patterns of household products were based on the functional as well as decorative purpose. Cotton fabric was chiefly used as it is most suitable base fabric for block printing due to its excellent absorbency property.

For household product preferences, 100 housewives were randomly selected from Khokhara and Maninagar area of Ahmedabad.

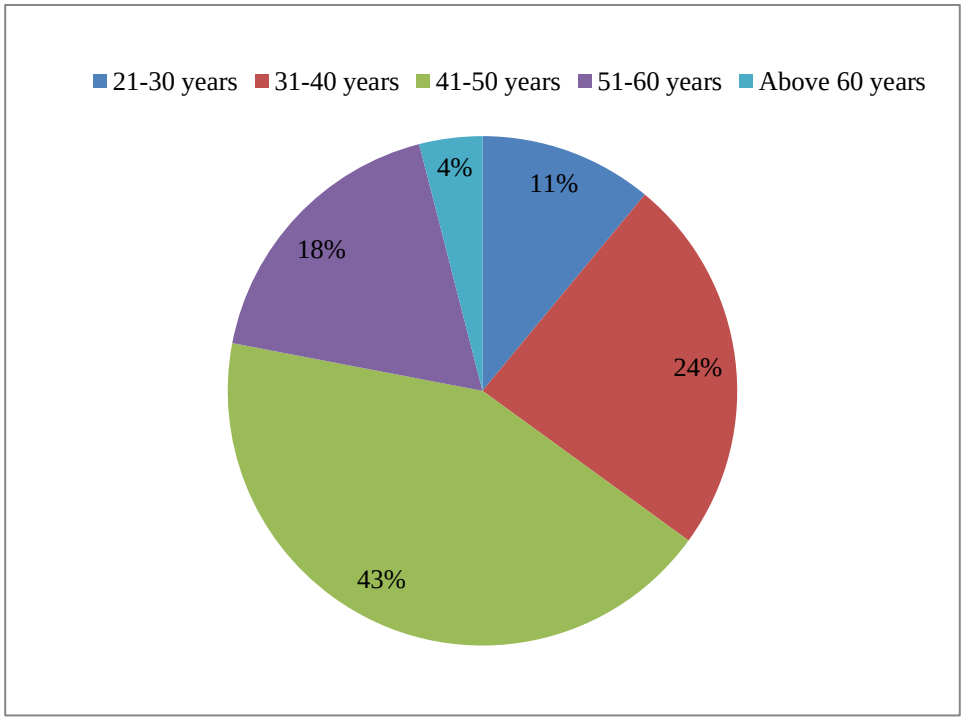


Fig-9: Age of the respondents (housewives) for preference of household products developed

It is revealed from Fig-9 that the highest (43%) percentage of the respondents falls under the age group of 41-50 years. 24 % respondents belong to the age group of 31-40 years. Only 4% respondents were above 60 years while 18 % and 11% respondents were from 51-60 years and 21-30 years age group respectively.

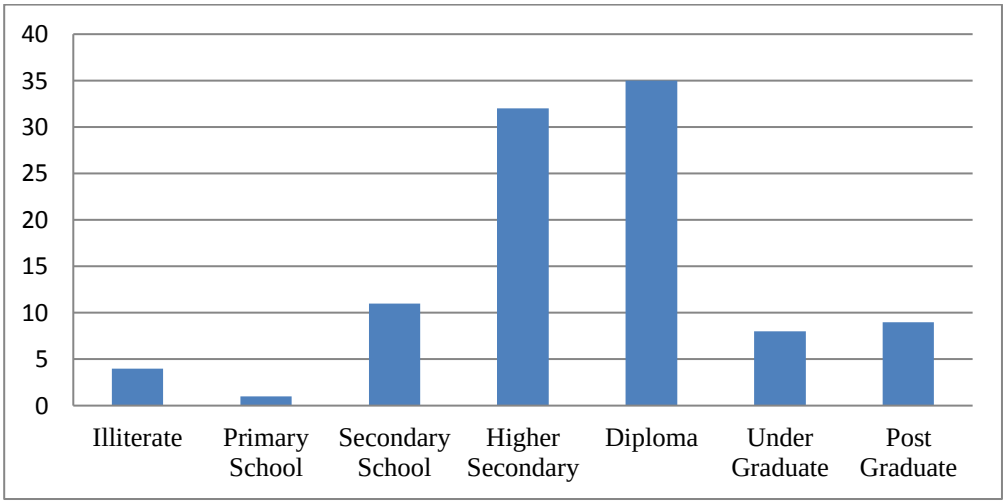


Fig-10: Educational Qualification of the respondents

Fig- 10 reveals that 35% respondents were having Diploma certificate whereas only 1% respondents were having primary education.

Result of household products is as follows:

Product preferences:

Product 1: Table runner and table mats: A long rectangular shaped table runner with pointed ends was designed and constructed by the researcher. Pale yellow colored cotton fabric was used for table runner and table mats. Combination of red and green contrast colored motifs were centrally placed in table mats while in table runner, motifs were centrally aligned with red and green floral border.

Fig-11

Table 1: Table runner and table mats

Sr. no.	Features	Respondents Percentage (%)				
		Excellent	**Very good**	**Good**	**Fair**	**Total**
1	Design & pattern of the product	**35**	51	09	05	100
2	Finishing and Appearance of the product	**34**	41	23	02	100
3	Overall color combination of the product	**34**	32	22	12	100
4	Color combination of block printing motifs and base fabric	33	25	18	24	100
5	Base fabric used for the product	31	30	21	18	100
6	Design of the Motifs	30	37	20	13	100
7	Size of the motifs	29	34	24	13	100
8	Motif placement	29	32	20	19	100
9	Color of the product	**14**	23	31	32	100

It is observed from Table 1 that more of the respondents (35%) revealed that design and pattern of the product (rectangle shape with pointed ends) was 'excellent' whereas the least number of respondents (14%), liked the pale-yellow color of the table runner and mats. Overall color combination (pale yellow colored base with maroon red and green motifs), finishing and appearance of the product were considered as "excellent" by 34% respondents.

Product 2: Curtain: Greenish blue colored, cotton silk fabric was used for curtain. Black colored animal motif with geometrical borders was horizontally placed at regular intervals on curtain.

Fig-12

Table 2: Curtain

Sr. no.	Features	Percentage (%)				
		Excellent	**Very good**	**Good**	**Fair**	**Total**
1	Color of the product	**33**	27	22	18	100
2	Motif placement	29	35	22	14	100
3	Size of the motifs	27	39	20	14	100
4	Design of the Motifs	26	48	19	7	100
5	Finishing and Appearance of the product	25	29	26	20	100
6	Overall color combination of the product	21	37	30	12	100
7	Base fabric used for the product	19	21	30	30	100
8	Color combination of block printing motifs and base fabric	18	28	30	24	100
9	Design & pattern of the product	**09**	25	34	32	100

According to table 2, colour of the product (greenish blue) was extremely liked by 33% respondents while design and pattern of the curtain was liked by only 9% respondents.

Pattern no. 3: Lamp shade: A cylindrical shaped, hanging lampshade was designed and constructed. Combination of turquoise green and purple color was used. base fabric for lampshade was chanderi silk. Blue colored geometrical motifs were placed all over the lampshade.

Fig-13

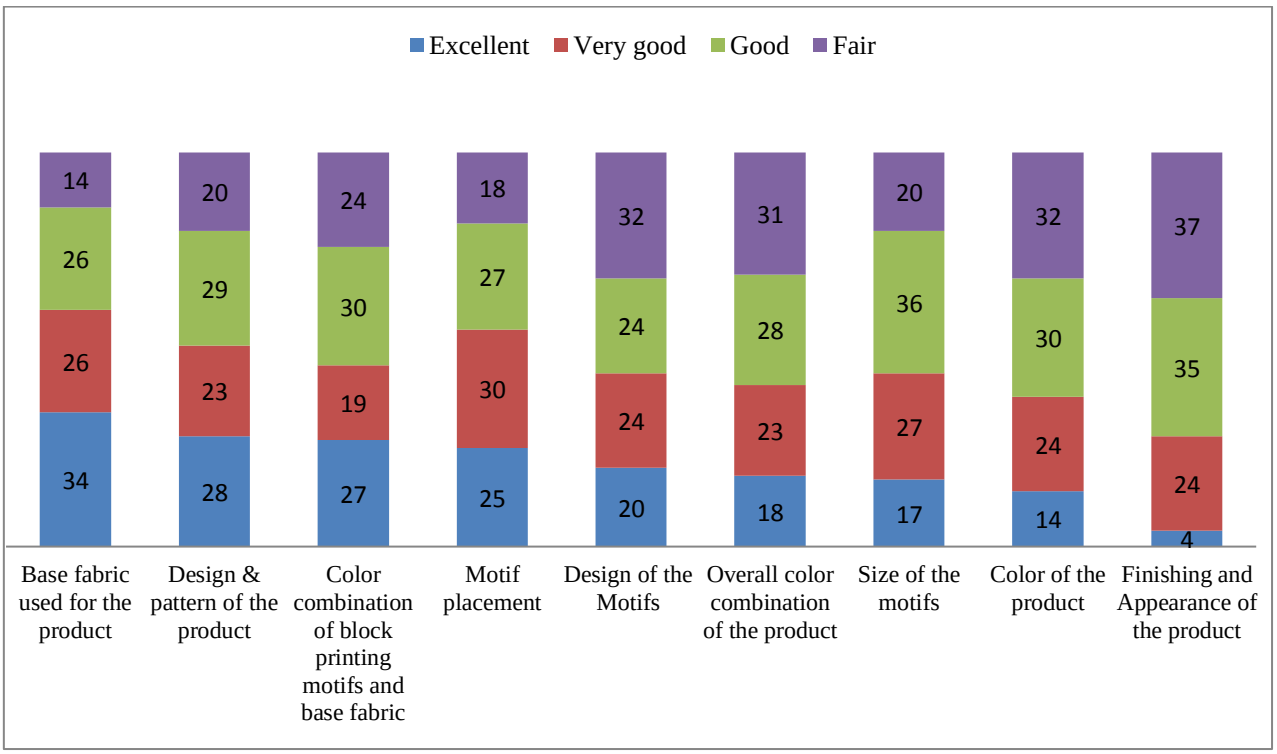


Fig-14: Lamp shade

As per Fig-14, base fabric used for the product (Chanderi silk) was extremely liked by 34% respondents while only 4% respondents liked finishing and appearance of the lamp shade.

Product 4: Sofa back cover: The base fabric used for sofa back cover was blue colored soft khadi fabric. Pattern was triangular in shape with navy blue and maroon colored floral (big) and geometrical (small) border motifs respectively. Tassels were used as trimmings.

Fig-15

Table 3: Product 4: Sofa back cover

Sr. no.	Features	Percentage (%)				
		Excellent	**Very good**	**Good**	**Fair**	**Total**
1	Base fabric used for the product	**37**	26	25	12	100
2	Overall color combination of the product	**33**	33	22	14	100
3	Finishing and Appearance of the product	28	40	21	11	100
4	Color combination of block printing motifs and base fabric	27	27	22	24	100
5	Size of the motifs	26	29	23	22	100
6	Motif placement	26	23	31	20	100
7	Color of the product	22	38	28	12	100
8	Design of the Motifs	**20**	42	31	07	100
9	Design & pattern of the product	**20**	38	21	21	100

Table 3 shows that 37% respondents extremely liked the base fabric (soft Khadi fabric) used for the product while overall colour combination of the product (maroon and navy blue coloured motifs on blue coloured base fabric) was excellent as per the opinion of 33% respondents while 20% respondents liked the design of the motif (floral and geometrical borders) and design and triangle shape of sofa back cover.

5) Awareness program:

During the study three days exhibition of the developed products was organized by the researcher (at Ahmedabad Haat from 11^{th}-13^{th} April, 2017) to promote the craft and to create awareness about the craft among the general public. While communicating with the general public it was revealed that the products developed by using block printing craft were very innovative and acceptable. The designs and patterns were as per the current trend of the market. It was also found that the general public were using but were not aware of the type of craft and the innovative products developed were not seen earlier.

Fig-16

Fig-17

Fig-18

Fig-19

6) Impact of support by NGO:

Form the present study it was found that the "PATIYO" NGO is the main source from where these women artisans get work. This NGO was established in 2002 for the up liftment and up gradation of the women artisans of Chippa community. The main aim of this NGO is to revive the dying craft of hand block printing of Ahmedabad district. It takes projects from government and helps the women artisans to earn for their better life. Presently this NGO is working on an international project of preparing dupattas and stoles. They organize many exhibitions around the nation and send some selected artisans for demonstration of block printing techniques and selling purpose.

CONCLUSION

NGOs and SHGs prove to be a good uplifting factor to women artisans by empowering them, helping them earn better wages and making them independent. It makes them accessible to the market and exposes them to current scenario of product demands.

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TRADITIONAL TEXTILES AND COSTUMES OF MARING NAGA TRIBE OF MANIPUR, INDIA

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ABSTRACT

North Eastern part of India is also known as the tribal belt of India. Amongst the North Eastern states, Manipur has maximum tribal community. The tribes of Manipur can broadly be divided into the Naga and Kuki-Chin. Maring tribe is the oldest ethnic group among the Naga tribes in Manipur. They have a distinct social hierarchy. They have their own unique traditional textiles and costumes, colours, specific designs and motifs with significance and symbolism. The traditional textiles and costumes of the tribe played a vital role in providing identity and a mark of distinction and status within the community. Today, the tribe people do not strictly adhere to their traditional textiles and costumes. Multiple factors have led to changes in the lifestyle, textiles and costumes. However, the traditional textiles and costumes are still in demand and are being used on community occasions, calendric festivals and dances. Hence, this paper will focus on traditional textiles and costumes of Maring Naga tribe of Manipur. Maring Naga tribe majorly reside in Chandel district of Manipur. Hence, the district was the locale for the study. The primary sources of the study were the tribes people in different age groups from diverse backgrounds in rural and urban areas. Information was also collected from weavers belonging to this tribe. Un-structured interview schedules, group discussion, photography and observation techniques were used for data collection. Sample was selected by using purposive sampling technique.

Key words: Maring, Naga, tribe, traditional, textiles, costumes, Manipur

INTRODUCTION

Textiles have always been of great importance as they are an expression of the tradition and culture of the people. They not only protect the wearer from the environment but also adorn them and enhance their personality (Horn, 1965). The textiles and costume are reflective of social relations and are expressions of social identities and values. The art of textile designing has been a part and parcel for many indigenous people in North East parts of India. Among the North-Eastern states, Manipur is one of the states which has been producing and preserving traditional textiles in spite of globalization and modernisation (Anynomous, 2015). According to the census report of 2011, the hill people constitute nearly half of the entire population of the state i.e. 10,55,808 (Anonymous, 2016). The state of Manipur is largely inhabited by four ethnic groups. This includes the Meiteis and *Pangals* (Muslims) who inhabit the lower regions of the valley, while the hilly regions of Manipur are mainly populated by the Naga tribes and Kuki tribes (Anonymous, 2015). Tribes of Manipur represent a unique feature of the land and comprise of about 33 communities that originated from Tibetan-Burmese tribal group of Mongoloids. Amongst the Naga tribes,

Maring tribe is one of the oldest tribes of Manipur. They are living in southern part of Manipur. It is believed that they came to Manipur from China through Myanmar (Anonymous, 2015).

Weaving is a way of life for tribes, in Manipur, since time immemorial. Girls are initiated in this art at a tender age and practice it through their life span. It was said that the tribal woman grows up with weaving and she carries the weaving implements with her after marriage when she goes to live with her husband. In ancient times, a soldier was sent off for battle with a dress material woven overnight and it was considered as important as his weapon. This reflects the importance of weaving in the tribal society of Manipur (http://www.craftartisans.com/textiles.of.manipur.html).

The tribal people wove using the natural fibres and cotton was the most widely used raw material (Keisham, 1998). Since very early times, the tribe people of Manipur have also been doing the work of dyeing threads and bamboo stalk by using varieties of plants, leaves, bark of trees, flowers, mud and roots of tree and creepers (Akimpou and Rongmei, 2005).

Maring Naga tribe in Manipur forms a distinct ethnic and cultural entity. However, there is very little published information with reference to this tribe. There is lack of referencing on their textiles and clothing. The museums in Manipur also do not have significant collection of traditional textiles and costumes of the tribe. Hence, it was important to study and document the traditional textiles and costumes of Maring Naga tribe of Manipur.

OBJECTIVE

- To study and document the traditional textiles and costumes of Maring Naga tribe of Manipur.

METHODOLOGY

The present study is a part of Doctoral research work. It is an exploratory field study. According to review of literature, Maring tribe are majorly located in Chandel district. Some Maring tribe also reside in Senapati, Thoubal and Imphal district. Hence, these districts formed the locale of the study. The primary sources for the study were the tribes people in different age groups viz; senior age above 60 years, middle age between 25-60 years, young age below 25 years, from diverse background in rural and urban areas. Information has also been sourced from government agencies associated with traditional textiles and costumes such as Weaver's Service Centre, Tribal Research Institute, Department of Art and Culture and Museums. Sample selection for all respondents was done by adopting purposive sampling technique. Tools used for eliciting the data were semi-structured interview schedules, group discussion, photography and observation techniques. The data was subjected to a detailed qualitative content analysis.

RESULTS AND DISCUSSION

The primary and secondary data was compiled, organised, classified and analysed qualitatively. The findings of the study have been discussed in the following sections:

Traditional textiles and costumes of Maring Naga tribe

The Maring Naga tribe have a distinct social hierarchy, culture and traditions. They have their unique traditional textiles and costumes, colours, specific designs and motifs with significance and symbolism. The traditional textiles and costumes of the tribe played a vital role in providing identity and a mark of distinction within the community. According to the information received, the traditional textiles and costumes of the tribes were made of hand spun raw cotton yarn. Woven at the loin loom, the breadth of the cloth is narrow and in order to have a wider cloth, two or more pieces of cloth were stitched together lengthwise. Most of their garments were made by joining panels by hand stitching using whip stitch. The fabric was woven in plain weave and extra weft technique (swivel weave) was used for designing motifs. Most of the designs are elucidated as realistic portrayals by the natives. The designs represented animal bones, creatures, animals, fishes, birds, plants etc. The traditional textiles and costumes of Maring Naga have been briefly summarised as follows:

1. Home textiles

Leirum*:*It is also called as *Mongchal by* Maring people. It is a blanket used by aged persons. The blanket was made with hand spun raw cotton. It is designed with very fine stripes in light brown covering the main body of the blanket with wide white border on both sides. The size of the blanket ranges from 200 to 210 cm in length and 110 to 120 cm in breadth (Fig.1).

Figure 1: *Leirum*

Ngoupong/Ngoupun: It is a plain white colour cloth. The cloth was used as a blanket in cold season in earlier times. The cloth was woven with raw thick cotton yarn. The cloth was meant for only elderly people of Maring.

2. Unisex textiles and costumes

Khwangchet: It is a scarf woven in plain black. Both males and females used it as a waist binder during traditional dances (Fig. 2).

Figure 2: *Khwangchet*

***Langphai*:** It is also called as *PheeLangphai*. It is one of the most important lower garments for men folk of Maring. This lower garment was worn by men folk during dances, marriages, festivals and rituals. The *Langphai* was also used as upper garment by women folk of Maring (Fig. 3). This is mainly worn by the Maring tribe who resided in Senapati and Thoubal Districtsof Manipur. Black *Taphu*and *Nayel* motifs are placed all over and fine black stripes are placed at the two ends of the cloth. It was believed that the stripes at the two ends were inspired from the feathers of a bird called *Langmeidong*. Some senior respondents reported that *Taphu* and *Nayel*motifs are considered to be most auspicious symbols for Maring. These geometrical motifs can be seen on various objects such as pillars at entrance of newly constructed house and warimplements etc. It measured 164 cm in length and 104 cm in width.

Figure 3: *Langphai*

Kungoirei: It also called as *Khummoirei*. It is a kind of scarf especially used by the Maring to tie at their waist while they perform ritual dances. The scarf is woven in plain black. It is then decorated with hand embroidery by women using cotton thread in red, yellow and white. The motifs comprised of animal motifs, flowering plant, geometrical zig-zag motifs to form the border. The stitches used for embroidery were long and short stitch and back stitch (Fig. 4).

Figure 4: *Kungoirie*

***LukhumKhutai*:** It is a head cover also called as *Lingkhang* or *Kokyet* or *Pheetup*in some villages. The head cover was mostly worn by women while they worked in fields. They also wore it during winter for keeping their head warm. Some of the senior respondents also mentioned that in earlier days, the head cover was mostly worn by males and females who entered into *Rakhang* (dormitory). *Rakhang* is a kind of training centre in villages for the youngsters belonging to the tribe. The head cover is woven in plain white and can be draped in various styles (Fig. 5).

Figure 5: Different draping style of *LukhumKhutai*

3. Male upper garments

It was reported by the tribe people that in earlier times, there were no specific upper garments for men. They used to drape their shawl round their body as upper garments. The upper garments used by Maring males were as follows:

Khuingallu:It is one of the most important shawls used by men folk. It was worn during ritual functions specially by those who performed feast of merit and the village chief. It could also be worn by elders and *Laarung* (Choir director). The shawl was also used by hunters when they went for hunting in forest. It was reported by some senior respondents that the *Khuingal* motif used in the shawl in black colour symbolised the king of black bee. It also refers to the name of famous priest *TheamkhuiUpa* or *TheamkhuiRangal* who was highly honoured and feared by all. People referred to him as *Khuingal* as an honour. The shawl also symbolised the dignity of Maring heroes. Some of the respondents also reported that only woman who had had menopause wove the shawl. According to the respondents, there was a specific place for the weaving *Khuingallu* shawl. The weaving place of this shawl should be kept isolated from home and near village gate *KhungiPanthung*. The place should also be bordered by bamboo fencing so that nobody could enter the place except the weaver. The shawl is woven in white and black stripes (Fig. 6).

Figure 6: *Khuingallu* Shawl ***Khuingal*Motif**

PheemuiRalpul: It is also a kind of shawl worn by men folk of Maring. The shawl was specially woven for warriors and heroes. The first son of the family could also wear this shawl. The shawl could also be worn by *Themkhui* (priests), *KhulpuKhullak* (chiefs) and *Laarung* (Choir directors) etc. The shawl was woven with red border and small yellow stripes. The motifs were placed in rows within these stripes. The motifs were inspired from natural creatures such as horse, peacock, elephant, half moon, star, bull head, moon, star, bird, and war implements such as dao and spear. The motifs were executed with hand embroidery in different colours using long and short stitch (Fig.7).

Figure 7: *PheemuiRalpul*

***LhouwaLinglik*:** Itis a male shirt which is also called as "*Kumoilik"* meaning festival shirt. The garment is specially worn during festivals and dances by men. It was believed that the shirt was brought from Myanmar in earlier times during late18th century. According to the information received, Marings who are still settled in Poi in Burma (Myanmar) were known by the name *PoiHao*. It is believed that *LhouwaLinglik* must have been bought from them by the Maring people who were settled near the border of Indian territories (Fig. 8). It is a full sleeves shirt with a stand collar and center front opening. It is made from printed cotton usually reddish or orange in colour. The pattern of the print may change; however, it is compulsory to have printed peacock motif at front and back of the shirt.

Figure 8: *LhouwaLinglik* (Maring Male Shirt)

4. Male lower garment

Lingkham: *Lingkham* is the lower garment for men. The lower garment is similar to *Langphai*. The only difference between them is that *Lingkham* is madewith black colour border on both ends, which is not present in *Langphai.Lingkham*is mainly worn by the Maring tribe who resided in Machi, Langol, Khunbi, KhudeiKhullen villages in Chandel district (Fig. 9).

Figure 9: Maring man Wearing Linkham (Source:www.google.co.in)

Figure 10: Maring girl wearing sarong

5. Female garment

In earlier times, like men folk, there were no specific upper garments for women. They wore saron ground their body covering the upper chest, breasts and tucked the ends of sarong under the armpit as shown in Fig.10. They used upper garment only on special occasions. According to information received, the women began to wear blouses over their sarongs around 1960s. The upper garment of females is as follows:

***Khemichi*:** It was believed that the design of *Khemichi* was inspired from *LeesomFurit*, an upper garment of Meitei community. Meitei kings used to give a*Leesomfurit* as a reward or gift to the tribes people. From then, the tribes people began to wear it on special occasions such as dances. However, some of the older respondents also reported that the design of the garment was adopted from people who resided in Tamu village (near Indo-Myanmar border) in Myanmar. It is a full sleeve, waist length blouse made of velvet in black colour and lined with red colour muslin (Fig. 11). It has a center front opening.

Figure 11: *Khemichi*

6. Female lower garment

***Pheekham*:** Sarong in Maring dialect is called *Pheekham*. It is used as a lower garment by the women. The *Pheekham*can be worn by all Maring women. This lower garment is woven in plain white base and designed with *Taphu,Nayel* and *Aiha* motifs in black colour. As per respondents, in earlier times Maring people had to wear only simple and plain design clothes. Every Maring had similar dress. Later, after Bristish invasion in Manipur, Meitei King *Chingsanglakpa* divided the dress of Maring into two, based on their places of settlement, as follows (i) dress with red border and (ii) dress with black border. Hence, there are two types of *Pheekham* based on the colour used in the border. They are:

***(i)YaruiMarao**:* It has a red border with yellow and black stripes. It is also called as *YaruiRao*. This sarong is mostly worn by women who reside in,KhudeiKhullen, Kharao, Phauchong and Kampang villages in Chandel district and Kangoi , WaithouPhunalSandangSenba, Laipharok villages in Senapati district and Kuwarok in Thoubal district (Fig. 12).

***(i)Yarui Mong**:* It has black border with red stripes. It is also called as *YaruiKhamang or AnthurYarui.* The sarong is mainly worn by the Maring women folk who lived in Machi, KhunbiLangol, Koicham, Meenou, LeichingKhunou, Korongthel, Kangshang, and Lamlong villages in Chandel district (Fig.13).

Figure 12: *Yaruimarao*

Border of *Yaruimarao*

Figure 13: *Yarui mong*

Border of Yarui mong

7. Jewellery and ornaments

Jewellery and ornaments are important part of traditional costumes of Maring tribe. They are very fond of making their ornaments with natural materials like bamboo, cane, orchid, flowers,

stone, glass, claws, bones, teeth, horns, sea-shell, beads, birds and animal feathers. Some of the traditional ornaments used by the Maring Naga are as follows:

- **Unisex ornaments**

RulsumKhrul: The word *Khrul* means necklace in Maring dialect and *Rulsum* is the name of beads.It is made of reddish yellow beads worn by all Maring both male and female. Males used it to decorate their head by transfixing crosswise at front. The length of the string required to decorate the hair was about ten metres long. Women wore it as a necklace.

MuidouKhrul:It is also a kind of beaded string worn by males and females. Males used it as a head ornament and women used it as a necklace.

Thrumthril:It is kind of earing made of insect feathers from an insect called *Lumlensha*. The earing is worn by men with *Nakhap*(male earing)and women worn it with *Roho*(ivory disc) while they performed dances, festivals and rituals.

Khutsin:Bangles made of brass worn by males and females during festivals.

Khutsi: Rings made of brass worn by males and females as daily wear.

i.Rulsum ii. Thrumthril iii.Khutsiiv. Khutsin

Figure 14: A collection of unisex ornaments of Maring

- **Neck ornament (male)**

***Yaha*:** It is made from wild boar tusk, dried stem of orchid called *Khungun Mallei*, cane, porcupine hair, dried insect wings and twisted black raw cotton threads called *Yaharui*. The necklace is worn by males during dances and festivals (Fig.15).

Figure 15: ***Yaha***

Figure 16: A Woman wearing ***Mui Bang Bal***

- **Necklace (female)**

***Mui bang bal*:** These necklaces were always worn over the shoulders in identical pairs and are crossed at center front as shown in Fig.16. The word *Mui* means sea-shell and *Bang Bal* means crossing. It is made of sea shell, conch shell and is worn during dances and festivals.

- **Ear ornament (male)**

***Nakhap/Khap*:** It is one of the most important ear ring of Maring men. The ear ring is made with combination of hair from horse's tail, yellow stem orchid *Khongun Mallei*, porcupine hair, red colour feathers of bird called *Khungwa* etc. (Fig. 17).

- **Ear ornament (female)**

***Nuru*:** It is an ear ring made of wood. The earing is worn by Maring women in day to day life.

Laka/Roho/Ho: It is a kind of earing made of ivory disc with a diameter of around 20-25mm and 3mm thickness. When the earing is worn with *Lumlensha* (insect wing), then it is called *Thrumthril*. The earing is mostly worn as daily wear by women folk.

i.*Nakhap* **ii. *Nuru*** **iii.*Laka***

Figure 17: Ear ornaments of Maring

- **Arm ornament (male)**

***Tongthil*:** It is a circular brass armlet of Maring men. The armlet is worn by men folk during dances.

Figure 18: *Tongthil*

Figure 19: *Holcham*

Figure 20: *Tonsi*

- **Waist ornament (female)**

Holcham: It is a waist ornament worn by Maring women during dances. It is made of cowrie shells and brass bells.

- **Leg ornament (male)**

***Tonsi*:** It is a kind of leg wear which is mostly worn by men in Maring community while they perform ritual dances. The leg wear is made of cowries and brass bells.

- **Head ornament (male)**

Hakhei: It is a kind of metal aluminium decorative hair stick used to decorate the hair knot i.e. *Rulhing*by men folk.

Hair style and head wear

It was noted that Maring tribe rarely used head gear. It was found that women simply kept their hair in knot. Sometimes they covered the hair by a simple plain scarf of black or white colour when they went out for work. They wore a kind of head wear called *Shamkeen* during special occasions and festivals. *Shamkeen* is a kind of head wear which was made of bamboo stalk, cane and dried stem of an orchid called *KhongulMellei*.

Maring men also kept their hair long. They started to keep their hair long when they entered into dormitory. They tied their hair in knot on the forehead instead of back side and decorated it by jewellery, flowers and feathers. According to the information received from senior respondents, the style of coiling hair was divided into two based on the age of wearer. The first one called as *Rultum* was coiled hair shorter in length mostly adopted by senior men.The second one called *Rulhing* was coiled hair longer in length adopted mostly by younger Maring men.

i. *Hakhei* **ii. *Shamkeen*** **iii.*Rulhing***

Figure 21: Head wears of Maring

According to the information received, it was found that the Maring people rarely used footwear. They wore *Khurum* when they went out to far places. *Khurum*, is a kind of footwear made of animal skin and wooden block. The skin of animal primarily obtained from bull was used as strap and wooden block as sole.

CONCLUSION

In earlier days, the traditional textiles and costumes of the tribe signified rituals, warfare and feasts of merit. It also revealed the wearer's economic and social status in the society. However, education, Christianisation, globalisation and modernisation have impacted the use of traditional textiles and costumes of Maring Nagas. Today, the tribe people have almost wiped off the traditional textiles and costumes from every day wearand have adopted western outfits.It was also noted that the use of traditional textiles and costumes of Maring Naga has declined in not only in urban areas over the last few decades but also in rural areas.Costume has ceased to have symbolic meaning and identity and conforms to current fashion trends.

Today, the women have begun to wear blouses over their sarongs. In earlier times, Maring tribe did not have specific costumes for marriage. The bride and groom were adorned by necklace and flowers in order to distinguish the bride. Now a day, brides have adopted western gowns and grooms have adopted shirts, trousers and other casual wear. However, the traditional textiles and costumes are still in demand and are being used on community occasions, calendric festivals and dances. The young people do not understand the significance of the patterns on their textiles and costumes. Hence, this paper is an earnest attempt towards the documentation of the traditional textiles and costumes of the Maring Naga tribe of Manipur.

IMPLICATIONS

There is an urgent need for documenting the traditional textiles and costumes of Maring, since there was very little published information on them. Efforts should be made to preserve this cultural heritage by documenting these traditional textiles, costume and weaving practices. Documentation is concerned not only with preserving them, but also, the knowledge and skills necessary to create them and promoting the continuation of these traditional techniques as well. This is important as traditional weaving has declined over the years. It also helps us to understand their way of life and how these are a part of their daily lives.

Traditional textiles, costumes and weaving practices are also important resources for the researchers, weavers, art lovers, textiles and fashion designers interested in the field of traditional textiles. This will help in the revival of the traditional weaving and costumes, its survival and preserving their legacy.

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DESIGNING OF HAND BAGS FOR COLLEGE GOING GIRLS

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ABSTRACT

Clothing is one of the three basic necessities of men or women and is incomplete without accessory. Accessories give clothes a more meaningful look and add prestige to an ensemble. There are a lot of accessories which are generally used by women such as belts, gloves, watches, stoles, scarves, bags and wallets etc. Clothing is determinant of personality and handbags form a part of it. Now a day's women are becoming more and more involved in activities outside the home, so they need a multipurpose bag in which they can keep keys money, mobile, water bottle, lunch box and other important things. The size of handbag depends upon individual 's preference about what she wants to carry in it. Today, tote bags play many roles and meet many needs. Tote bags are handbags which are multi-tasked, and also popular all over the world. A tasteful sense in clothing with minimal accessories can give the piquant touch. The younger generation is much interested and more experimental to their clothing, especially girls. Innovative design, usefulness combined with in trend styles is the most sought after properties in a consumer good. For creating the tote bags, truck art is studied, motifs are collected, and then designs are developed inspired from truck art.

Keywords: accessories, hand bags, tote bags, truck art

INTRODUCTION

Accessories are items of equipment that are not usually essential, but which can be used with or added to something else in order to make it more efficient, useful, or decorative. Handbag is one of the most important items for a woman and contributes much to her personality without which a woman rarely leaves her home (Danville, 1962). According to Longman and Oxford English dictionary, ―Handbag is a small bag or pouch of any flexible material used by a woman to carry necessities. The handbag is an essential element of a woman's wardrobe that is both functional and fashionable. Basically, handbags are bigger in size than purses. A handbag is a true companion as it not only holds one 's essentials while running out, but also tells others just how well put together a person is. A girl can triple the impact of her outfit with just choice of handbag extending from the hand (Bawa, 2006).

Today more and more women are becoming educated and socially alert. They are usually playing an active role, at domestic as well as the career front. Therefore, for multifarious jobs, they require accessories which will give clothes a more expensive look. In a well-coordinated wardrobe very few accessories are required and it should be good collection that individual carry often and keeping with contemporary trends and style.

The handbags can be classified according to need, material, and decoration. According to type, there are various types of bags such as laptop bag, bottle bag, promotional bag, shopping bag, and utility bag (Lau, 2012). The size of handbag depends upon individual 's preference about what she wants to carry in it. Today, tote bags play many roles and meet many needs. A tote bag is described as a large or roomy handbag (usually slung over the shoulders) to carry everyday items such as books, make up essentials and others. Totes are especially useful for those who have a lot

of things and do not have time to disseminate each item. From casual totes to business ones, each provides a multitude of roles, both independently or combined (Ramjee, 2010).

Art is an expression or application of human creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power (Dutton, 2009).

The art of truck painting in India is said to have begun in the 19th century with trucks being imported to India. Truck art is basically an old folk-art form of India where trucks are painted with bright, vibrant and dazzling colors, with an incorporation of beautiful painting that includes quotations and slogans in beautiful writings, symbolic paintings with various signs. Truck Art is considered to be an old traditional art in India in vibrant paints, patterns, fancy quotes and some distinct poems. These quotes and poems carry an individual to a cultural excursion and a journey reflecting diverse belief of India. The designs painted on the trucks do not merely stand for aesthetic purposes, but they also reflect some deep-rooted religious, sentimental, cultural and emotional viewpoints of truckers the people related to the truck industry (Suman and Mirche, 2016).

Truck art is a popular form of regional decoration in South Asia, with Pakistani and Indian trucks featuring elaborate floral patterns and calligraphy. The Truck Art, an art form that makes journey through the dusty highways of India, incredible in more ways than one. With a kaleidoscope of bright paints, motifs, typography and some unique couplets, these Indian trucks take one on a rather colorful journey of diverse cultures and beliefs of the country.

There are wide varieties of plain, printed and embroidered Tote bags available in the market, whereas Tote bags with hand painted truck art motifs are rare today so it leads to an open opportunity for the researcher to bring hand painted tote bags to foreground in the market.

OBJECTIVE

The present study aims to study truck art, collect motifs, develop designs for tote bags and create the most preferred designs using hand painting, for college going girls.

MATERIAL AND METHOD

The history, components, motifs, color and other characteristics of Tuck art were collected from books, internet and various libraries. Motifs of Truck art were collected by taking pictures of trucks from various places in Chandigarh and motifs were also taken from internet as well.

A color palette was made from bright and vibrant colors in Truck art motifs. For selection of product, a market survey was conducted and various handbag shops were visited. The shopkeepers were asked about the most preferred handbag and collected data was analyzed.

RESULTS AND DISCUSSION

Study of Truck art and collection of motifs

Indian truck art is basically an old traditional art where trucks are painted with bright, lively and brilliant colors, which includes quotations and slogans in beautiful writings; and

symbolic paintings with various signs. The quotations on the trucks are inspired by cultural and popular ideas. Popular motifs in Truck art include - peacocks and tigers, cows, devils and charms, kalash, lotuses, the gesture of namaste, typography, The Indian flag, and portraits of political leaders. The designs painted on the trucks do not merely stand for aesthetic purposes, but they also reflect some deep-rooted religious, sentimental, cultural and emotional viewpoints of truckers and the people related to the truck industry.

Motifs of Truck Art

- **Selection of suitable fabric**

Table 1: Selection and evaluation of suitable fabrics for Tote bag

Sr. No	Sample Name	Marks	Rank
1	Canvas	101	2
2	Gabardine	80	4
3	Casement	60	5
4	Union Fabric	119	1
5	Denim	90	3

Table 1 depicts that sample no. 4 i.e. Union Fabric (jute and cotton) got maximum marks (119) and was ranked 1. Sample no. 1 i.e. Canvas was at 2nd position (101 marks), Sample no. 5 i.e. Denim was at 3rd position (90 marks), whereas Sample no. 2 i.e. Gabardine and Sample no. 3 i.e. Casement were at 4th position (80 marks) and at 5th position (60 marks) respectively.

Therefore, top three ranked fabrics were selected for the creation of Tote bag i.e. Union fabric (1st rank), Canvas (2nd rank) and Denim (3rd rank).

- **Selection of styles of tote bags**

Ten different styles of Tote bags were developed and evaluated by panel of judges. The following were the results-

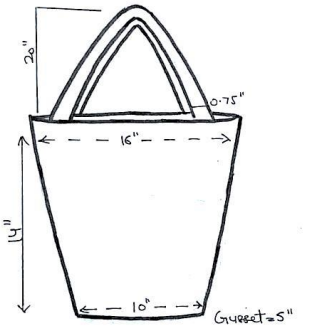
Table 2: Evaluation of most preferred styles of Tote bag

STYLES	MARKS	RANK
Style 1	218	2
Style2	132	7
Style 3	200	3
Style 4	152	6
Style 5	113	9
Style 6	115	8
Style 7	101	10
Style 8	234	1
Style 9	187	5
Style 10	199	4

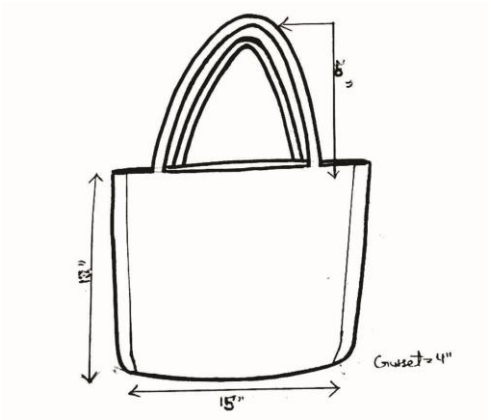
Table - 2 depicts that style 8 was ranked first (234 marks), style 1 was ranked second (218 marks), style 3 was ranked third (200 marks), style 10 was ranked fourth (199 marks), and style 9 was ranked fifth (187 marks). The other styles 4, 2, 6, 5 and 7 were at positions in decreasing order i.e. from 6th position to 10th position.

Therefore, top 5 ranked styles were selected for the designing of Tote Bags.

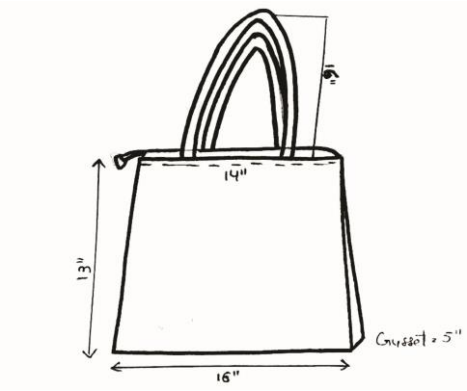
Selected styles of Tote bags



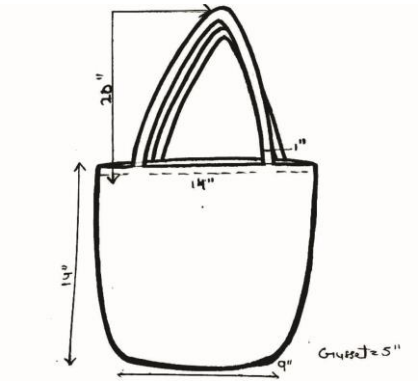
Style 8 (Rank 1, A)



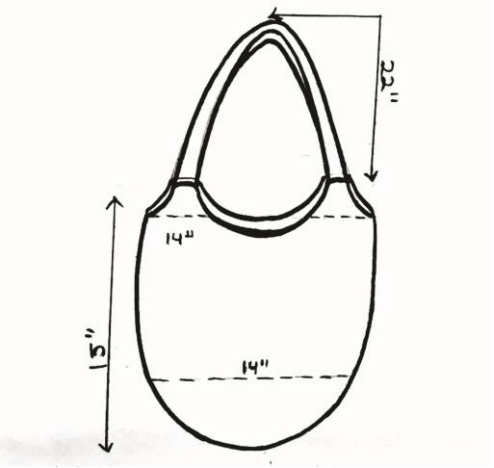
Style 1(Rank 2, B)



Style 3 (Rank 3, C)



Style 10 (Rank 4, D)



Style 9 (Rank 5, E)

- **Designing and selection of tote bags**

For selected 5 styles, 30 designs were developed (6 designs for each style) and were shown to judges in order to select most preferred design from each style of Tote bag.

Table 3: Selection of most preferred design for Tote bag in style A

STYLE A		
DESIGN	MARKS	RANK
D.A1	105	3
D.A2	140	1
D.A3	111	2
D.A4	92	5
D.A5	80	6
D.A6	101	4

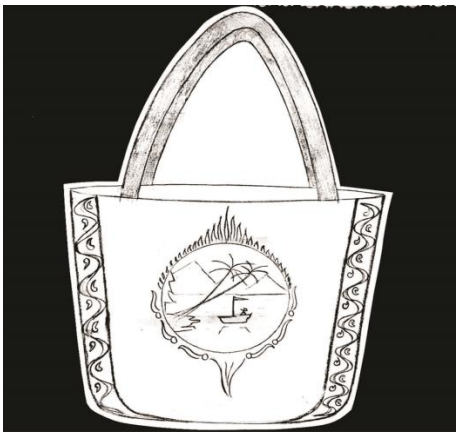
Table-3 depicts that D.A2 got maximum marks (140) and was ranked first. D.A3 was at 2nd position (111 marks). D.A1 was at 3rd position (105 marks), whereas D.A6, D.A4 and D.A5 were at 4th position (101 marks), at 5th position (92 marks) and at 6th position (80 marks) respectively. Therefore, D.A2 (1st rank) was selected from style A for the creation of Tote bag.

D.A2 (Style A)

Table 4: Selection of most preferred design for Tote bag in style B

STYLE B		
DESIGN	MARKS	RANK
D.B1	149	1
D.B2	134	2
D.B3	71	5
D.B4	114	3
D.B5	65	6
D.B6	84	4

Table-4 depicts that D.B1 got maximum marks (149) and was ranked first. D.B2 was at 2nd position (134marks). D.B4 was at 3rd position (114 marks), whereas D.B6, D.B3 and D.B5 were at 4th position (84 marks), at 5th position (71 marks) and at 6th position (65 marks) respectively. Therefore, D.B1 (1strank) was selected from style B for the creation of Tote bag.



D.B1 (Style B)

Table 5: Selection of most **preferred design for Tote bag in style C**

STYLE C		
DESIGN	MARKS	RANK
D.C1	122	2
D.C2	77	6
D.C3	111	3
D.C4	78	5
D.C5	140	1
D.C6	98	4

Table-5 depicts that D.C5 got maximum marks (140) and was ranked first. D.C1 was at 2nd position (122marks). D.C3 was at 3rd position (111 marks), whereas D.C6, D.C4 and D.C2 were at 4th position (98marks), at 5th position (78 marks) and at 6th position (77 marks) respectively.

Therefore, D.C5 (1st rank) was selected from style C for the creation of Tote bag.

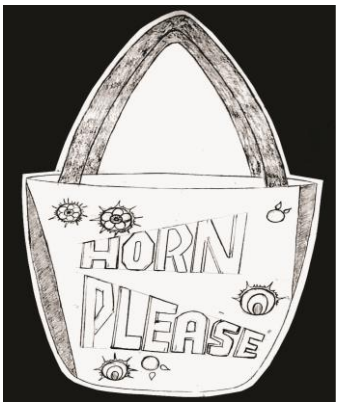
D.C5 (Style C)

Table 6: Selection of most preferred design for Tote bag in style D

STYLE D		
DESIGN	MARKS	RANK
D.D1	106	3
D.D2	96	4
D.D3	123	2
D.D4	132	1

D.D5	91	5
D.D6	80	6

Table-6 depicts that D.D4 got maximum marks (132) and was ranked first. D.D3 was at 2nd position (123marks). D.D1 was at 3rd position (106 marks), whereas D.D2, D.D5 and D.D6 were at 4th position (96marks), at 5th position (91 marks) and at 6th position (80 marks) respectively. Therefore, D.D4 (1strank) was selected from style D for the creation of Tote bag.

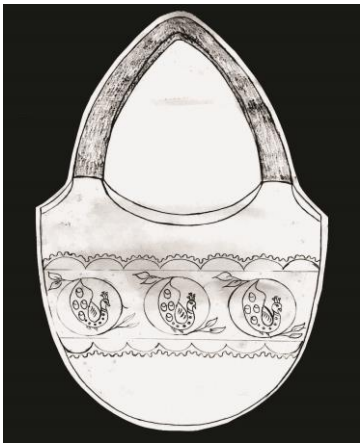


D.D4 (Style D)

Table 7: Selection of most preferred design for Tote bag in style E

STYLE E		
DESIGNS	MARKS	RANK
D.E1	102	4
D.E2	147	1
D.E3	104	3
D.E4	128	2
D.E5	69	6
D.E6	71	5

Table-7 depicts that D.E2 got maximum marks (147) and was ranked first. D.E4 was at 2nd position (128 marks). D.E3 was at 3rd position (104 marks), whereas D.E1, D.E6 and D.E5 were at 4th position (102marks), at 5th position (71 marks) and at 6th position (69 marks) respectively. Therefore, D.E2 (1st rank) was selected from style E for the creation of Tote bag.



D.E2 (Style E)

- **Color combinations**

Five color combinations (CC) were made from the color palette and these color combinations were used for painting on the fabric for Tote bags. CC1 was painted on DA2 (selected design from style A), CC2 was painted on DB1 (selected design from style B), CC3 was painted on DC5 (selected design from style C), CC4 was painted on DD4 (selected design from style D) and CC5 was painted on DE2 as it got selected from style E.

CC1) **(CC2)** **(CC3)** **(CC4)** **(CC5)**

- **Constructed Tote bags**

Style A

Style B

Style C

Style D

Style E

CONCLUSION

Handbag has gradually become an indispensable part of female dress. The fashion-conscious people are always looking for new creation. Hand painted Tote bags are very rare in the market today, so researcher has made an effort to create new designs that are inspired from Truck art to serve something unique to the consumers. The practical and innovative designs of Tote bags together with their eccentric and quirky appearance were found to be perfect for college going girls.

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A STUDY ON THE PERCEPTIONS AND PLANNING FOR RETIREMENT AMONGST THE SELECTED PRE-RETIREES RESIDING IN VADODARA CITY

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ABSTRACT

India is currently becoming a nation where a majority of the population is of working age. That is a phase where the economy generally grows the fastest, provided it has supporting government policies. Retirement age in most countries including India, is fixed between 55 and 65 years depending upon professions and nature of employing bodies. But, generally in most of the cases, the persons aged 60 years retire from government in India. However, there are many states that have fixed up 58 years as the landmark age for considering a person old or aged who are officially withdrawn from the main workforce and hence acquire a different social status in the household as well as also in the society. However, the shift from a younger to an older population will come quickly, and India's demographics will more closely resemble other Asian markets. Moreover, because of the sheer size of its population, India needs to prepare especially well. Thus, it was decided to conduct present study with a major objective of studying the preparedness of the pre-retirees related to the retirement residing in Vadodara city. The population of the present study comprised of pre-retirees from the Vadodara city who were working in schools, collages, offices/institution/firms, business houses and corporate sectors. A structured questionnaire was prepared for data collection. The findings of this research support the research model in which potential conflict in retirement planning, attitude toward retirement and retirement goal clarity are the significant predictors of retirement planning behaviour. The results of this study have implications for working individuals to do early planning for retirement to enable them to have a strong financial base after retirement.

Key Words: Retirement planning, post-employment planning, old-age planning, savings for retirement

INTRODUCTION

Retirement is a major and fundamental life change that affects numerous areas. The transition from a life of work to one of retirement has both practical and emotional implications (e.g. coping with lower income, having numerous leisure hours, having to leave a familiar, well-known world), and the responses to it are individual and unique. Retirement is seen as a vital stage in human development. People who plan their retirement well in advance adjust well and they are likely to go through it as a honey moon phase in which they are quite active or may go through rest and relaxation phase of recuperating from the stresses and strains of employment. In retirement planning, the retiree must identify his or her needs and develop a plan to achieve those needs by acting on such plans. Retirement is more commonly understood as withdrawal from one's active work life. Often this is associated with old age; because it is presumed that in old age one's functional capacity declines and makes retirement or withdrawal from active work life inevitable.

Today, the kind of retirement with which people are familiar, implies a withdrawal from one's economically productive role almost abruptly on reaching a stipulated age and adoption of an economically non-productive role. Such a retirement appears to be a product of modern industrial society, which provided limited opportunities for the older workers to put their skills to use as against the trained aptitudes of the youth. Few older people are, therefore, regarded as indispensable in such circumstances and hence, system of easing them out on their reaching a stipulated age seems to have emerged.

Retirement Planning

Retirement planning is of great concern to both organizations and employees. Retirement planning in respect of social and psychological, there are great societal expectations on the retiree to enjoy their retirement as well as maintain the symbiotic relationship with society.

Preparing for retirement entails planning for the inevitable – the period in one's life when he or she withdraws from active service. The decision to retire is determined by both micro and macro conditions. At the micro level, individualistic factors are the dominant factors that influence one's decision to retire while at the macro level, wider factors beyond an individual's control have the most influence in the decision to retire. Berry (2010) identifies four factors at the micro-level that influence the decision to retire as "finance, health, care responsibilities and family" while at the macro-level, he identifies the factors as "an ageing society, the pensions system and economic change". It is pertinent to argue that employees need to plan, adopt and implement strategies to ease the pain and problems associated with retirement.

"Retirement planning can be summarized as two aspects – save as much as you can and invest as well as you can. The earlier you start the more money you will save. Similarly, the better investments you do, your investment corpus will grow bigger" Earning money is one of the prime motives of every individual's life. Money is a vital necessity of life. However, there is only specific phase in life during which he earns money i.e. from around 25 years to 60 years. In the childhood phase the individual is dependent on his parents and the retirement phase the individual is dependent on the results of his decisions related to retirement planning during the final phase of life. Everyone is set to retire at some point of time in his life during the working years; retirement can appear to be both an oncoming burden and a distant paradise. In retirement planning, the retiree must identify his or her needs and develop a plan to achieve those needs by acting on such plans.

Therefore, during the preparation, workers must be put in a position to see the need to make additional individual financial preparation to assure themselves of a happy and productive life in retirement. In Jorgensen and Henderson's (1990) view, people can benefit from preparation for retirement years, if they were able to identify activities that play important roles in their lives. To eliminate the feelings that they have nothing to contribute to society, another preparation programme, in the opinion of Jorgensen and Henderson (1990), is to help the individual to develop an identity in addition to work identity. This implies that, one should not be pre-occupied to his/her work only, and that there should be time for other activities in order to maintain a positive self-image in retirement years.

Review of Literature

Batra (2013) conducted a study on "Study of Investment Advice to Retirement Plan Partakers in India" The main objectives of the study were to analyze the investment options available to plan retirement for people and the pattern of savings and investments for retirement planning in India. The study also examined how life cycle finance affects the risk and reward relationship for retirement planning. It stated that the main problem that lies with retirement planning was the shifting focus from public institution to private sector players. Where the reliability was on the material been displayed on the website, which can be misleading. Lack of knowledge, the movement of employees from public to private sector for employment, longer life expectancy, less number of children per couple, less reliability on family were the reasons for change in retirement planning. For betterment people were also offered with wide choices. These developments mean that people were being given more individual choice over their own asset accumulation and drawdown processes. As these new financial instruments transfer more responsibility and choice to workers and retirees, it will be a challenge to frame risk-reward tradeoffs and cast financial decision-making in a format that ordinary people can understand and implement

Wilson and Aggrey (2012) conducted a study on "Retirement Planning and Counseling: Issues and Challenges for Teachers in Public Schools in the Sekondi Circuit" **"** The main aim of the study was to explore retirement planning, challenges, and counseling among teachers. The sample of the study consisted of 50 teachers who were selected through convenience sampling. Only those who were willing to participate in the study were considered for the data collection. There were 21 schools in the circuit supervised by a circuit supervisor. Each class level usually has two/three streams. Data was collected through a self-administered questionnaire. This questionnaire was basically used to collect data of teacher's retirement planning and counseling issues and challenges. Based on the findings of the study, it was established that: There is no proper retirement counseling service for teachers in the Sekondi Circuit apart from discussions on the conditions of service; Teachers in the circuit face varied challenges in their pre-retirement preparations.

Research Questions

The present study seeks to answer the following research questions:

1. Have elderly started planning for their retirement?
2. At what age did they begin the planning for retirement?
3. What all aspects did the elderly kept in mind before planning for their retirement?
4. Is there any difference in the planning procedure as per the gender?
5. Are male elderly more prepared than female elderly for retirement?
6. Is there any difference in the planning of elderly in context to their pay scales?
7. Have they ever thought about their life after retirement?

To seek answers to these questions it was proposed to take up the present study

Objectives of the Study

1. To study the profiles of the selected pre-retirees residing in the Vadodara city
2. To study the perceptions for retirement of the selected pre- retirees residing in the Vadodara city
3. To study the sources which is helps Pre-retiree to prepare themselves for retirement
4. To study the finance related planning and preparations for retirement of the selected pre-retirees residing in the Vadodara city
5. To study the preparations related to health and fitness for retirement of the selected pre-retirees residing in the Vadodara city
6. To study the planning and preparations related to living alternatives for retirement of the selected pre-retirees residing in the Vadodara city

METHODOLOGY

Population of the Study

The population of the present study comprised of pre-retirees from the Vadodara city who are working in schools, collages, offices/institution/firms, business houses and corporate sectors.

Sampling Size and Frame

The sample of the present study comprised of sixty pre-retirees between the age group of 49-59 years working in various organizations, schools, colleges, offices/institution/firms, business houses and corporate sectors. For selecting the sample purposive and snowball sampling techniques were used.

Construction of the Research tool

A structured questionnaire was prepared to study the perceptions of pre-retirees regarding retirement and planning for retirement. The tool was constructed in English.

Major Findings of the Study

Background Information of the selected Pre-Retirees of Vadodara City: -

Table 1: Percentage Distribution of the Pre-Retirees According to their Background Information

(N=60)

Background Information	Category	f	%
Age	Younger Pre-retirees	33	55
	Older Pre-retirees	27	45
Gender	Male	43	72
	Female	17	28
Marital Status	Married	60	100
Educational Qualification	Doctorate	2	3.3
	Post Graduate	18	30

	Graduate	18	30
	Diploma Holder	10	16.67
	Higher Secondary	5	8.33
	Secondary	7	11.6
Religion	Hindu	51	85
	Christian	6	10
	Muslim	1	1.66
Caste	General (GEN)	43	71
	Other Backward Class (OBC)	9	15
	Socially and Economically Backward Class (SEBC)	3	5
	Scheduled Tribe (ST)	4	6.7
	Scheduled Caste (SC)	1	1.66
Native Place	Urban	51	85
	Semi-Urban	9	15

Table 1 shows that little more than half (55%) of the younger pre-retirees and, little less than half (45%) of older pre-retirees. Gender shows a wide gap in distribution between males and females like a more than seventy percent (72%) of the pre-retirees were males and 28 percent of them were females. Marital status reveals that all of the pre-retirees were married. Further it can be revealed that majority (85%) of the pre-retirees belonged to the Hindu faith while, 10 percent of them were Christian, and 1.66 percent of them were Muslims.

Thirty percentages of the pre-retirees studied upto post graduate level, whereas equal percentages of them studied upto graduate level ,16.67 percentage were diploma holder, more than ten (11.6%) percent of them studied upto Secondary level, little more than eight (8.33%) studied secondary, and only 3.3 percentage studied till doctorate level.

Further, it can be seen from table 1 that as specified categories of the government of India, the little more than seventy percent (71%) of pre-retirees belonged to general category,15percent of pre-retirees belonged to OBC, 5 percent belonged to SEBC, little more than five percentage (6.7%) pre-retirees belonged to ST and nearly 2 percentage (1.66%) pre-retirees belonged to SC, High majority (85%) of pre-retirees native place was urban area while, 15 percent of them lived in semi-urban areas.

Occupational Status

Table 2: Percentage Distribution of the Pre-Retirees According to the Type of Organization they are recruited / working in

(N=60)

Organization	F	%
Non-Government	34	56.66
Government	23	38.33
Agency	2	3.33
Corporate	1	1.66

All of the pre-retirees were working on permanent basis and they were employed on full time working for 8 hours a day. Table 2 reveals that little more than fifty-six (56.66%) of the pre-retirees were working in the non-government organizations, nearly forty percent (38.33%) of them working in the Government organizations, (3.33%) of working in agencies and only (1.66%) percent working in corporate sectors.

Table 3: Percentage Distribution of the Pre-Retirees According to the Monthly Income of their Family

(N=60)

Monthly Income	F	%
Moderate Income	35	58.66
High Income	25	41.66

Table 3 shows that nearly sixty percent (58.66%) of pre-retirees had moderate level of income and little more than forty percent (41.66%) had higher level of income.

Perception about Retirement of the selected Pre-Retirees of Vadodara City

Table 4: Percentage Distribution of the Pre-Retirees According to the Transition to Retirement

(N=60)

Transition to Retirement	F	%
Change the Working Way	12	20
Continue Paid Work	9	15
Keep Working as currently doing	9	15
Immediately Stop Working	1	1.66
Do Not Know.	29	48.33

For many, retirement has become an active stage of life where people aspire to stay socially connected, participate in their communities, and remain economically active. Table 4 shows that 20 percent of pre-retirees plan to change the way of working after their transition to retirement,15 percent of them planned to continue working for a combination of income. Earning an income later in life provides workers the opportunity to delay drawing down on their retirement benefits which can mean higher retirement benefits in the future, while 15 percent of them desired to keep working as they were doing at the time of data collection, only 1.66percent of them had envision to immediately stop working after their retirement, and nearly half (48.33%) percent of them did not know about their transition in to retirement.

Table 5: Percentage Distribution of the Pre-Retirees According to their Retirement Concerns

(N=60)

Retirement Concerns	f	%
Lacking Social Engagement	25	41.66
Losing Independence	18	30
Being Alone and Isolated	15	25
Do Not Know	12	20
Running Out of Money	8	13.33
None of the Above	7	11.66
Need Assistance for basic Activities	5	8.33
Not Having a Daily Routine	3	5
Declining Physical Health	2	3.33
Needing to Move to an Old Age Home	1	1.66

While many pre-retirees had positive views about retirement, potential health-related issues are among the most frequently cited retirement concerns. Table 5 reveals that little more than forty (41.66%) percent of pre-retirees reported that they had a lacking social engagement as retirement concerns, 30 percent of them reported losing independence, 25 percent of them reported that they felt alone and isolated, 20 percent of reported that they did not know about their retirement concerns, 13.33 percent of them had "a running out of money" as retirement concerns, nearly nine (8.33%) percent of them needed assistance with basic activities, 5 percent of them were not having a daily routine, 3.33 percent reported that they had declining physical health, and only 1 percent of them felt need to move to an old age home.

Table 6: Percentage Distribution of the Pre-Retirees According to the Retirement Aspirations

(N=60)

Retirement Aspirations	F	%
Traveling	43	71.66
Spending more time with Family	29	48.33
Spending more time with Friends	14	23.33
Volunteer Work	11	18.33
Studying	9	15
Pursuing new Hobbies	8	13.33
Do Not Know	7	11.66
Living Abroad	6	10
Starting a Business	5	8.33
Continue Working, but in another Field	3	5

The pre-retirees' retirement aspirations were studied and found that for most, retirement is viewed as a time for traveling, spending more time with family and friends, and pursuing new hobbies. Table 6 reveals that little more than seventy percent of (71.66%)of the pre-retirees aspirations was travelling after their retirement, nearly half of (48.33%) them choose spending more time with family , 23.33 percent of them choose spending more time with friends, nearly twenty percent (18.33%) of respondent's aspiration was to do volunteer work, 15 percent of them wanted to study ,13.33 percent of them reported pursuing new hobbies after their retirement, 11.66 percent of them did not know about their retirement aspirations, 10 percent of them aspired for living abroad, 8.33 percent of them aspired to install new business, only (5%) percent were aspired to continue working but in another field.

Sources of help for Retirement of the selected Pre-Retirees of Vadodara City: -

Table 7: Percentage Distribution of the Pre-Retirees According to the Sources they think should be responsible for providing Information related to Preparedness for the Retirement

(N=60)

Sources	F	%
Government Agencies	16	26.66
Community Service Groups	4	6.66
Voluntary Organizations	4	6.66
Non-government Organizations	2	3.33
Adult Education Centre	1	1.66
Did not know	33	55.0

Table 7 shows that more than half (55%) of the pre-retirees did not know about the sources for information about retirement, a little more than one fourth (26.66%) of them reported that government agencies are responsible for providing information related to preparedness for their retirement, more than six percent (6.66%) of them reported community service groups as a sources for information regarding retirement, and equal 6.66 percent of voluntary organizations, 3.33 percent of Non-government Organizations, and only 1.66 percent reported adult education centre as the responsible sources for providing information related to preparedness for retirement.

Table 8: Percentage Distribution of the Pre-Retirees According to their Retirement Planning Strategy

(N=60)

Planning Strategies	F	%
Have a Plan, but it is not Written Down	30	50.0
Did Not Have a Plan for retirement	12	20.0
Written Plan for retirement	2	3.33
Do Not Know	16	26.66

Table 8 shows that half of the pre-retirees reported that they had a plan but that it is not written down,20percent of them did not have plan for their retirement, only (1.66%)percent of them had written plan for their retirement, and 26.66 percent did not know about planning strategy for retirement.

Table 9: Percentage Distribution of the Pre-Retirees According to their current Retirement Savings

(N=60)

Retirement Savings	F	%
Do not Have Retirement Savings, but had Plan to Save in the Future	26	43.33
Have Retirement Savings and Intend to Have Further Retirement Savings in the Future	22	36.66
Have Retirement Savings	8	13.33
Do not, Have Retirement Savings and did not Plan	4	6.66

Table 9 shows that more than forty percent (43.33%) of pre-retirees had saving but they had plan for retirement savings in the future, less than forty percent (36.66%) of them had plan and intend further for retirement savings in the future while, 13.33 percent of them had savings for their retirement, only (6.66%) percent had not saved and they did not plan for their retirement savings.

Table 10: Percentage Distribution of the Pre-Retirees According to the Sources of Income that will make up for their Retirement

(N=60)

Sources	F	%
Interest from savings accounts and savings bonds	25	41.66
Private retirement benefits (including insurance plans)	11	18.33
Part-time employment	10	16.66
Social security benefits	6	10.0
Company retirement benefits	6	10.0
Regular withdrawals from savings	4	6.66
Returns from investments	2	3.33

Table 10 shows that little more than forty percent(41.66 %) percent of the pre-retirees said interest from savings accounts and savings bonds as a source to make up for their retirement income, nearly twenty percent (18.33%) said private retirement benefits (including insurance plans), 16.66 percent part-time employment, 10 percent social security benefits, equal percentages (10%)company retirement benefits, 6.66 percent regular withdrawals from savings, only 3.33 percent returns from investments as the sources for income.

CONCLUSION

One big reality of life is retirement, and planning for retirement is still a nascent concept in India. Although, it is thought about and talked about all over, but the actions for retirement planning

are still not focused by individuals. Retirement planning is very dynamic process and is affected by numerous factors. Individuals need to keep an eye of the social, economic and political factors along with his requirements while planning for retirement. It is a fact that demographic factors affect all the areas of retirement planning. The most important thing to realize before it is too late is that everyone has an onus to plan for one's own retirement. The social security measures, employer benefits and family support are unreliable.

The results of present study show different incomes of the pre-retirees have different planning for retirement. The younger pre-retirees perceived a better perception toward the retirement planning and they are not worried about the retirement. Thus, early planning for retirement may bring advantages and benefits to them in order to prevent them from not affording to retire since they have sufficient time to plan on it. This also enables them to plan in order to pursue their goal or dreams during the retirement life.

Pre-retirees should have a clear goal for the retirement planning and it should be achievable and attainable. Hence, they will not lose their direction and be able to follow the scheduled plan properly. They should also obtain professional advice as they face problems in preparing the retirement plans for after life in retirement. Pre-retirees might realize that early planning for retirement enables to pre-retirees have strong financial planning to secure them in their retirement.

The findings show that the pre-retirees think that they need more money for their health emergencies, tours and travels, home maintenance after their retirement. Pre-retirees had not met with any investment consultant / Accountant for their financial planning for retirement. Pay rise was said as the reason to save more for retirement.

Health has emerged as the new frontier in retirement security. The miracles of modern science and improvements in nutrition in recent decades have made longer life expectancy the norm rather than the exception. These advances also mean that more people can expect to lead the majority of their lives in good health (healthy life expectancy). Majority of the pre-retirees did not know about the programs related to health and fitness

The findings show that pre-retirees were highly influenced by their spouse for their retirement, meanwhile the spouse also play an important role in the retirement planning. The pre-retirees have sources to help themselves for retirement; these findings highlighted there are no pre-retirement programs, seminars and workshops related to preparations for retirement. Such programmes must be organized.

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ASSESSMENT OF ICT KNOWLEDGE AMONG TRIBES OF RURAL ANDAMAN & NICOBAR

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ABSTRACT

Every Tribal citizen needed the benefits of Digital inclusion for an hour; it has a significant influence on the development of the economic and social lives of the tribes. The advantage of digital inclusion in India is remarkable meager, when compared to the other developing countries, particularly in rural and remote areas. It is still worse in Tribal regions where development has been reached in many ways. The main aim of the research paper is to assess the level of knowledge in computer and software usage and level of familiarization with computers and software. Three hundred samples were selected randomly to evaluate the Knowledge level. A well-Structured Questionnaire was used to collect the data; the data were analyzed and interpreted through frequency tables. The finding of the study clearly shows that more than half of the respondents (58.7 %) belonged to the age group of below 18 years and 54.7 per cent of the respondents reported that they have best knowledge in using computers. The study could be concluded that, tribal inclusion must go along with digital inclusion. All the tribal respondents in Andaman & Nicobar were digitally inclusive in some ways.

Keyword: Tribes, Andaman & Nicobar, Digital inclusive, Computers, Software

INTRODUCTION

The perception of people towards tribals in India has been changing since the time people have started interacting with tribals and many developmental and welfare projects were initiated by the government of the day. Nearly 8.10 % of the total population of India is tribals. Majority of them are in Northeastern states, Jharkhand, Odessa, Chhattisgarh, Andhra Pradesh and Andaman & Nicobar Island. No nation can think of development, ignoring this size of the population and their rich cultural heritage (Kumar & Bansal, 2013).

As per census 2011, there are six notified Scheduled Tribes in the Union Territory of Andaman & Nicobar Islands: namely Andamanese, Onge, Sentinel & Jarawa in Andaman group of Islands, Nicobarese & Shompen in the Nicobar Group of Islands. Fifteen Barring Nicobarese, the other five tribes are PVTGs who are in different stages of acculturation. There is a distinctive racial difference between the Andaman Tribes and their counterparts in Nicobar as the former are negrito while the later are Mongoloid (Venkatesh, Selvi & Pushpa,2019).

Manzar (2013) opined that Digital inclusion means the effective medium of mitigation in the excluded communities. This is missing from tribal development focus in both central and state

levels. The tribal sub-plan under Article 275 (1) of Indian Constitution provides special central assistance to invest in development programmes exclusively for tribal. More than 14 tribal research institutes are providing development inputs to relevant departments for need-based policy programmes**.**

OBJECTIVES OF THE STUDY

The general objective of the study is to assess the knowledge on computer and software skills among selected tribes. The specific objectives of the study are;

1. To elicit the socio-economic status of the selected tribes
2. To identify the extent of usage of ICT by them

REVIEW OF LITERATURE

According to Ralph & Radha (2017), Information Communication Technology (ICT) has brought profound changes in the country, and it plays a vital role in the development of urban and rural areas of the nation. It has a significant influence on the development of the economic and social lives of the people. The e-ration card, e- certificates, e-employment, e-health, e-education, etc. are the pillars of e-governance in India.

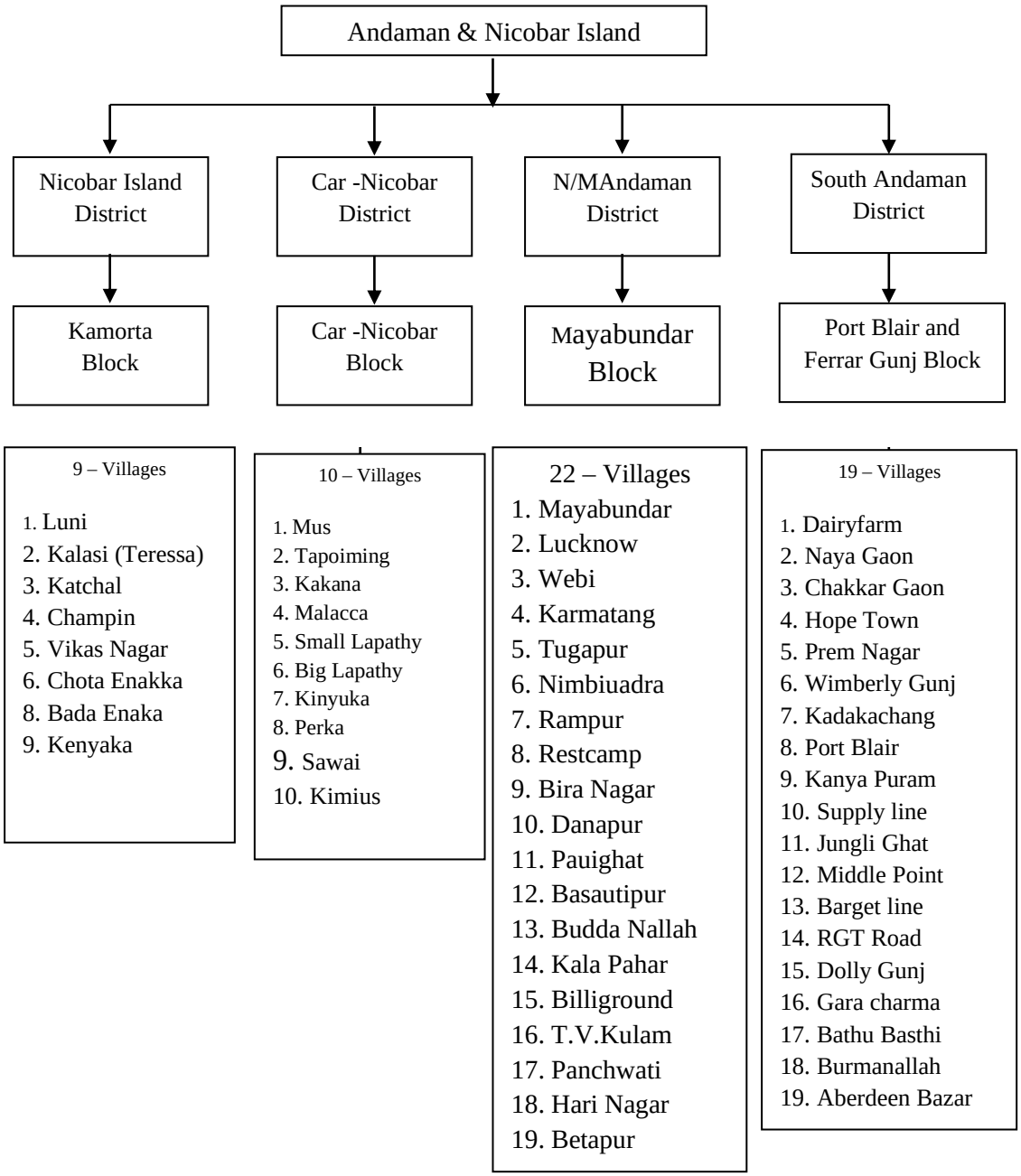
Dilmo & Brito (2012), opined that the implementation of the electronic platforms to support communities means that people can communicate about products or services, which provides access to valuable information about the clients, their attitudes and preferences. A mobile community can be defined as an aggregation of individuals who interact around a shared interest, where the contact between them is established and maintained by mobile technologies. Mobile communication communities may be regarded as a natural evolution of virtual tribes.

Oraon (2012), in a study on changing patterns of tribals, found that they have a unique tradition and lifestyle. It is related to the utilization of a particular natural resource and a specific type of work. The forest provides them with food and livelihood security. Tribal communities share closer relations with nature, and they have evolved certain indigenous knowledge which provided their basis of livelihood.

METHODOLOGY

Methodology is the general research strategy that outlines the way in which a research project is to be undertaken and, among other things, identifies the methods to be used in it (Igwenagu, 2016).It includes area of the study, sampling design, tools used for data collection and analysis.

Fig. 1- Hierarchical Chart of the Study area



Design and Locale of the study

The design of the study is descriptive and analytical in nature. The locale selected for the present study is Andaman & Nicobar Island, it comprises of districts, blocks and villages. The Andaman Archipelago is an oceanic continuation of the Burmese Arakan Yoma range in the North and of the Indonesian Archipelago in the South. It has 325 islands which cover an area of 6,408 km2 (2,474 sq mi), with the Andaman Sea to the east between the islands and the coast of Burma. North Andaman Island is 285 kilometres (177 mi) south of Burma, although a few smaller Burmese islands are closer, including the three Coco Islands. As per 2011, the population of the

Andaman was 343,125. The bulk of the population originates from immigrants who came to the island since the colonial times, mainly of Bengali, Hindustani and Tamil backgrounds.

Sampling technique

Convenient random sampling technique was used by the investigator to select the sample. From the study area, four districts were chosen with one block in each district and some villages from each block totaling 60 villages. The hierarchical chart is depicted in Fig.1. From those villages 300 tribes were selected randomly.

Tools used for data collection

On the basis of appropriateness and practicability, survey method was used for the present study. To facilitate ease in data collection, a structured questionnaire was prepared by the investigator for collecting the data. The questionnaire comprised two parts, first part covering socio-economic background of the respondent and the second part of the questionnaire regarding knowledge of ICT.

Data Analysis

The data were coded, analyzed and presented in frequency tables by using descriptive and inferential statistics through SPSS package version 23 to give clear picture of the background information of the sample and the knowledge of ICT.

MAJOR FINDINGS OF THE STUDY

Major findings of the study has been divided into two section viz. (i) Personal profile of the of the tribes included age, sex, education, occupation and economic status, (ii) level of knowledge of using computer and software.

1. Personal profile of the respondents

The personal profile of the respondents is includes age, sex, education, occupation and economic status. Table 1 shows the details of personal background of the respondents.

Table 1: Personal Profile of the Respondents

Variables	N=300	Percentage
Age group		
Below 18 Years	176	58.7
19 to 21 Years	63	21.0
22 to 25 Years	40	13.3
Above 25 Years	21	7.0
Sex		
Male	54	18
Female	246	82
Education		

Below 8th std	20	6
Upto 10th std	54	18
Upto 12th std	216	72
Higher Education	10	4
Occupation		
Farmers	54	18
Agri – Labour	48	16
Non- agri labour	78	26
Students	90	30
Self employed	30	10
Economic Status		
BPL	202	67.3
APL	98	32.7

Age: More than half of the respondents (58.7 %) belonged to the age group of below 18 years. Only seven per cent of the respondents were from the age group of above 25 years. Thus the analysis revels 58.7 per cent of the respondents were from the age group of below 18 years. This age group is considering as young adult age. The process of maturation is not suddenly completed when a young person turns 18. Young adults continue to be strongly responsive to education and training and to incentives to create and contribute.

Sex: The majority (82 %) of the respondents are female and only 18 % of them were male respondents.

Educational status: A majority (72 %) of them were educated upto 12th standard only few of them (6 %) had attended higher education. It was interesting to note that all are literate.

Occupational status: It was found that thirty per cent of the respondents were students, twenty six per cent them doing non-agricultural labour eighteen per cent of the respondents are farmers, sixteen per cent of them working as a Agricultural labour and remaining few (10 %) of them are self employed.

Economic Status: Nearly more than half of the respondents (67.3 %) were from BPL families and 32.7 % of them were from APL families.

2. Level of Knowledge for using Computers and Software

Table 2 to 3 deals with the knowledge of using computers and software by the respondents.

Table 2: Level of Knowledge for using Computers and Software

S. No.	Category	No. of Respondents	Percentage
1.	Best of knowledge	164	54.7
2.	Some best knowledge	76	25.3

3.	Know of usage	42	14.0
4.	With help of other	18	6.0
	Total	**300**	**100**

It was clearly understood from table 2, all the respondents were familiar with computers in some ways. More than half (54.7 %) of the respondents reported that they have best knowledge in using computers, one fourth (25.3 %) of them reported that they attained some best knowledge and only six per cent of the respondents reported that they familiar with computer but still they using computer with help of others.

Table 3: Area wise usage of Computers and Software

S. No.	Category	No. of Respondents (%)				Total %
		Yes All Level	Yes With Assistance	No scope	No	
1.	Windows/ Desktop/ Documents	228 (76 %)	54 (18 %)	18 (6 %)	-	**300 (100 %)**
2.	Internet / WWW/ Email	214 (71.3 %)	58 (19.3 %)	18 (6 %)	-	**300 (100 %)**
3.	Knowledge about communication using PC	246 (82 %)	48 (16 %)	6 (2 %)		**300 (100 %)**

It was found from table 3, majority (76 %) of the respondents had acquired very good knowledge in Windows/Desktops/Documents, most (71.3 %) of them reported that they were using internet and Emails in their day to day life. Majority (82 %) of the respondents were using personal Computers as a communication tool. It was observed that, all the respondents were digitally inclusive in some ways in Andaman & Nicobar in their day to day life.

CONCLUSION

It is important to note that tribal inclusion must go along with digital inclusion. The findings of the study clearly show that all the tribal respondents in Andaman & Nicobar were digitally inclusive in some ways. The implementation of e- Governance programmes makes the people to use computer to communicate (including email/face book/twitter). It is the brick and mortar of Digital India. For this noble propose, the Government has sanctioned a project and carried out the same through the support of Centre for Development of Advanced Computing (C-DAC), Chennai. The paramount activities were to impart training to the ST Population of Andaman & Nicobar during the period of 2014 to 2017. The study concluded that, more than half of the respondents (58.7 %) belonged to the age group of below 18 years and they have best knowledge of using Windows/Desktop/ Documents, Internet / WWW/ Email and using computer as a communicating devise for their day to day life.

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KNOWLEDGE AND PRACTICES RELATED TO BREASTFEEDING AMONG RURAL WOMEN: A COMMUNITY- BASED STUDY IN FARIDABAD (HARYANA)

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ABSTRACT

The study on "Knowledge and Practices related to breastfeeding among rural women: a community-based study in Faridabad (Haryana)" was carried out in three villages of Faridabad block of Faridabad district namely, Tigaon, Neemka, and Kheri Kalan. The mixed-methods study included a sample of 60 lactating mothers, 20 from each village, who were interviewed using a semi-structured interview schedule. The Chi-square test for the categorical variable was used for statistical significance. Breastfeeding practices of women in Neemka village were found to be better than the other two villages. It was found that delay in early initiation of breastfeeding was due to the tradition of giving a pre-lacteal feed and delay in shifting the mothers to the wards in the case of most children born in an institutional facility. Exclusive breastfeeding was not practiced by the mothers during the first six months because of the perception that their breast milk was inadequate to satisfy the child's need so they start top feed any time from within a week to about three months.

Keywords: IYCF, Pre lacteal feed, Early initiation of breastfeeding (EIBF), Exclusive breastfeeding (EBF).

INTRODUCTION

Human milk is, in many ways, an elixir and a panacea for the infant. While it is remarkably nutritious to the baby, the benefits of breastfeeding extend way beyond human milk's properties. Breastfeeding is a critical component of primary healthcare for the safeguard and upkeep of child health. Breastfeeding has been recognized by the United Nations Children's Fund and the World Health Organization as the single most effective and affordable feeding practice that should be adopted for good child health and better survival (Katsinde & Srinivas, 2016).

The WHO recommends that all infants should start breastfeeding within one hour of birth (Early Initiation of BreastFeeding, EIBF) and should be exclusively breastfed (EBF). Infants should not be given any food or breastmilk substitutes except medication or oral rehydration solutions for up to six months. Breastfeeding should continue along with complementary feeding for up to two years (WHO, 2002).

Children who are not exclusively breastfed for six months have a higher risk of gastrointestinal infections, respiratory disease, morbidity as well as atopic eczema, allergies, asthma, type II diabetes, Leukemia, and obesity later in life than exclusively breastfed (EBF) infants (Chandhiok, Singh, Sahu, Singh & Pandey, 2015).

According to NFHS 4, the under-five mortality rate declined from 109 deaths per 1,000 live births in the five years before the 1992-93 survey to 50 deaths per 1,000 live births in the five years before the 2015-16 survey, and the infant mortality rate declined from 79 deaths per 1,000 live births to 41 deaths per 1,000 live births (NFHS 4).

However, national data often veils significant disparity across regions. For instance, the EBF rate in India ranges from the lowest (35.5%) in Meghalaya to the highest (77.0%) in Chhattisgarh (Avula, Kohli, Mani, Menon, Nguyen, & Tran, 2017). India has made some progress in reducing its under-five mortality rate and maternal mortality over the past decade. The National Health Mission of the Government of India is making pioneering changes in this area.

Despite a significant change in mortality rates over the years, progress was inadequate towards achieving Millennium Development Goal 4, and hence the 2030 Agenda for Sustainable Development was adopted. Although breastfeeding is not explained as part of any of the SDGs' targets, it is a core infant feeding practice that contributes significantly to SGD 2 and 3. Goal 2 of the 2030 Sustainable Development Agenda seeks to end all forms of hunger and malnutrition in the next 15 years.

The promotion of EBF in a culturally appropriate way increases the likelihood of acceptance of the information and better adoption of the practice (Forgwei, Kakute, Kroll, Mitchell, Ngum, & Ngwang, 2005). If mothers practice EBF, they are less prone to postpartum depression, osteoporosis, and ovarian and breast cancer. It also helps to form a strong bond with her child (Katsinde & Srinivas, 2016). In the long run, adopting EBF practices will reduce maternal mortality, because of improvement in health and well-being. Breastfeeding contributes to improving nutrition for infants up to the first six months of life, and if adopted properly, on-demand feeding reduces malnutrition, stunting, and wasting of infants and young children, making it possible to achieve these goals by 2030 (WHO, 2016).

Analysis of NFHS data suggests that EIBF and EBF up to 6 months has increased (Figure 1). EIBF has increased from 24.5% to 41.6%, (1.7% increase per year) between NFHS-3 and 4.

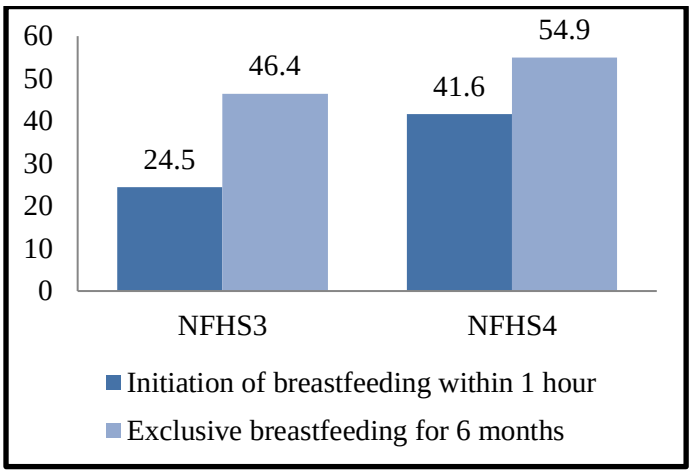

Figure 1: Change in EIBF and EBF percentage between NFHS 3 and NFHS 4

In Haryana, only 50% of children under 6 months are exclusively breastfed. 82% are put to the breast within the first day of life, but only 42% started breastfeeding in the first hour of life (Figure 2). Many infants are still deprived of colostrum. Pre-lacteal feeds further limit the frequency of breastfeeds and expose the baby to the risk of infection (NFHS 4).

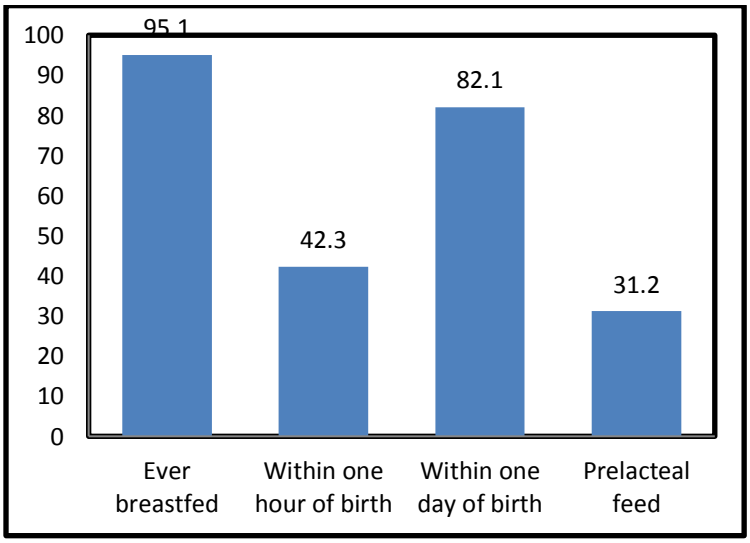

Figure 2: Status of Breastfeeding practices in Haryana (percentages)

Various sociocultural factors, beliefs, and customs play a major role in influencing mothers. Socio-demographic factors like education level, urban and rural residence, income, parity and sex of the child, breastfeeding support, attitudes towards breastfeeding, and employment policies also influence feeding practices (Nkala, & Msuya, 2015).

Identifying the determinants of breastfeeding practices helps to design targeted interventions to promote breastfeeding and to formulate national public health policies (Dashti, Scott, Edwards, & Sughayer, 2010). Conducting studies that identify risk factors associated with EIBF and the duration of EBF can serve as the basis for designing and

implementing effective programs targeting at-risk individuals, families, and communities. Besides, it will evaluate the success of ongoing programs that promote breastfeeding.

OBJECTIVES

The present study was planned with the objectives of assessing the knowledge and practices about breastfeeding among rural women and to study the socio-demographic variables affecting breastfeeding practices since the breastfeeding indicators for the state of Haryana have remained low as per NFHS data.

METHODS

A cross-sectional community-based study was conducted amongst women who had at least one child in the age group of 0-2 years at the time of the study. A total of 60 lactating mothers were selected, 20 women each from three villages, namely, Tigaon, Neemka, and Kheri Kalan from the Faridabad block of the Faridabad district. An attempt was made to understand their perception and factors that play a vital role in influencing their decision about breastfeeding their children.

A structured interview schedule comprising of both close and open-ended questions was formulated. The data collected included socio-demographic characteristics (area of residence, age, marital status, education level, occupation), and biomedical variables (parity, sex, number of antenatal visits, mode of delivery, breastfeeding counseling during delivery, the timing of initiation of breastfeeding, duration of exclusive breastfeeding, initiation of complementary foods and continued breastfeeding).

Both qualitative and quantitative techniques were used for analyzing the collected information. A Chi-square test was used to determine the associations between feeding practices and socio-demographic variables. 95% significance was considered at p-value < 0.05.

FINDINGS AND DISCUSSION

There are many factors associated with the practice of breastfeeding including psychosocial factors, maternal socio-demographic characteristics, hospital practices, environmental support, and support of family. The study explored factors such as mother's age, literacy, type of family, gender and parity of the child, and the number of children.

Early Initiation of breastfeeding-

In the present study, 13% of the children received breastfeeding within one hour of birth, with Tigaon and Kheri Kalan at 10% and 5% rate of early initiation of breastfeeding respectively. Neemka stands slightly above with a 25% EIBF rate.

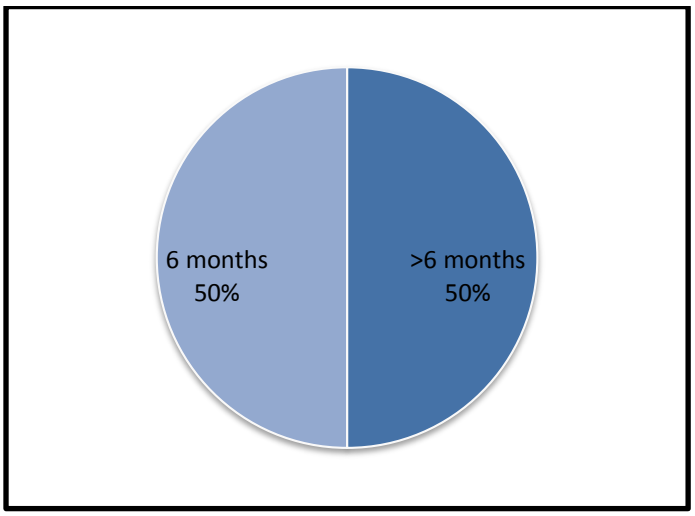

Figure 3: The proportion of mothers by exclusive breastfeeding for six months

Table 1: Factors affecting the early initiation of breastfeeding

Variables	EBF duration		p-value (X^2)
	BF > 1 hour	BF < 1 hour	
	n=8 (13%)	n=52 (87%)	
Age			
Less than 25	5	21	0.497 (1.398)
26-31	2	22	
More than 31	1	9	
Education			
Illiterate	0	3	0.871 (0.706)
Up to 5th	0	6	
Up to 10th	3	14	
10th and above	5	29	
Type of family			
Joint	2	38	0.007 (7.212)
Nuclear	6	14	
Sex of the Child			
Male	6	30	0.35 (0.865)
Female	2	22	
Parity			
1st	2	19	0.000 (35.523)
2nd	6	24	
3rd and more	0	9	
Breastfeeding Advice			
Given	8	40	0.12 (2.308)

Not Given	0	12	
ANC Visits			
No visit	0	12	0.001 (13.662)
1-3	3	36	
4 and more	5	4	
Prelacteal Feed			0.00 (43.94)
Given	0	52	
Not Given	8	0	

Pre-lacteal feeding traditions are common in our society. It was significantly associated with EIBF (0.00). This often leads to the discarding of colostrum and delay in the initiation of breastfeeding which paves the way for infections (Mohan, Roy, Srivastava, Singh, & Singh, 2014).

Table 2: Prelacteal feed given to the child

Prelacteal feed given	**Tigaon**		**Neemka**		**Kheri Kalan**		**Total**	
	N	V1	n	V2	N	V3	N	%
Yes	19	95%	16	80%	17	85%	52	87%
No	1	5%	4	20%	3	15%	8	13%
Total	20	100%	20	100%	20	100%	60	100%

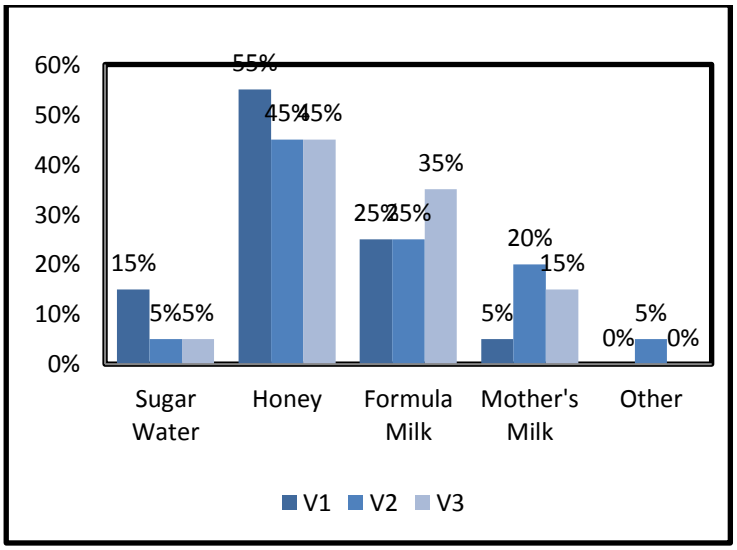

Figure 4: Food given as pre lacteal feed

Delay in shifting to the wards (rooming-in) and maternal exhaustion after the delivery was cited to be the main reason for the non-adoption of EIBF. Similar findings were reported by Jadhao, Gavhane, Kale, Sirohi, Uday, and Yadav in 2018. A shortage of staff, postbirth activities, and the time taken for the completion of procedures were found to delay the initiation of breastfeeding.

Lack of counseling by the nursing staff about breastfeeding was found to be significantly associated with increased time of initiation of breastfeeding, although the association between maternal education with duration and initiation of breastfeeding was not observed in the present study (p=0.871).

Table 3: Source of information about breastfeeding at the time of delivery

Source of Information	Tigaon		Neemka		Kheri Kalan		Total	
	n	V1	n	V2	n	V3	N	%
Doctor	1	5%	2	10%	2	10%	5	8%
ANM	0	0%	0	0%	0	0%	0	0%
ASHA	8	40%	10	50%	8	40%	26	43%
Family Member	3	15%	6	30%	8	40%	17	28%
No one	8	40%	2	10%	2	10%	12	20%
Total	20	100%	20	100%	20	100%	60	100%

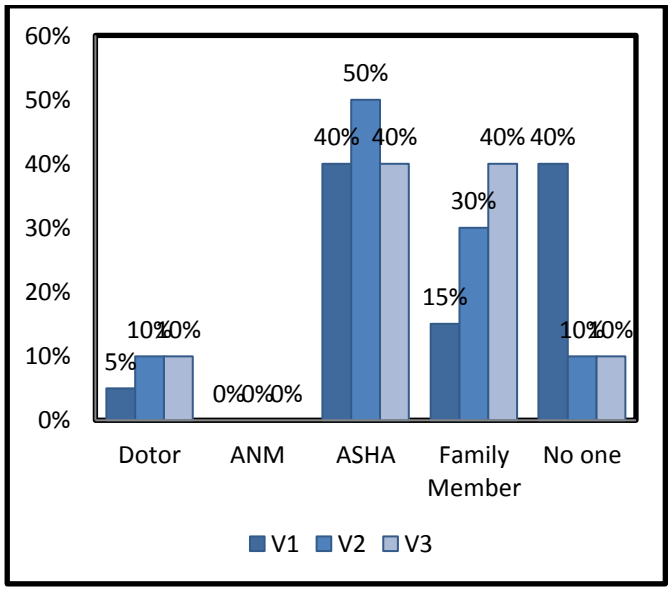

Figure 5: Source of information about breastfeeding at the time of delivery

There was a significant association between the type of family and EIBF (0.007). Table 3 shows 30% of mothers from nuclear families initiated breastfeeding within one hour as compared to 5% from joint families. Grassley & Eschiti (2008) observed in a previous study that if a baby's grandmother previously breastfed, the infant is more likely to breastfed early.

Although 95% of the mothers delivered their baby in a health facility, 43% of the mothers received information from an ASHA worker and only 8% from doctors.

Table 4: Parity of the child being breastfed

Parity of the child	Tigaon		Neemka		Kheri Kalan		Total	
	N	V1	N	V2	N	V3	N	%
1st	9	45%	7	35%	5	25%	21	35%
2nd	7	35%	10	50%	13	65%	30	50%
3rd	3	15%	3	15%	1	5%	7	12%
4th	1	5%	0	0%	1	5%	2	3%
Total	20	100%	20	100%	20	100%	60	100%

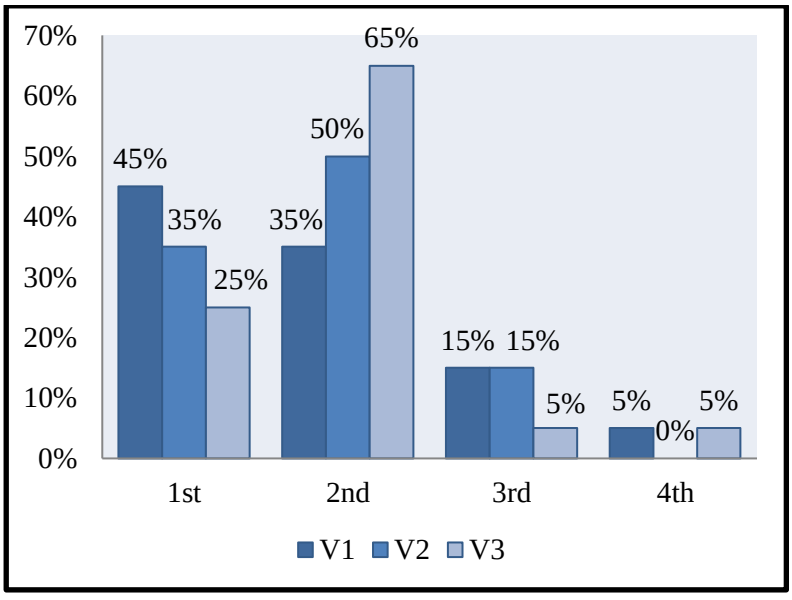

Figure 6: Parity of the child being breastfed

Parity was observed to be significantly associated with EIBF (p=0.000). Breastfeeding started late in the first pregnancy (35%) as compared to the later pregnancies. A similar pattern was observed in a previous study by Hackman, Schaefer, Beiler, Rose, and Paul in 2015. Primiparous mothers showed a greater delay in the initiation of breastfeeding.

Multiparous mothers breastfed for longer durations in subsequent pregnancies, and this duration increased with increasing parity of the child.

Multiparous mothers are better informed and more experienced than first-time mothers. Along with this, a longer breastfeeding period amongst children of higher parity can be because, with more pregnancies, women start nearing their ideal family size and do not have to stop breastfeeding to be able to conceive.

It can be stated here that 50% of the breastfed children were the second child. Only 35% of the children who were being breastfed were the first child.

Exclusive breastfeeding-

Table 5: Factors affecting exclusive breastfeeding for six months

Variables	**EBF duration**		**p-value (X^2)**
	>6 months	**6 months**	
	n=30 (50%)	**n=30 (50%)**	
Age			
Less than 25	16	10	0.018 (7.591)
26-31	13	11	
More than 31	1	9	
Education			
Illiterate	2	1	0.675 (1.529)
Up to 5th	4	2	
Up to 10th	7	10	
10th and above	17	17	
Type of family			
Joint	16	24	0.028 (4.8)
Nuclear	14	6	
Sex of the Child			
Male	14	22	0.035 (4.444)
Female	16	8	
Parity			
1st	15	6	0.025 (7.302)
2nd	10	20	
3rd and more	5	4	
Breastfeeding Advice			
Given	21	27	0.05 (3.75)
Not Given	9	3	
ANC Visits			
No visit	11	1	0.002 (11.752)
1-3	17	22	
4 and more	2	7	

In the present study, the exclusive breastfeeding rate up to 6 months of age was 50% which was lower than that of the EBF rate reported in the NFHS-4 survey which is 55% and the EBF rate in Haryana reported in the DLHS-4 which was 66.2% (NFHS-4, & DFHS-4). EBF was maximum in Tigaon with 60% of the respondent mothers exclusively breastfeeding. The reason observed was that these mothers in Tigaon received counseling from ASHA workers.

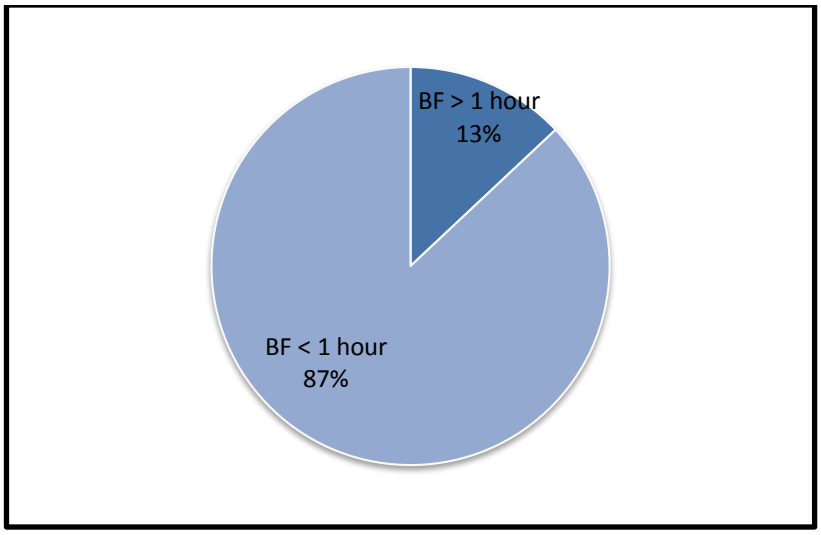

Figure 7: Proportion of mothers by the initiation of breastfeeding within 1 hour after delivery.

Figure 8 indicates the age-wise distribution of feeding practices followed by the studied mothers for up to six months. Infants below 4 months were fed with water, formula milk, and Cow milk. 25% of the mothers started complementary feeding before six months.

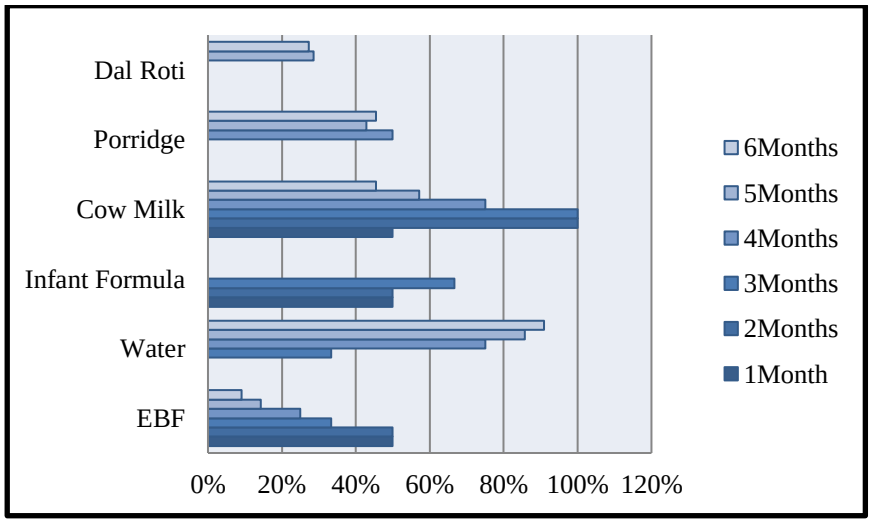

Figure 8: Feeding practices followed until six months of age

The most common reason for the discontinuation of EBF was the misconception that breastmilk is inadequate for the child and the child remains hungry. Verma & Dixit in 2016 found similar results that mothers perceived that baby is not getting enough milk and started top feeding.

Brown & Harries in 2012 found that many new mothers believe that their infants' diet is related to their sleep; formula milk or increased levels of solid food are often given in an attempt to promote sleep. Similar was observed in the present study.

Table 6: Sex of the child being breastfed

Sex of the child	Tigaon		Neemka		Kheri Kalan		Total	
	N	V1	n	V2	N	V3	N	%
Male	11	55%	13	65%	10	50%	34	57%
Female	9	45%	7	35%	10	50%	26	43%
Total	20	100%	20	100%	20	100%	60	100%

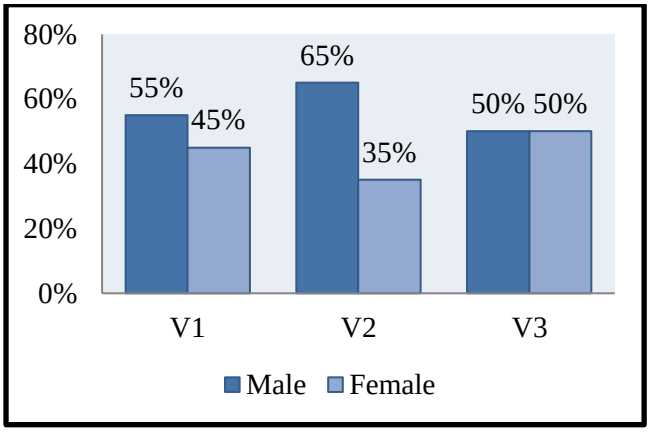

Figure 9: Sex of the child being breastfed

The recorded data reinforced the phenomenon of gender disparity prevailing in the communities. A huge gap was observed in Neemka villages with only 35% of female infants and 65% of male infants being beasted (Figure 9). Among 34 male children, 36.8% were put on EBF. Among 26 female children, 34.5% were put on EBF. Gender as a social issue influenced adherence to the initiation of EBF and exclusive breastfeeding, according to a study done in Haryana (Majra & Silan, 2016). There was a significant association between the gender of the child and EBF (0.035).

These findings were in concordance to a study done by the National Bureau of Economic Research in 2009. It was observed that these gender effects are the smallest for high values of birth order. For low birth-order children, mothers will want to continue having children, and for high birth order children, mothers stop having children hence the youngest sibling is breastfed for a longer duration (Jayachandran & Kuziemko, 2009). This also supports the trend that 57% of the firstborn children were female in the present study.

Table 7: Number of ANC visits

ANC visits	Tigaon		Neemka		Kheri Kalan		Total	
	N	V1	n	V2	n	V3	N	%
No vist	5	25%	1	5%	6	30%	12	20%
1-3 visits	14	70%	14	70%	11	55%	39	65%
4 and more	1	5%	5	25%	3	15%	9	15%
Total	20	100%	20	100%	20	100%	60	100%

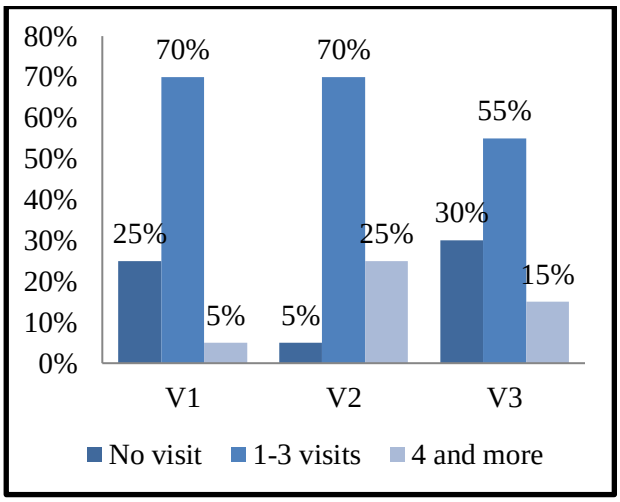

Figure 10: Number of ANC visits

The WHO recommends that pregnant women should attend at least four antenatal visits to create opportunities for risk identification; prevention and management of pregnancy-related and/or comorbidities; and health promotion including the provision of EBF information (WHO, 2016).

The study found a significant positive association between the frequency of ANC visits and hospital delivery with the prevalence of exclusive breastfeeding (0.002). Neemka performed better in terms of ANC visits. 70% of the mothers had 1-3 ANC visits and 25% had 4 or more visits (Figure 10). The Review of literature also indicates an association between ANC visits and EBF. Past reports suggest that more than four antenatal visits were associated with EBF among mothers in Patiala (Randhawa, Chaudhary, Gill, Singh, Garg, and Balgir 2019). Srivastava, & Awasthi (2014) found in a study that mothers who had three or more ANC visits were significantly more likely to exclusively breastfeed than the mothers who made fewer ANC visits.

Lack of complete knowledge of exclusive breastfeeding indicates poor communication, advocacy, and BCC activities by the health care providers in the study area.

CONCLUSION

It was concluded that feeding practices have improved slightly since the last NFHS survey in 2005–2006. However, current rates of proper feeding practice are still below the IYCF guidelines. Late initiation of breastfeeding, non-adoption of EBF, bottle-feeding, maternal illiteracy, and unhygienic feeding behavior are still prevalent.

This study provides a foundation to explore best practices and make suggestions for future research. The fact that the mothers who had frequent ANC visits had better knowledge as compared to those who hadn't. shows the work done by primary health workers holds incredible potential and should not be diminished or simply relegated to other professions.

Frontline workers such as Anganwadi workers, ASHA, and ANM must counsel and reinforce the message among all pregnant women and their families that they ensure EIBF and feeding colostrum. Thus, breastfeeding within one hour of birth and exclusive breastfeeding for 6 months and proper complementary feeding after 6 months with continued breastfeeding should be encouraged, as the first case of 'vertical transmission' of COVID-19 from a mother to her child through the placenta has been reported in India recently. Hence, breastfeeding is the only way to improve the immunity of children.

RECOMMENDATION

National-level studies are needed because it is important to examine the association between the timing of the initiation of breastfeeding and neonatal mortality. To achieve the Sustainable Development Goals within a defined time, we need to emphasize an evidence-based conclusion regarding the relationship between breastfeeding and the reduction in neonatal mortality as there is a burning need to improve breastfeeding practices in India.

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PERCEPTION REGARDING PROFESSIONAL OPPORTUNITIES FROM THE PERSPECTIVES OF HOMESCIENCE GRADUATES

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ABSTRACT

Home science/Community science is a subject dealing with education of individual, family and community by providing systematic and scientific education about the reciprocal relationships between family and environment. Home science integrates the submission of a range of sciences and humanities to advance human environment, family nutrition, fashion, management of resources and child development. Home Science/Community Science as a ground of study is application oriented and prepares one for many professions. The present research is part of ICAR Funded project to the aim of which is to analyze the status of home science students ultimately to develop industry institute interface programme related to the subject. The data were collected from Home science graduates through google form and the results depict most of the respondents believed that the subject is proving a well-balanced blend of theory and practices. The subject is dealing with skill imparting in almost every field required for a balanced life. The paper very well highlighted the applied skill provided in regular education and the skill which are the part of regular education which can be opted as a profession.

Key Words- Home Science, Community science, Professional opportunity, Perspectives, Education, Graduation

INTRODUCTION

Practicality and harmony have been given a prominent place in human culture. Education takes human culture towards its hegemony as a primary foundation. In this educational environment, many subjects provide basic education, such as sociology, home science, economics etc. to make people realize social and family responsibilities. Out of all these subjects, Home Science is the main subject which is effective in establishing social and family understanding, duty and implementation as well as professional reputation. Although according to social sentiments, subjects like Home Science have been made for women only, but today this subject is being selected not only by women but also by men. Not only people from all classes are getting oriented in studying and teaching with the subject of Home Science, but new records are also being established whether, it is about communication and extension, food and nutrition, family resource management or the fashion mode like sewing, embroidery or other branches of Home Science. Various famous professionals like- Sanjeev Kapoor, Manish Malhotra, Sabhyasanchi, Dr. Swati Dave, Retired Professor Neeru Saluja etc. are in professions which belong to periphery of Homescience or these people are from homescience and their fame not only prove that Home Science is a unique academic subject through which it is possible to enjoy all kinds of accessibility in day to day life. But it also supported the fact that it is possible to get professional and commercial opportunities through home science, so that a person can earn money and fame as well. Therefore, home science should be included very effectively in the curricula of schools and universities, so that all the students can benefit from it in the near future. There are few questions

which need to be researched like, Can a person be proficient and use taught skills (as dyeing, embroidery, budgeting, managing, preparing a diet plan, use of home appliances etc) to them in their life?, With the knowledge of these major subjects, to what level can one oneself excellent in day-to-day work?, In order to use this knowledge in day-to-day life, will the student be able to perform well professionally and commercially? Through studying and getting knowledge of these subjects, who can become capable for which job? A joint research of Home science teaching Institute with Ministry for skill development and entrepreneurship could be helpful to meet out the demand of skilled man force for nation and job scarcity for homescience students.

OBJECTIVE

To explore the opinion of Home science Graduates about academic orientation towards Home science and its application in day to day life.

REVIEW OF LITERATURE

Study by Devi and Rani (2013) on "Need and Significance of Vocationalization of Home Science in National Development" was conducted with an objective to explore the need of providing vocational opportunities to homes science students. They concluded that the subject has potential to prepare the students for various professions so in order to ensure the full returns of national investments (done on education by Government) and to reduce the job pressure on students the vocationalization of Home science education is must.

A Study by Jain et al. (2015) was conducted with 130 students (studying in class X) and their parents to know the reason behind declining interest of students in Home science and it concluded that less career opportunity provided by subject is the basic issue due to which most of the parents don't want their daughters to go for this subject. When the respondents were asked about the objectives and future options provided by subject, the students had good knowledge as compared to their parents.

Yadav et al. (2017) stated that no other subject prepares their students in a way the home science does. Today's home science education is not confined to strengthen of home and family life only, it is an education aimed at national building. It has a vital contribution to human development, better living and national well-being. The dietary habits of home science teenagers are better than non-home science teenagers. It offers several job opportunities, career options from teaching to working in research institutions are well known, but there are additional areas one can explore such as, labs that ensure food safety and quantity, companies that conduct research on new food products, food auditing, food and nutrition consultants in hospitals, hotels, In boutique as a fashion designer, in school as a counsellor, wellness centres, corporates as well as agencies or entrepreneur are other option. Probably no profession calls for such varied talents as home science as Home Science does (Sinha and Agrwal, 2015).

An article in Times of India (2019) on "Home science a lucrative career option for students" explained very well about the subject and the career opportunities provided by the subject. The article focused that the subject is breaking the age-old myths like home science is only about managing home. Now the purely scientific subject is providing viable career options to the students like career in Hospitals, Education institutes, Textile Industries, NGO etc.

METHODOLOGY

The present research project (Designing Industry –Institute Interface Programme for Home Science Colleges of Rajasthan) was undertaken to explore the status of Home science Graduates and possibilities of Industry Institute Interface for the subject. Methodology selected was quite diverse the objective was focusing on collecting data, its analysis and presentation.

Development of tool-

A tool was developed after extensive reconsider of researches, exploring report of previous project done by PI (basis for present research), and consultation with subject specialists which was further evaluated by five teachers (teaching Home science subject) in the various universities. The tool was developed in both Hindi and English languages, which was further converted in electronic mode (Google form) for convenient reach and paper saving. The sections of tool included statements regarding to the aspects. Each statement has two options viz Yes and No. 'Yes' option was given one mark and 'No' was assigned 0. Choice of adding other options was given to respondents in case they wanted add something which is not mentioned in the.

Collections of Data-

There are two different streams running simultaneously in India i.e. M.Sc Home Science and MA home Science. UGC gives approved both courses as those who registered in B.Sc is eligible for M.Sc and those who have enrolled in B.A. can go for M.A. only whereas, ICAR approved only B.Sc and M.Sc in Home Science/Community science. In India, UGC affiliated institutes are more in number as compared to ICAR affiliated academic institute. As a result, more number of M.A. Home Science degree holders are increasing day by day as compared to M.Sc. In initial stage researcher approached to various colleges offering post-graduation degree for M.Sc. in Rajasthan but the enrolment ratio is very low in these colleges. So to approach more Home Science graduates and also to explore the difference of opinion of MA and M.Sc students the colleges offering MA were also approached and further the tool was shared among various social platforms to increase approach.

Analysis of Data-

The data were analyzed by simple frequency percentage method.

RESULTS AND DISCUSSION

Usually people frame opinion by referring their cognitive understanding to given situation or how the perceive and live in their situations. In some of the cases people set their opinion on the basis of their own beliefs. In present research the common thing between the respondents were that they all are Graduate from home science, so they had gone through the same education in their own situation. So, they were asked to provide their opinion on Home science as a subject (because they all were a part of it) so that the results can be of help to break the myths of general masses about the subject. This section was divided into four sub-sections

I. Background Information of the Respondents
II. Opinion regarding academic orientation of Home science
III. Interpretation about Home science as a subject
IV. Application of practical education of Home science in day to day life
V. Orientation towards professional opportunity provided by Home science

These sections describe the opinion of respondents regarding the content taught both in theory and practices, their interpretations, application of skill learned and the orientation of subject towards practical opportunities provided.

I. Background information of the respondents- A total of 424 home science graduates was contacted**.** Background information includes, age, marital status, family type, years of attained graduation degree and the motivation source to opt homes science subject. It shows that most of the respondents belong to a very young category that is 20-25 of age followed by 26-30 year of age. Most of the respondents (59%) belongs to married category whereas 43% were unmarried, it gives a very strange picture as maximum respondents are from young age group (25 years) which is the age considered to be settled in career whereas according to data majority is married, it indirectly shows that in India still the girls get married without completing their studies. Since maximum respondents were less than 25 years of age so most of the respondent category of less than 5 years of completion of their graduation. When the respondents were asked about the source of inspiration to choose home science as a subject, the maximum respondent (38%) have chosen home science because of their preferences. Whereas the data further shows that they were suggested by parents (30%). In present research it was observed that teachers played a good role in subject selection as 14 % students have taken this subject as they were inspired by their teacher and 7% enrolled in it because their friends were going in this field. Teachers again played a perfect role in shaping the career of the student and having an impression over students to opt the subject which can be seen as 14 percent students choose home science because they are inspired by their teachers, the students who were inspired from friends were less than 7 percent. An interesting fact that as most of the students have completed their graduation in five or ten years range, so we can see very less impact of social media(02%) as a source of motivation.

II. Opinion regarding academic orientation of Home science-Academic orientation of subject is related to the input provided by syllabus and the way the syllabus is handled by institutions.

Table1. Distribution of respondents by their Opinion regarding academic orientation of Home Science

N= 424

Particular		**Number**	**Percentage**
Theory or Practical	Only theoretical	05	1%
	Only Practical	13	3%
	Blending of both	406	96%
Professional utility of subject		241	58%

The respondents were asked about their opinion on academic orientation (nature of the subject) and 96 percent among them feels that it is a perfect blend of theory and practical both which provide a comprehensive outlook to the students due to which learning becomes permanent in the mindset of the students. Only a handful respondent felt that it is more of practical or vice versa. A strong reason behind this may be that in few of Institutes less attention is given to the appointment of Home science teacher and these students were the sufferer of non-availability of

teacher. Professional utility of subject is accepted by majority again (almost 58%), as they feel that the content, they learn in Home Science subject has practical utility (Nutrition assessment, Budgeting, Resource Management, Child and Family Care etc.) in their life.

III. Interpretation about Home Science as a subject- When the opinion are tested with the real word and experienced in day to day life it provide meaning to various queries. This helps in developing different interpretations.

Table-2. Distribution of respondents regarding Interpretation about Home Science as a subject

N=424

Particular	Number	Percentage
Only degree granting subject	54	13%
Very broad subject	372	88%
Career oriented subject	361	85%
Deals with almost every field	390	92%
Informs about technology as well	347	82%
Imparts skills, knowledge and attitude	395	93%

A set of statements were given to respondents to respond to know their interpretations about Home Science and the results are given in table 02. It depicts that 80-95% respondent feels that home science is a broad subject which provides a number of career opportunities, deal with almost every field of life and imparts skills along with development of knowledge and attitudes. It also provides information on the latest technologies. Very little number of respondents (13%) who may be not satisfied in their present status at professional front accepts that it is just a degree granting subject they have no utility for that of the subject in their present life.

IV. Application of practical education of Home science in day to day life – Home science subject trains students in various skills like stitching, cooking, caring of family members and understating importance of resources as well providing meaning to home. This practical education is very useful and considered as life skills in various platforms.

Table 3- Distribution of respondents regarding Application of practical education of Home science in day to day life

N=424

Practical Application	Number	Percentage %
Basic stitching	315	74%
Embroidery	249	59%
Diet plan	383	91%
Dyeing	212	51%
Budget making	347	82%
Familiar with the use and maintenance of home appliances such as electronic sewing machines, washing machines, microwave ovens etc.	362	85%
Management of resources	384	91%

While further moving to the applications of the home science in their day to day life respondents accepted that it provides various skills to the student and they are delivered in the classroom in their regular practical classes which are useful in day to day life. The responses are depicted in table-3, as most of them replied that they use basic stitching skills, diet plan, budget making, maintenance of home appliances , and management of resources in their day to day life as these skills have direct application and they have to encounter the situations associated with it daily. Less used skills are Embroidery (59%) and Dyeing (51%) which needs a lot of creativity and special attention.

V- Orientation towards professional opportunity provided by Home science –The basic skills gradually lead to professional skill. The amount of inputs given to basic skill ensures the success in professional life. For example, in case of Home science the basic stitching skill if groomed proper can lead to dress designer. Likewise, basic interior skill can further be helpful in becoming interior designer.

Table 4. Orientation towards professional opportunity provided by Home science

N=424

Subject	**Profession**	**Percentage**
Textile related profession	Textile research scientist	88%
	Graphic designer	68%
	Textile lab technician	84.%
Family Resource Management related	Furniture designer Accessory Designer	79%
	Event planner	83%
	Hotel Management (Housekeeping)	76%
	Financial planner	81%
	Consumer advisor	67.%
Foods and Nutrition related	Vendor or cafeteria services	71%
	Community health worker	87%
	Medical nutritionist	44%
	Lab assistant	51%
	Kitchen gardening	23%
Human Development related	Crèche Kinder Gardens or Pre School	84%
	As general counselor	83%
Extension Education Related	NGO worker	87%
	Project planner	14.%
	Evaluator monitoring specialist	78%
	As social welfare officer	88%

In previous section most of the respondents accepted that it is a blend of theory and practical also it's providing professional opportunities to the students. Further the respondents were asked to respond, whether the subject is providing any professional opportunities in their life and it is again very much enthusiastic to know that 70 to 90% respondents felt that the subject offers them the career opportunity through its five fields i.e. Textile and clothing, Family resource management, Human development, Foods and human nutrition and Extension education. Most of the respondents agreed upon the common career opportunities like Textile research scientist

(88%), Social welfare officer (88%), Community health worker (87%), NGO worker (87%), textile lab technician (84%), Crèche Kinder garden (84%), Counselor (83%), Event Planner (83%) etc. as the familiar career opportunities.

CONCLUSION

It can be concluded that the subject Home Science is versatile in nature which provides a perfect blend of theory and practical. The content covered by the syllabus not only prepares its students to be a professional (by providing various professional opportunities) but also develop an attitude which help them to lead a healthier life with the efficiency in basic domestic and associated life skills. The majority students are satisfied with their professional status. Furthermore, on the basis of major finding of the project (the data submitted to ICAR) an appropriate policy for Industry Institute Interface will be designed so that students become more employable and lead a successful professional life.

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OVERVIEW OF CHILD MALNUTRITION TREATMENT CENTRES (CMTC) SERVICES THROUGH QUALITY DIMENSIONS OF SERVQUAL MODEL

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ABSTRACT

According to 'The State of Food Security and Nutrition in the World, 2020' report, 14 per cent of India's population is undernourished, the report states 189.2 million people are undernourished in India and 34.7 per cent of the children aged under five in India are stunted. It further reports that 20 per cent of India's children under the age of 5 suffer from wasting, meaning their weight is too low for their height. Referring to the Gujarat state scenario for this, The Lancet report titled 'The burden of child and maternal malnutrition and trends in its indicators in the states of India: the Global Burden of Disease Study 1990–2017' published in December 2019 put Gujarat at the top in child wasting (low height to weight ratio) with 19.3% of total children and sixth in child stunting with prevalence of 39.6%. The report mentioned that 20.7% of the total children had reported low birth weight. Hence, Present study is undertaken to understand how the quality of health care services of CMTCs of Vadodara district are meeting the quality dimensions? What is the response of the care takers who are admitting their children in these government run CMTCs of the district? Using purposive sampling method, total 95 caretakers of CMTCs of Vadodara district were approached in CMTCs. Data were collected through interview method. Major findings revealed that, with regard to viewing different quality dimensions referring SERVQUAL model, the respondents expressed very positive responses almost in all the different dimensions of quality of this model. However, the gaps highlighted in almost all the dimensions for the selected items by the respondents viz– use of variety of communication materials by CMTCs staff (tangible); recording of food intake accurately; Explanation of what is treatment and why it is for(Reliability); Regular updates to the patients' care takers regarding treatment (Responsiveness); Attention by doctor (Assurance) ; Enthusiasm while interacting with patient and family (Empathy); Out of pocket expenditure; use of hard terms during interaction (Miscellaneous) were of the major concerns where the respondents were less satisfied thru CMTC services of this district of Gujarat. This indicates that to combat malnutrition, these identified grey areas by the respondents should be considered and services of the CMTCs can be strengthened and better community mobilization can be done.

Key Words: Mal-Nutrition, CMTCs, SERVQUAL Model, Quality in healthcare services

INTRODUCTION

Health and Nutrition status of Indian children

India is one of the world's largest producers of milk & pulses and ranks as the second-largest producer of rice, wheat, sugarcane, groundnut, vegetables, fruits, and cotton, as per the Food and Agriculture Organization of the United Nations (FAO). Despite the status, 14 percent of India's population is undernourished, according to 'The State of Food Security and Nutrition in the World, 2020' report. The report states 189.2 million people are undernourished in India and 34.7 percent of the children aged under five in India are stunted. It further reports that 20 percent of India's children under the age of 5 suffer from wasting, meaning their weight is too low for their height. In fact, India is home to the most number of malnourished children all across the world. The states viz, Bihar and Uttar Pradesh have the highest number of malnourished children, followed by Jharkhand, Meghalaya, and Madhya Pradesh. In Madhya Pradesh, 42 percent of children under the age of five are malnourished, while in Bihar it is 48.3 percent.
(Source:https://www.dailyrounds.org/blog/national-nutrition-month-2020-an-analysis-of-indias-nutritional-status/)

However, for the state of Gujarat, the scenario is not encouraging in this area. The Lancet report titled 'The burden of child and maternal malnutrition and trends in its indicators in the states of India: the Global Burden of Disease Study 1990–2017 published in December 2019 put Gujarat at the top in child wasting (low height to weight ratio) with 19.3% of total children and sixth in child stunting with prevalence of 39.6%. The report mentioned that 20.7%of the total children had reported low birth weight
(Source:https://timesofindia.indiatimes.com/city/ahmedabad/malnutrition-contributing-to-child-deaths-in-state/articleshow/73113834.cms).
Although, the situation is better in states like Kerala, Goa, Meghalaya, Tamil Nadu, and Mizoram. The data certainly shows that malnutrition is indeed one of the most underrated problems faced by the country((Source:https://www.dailyrounds.org/blog/national-nutrition-month-2020-an-analysis-of-indias-nutritional-status/).

Government Initiatives

Over the course of time, various governments have initiated several large scale supplementary feeding programmes aimed at overcoming specific deficiency diseases to combat malnutrition and hunger. The Government of India's Ministry of Health and Family Welfare has established 1,151 Nutritional Rehabilitation Centers (NRCs) across the country under the National Health Mission. These NRCs based generally at district level and (Child) Malnutrition Treatment Centers (MTCs) generally exist at block levels are facility-based care for children with Severe Acute Malnutrition (SAM) and medical complications. Children with Severe Acute Malnutrition along with medical complications are referred from villages by frontline workers (such as Accredited Social Health Activist (ASHA), and Aanganwadi workers) and are admitted to NRCs / Child Malnutrition Treatment Centers (CMTCs) as per the defined admission criteria. These NRCs/ CMTCs offer appropriate feeding of children, careful height and weight monitoring, and counselling to mothers and caregivers on age-appropriate caring, nutrition and growth monitoring. The frontline workers actively make home visits and scan the Anganwadi Centers in the villages under their purview, to keep track of children's health and spot those who need facility-based care. They are the ones who recommend admission to the nearest NRC/CMTC (Source:

https://www.firstpost.com/long-reads/in-indias-nutritional-rehabilitation-centres-holistic-care-for-mother-and-child-combats-malnutrition-7873011.html).
So, despite several efforts when the malnutrition scenario in India and Gujarat state is not showing much headway, hence, from various perspectives this issue is required to be studied.

SERVQUAL Model in Healthcare sector

To assess the patient satisfaction, **Zeithaml**,**Parasuraman** and **Berry**, developed and implemented a service quality model or SERVQUAL model in 1988. It was divided into five dimensions i.e.

Reliability, Responsiveness, Assurance, Empathy and Tangibles.

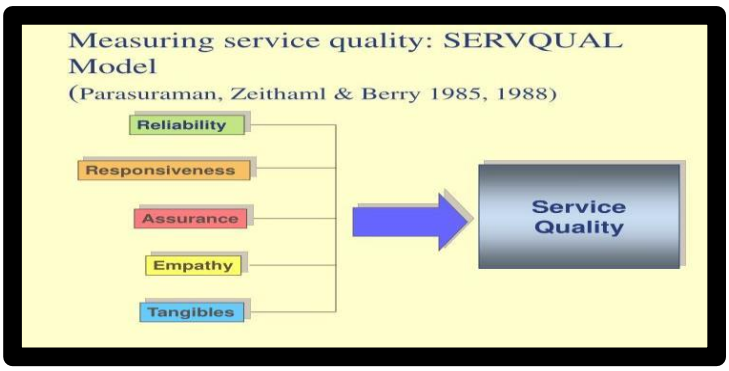

FIGURE - 1 service quality model or servqual model

*(source:*https://www.google.com/search?q=service+quality+model+or+servqual+model&safe=strict&rlz=1c1chbd_enin879in879&sxsrf=alekk03ltgvt-lmm8rerg-hja4zoaiec1g:1607069130460&source=lnms&tbm=isch&sa=x&ved=2ahukewjixjmf77ptahwv83mbhy1sa24q_auoaxoecbuqaw&biw=1600&bih=700#imgrc=bxbvobcuphepym)

SERVQUAL is a widely applied method of assessing service quality. This model measures the quality of the gap between a customer's patients' mothers/guardians' expectations of service and the customer's perceptions of the service delivered.
The functioning of NRCs/ CMTCs has not been studied in greater detail in the Indian context. There is also a paucity of scientific literature on evaluation of the NRCs/ CMTCs and the nature of its functioning in India in general and in Gujarat in particular. Hence, the present survey was undertaken which aimed to understand the services of CMTCs in the district of Vadodara, Gujarat elicited the opinions of mothers and guardians of children admitted in the CMTCs.

OBJECTIVES

1) To prepare a profile of the respondents of CMTCs of Vadodara district, Gujarat.
2) To study opinions of mothers/guardians' (of admitted children) towards CMTC's services of Vadodara district, Gujarat for the following SERVQUAL quality dimensions:
    a. Tangibles
    b. Reliability
    c. Responsiveness
    d. Assurance
    e. Empathy

METHODOLOGY

The population of the study consisted of mothers /guardians of Severely Acute Malnourished (SAM) Children admitted in the CMTCs of Vadodara district, Gujarat which are run by the Government of Gujarat during the period of 2019-20.

Sample of the Study – The sample of the study was mothers/guardians of SAM child admitted in CMTCs of Vadodara district, Gujarat during the period of Nov,2019 to Jan,2020.
Using purposive sampling method, the respondents were selected from functional CMTCs viz, Savli, Karjan, Dabhoi, Padra, Sinor, Vadodara and Dabhoi of Vadodara district i.e. amongst all eight blocks of Vadodara district, Gujarat.
Sample size of the Study – Total ninety-five mothers/guardians of all the SAM children admitted from six CMTCs of Vadodara district were covered in the study.

Construction of the Research Tool

A questionnaire was prepared and used as a tool to know the opinion of mothers/ guardians' towards CMTCs services. Besides, background information of the respondents, the SERVQUAL dimensions were incorporated after adapted to prepare the items viz, tangibles, reliability, responsiveness, assurance, empathy. The tool was checked for its validity for content and research purposes from experts from Public Health Institutes of government and international organisations as well as academicians. Reliability of the tool was done using test- retest method and result obtained showed high correlation with value of r=0.98. Pre-testing of the tool was also done prior to data collection.
Data Collection: A permission from the government was sought from different levels to carry out the study.

FINDINGS AND DISCUSSION OF THE STUDY

This section of the study is mainly divided into two major parts:
A) Profile of the respondents of CMTCs of Vadodara district
B) Responses of the respondents on different dimensions of the quality of services.

A) Profile of the respondents of CMTCs of Vadodara district(n=95)

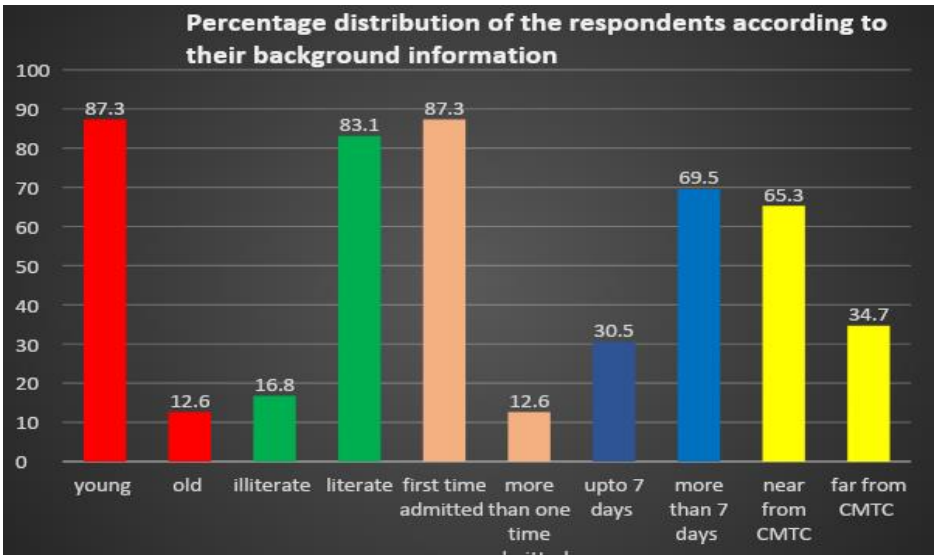

FIGURE-2 respondents as per their background information

Fig.- 2 revealed that a high majority of the respondents i.e. 87.3% were young mothers/guardians. Data regarding education, showed that, a high majority of them were literate i.e. 83.1% and the rest 16.8% as illiterate. Further, a high majority i.e. 87.4% of the SAM children were admitted for the first time in CMTC followed by i.e. 12.6% were admitted more than one time in CMTC. The figure also revealed that the majority i.e. 69.5% of children had treatment duration periods of more than 7 days in CMTC, followed by little less than one third i.e. 30.5% were in CMTC for treatment from 7 or less than 7 days. Regarding proximity from residence, the data revealed from figure (2) that majority i.e. 65.3% of mothers/guardians stayed near CMTC i.e. within reach of CMTC followed by little more than one-third i.e. 34.7% mothers/guardians who were staying far from CMTC i.e. at distance of more than 8 km.

(B) Responses of the respondents 'on different dimensions of quality of health care services

n=95

Table 3: Percentage distribution of the respondents of CMTCs of Vadodara district according to their responses on different dimensions of the quality of health care services

SNo.	Items of Quality Dimensions	Satisfied (%)	Partially Satisfied (%)	Less Satisfied (%)
I)	**Tangibles**			
1	Child friendly ward	**100**	0	0
2	Ventilation in the Ward	**98.9**	1.1	0
3	Electric appliances work properly	**100**	0	0
4	Playroom for children	**100**	0	0
5	Bathroom drainage	**98.9**	1.1	0

6	Running Water available	**93.7**	6.3	0
7	Regular Garbage collection facility	**98.9**	0	1.1
8	Using variety of communication materials	11.6	5.3	**83.2**
9	Everyday food's quality	**98.9**	0	1.1
10	Overall cleanliness	**97.9**	2.1	0
11	Supply of medicine is regular	**100**	0	0
12	Working equipment	**100**	0	0
II)	**Reliability**			
1	Recording of various types of data on convenient time	**34.7**	31.6	33.7
2	Recording of weight accurately	**67.4**	24.2	8.4
3	Recording of food intake accurately	41.1	10.5	**48.4**
4	Provision of medicine on time according to the treatment protocol	**98.9**	1.1	0
5	Treatment is given with patience	**93.7**	1.1	5.3
6	Listening to the Patient	**87.4**	6.3	6.3
7	Explanation of what is the treatment and why is it for.	18.9	28.4	**52.6**
8	Behaviour of the Staff	**98.9**	1.1	0
III)	**Responsiveness**			
1	Express care	**100**	0	0
2	Immediate change of soiled bed	**93.7**	4.2	2.1
3	Patient is fed as per protocol	72.6	4.2	23.2
4	Paying attention to the patient's problem	**95.8**	3.2	1.1
5	Regular updates to the patients' regarding the treatment	18.9	28.4	**52.6**
6	Regular visits	**76.8**	23.2	0
7	Easy mode of communication with the staff	**94.7**	1.1	4.2
8	Cooperation of staff			
	· Medical Officer	**92.6**	2.1	5.3
	· Nutritional Assistant	**98.9**	0	1.1
	· Staff Nurse	**98.9**	0	1.1
	· Cook Cum Caretaker	**98.9**	0	1.1
	· Cleaner	**98.9**	0	1.1
9	Availability of Staff			
	· Nutritional Assistant	**97.9**	2.1	0
	· Staff Nurse	**100**	0	0
	· Cook Cum Caretaker	**100**	0	0
	· Cleaner	**100**	0	0
	· Security Guard	**100**	0	0
IV)	**Assurance**			
1	Attention by Doctor	7.4	24.7	**65.3**
2	Advice given to prevent Illness	**87.4**	2.1	10.5
3	Reasoning given behind each test and	**51.6**	3.2	45.3

	treatment			
4	Clarity about entitlements provided by the government	**73.7**	17.9	8.4
5	Overall Satisfactory care given	**86.3**	13.7	0
V)	**Empathy**			
1	Encouraging healthy practices when the patient is having a hard time co-operating	**86.3**	1.1	12.6
2	Enthusiasm while interacting with patients and family	20	38.9	**41.1**
3	Personal care given to the patient	**53.7**	38.9	7.4
4	Lively and cheerful environment for the patient	**97.9**	2.1	0
5	Fulfilment of patients' needs	**100**	0	0
6	Solving patient's complaints	**98.9**	1.1	0
VI	**Miscellaneous**			
1	Water logging in surrounding areas	**95.8**	4.2	0
2	Out of pocket expenses	36.8	1.1	**62.1**
3	Use of hard to understand terms	3.2	2.1	**94.7**

It can be inferred from the above table-3 that the services in the tangible dimension were found as the most well received of amongst all the 6 quality dimensions. The CMTC's were clean, the wards had ventilation and were children friendly, the bathroom drainage and the water supply were enough, uninterrupted and even the serving food quality was satisfactory. The equipment and medicine supply were also satisfactory. However, high majority (83.2%) of the respondents were less satisfied for the item of use of better communication material to explain an illness to a patient. This finding implies that there is a demand of health education as expressed by the respondents in the CMTCs. It also recommends that CMTCs of Vadodara district should employ multimedia strategies to provide health education to the people.

The reliability dimension had some well received i.e. satisfactory services as well as some not so well received services, respondents were happy with the provision of medicine and treatment was given with patience. The patient was also listened to and treated reliably. The respondents were split while responding for the recording of weight and other data as per the patient's convenient time (34.7%), but according to protocol weight should be collected at specific intervals of time so that right trend can be monitored. Respondents were least satisfied with the explanation of the for the treatment given (52.6%) and they were also dissatisfied with the recording of food intake (48.4%).

The next well received dimension was the responsiveness dimension, the respondents in unison agreed that the staff was very cooperative and readily available to give services. Express Care was available without any wait time, the soiled beds were immediately changed, and the patients were well attended to. The doctors visited regularly and the mode of communication with the staff was satisfactory. However, nearly half of the respondents (48.4%) expressed less satisfaction for the item like regular updates in the patient's nutrition charts on their bedside board. This finding revealed that, this is much obvious need expressed by the respondents and nutritionist of CMTCs requires to daily update details of weight of child as this could be providing satisfaction

of services to the caretakers. It also implies that, though care takers have low literacy, but that does not allow CMTCs staff to be complacent on their daily service part.

In the assurance dimension, the services were received somewhat well, like advice given to prevent illness and clarity about entitlements provided to the patients by the government. People were also satisfied with the overall care given. The service that had less satisfaction was attention by the doctor (65.3%), where respondents expressed dissatisfaction. One had split responses, some CMTC's gave reasoning behind the treatment and the tests being taken and some didn't (51.3%), which also shows that there is a room for improvement in communication with the patient in the case of treatment given.

The services in the empathy dimension were received with somewhat of a less satisfaction and mixed responses. Some of the respondents stated that the items viz, encouraging healthy practices, solving problems of the patients and helping out with their complaints were very well received. However, items like personal care given to the patient (53.7%) and enthusiasm while interacting with patients and family (41.1%) had split reactions meaning some CMTC's need to improve on these areas. This finding implies that CMTCs of Vadodara district need to check their daily service dealings and to improve upon effective attitudinal, behavioral communication on their part.

In the Miscellaneous dimension, respondents were satisfied with there being no water logging but very dissatisfied with the way they were briefed using hard to understand terms about their illness and were asked to pay out of their pocket for medicines and tests.

CONCLUSION AND RECOMMENDATIONS

The present study revealed that Child Malnutrition Treatment Centers (CMTCs) of Gujarat are playing vital role in dealing with major issue of child malnutrition in society. In this context, Vadodara district CMTCs which are run by the state are well established and functioning according to state government guidelines. It can be seen and concluded here that a major area of improvement is how the illness is presented and explained to the patient, as most of the people visiting a CMTC would be illiterate or with low literacy level, explaining through audio visual mediums could be affective. Another issue is the record keeping system, instead of a manual record keeping system, a computerized one could be helpful. The staff could be trained more to accustom themselves with the system so that most of its benefits could be reaped.

It is recommended to carry similar study of inmate's satisfaction can be conducted in the all the districts of Gujarat state of its NRCs/CMTCs, India. Further, a case study on CMTCs/NRCs is also recommended to understand actual protocols followed in dealing with the SAM child in CMTCs /NRCs. of Vadodara district, Gujarat and India.

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PRECAUTIONARY MEASURES ADOPTED BY FAMILIES TO ENHANCE IMMUNITY FOR NEW NORMAL LIFESTYLE

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ABSTRACT

People who do not care about the immune system are weak and more prone to diseases like COVID 19. It is a fact that to boost immunity implementation of proper diet and fitness exercises are very important and are suggested by health experts. For this it becomes essential to boost up one's immunity ,as, a strong immune system has the ability to fight against various diseases, especially during such times, when the whole World is going through the major Pandemic COVID 19 Phase.To prevent this infection from spreading, Government of India had declared lockdown in India. During lockdown people started taking proper diet and also indulged in physical and mental exercises. This change was observed during the lockdown phase. People were observed taking proper care of their health during the quarantine period, as, they got enough time for themselves and their families. People started consuming ayurvedic products for boosting immunity and indulged in regular exercise, Yoga or any physical activity which is considered 'good' for healthy lifestyle. The present study was carried out to assess the precautionary measures adopted by families to enhance immunity for new normal lifestyle during Covid-19 Pandemic. Descriptive research design was used for the present study. The sample comprised of 127 respondents selected through convenience sampling method. The data was collected through Google forms. The findings of the study revealed that all the respondents had adopted different precautionary measures to enhance immunity for new normal lifestyle by involving themselves in different physical fitness activities such as walking, Yoga, exercises, consuming healthy diets, fluids and immunity boosting products rich in vitamins and minerals.

Keywords: Precautionary Measures, Immunity, COVID-19, New Normal lifestyle

INTRODUCTION

In India, the number of coronavirus cases crossed the massive number and it is one among the worst-hit country by the COVID-19 pandemic. It has brought a lot of new challenges for each and every individual to adjust with the changing situation. Though government has allowed all the services and work to resume normally with minimum restrictions in its unlocking plan, it is one's responsibility to stay safe and keep one's surrounding also safe during the pandemic. Everyone is aware that the virus is highly of infectious nature and the society needs to adapt exceptional changes and challenges. Whether at home or work, the daily routine of individuals has changed completely due to health crisis. But people are trying to come back to their normal routine living and work, adopting the measures to safeguard against the prevailing disease in their lives. This has

created a 'new way of living'. It is termed as "new" because it is little different than what it was before the outbreak of COVID – 19. The Communities are gradually opening and all the businesses and offices are re-starting their work and everyone is trying to adjust with "New Normal lifestyles"..As long as the world has not found a cure or a successful vaccine for Covid-19, people may have to adjust to a 'new normal life'. "New Normal life" is a new way of living and going about one's life, work and interactions with other people. It is the current situation that has emerged and which is different from the earlier situation. It is also possible that the world will have to be in this situation for a long time. Still there are strict implementation of social distancing and wearing masks in public places. In the duration of lockdown, the home has become a multi-functional place for individual and family to work and study. In these unprecedented times, one needs to take the preventive measures to keep the family safe and out of harm.

The immune system of the body helps to defence against various disease-causing microorganisms. That is why, it is utmost important to maintain the healthy balance of good nutrition and lifestyle to keep the immunity high during the 'new normal living'. Several vitamins are essential for the proper functioning of the immune system. A healthy immune system is the most important weapon against the viral infections. There are several vitamins and trace elements which are essential for the normal functioning of the immune system (Wintergerst, Maggini, and Hornig, 2007). Availability of adequate amounts of minerals (like iron, zinc, and magnesium) is essential for the synthesis of nucleotide and nucleic acid of the immune cells, while vitamins (like vitamins C and E) are also needed in adequate quantity to support the antioxidant defence mechanism, which is needed to limit tissue damage due to viral infection (Walsh, 2019).Vitamins like vitamin C, vitamin D, vitamin E play a very important role in enhancing the immunity. So, it is very important to consume vitamins in required amount through the diet, especially vitamin C, as it is not produced directly in human body and lack or deficiency may lead to various diseases. Apart from the direct role that adverse immune response plays in COVID-19, research has shown that the immune system plays a central role as well, in many of the underlying chronic diseases (Bagatini , Cardoso, Reschke, Carvalho,2018). The families adopted a lot of immunity boosting methods and remedies to protect themselves from the spread of infection, especially the homemakers, as they are the key member of the household and responsible for majority of the activities related to the health and hygiene of the families.

Working out of the home now has become the 'new' normal way. Nobody could have imagined such a scenario a few months ago. Today, it is a reality one has reluctantly accepted, as, 'life has to go on'. As the pandemic is not yet over and working out of the home has started in almost all the sectors, it becomes even more important to take the precautionary measures to protect oneself from the virus in new normal lifestyle. People did not show any concern regarding their health, fitness, diet etc. earlier, as, for most of the time; they were busy in their office and household work and were not having enough time for themselves. But now, with the emergence of various diseases, especially the one which is currently been faced by the entire World, people have started taking care of their health.

It is important that proper preventive measures and practices need to be followed by an individual as one returns to a normal lifestyle which is now 'new'. Some of the preventive measures, such as; social and physical distancing, wearing mask, regular handwashing, safe shopping, immunity food intake, physical fitness routines, etc. can help one to stay healthy and

improve one's immunity. As one talks about the social and physical distancing, one needs to maintain 6 feet distance from the other person to prevent infection. More care should be taken while travelling in public transport or while shopping in the market, as, risk of getting infection is more in these places. Wearing mask helps not to spread the infection amongst people. Regular and frequent hand-washing for at least 20 seconds and using hand sanitizer, if outside from home, are the effective ways to avoid getting infected from the virus and germs. Precautions like Shopping with utmost care and social distancing can help one to stay safe. Apart from this, intake of healthy immunity booster foods and physical fitness activities helps one to stay healthy and fit during the new normal lifestyle. So it has become very important for each and every individual to boost up their immunity for which one should take proper care of hygiene and cleanliness, take proper and balanced diet with immunity boosting foods rich in vitamins and minerals.

Government of India has taken initiative to make their citizens fit and healthy. Ministry of AYUSH has launched a mobile application which helps citizens to locate Yoga events and centres providing training and instructors. It has once again issued an advisory on various immunity-enhancing steps from the time-tested approaches of Ayurveda. It has recommended few self-care guidelines of preventive health and immunity boosting measures, specially focusing on respiratory health. All those measures are supported by Ayurvedic Literature and scientific publications. Some of the measures include- drinking warm water throughout the day; daily practice of Yogasana, Pranayama and meditation for at least 30 minutes; incorporation of spices like, Haldi (Turmeric), Jeera (Cumin), Dhaniya (Coriander) and Lahsun (Garlic) in cooking; intake of warm ginger or tulsi tea; intake of 1Tsp Chyavanprash in the morning; drinking of herbal tea/decoction made from tulsi, cinnamon, dry ginger once or twice a day; intake of jaggary and lemon instead of sugar; regular drinking of haldi milk (Turmeric Milk) once or twice a day; Nasal Application of sesame oil/coconut oil or ghee in both nostrils and steam inhalation.

Coronavirus still exists and it can become more difficult for people to adjust in the new normal lifestyle. So, precautionary measures need to be taken by each and every individual and families to stay safe and enhance their immunity in the new normal life. It is essential to study the practices followed by the homemakers regarding precautionary measures so that awareness can be enhanced, if needed.

OBJECTIVES

1. To find out the background information of the homemakers

2. To assess the precautionary measures adopted by families to enhance immunity for new normal lifestyle

Operational definitions

- **Precautionary measures:** They are the necessary actions that are taken to prevent something dangerous or unpleasant from occurring. It can also be defined as taking care of something in advance
- **Immunity:** It is defined as the ability of any individual to resist a infection from virus or microorganisms
- **COVID-19:** COVID-19 stands for Corona Virus Disease 2019 that was formerly known as Novel Coronavirus because it is the new member of Coronavirus family. Covid 19 is a

contagious disease of upper respiratory system with symptoms such as fever, cold, body ache shortness of breath etc.

- **New Normal lifestyle:** New normal lifestyle is the current situation that has emerged recently due to the spread of COVID 19 and which is different from the previous existing situation where work, home, and social life have all been altered and all are trying to adjust in this critical period.

METHODOLOGY

For the present study Descriptive research design was used**.** The data was collected from Baroda City, Gujarat State through Google forms. The Google forms were sent to total 150 homemakers out of which 127 responses were received. The response rate was 84.67%. Sampling was done through snowball technique. The results were analysed on the basis of the data received.

MAJOR FINDINGS OF THE STUDY

The major findings of the study are as follows:

I. Background Information:

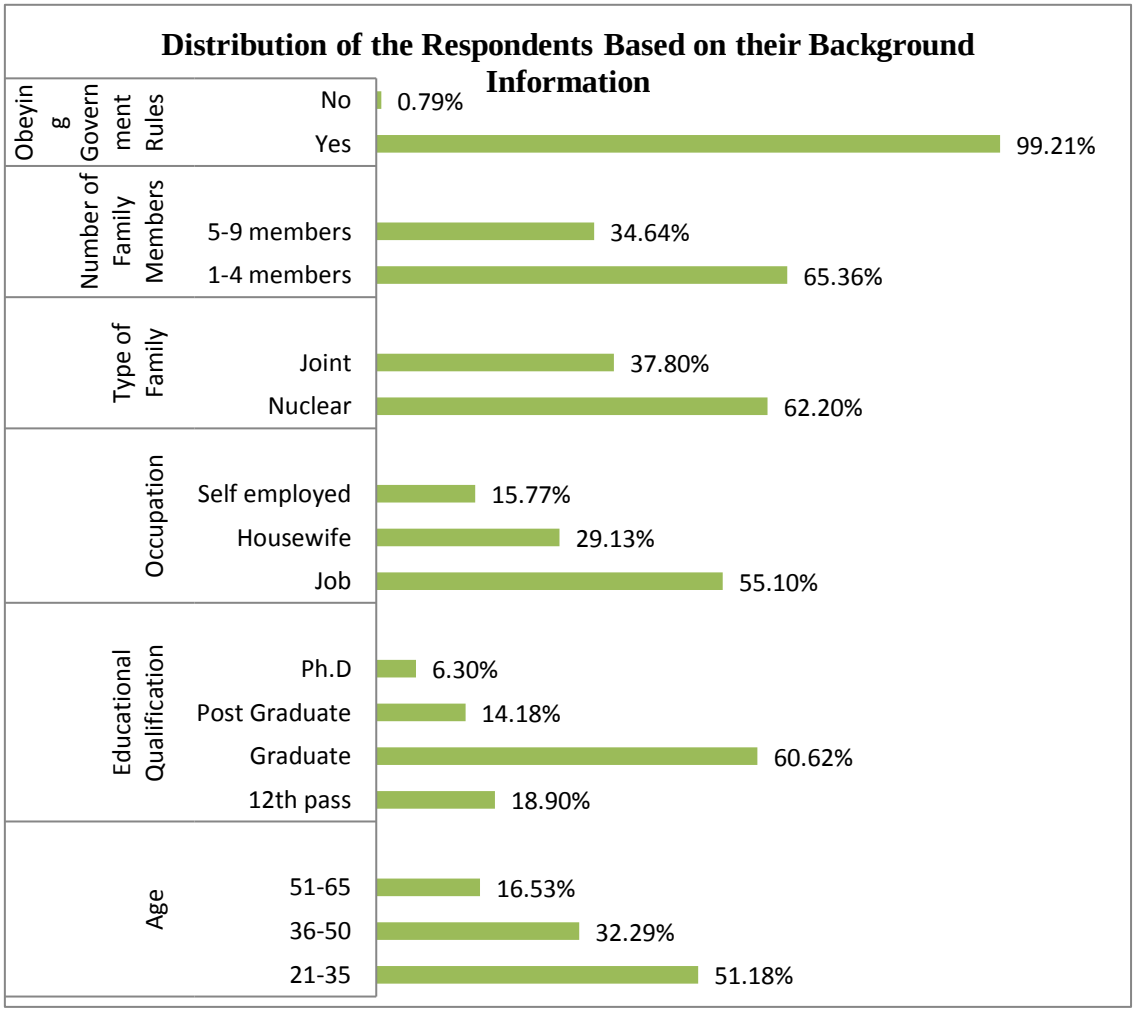

Figure 1- Distribution of the respondents based on their background information.

It was found that 51.18% of the respondents ranged between 21-35 years of the age and only 16% respondents ranged in 60 years and above age category. It was also found that 60.62% of the respondents were graduate and only 6.30% were Ph.D. It was found that 55.10% respondents were doing jobs, 29% respondents were housewife and approximately 16% respondents possess their business. The findings of the study revealed that 62.20% respondents belonged to Nuclear families whereas 37.80% respondents belonged to Joint family. It was found that more than 65% respondents were having 1-4 members in the family whereas only 35% respondents were having 5-9 members in their family. It was found that a wide majority of the respondents were obeying the rules given by government by staying indoors (Fig-1).

II. Distribution of the respondents based on the activities performed by them for physical fitness in new normal lifestyle

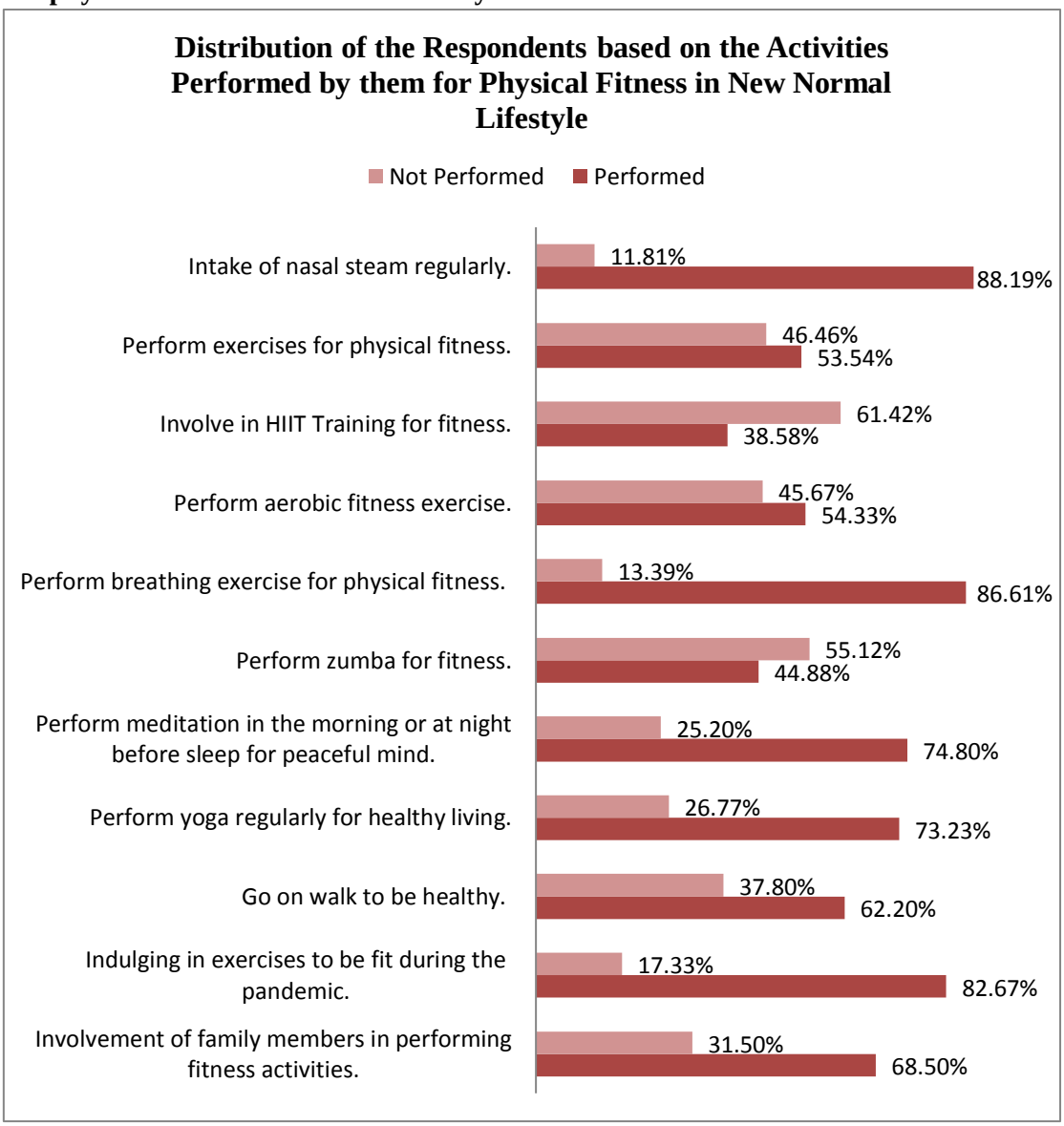

Figure 2- Distribution of the respondents based upon the activities performed by them for physical fitness in new normal lifestyle.

It was found that more than 80% of the respondents indulged themselves in exercises during pandemic, performed breathing exercises and had intake of nasal steam regularly for keeping them fit during the pandemic. More than 50% of the respondents were going for walks regularly, doing Yoga and meditation, aerobic fitness and core exercises for physical fitness and health. It was also found that they were involving their family members also in their fitness activities. Less than 50% of the respondents were doing Zumba and HIIT (High-intensity interval training) fitness exercises for their physical fitness (Fig 2).

III. Distribution of the respondents based on the Consumption of Immunity Enhancer diet

Table 2- Frequency and percentage distribution of the respondents based on the Consumption of Immunity Enhancer diet

S. No.	Items	Consumed		Not Consumed	
		f	%	f	%
1.	Warm water	115	90.55	12	9.45
2.	Turmeric (Haldi)	102	80.31	25	19.69
3.	Cumin (Jeera)	92	72.44	35	27.56
4.	Coriander (Dhaniya)	89	70.08	38	29.92
5.	Garlic	98	77.17	29	22.83
6.	Ginger Tea	79	62.2	48	37.8
7.	Herbal Tea/ Kadha	85	66.93	42	33.07
8.	Tulsi Tea	79	62.2	48	37.8
9.	Cinnamon	65	51.18	62	48.82
10.	Black Pepper	83	65.35	44	34.65
11.	Sunth (Dry Ginger Powder)	79	62.2	48	37.8
12.	Jaggery	96	75.59	31	24.41
13.	Vitamin C Rich Foods	109	85.83	18	14.17
14.	Turmeric Milk	119	93.7	8	6.3
15.	Warm Milk	104	81.89	23	18.11
16.	Chyavanprash	94	74.06	33	25.94

It was found that majority (93.7%) of respondents consumed turmeric milk, 90.55% respondents consumed warm water, 85.83% respondents incorporated Vitamin C rich foods in their diet, more than 80% respondents consumed turmeric, and warm milk, and more than 70% respondents consumed Cumin (Jeera), Coriander (Dhaniya), Garlic, Jaggery and Chayanprash in their diet for boosting their immunity. More than half of the respondents incorporated Ginger Tea, Herbal Tea/ Kadha, Tulsi Tea, Cinnamon, Black Pepper and Sunth (Dry Ginger Powder) respectively (Fig 2).

CONCLUSION

It was concluded from the present study that a high majority of the respondents were adopting the precautionary measures to enhance their immunity during COVID-19 Pandemic. It was found that the respondents were doing breathing exercise; indulging themselves in exercises and taking nasal steam regularly, were going for walks regularly, doing yoga and meditation, aerobic fitness and core exercises for physical fitness and health. The respondents had incorporated Warm water, Turmeric (Haldi), Garlic, Jaggery, Lemon, Turmeric Milk and Warm Milk in their diet for boosting their immunity. Half of the respondents were consuming Cumin (Jeera) , Coriander (Dhaniya), Ginger Tea, Herbal Tea/ Kadha, Tulsi Tea, Cinnamon, Black Pepper , Sunth (Dry Ginger Powder) and Chyavanprash. Good immunity helps person to survive the effects of disease and can recover fast. Indian Government urges all the citizens to implement the guidelines to stay fit and boost immunity. They also guide citizens to adopt Ayurveda methods in life. It is a positive step taken which proves to be beneficial to people who have adopted it. The precautionary measure to enhance immunity for new normal lifestyle is 'the must' today for all the families to survive. People in India are dedicatedly following the guidelines given by the government so as to defeat the pandemic and live a normal lifestyle which is essential for all. If all become responsible citizens and follow the precautionary measures laid in by the health officials, all will definitely be able to breathe in Virus free environment.

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ASSESSMENT OF EXISTING BATHROOMS OF SELECTED RESIDENCES OF VADODARA CITY FOR ELDERLY FRIENDLINESS

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ABSTRACT

Ageing is complex, multi-factorial, inevitable and natural phenomenon occurring in almost all biological species. This stage represents the progressive decline in function and performance which accompanies advancing years. When growing old, the physical ability of elderly people gradually wanes, making them prone to home accidents. The bathroom is the most common site of home accident. Due to multitude of unforgiving and slippery surfaces, bathrooms are very hazardous place for elderly in the home. Most of the injuries among elderly happens while bathing or showering and using toilet. Hence, the present study was undertaken to find out the extent of elderly friendliness of the existing bathrooms. This study was descriptive in nature. Samples were selected from five residential areas of Vadodara city selected through purposive sampling. The data were collected through Interview schedule and Observation schedule. The houses in these five residential areas which were constructed and occupied by the respondents between the years 2010 to 2017 were selected. The elderly who were 60 years and above were selected through snow ball sampling technique from the houses of the selected areas. Moderate extent of elderly friendliness was found in the bathrooms of selected residences of the respondents. Thus, there is a need to design elderly friendly bathrooms which will help them to use their bathroom without causing accidents and problems. This study would be beneficial to enhance the knowledge of practicing Architects, Interior Designers and Builders to design an elderly friendly bathroom. Moreover it will also be helpful to students of Interior Design specialization to gain insight into the designing of bathrooms according to the needs of the elderly. The findings of the study will also highlight important considerations for features which should be taken care of while designing the bathroom of elderly.

Keywords: elderly, elderly friendly bathrooms, assessment of bathrooms

INTRODUCTION

According to Ministry of Social Justice and Empowerment, Government of India (2017), India, a 'senior citizen' or 'older adult' is defined as a person aged 60 years and older. This is the fastest growing population in India, increasing from 6.7% in 1991 to 10% in 2021. Between 2001 and 2051, the number of old- old (age 70 years and older) is projected to increase 5-fold, that of the oldest- old (age 80 years and older) is expected to increase 4-fold; these increases are faster than for any other age groups (Rajan, 2011). Today, India is a home to one out of every 10 senior citizens of the world. The nationwide dependency ratio of elderly to general population is 13.1%. [1]

As individual ages, his or her body also changes and the ability to deal with the demands of an environment usually decreases. Their senses of sight, touch, hearing, and smell tend to decline. Also their physical abilities are reduced, and certain tasks such as stretching, lifting, and

bending become more difficult. In addition, they also experience a slowing of judgment and reaction time. As a result, they cannot respond as quickly as when they were younger. Deterioration of intellectual function and cognitive skills due to aging makes elderly people dependent more and more on others in their daily living activities like bathing, toileting, dressing, feeding self, locomotion, etc. (Nagananda, et.al, 2010; Zamprelli, 2013). Performing personal hygiene is an essential daily activity for health and dignity that commonly becomes difficult with aging (Guray, et.al., 2020).

Bathroom falls contribute to injuries among older adults (Edwards,et. al., 2019). Accidents among older people occur most commonly at home in the bathroom (Dsouza, et.al, 2008; Rashid, et. al, 2008; Camara, 2010). It was found by Kaur and Sharma (2010), that all accidents due to fall related to use of Indian bathroom were more in case of females rather than males of the old age, which results in injuries. Use of bathrooms may present the greatest challenge and the greatest safety hazard in order to remain independent (Beamish, et.al, 2004).

Older persons, whose bones are often less dense and more brittle, are especially vulnerable to serious injuries from bathroom accidents. [2] They pull themselves from the toilet seat using their shoulders rather than arms, which makes it more difficult to stand up if they had arthritis in their shoulders (Xiang, 2013). Camara (2010), noticed that lack of non-skid carpets, no support bars in showers and bath tubs were major reason behind falls among elderly. Furthermore, taps difficult to open and shower without hose, using a bath or shower were other related causes. National safety council reported in 2000 that one person dies everyday by bathtub or shower in United States. Psychological trauma for the families is observed due to bathtub related accidents, that too, in supposedly protective environment (Kunihiko, 2002).

Bathroom is probably the most used place in the house; its planning and furnishing, therefore, should receive serious consideration – instead of being taken for granted as a standard, unalterable arrangement (Mary and Russel, 1954). Advanced technology and environmental interventions showed increased development in monitoring old people at their homes and surrounding to support aging. These technology devices improved safety and decreased injury cases to the elderly (Daniel, et.al, 2009; Hoof, et.al, 2011). For designing a bathroom for elderly it needs special care, comfort and safety. A well designed, supportive environment may help older persons to utilize their homes more fully, more safely, and allow them to live independently in their homes longer.

Statement of the problem

The present research study aims to assess the extent of elderly friendliness of the existing bathrooms of selected residences of Vadodara city.

Objective

- To assess the extent of elderly friendliness of existing bathrooms of selected residences of Vadodara city

METHODOLOGY

The research design for the present investigation was descriptive in nature. The sample were collected from five residential areas of Vadodara city viz. Sama, Gotri, Karelibuagh, Waghodia and Manjalpur ,selected through purposive sampling. The houses in these five residential areas which were constructed and occupied by the respondents between the years 2010 to 2017 were selected through convenience sampling technique. A sample of 75 elderly who were 60 years and above were selected through snow ball sampling technique from the houses of the selected areas. An Interview schedule was prepared to ascertain the background information of the respondents and Observation schedule was prepared to assess the extent of 'elderly friendliness' of the bathroom. The bathroom features which were assessed were "Floor", "Walls", "Ceiling", "Lighting", "Ventilation (Window)", " Door, "Water Closet" (WC), Bathtub ","‟ Shower ","‟ Taps ", "Furnishings and Accessories". The responses were "Most Elderly Friendly', "Somewhat Elderly Friendly" and "Least Elderly Friendly" where the scores of 3 through 1 were ascribed respectively. Higher scores reflected Most Elderly Friendliness of the existing bathroom. The content validity of Observation schedule was established by a panel of eleven judges from Department of Family and Community Resources Management, Faculty of Family and community Science, The Maharaja Sayajirao University of Baroda, Vadodara, Practicing Interior Designers, Architects and Civil Engineers. They were requested to check the clarity and relevance of the content for each scale. They were also requested to state whether each statement fell in category under which it was listed. A consensus of 80% among the judges was taken as yardstick for the final tool. No changes were required to be made in the tool.

MAJOR FINDINGS

The finding obtained on the basis of observation of bathrooms of selected residences of elderly of Vadodara City are discussed and presented indetails.

i. **Background Information:** This section deals with information regarding selected elderly of Vadodara city. The results regarding personal, family and situational variables of the respondents are presented here.

   a. **Personal Details:** This included details about personal variables viz; age, gender, education, employment, living status and personal monthly income of the selected respondents of Vadodara city.

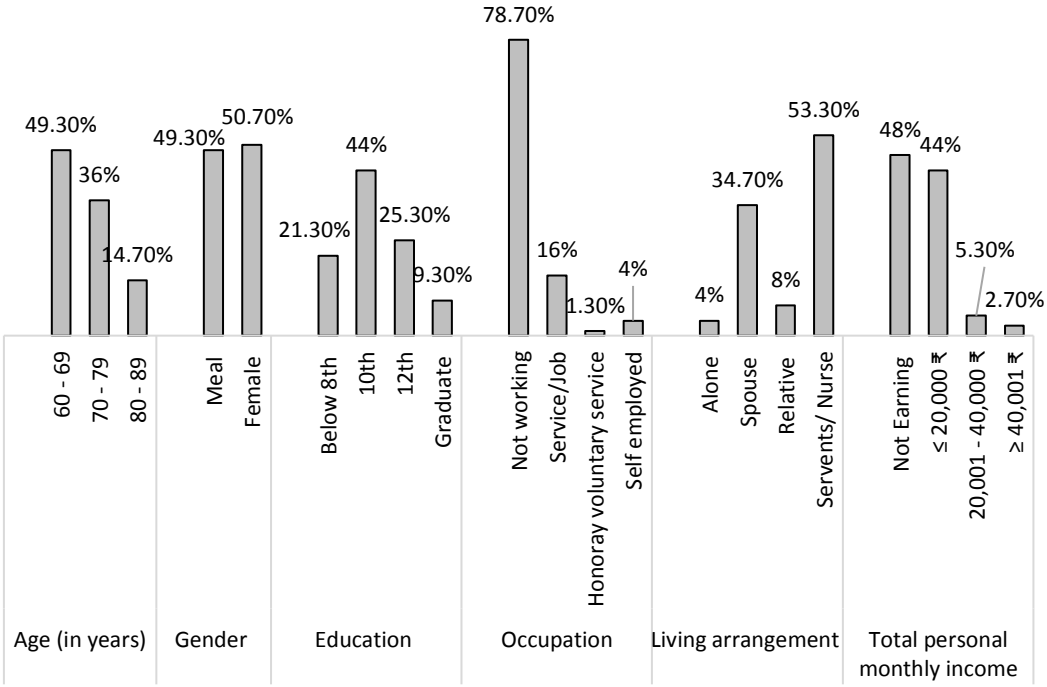
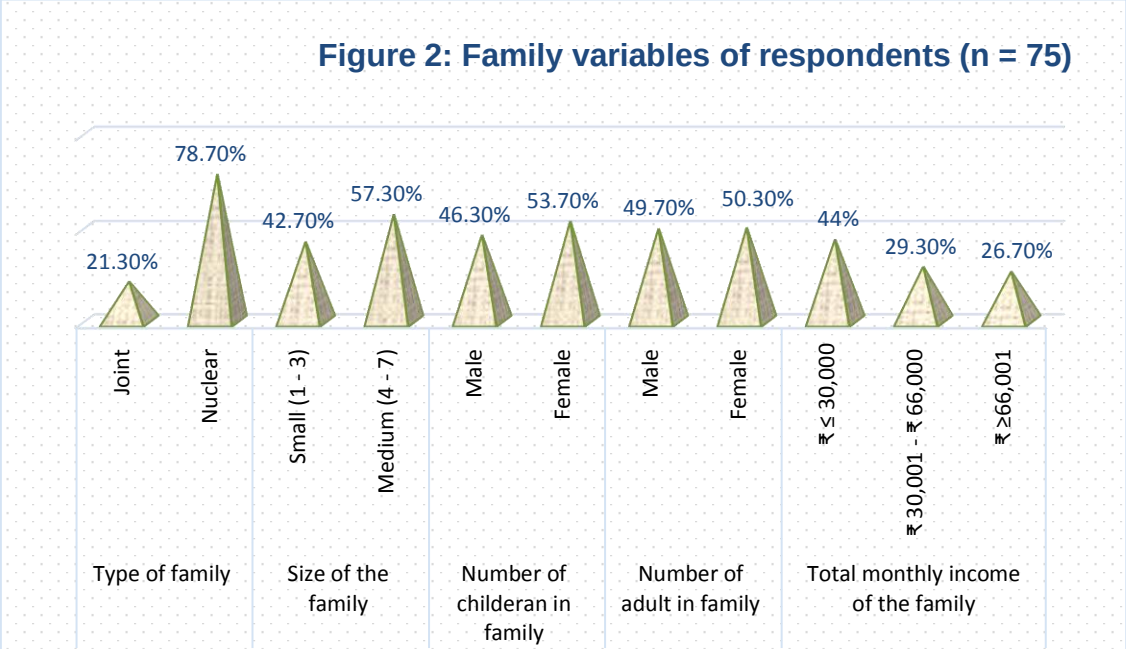


Figure 1: Personal Variables of Respondents (n=75)

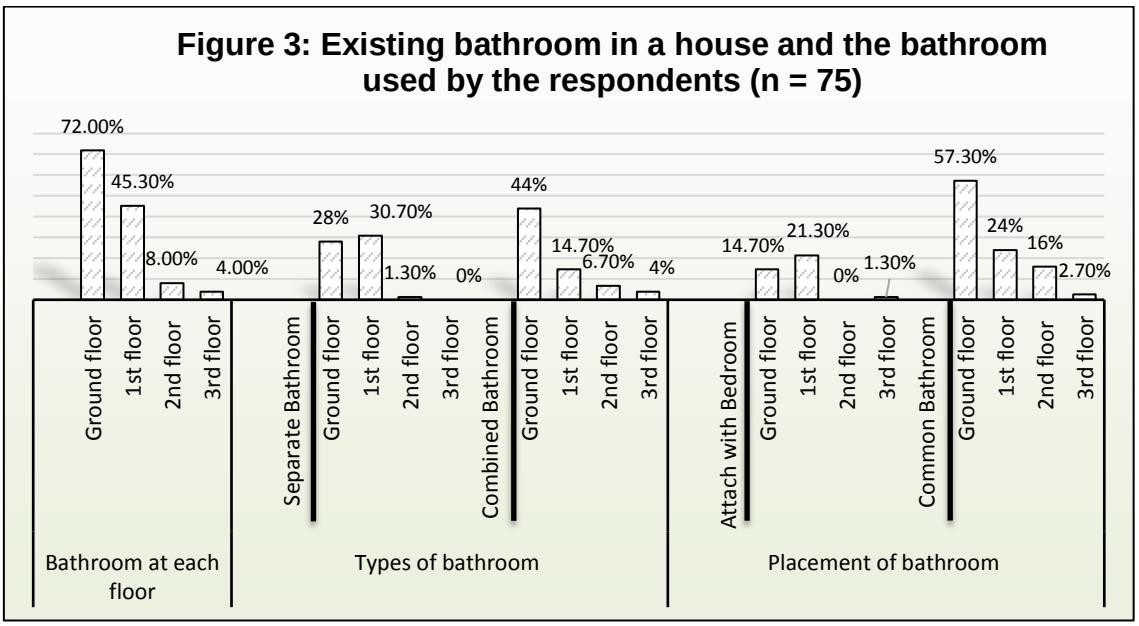
The age of the respondents ranged between 60 to 89 years with the mean age 71.44 years. A little less than one half (49.3%) of the respondents were in age group of 60 to 69 years. A little more than one half of the respondents were female and little less than one half of the respondents were male (Fig. 1). The data revealed that less than one half (44%) of the respondents were educated till S.S.C. (10^{th} standard). More than three fourth (78.7%) of the respondents were not working anywhere at the time of data collection. Few of the respondents were doing job or service (16.0%), while 4 per cent of the respondents were self-employed. Only 1.3 per cent of the respondents were doing honorary voluntary service. The results reflected that more than one half (53.3%) of the respondents were living with servants or nurse. The total personal monthly income ranged from ₹ 3,000 to ₹ 65,000 with the mean of ₹ 7942.67. It was found that less than one half of the respondents were not earning any income at the time of data collection. Less than one half (44.0%) of the respondents who were earning at the time of data collection had total personal monthly income less than and equals to ₹ 20,000.

b. **Family Details**: This section contained details about family variables viz; type of family, size of family, composition of family and total monthly family income of the family of the selected respondents of Vadodara city.

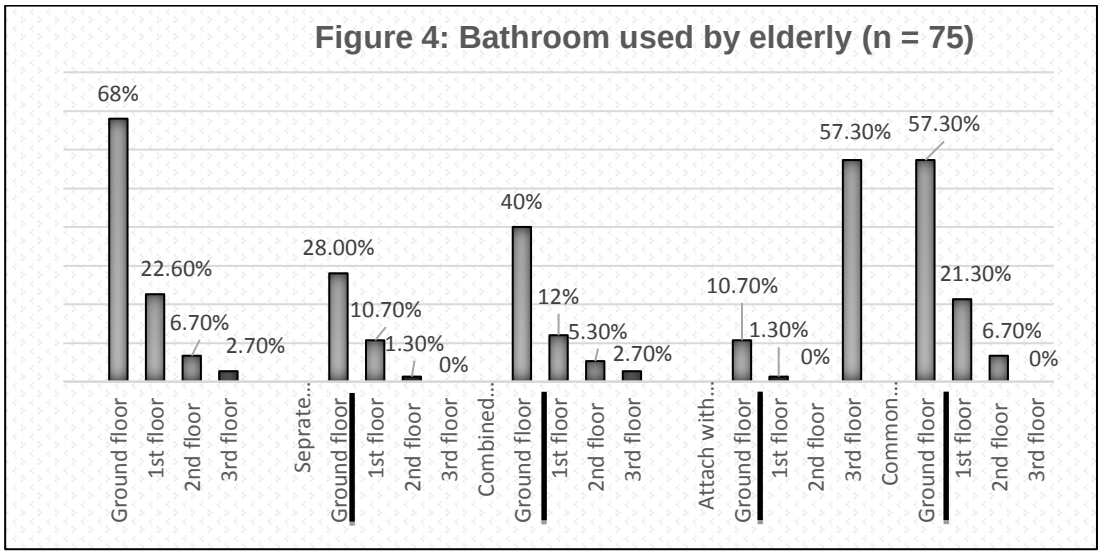


More than three fourth (78.7%) of the respondents belonged to nuclear family. Less than one fourth (21.8%) of the respondents had joint family. It was observed that more than one half (57.3%) of the respondents had medium size of families consisting of four to seven family members. Less than one half (42.7%) of the respondents had small size of families with one to three family members (Fig. 2). The data in the Fig. 2 depicted that more than one half (50.3%) of the respondents had adult females in their family and about one half (49.7%) of the respondents had adult males in their family.The total monthly income of the family ranged between ₹ 21,000 to ₹ 1, 00,000 with the mean of ₹ 36,870.67. Less than one half (44.0%) of the respondents had total monthly income of the family less than and equals to ₹ 33,000.

c. Situational Details: The details regarding the existing bathroom in a house and bathroom used by the respondents at different floor in a house viz. ground, first, second and third floor were collected. The respondents were asked to state which type of bathroom (separate or combined bathroom) they were using and they were also asked to mention whether they were using bathroom attached with bedroom or a common bathroom located at various floors of the house.



It was found that less than three fourth (72.0%) of the respondents had bathrooms located at ground floor in their house and more than two third (68.0%) of the respondents were found using them. The data in the Figure 3 revealed that less than one third (30.7%) of the respondents had separate bathroom constructed at first floor which were used by only one tenth (10.7%) of the respondents. More than one fourth (28.0%) of the respondents had separate bathroom situated at ground floor in their house and 28 per cent of the respondents were using them. None of the respondents had separate bathroom located at third floor. Less than one half (44.0%) of the respondents had combined bathroom located at ground floor and more than one third (40.0%) of the respondents were using them. It was found that less than one fourth (21.3%) of the respondents had attached bathroom located at first floor which only 1.3 per cent of the respondents were using. None of the respondents had attached bathroom at second floor (Fig. 4). At ground floor more than one half (57.3%) of the respondents had common bathroom which 57.3 per cent of the respondents were using them.



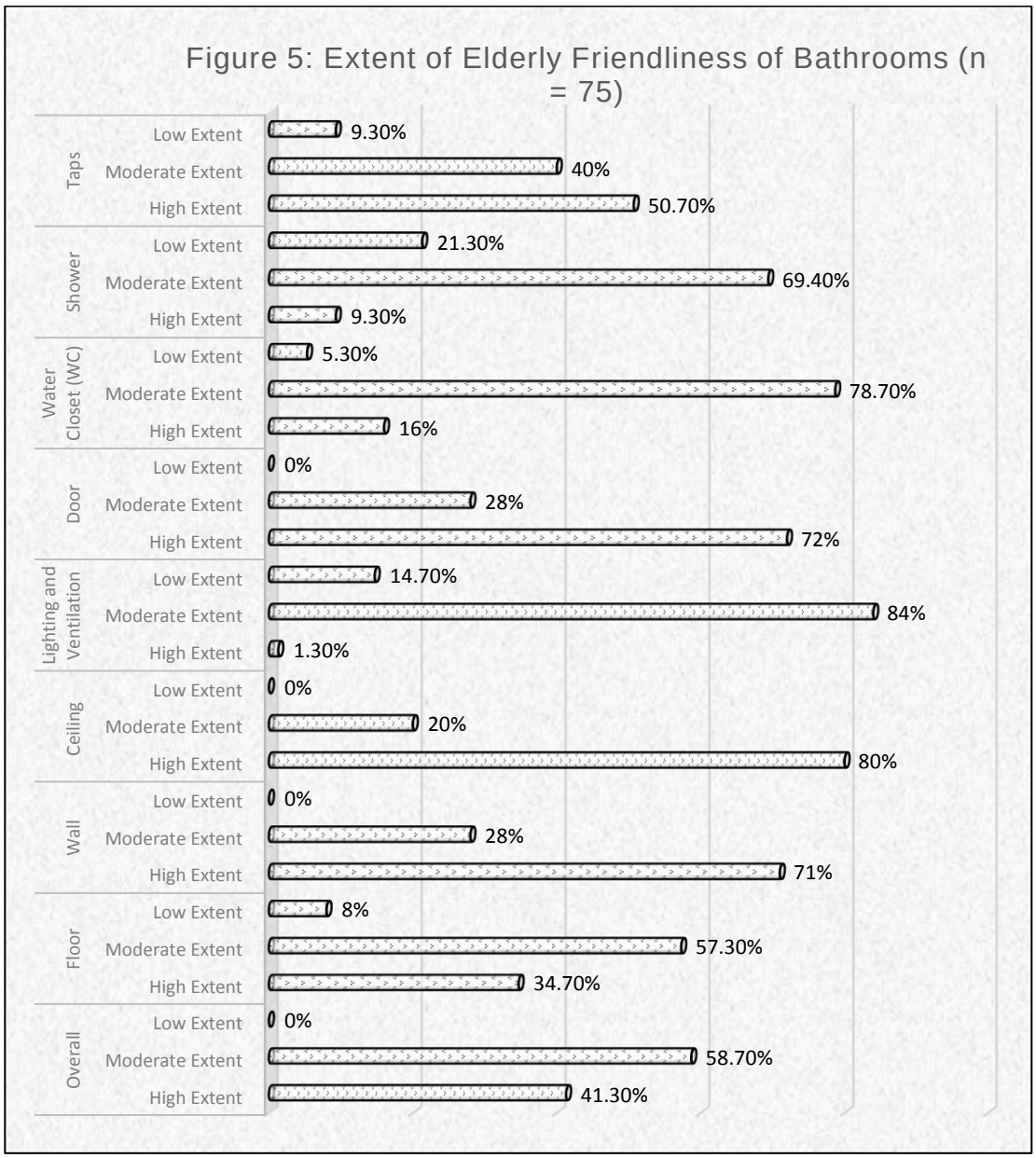
ii. **Information regarding observation of bathrooms:**

In this section researcher observed selected bathrooms of respondent used by them. After reviewing literature some bathroom features were identified fulfilling the requirements of an elderly friendly bathroom. Bathroom features which were observed for their extent of elderly friendliness were "Floor", "Walls", "Ceiling", "Lighting", "Ventilation (Window)", "Door, "Water Closet (WC)", "Bathtub", "Shower ", "Taps", "Furnishings and "Accessories". The responses were "Most Elderly Friendly", "Somewhat Elderly Friendly" and "Least Elderly Friendly" which were scored 3 through 1 respectively. The weighted mean score of each selected physical feature were also computed.

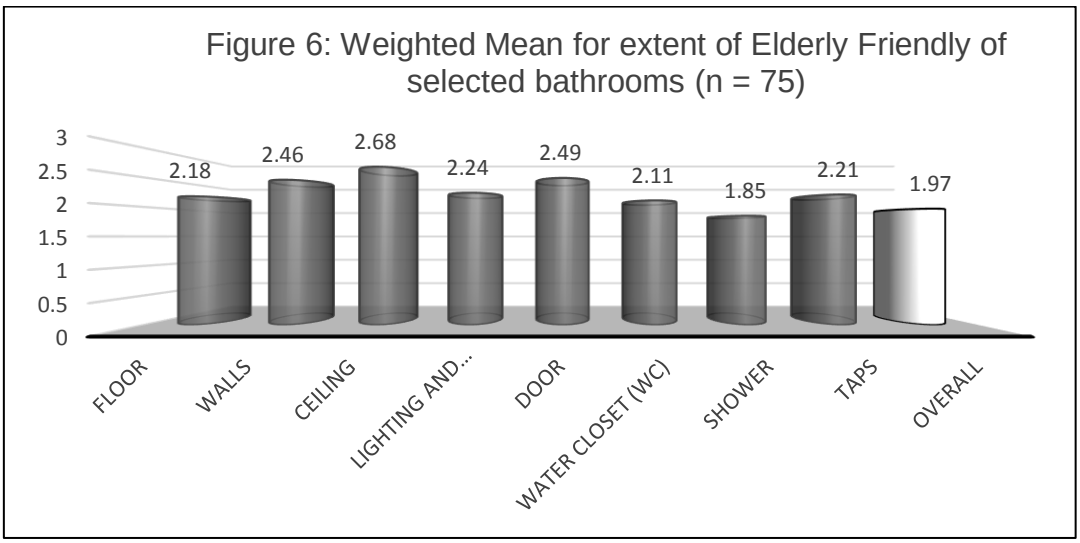
Plate 1: Observing bathroom features

Extent of Elderly Friendliness of the existing bathrooms: The extent of elderly friendliness was found on the basis of high, moderate and low scores obtained on the selected physical features of the bathroom. The scores on each of the item of the scale were summated and possible range of minimum and maximum scores were divided into three categories having equal intervals. Higher scores reflected "Most Elderly Friendliness" of the existing bathroom.

It was observed in that moderate extent of elderly friendliness was found for "Floor" in more than one half (57.3%) of the selected bathrooms. Less than three fourth (71.0%) of the bathrooms' "Wall" had high extent of elderly friendliness. "Ceiling" of the bathrooms in majority of the samples had high extent of elderly friendliness. Majority (80.0%) of the bathrooms' "Lighting" and "Ventilation" had moderate extent of elderly friendliness. Less than three fourth of the bathrooms' "Door" (72.0%) had high extent elderly friendliness (Plate 1). The "Water Closet" installed in the bathroom had moderate extent of elderly friendliness in more than three fourth (78.7%) of the bathrooms. Moderate extent of elderly friendliness was found for the feature "Shower" in more than two third (69.4%) of the bathroom (Fig. 5). Analyzing the entire scale it was observed that more than one half (58.7%) of the bathrooms had moderate extent of elderly friendliness while none of the bathroom were found having low extent elderly friendliness.



The weighted mean computed for each sub section for assessing the extent of Elderly Friendliness of the existing bathrooms was found. It is reported in Figure 6.



The weighted mean computed for each sub section for the extent of elderly friendliness of the existing bathrooms reflected that scores for "Celling" were found to be the highest amongst all sub sections. The sub section of "Shower" scored the lowest. The overall weighted mean on all the sub section was **1.97** (Fig 6).

CONCLUSION AND IMPLICATIONS

The present study was conducted on elderly people of Vadodara city for finding out the extent of elderly friendliness of the bathrooms. The mean age of the respondents was 71.44 years who were educated till Senior Secondary Class (10th standard) and were not working anywhere at the time of data collection. They were living with their servants or nurse and had a nuclear medium sized family with mean total monthly family income of ₹36870.67.They were residing in duplex type of housing and were using bathrooms located at ground floor of their houses. Moderate extent of elderly friendliness was found in the bathrooms of selected residences of elderly.Thus, there is a need to design an elderly friendly bathroom for elderly member of the family. This will help them to use their bathroom without meeting any accidents.

The review of related researches showed that elderly faced accidents while accessing their bathrooms, therefore modifications or adjustments is important to reduce accidents. Also improving awareness of elderly and caregivers is also important for their safety. Adapting the bathroom environment with assistive technologies, such as bath seats, grab bars, or nonslip mats, is a common recommendation to promote autonomy and safety. The continued ability of the elderly to manage their personal hygiene safely and with independence appears to affect their ability to interact with the wider social environment.

Changes to the built environment can help to reduce the risk of falls among elderly. An approach to accident prevention among elderly involves making changes to building code requirements for the construction of public and private bathrooms. The government should make efforts in formulating strategies and policies which mandates designers and commercial space developers to design or construct at least one elderly friendly bathroom at public places and other commercial buildings. This will help elderly to use them without facing any accidents. The findings of the present study would act as a feedback to the Architects, Interior Designers and builders to identify problems of elderly while using bathrooms for designing or constructing bathrooms for them.

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JUNK FOOD CONSUMPTION PATTERN BY UNDERGRADUATE STUDENTS OF DAYALBAGH EDUCATIONAL INSTITUTE, AGRA

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ABSTRACT

Junk food, also termed as fast food, is the food that can easily and quickly be prepared, is rich in calories but deficient in most of nutrients. Due to increased urbanization, globalization and commercial advertisements as well as abundant junk food outlets, college going students are getting indulge in eating these types of food. In recent researches, it is clear that fast food is the one of the reasons for metabolic disorders such as obesity, diabetes and heart diseases etc. Present survey was therefore conducted to check consumption pattern of junk food by the university students of Dayalbagh Educational Institute.

Methodology–The 198 undergraduate students (68 boys and 130 girls) were randomly selected and assessed by self-administration of structured questionnaire.

Results and Conclusion – Present study revealed that about 51% students regularly consume fried/high fat food in the form of kachori, samosa, pizza, pasta, chole bhature etc. and almost 31% students regularly consume high sugar-based food like cold drinks, ice-cream, donuts, pastries and cakes etc. Most of the students revealed that taste of fast food is the sole reason for consumption of fast food. Present study also revealed thatabout 23% students were having adequate knowledge about effect of fast-food consumption on health whereas 42% students was having inadequate knowledge about ill effect of fast-food consumption on health.It is therefore necessary to create awareness about ill effects of fast food and benefits of balanced diet to the college going students.

Keywords – Fast food, junk food, nutritional awareness, general health

INTRODUCTION

Junk food is the food that is served at fast food outlets, quickly and easily processed and prepared but lack in essential nutrients with dense in calories.Manufacturers set low prices with high marketing for selling fast food at high pace. Due to low in nutrient level, junk food does not contribute in maintaining health (Khongrangjem et al., 2017).

Environment in the college influence the behavior of students. Students are indulging into fast food to curb their hunger, social gathering with peers, save time as well as junk food give them a sense of pleasure. Due to low price and affordability, they consume junk food as alternative of home food (Shami& Fatima, 2017). Due to rich in calories and salt, excessive consumption of junk food is major causative factor for non-communicable diseases such as obesity, high blood pressure, high cholesterol and high glucose level in blood. Poor handling of food during preparation can cause microbial contamination resulting gastro-intestinal problems. It is proved that energy content of junk food is higher than the recommended dietary allowances and micronutrient level is much lower than the recommended dietary allowances that lead to osteoporosis and other diseases (Das, 2015).

Present study wastherefore planned to know the consumption pattern and factor associated with high consumption of fast food so that preventive measures can be taken to reduce consumption of junk food.

OBJECTIVE OF THE STUDY

To assess the consumption pattern of fast food by the undergraduate students of Dayalbagh Educational Institute (D.E.I), Agra.

METHODOLOGY

Survey was conducted to assess the junk food consumption pattern among undergraduate students of Dayalbagh Educational Institute, Agra. List of undergraduate students was obtained from each faculty office of Dayalbagh Educational Institute. Simple Random sampling was used and every fifth student was selected as sample for the study. Total sample size was 198 students in which 34 were boys and 65 were girls. To assess the consumption pattern of fast food by undergraduate students, a self-structured questionnaire was constructed and sent to experts for opinion. Suggestions given by experts were incorporated and pilot study was conducted. On the basis of pilot study Final questionnaire was finalized. Permission from ethical committee of the institute was obtained and data was collected during free period in the classroom.

RESULTS

All participants filled the questionnaire. For data analysis mean, standard deviation, percentage and Pearson correlation was used using SPSS version 23.

Table 1: - Distribution of students according to Age

Age group	Number (n=198)	Percentage
17-20 year	108	55%
21-24 year	74	37%
25-30 year	16	8%

As shown in Table 1, according to age, students were distributed into 3 groups. 55% students belong to 17-20 age group, 37% students belong to 21-25 age group and 8% students belongs to 25-30 age group.

Table 2 – Distribution of Students according to Gender

Gender	Number (n=198)	Percentage
Male	68	34%
Female	130	66%

According to gender as shown in Table2, Approximately 66% students were female and 34% students were male students.

Table 3 – Distribution of Students according to Physical activity

Activity	Number (n=198)	Percentage
Active	44	22%
Sedentary	154	78%

As shown in Table 3, 78% students were having active lifestyle whereas 22% students were having sedentary lifestyle.

Table 4- Distribution of students according to Weight

Weight	Number (n=198)	Percentage
Underweight	9	5%
Normal	79	40%
Overweight	69	35%
Obese	41	20%

As shown in Table 4, 40% students were having normal bodyweight, 35% students were overweight, 20% students were obese and 5% students were underweight.

Table 5 – Distribution of students according to family history

Family history	Number (n=198)	Percentage
Yes	105	53%
No	93	47%

As shown in Table 5, 53% students were having family history of non-communicable diseases such as heart disease, diabetes etc. whereas 47% students responded as"No"for any family history of non-communicable diseases.

Table 6 – Percentage distribution of students according to high fat/high sugar food

Consumption	Regularly (%)	Occasionally (%)	Never (%)
High Fat	51	48	1
High Sugar	31	60	9

As shown in Table 6, 51% students regularly consume high fat/fried food in form of samosa, kachori, poori, pizza, chow-mine etc. while 48% students occasionally consume high fat food. As shown in above table 60% students consume high sugar-based food like cold-drinks, pastry, donut etc. whereas 31% students consume these foods occasionally.

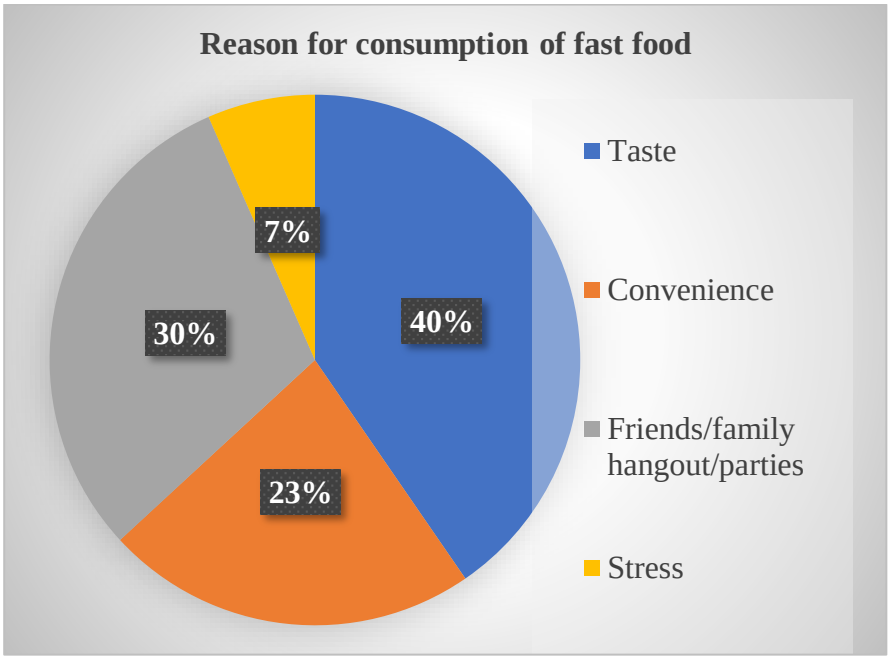

Figure 1 –Percentage distribution of students according to reason for consumption of fast food

As shown in figure 1, 40% students consume fast food due to taste whereas 30% students consume fast food in parties with family or friends. 23% students responded that fast food is easily available everywhere like canteen etc. thus freedom from carry food from home whereas 7% students responded that to relieve stress they indulge in eating fast food.

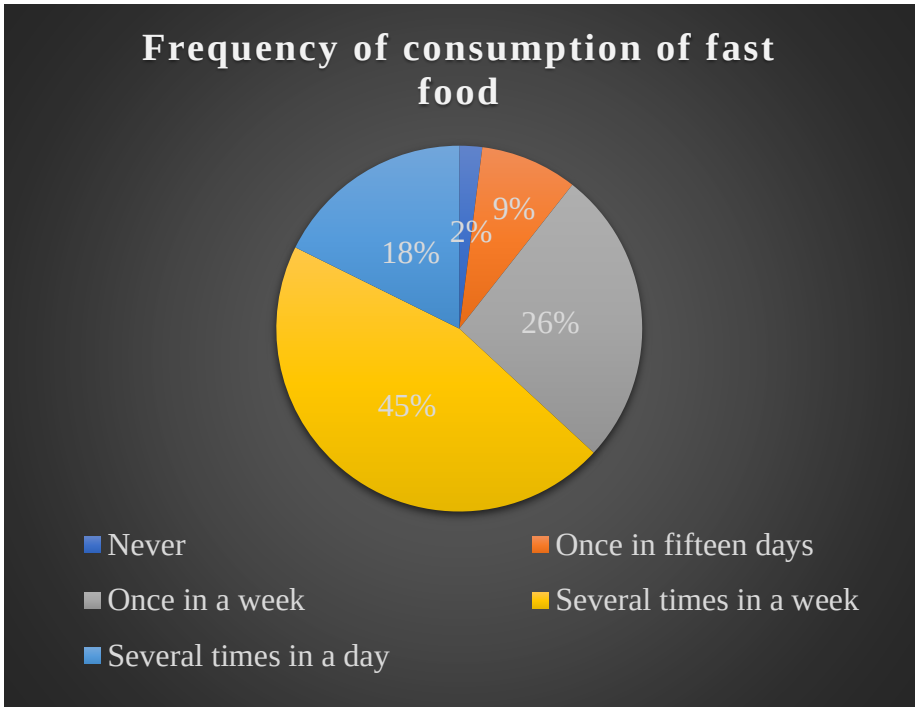

Figure 2 – Percentage distribution of students according to frequency of consumption of fast food

As shown in figure 2, 45% students were consuming fast food several times in a week whereas 26% students were consuming once in a week. 18% students reported consumption of fast food several times in a day whereas 9% students reported consumption of fast food once in fifteen days.

Table 7 – Awareness about junk food in university students

Awareness level (n=198)				
	Additives	Calories	Metabolic diseases	Freshness
Mean	1.6465	1.2677	1.4394	1.5657
Std. Deviation	.47928	.44387	.49757	.49693

As shown in Table 7, students were highly aware about addition of additives in junk food and least aware about calories present in fast food. Students were also aware about un-freshness of junk food than its linkage to metabolic diseases.

Table 8 –Pearson Correlation among awareness about calories, BMI of students and frequency of fast-food consumption

Correlations among awareness about calories, BMI of students and frequency of fast-food consumption (n=198)				
		Calories	BMI	Frequency
Calories	Pearson Correlation	1	.841**	.609**
BMI	Pearson Correlation	.841**	1	.778**
Frequency	Pearson Correlation	.609**	.778**	1
****. Correlation is significant at the 0.01 level (2-tailed).**				

As shown in Table 8, there was significant correlation obtained among BMI of the students and frequency of consumption of junk food and their awareness about calories present in junk food. Although other factors are also responsible for BMI of the students other than junk food that is not covered in present study due to limitations.

Table 9 – Correlations among awareness about high calories in fast food, BMI and physical activity

Correlations among awareness about high calories in fast food, BMI and physical activity (n=198)				
		Calories	BMI	Activity
Calories	Pearson Correlation	1	.841**	.167*
BMI	Pearson Correlation	.841**	1	.278**
Activity	Pearson Correlation	.167*	.278**	1
****. Correlation is significant at the 0.01 level (2-tailed).**				
***. Correlation is significant at the 0.05 level (2-tailed).**				

As shown in Table 9, there is significant correlation among student's physical activity, BMI and awareness about calories present in junk food.

DISCUSSION AND CONCLUSION

Malnourishment in terms of obesity is the current vital health problem of the youth that leads to increased medical expenses. Various researches have shown that university or college students mostly consume food in high calories in terms of fried, packaged or high sugar food and least interested in consuming fruits and vegetables (Deshpande et al., 2009). In present study students reported that taste and convenience was the primary factor for junk food consumption. Other than taste other reason was frequent hangout with friends or family. Students who were aware about calories and ill effects of junk food having normal BMI in comparison of unaware students. Similar results were obtained by Shami and Fatima (2017) in the study to know the trends of fast-food consumption by college going girls. Fast food junctions mostly target the young generation and environment of college, influence their behavior of students to make social interaction with peers and to satisfy taste buds and hunger. Study conducted by Vani et al (2016) onfast-food consumption by the students of medical and dental college. Researchers concluded that 71% students were consuming frequent fast food and taste was the primary reason for consuming junk food. Junk food contains high amount of fat, sugar and salt more than recommended by National institute of nutrition (NIN) and world health organization (WHO). In present study, there is significant correlation obtained among BMI, Junk food frequency, physical activity and awareness. It is therefore necessary to organize the nutrition education programme in colleges as well as in schools to prevent young generation from addiction of junk food so that non-communicable diseases like obesity, Diabetes, Cardiovascular disease etc. can be prevented.

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SUSTAINABLE SOLID WASTE MANAGEMENT WITH SPECIAL EMPHASIS TO CREATIVE UTILIZATION OF PAPER WASTE

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ABSTRACT

The need and importance for solid waste management in a sustainable manner for the sake of healthy environment is increasing day by day. Paper is a multipurpose material used in different forms for different uses from writing paper or newspaper to packing material, wall paper and toilet tissues. Today, in India, as the population increases, paper consumption in all forms is also increasing. The paper waste accumulating is basically bio-degradable and recyclable. The study on 'Sustainable Solid Waste Management with Special Emphasis to Creative Utilization of Paper Waste' aims to design and develop innovative and creative interior articles using waste papers. The study sample consists of 501 homemakers. The convenient sampling technique was used to select the sample. Research tool used was an online questionnaire. The data collected reveals that majority of the selected sample were unaware of the utilization of paper waste in creative way. Hence the investigator popularized the method of making 10 creative accessories with waste paper which can be used for decorating the interior cost effectively.

Key Words: Paper Waste, Solid Waste Management, Sustainable, Creative Utilization

INTRODUCTION

Paper, in any form, is one of the most useful and versatile products used by people today. Paper is basically a cellulosic product obtained from wood pulp. As the use of paper increases, the number of trees cutting down for its preparation also increases, resulting an intense impact on the environment. These adverse effects include climate change, shortage of water, lack of oxygen in the air and air pollution. Due to deforestation, draught and extinction of species occurs. Hence, the need and importance for solid waste management in a sustainable manner for the sake of healthy environment is increasing day by day.

Solid waste refers to the range of trash materials that are discarded as unwanted and useless. The primary goal of solid waste management is reducing and eliminating adverse impacts of waste materials on human health and the environment to support economic development and superior quality of life (Chandrappa and Das, 2012). This is to be done in the most efficient manner possible, to keep costs low and prevent waste buildup. Ongoing efforts to improve the waste management system are an important part of preserving a healthy human and ecological future.

While analyzing household waste, paper waste forms a good percentage. This include from newspaper to packing materials. Accumulation of paper waste in landfills create other problems. Urban waste management entails the entire system of collecting, sorting, treating, utilizing and

ultimately disposing of waste. When properly facilitated waste management can provide a source of energy and resources that will significantly reduce environmental pollution (Christensen, 2011). Reusing and recycling this paper waste, help to cut down on the amount of waste generated from the households to the environment, thereby reducing the amount of waste to landfill which in turn can reduce our carbon footprint.

Recycling is very vital to the future of our Mother Earth. There is a need for sustainable waste management through improving our life style by recycling habit (Chiras, 2004). Every individual should develop a drastic change in their recycling habit at home (Johnson**,** 2013; Babooram and Wang, 2007).

RELAVANCE OF THE STUDY

The importance of solid waste management is increasing day by day for the protection of the environment and for the health of the population. Regardless of the origin, content, or hazard potential, solid waste must be managed systematically to ensure a healthy environment (Baud and Furedy, 2006). Among the solid waste, paper and other cellulosic material forms the major bulk. In India more than 550 mills make use of waste paper as the main raw material for making recycled paper, paperboard and for production of newsprint paper (Phukan,2015). The present study aims at recycling the paper waste creatively, so that this will reduce the quantity of waste paper thrown to the trash bin as well as reduce the cost of decorating residential interior.

OBJECTIVES

The objectives of the study are: -

- To find out various types of papers disposed as paper waste
- To study the paper waste disposal methods practiced by urban homemakers
- To find out their awareness regarding creative utilization
- To know the interest of people regarding attending online classes on creative utilization of paper waste

METHODOLOGY

The study locale is central Kerala, which consists of Kottayam, Kochi and Thrissur districts. The population of central Kerala is basically considered as an assorted, multi-cultural, and materialistic community. Sample size of the study consisted of 500 households. Sampling techniques adopted for the study was convenience sampling. A structured questionnaire was used as a tool to collect the necessary information for the study. A structured questionnaire was developed as a tool for the study which comprise of a set of questions to collect the general information, socio-economic details, information pertaining to the disposal practice of the solid waste from houses and awareness regarding creative recycling of paper waste. The questionnaire was distributed online as google form. The data collected was consolidated and tabulated with software and analyzed with proper statistical tools. The statistical tools used for the analysis were percentiles and graphs.

RESULTS OF THE STUDY

The quantity of waste produced by household can differ depending on many factors such as income of the family, the amount of money spent on consumer goods,standard of living, lifestyle and environment consciousness (Mamady, 2016). Household waste, if not disposed properly, poses a menace to human health and to the environment (Asnani and Zurbrugg, 2007; Yoada et. al., 2014). Proper waste management practices at household level is very crucial to a healthy environment and community living (Baxi, 2014).

The household survey conducted to find out the disposal practices of paper waste of households in urban area of central Kerala reveals the following observations: -

Segregation of waste before disposal

Waste segregation basically means keeping organic/ biodegradable waste and inorganic/ non-biodegradable wastes separately, so that organic waste can be composted/recycled at home and non-biodegradable wastes can be taken out for recycling (Akkucuk, 2015).

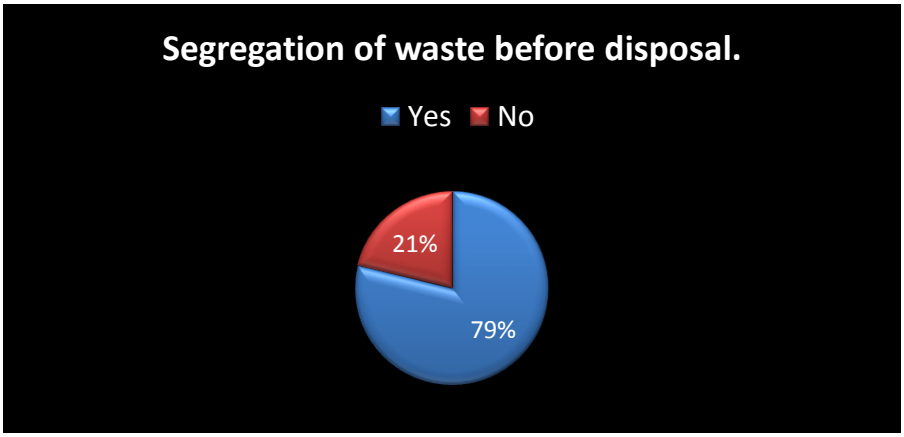

Figure 1: Segregation of Waste before Disposal

The result of the survey shows that 78.8% of urban households segregated their waste before disposal where as 21.2% of them were not segregating the waste before disposal.

Help received from Panchayath/Municipality to Waste Management

Suchitwa Mission, the nodal agency under the Local Self Government Department, serves to assist Cities, Municipalities and Panchayats in all waste management aspects of Ernakulam district and take major accountability for evolving implementation of various waste management issues (https://ernakulam.nic.in/suchitwa-mission).

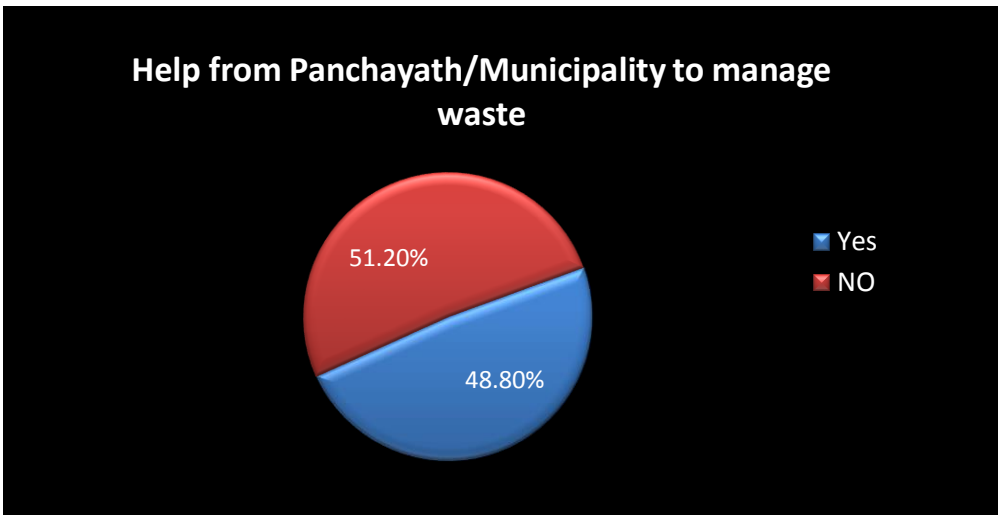

Figure 2: Help received from Panchayath/Municipality to Manage Waste

The collected data shows that 51.2% of the people are not getting any help from the panchayath/municipality to manage the waste or for the proper disposal of waste and 48.80% of people are getting help from either the panchayath / municipality to dispose waste.

Method of Disposal of Old Newspaper

Newspaper is easily recycled through many recycling programs and can be made into new newsprint and other paper products. Newspaper is considered as a valuable recyclable material but only when it is de-inked and clean (Bajpal, 2014).

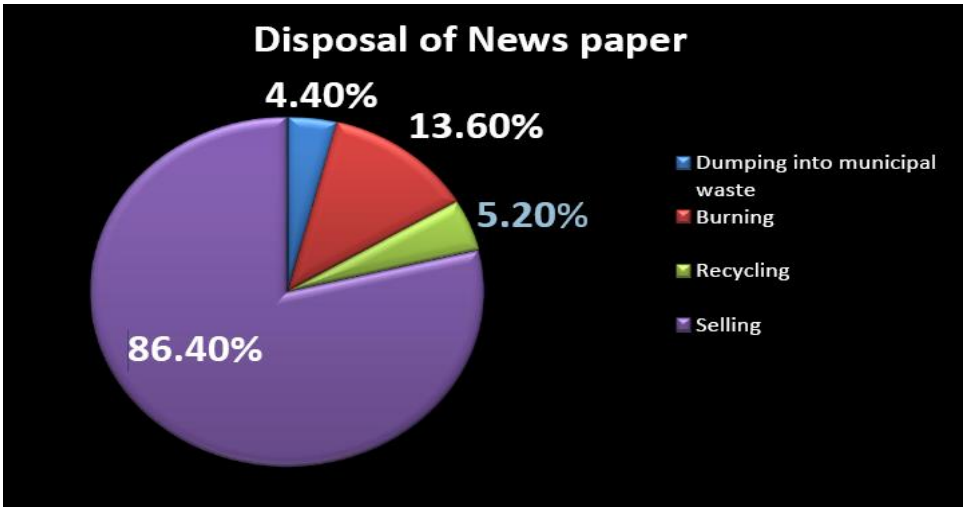

Figure 3: Method of disposal of Newspaper

The study reveals that majority of sample (86.40%) were disposing the newspaper by selling, which in turn go for recycling; where as 13.60% of the sample were burning the paper waste, 5.20% were recycling in their own way, and 4.40% of the sample were dumping the newspaper waste into municipal bin.The recycling methods used by the sample include craft works, paper carry bags, and creative and decorative items. The newspapers were also used for wrapping purpose, cleaning purpose and as packing materials.

Disposal of magazines or notebook paper

Today, as we live amidst the throw-away culture, what is discarded by one is a vital raw material/ingredient for another (Baxi, 2014). Glossy paper, such as that found in magazines, flyers, junk mails, brochures, business cards, etc., is recyclable curbside. Magazines, brochures, fliers and junk mail all fall into this category, and all belong to this recycle bin. Most business cards also belong in the bin, with some exceptions. Same like newspaper the disposal of magazines or note book paper is also noted in this study.

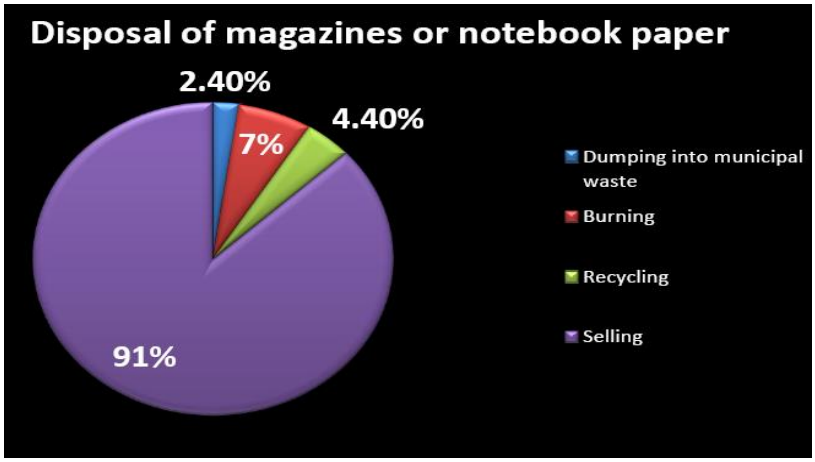

Figure 4: Disposal of Magazines/Notebook paper

The study reveals that 91% of the sample dispose magazines or notebook paper through selling, 7% dispose it by burning, 4.40% practice recycling with old magazine and notebook paper and 2.40% of the sample dump the paper waste into municipal bin**.** The recycling of magazine or notebook paper is done by doing creative products, handicrafts, paper collage work etc.

Disposal of Carton and other Packing Paper Material

Packing paper is recyclable, so it gets unpacked, it can be recycled. The method of disposal of carton and other packing paper material is studied and presented below.

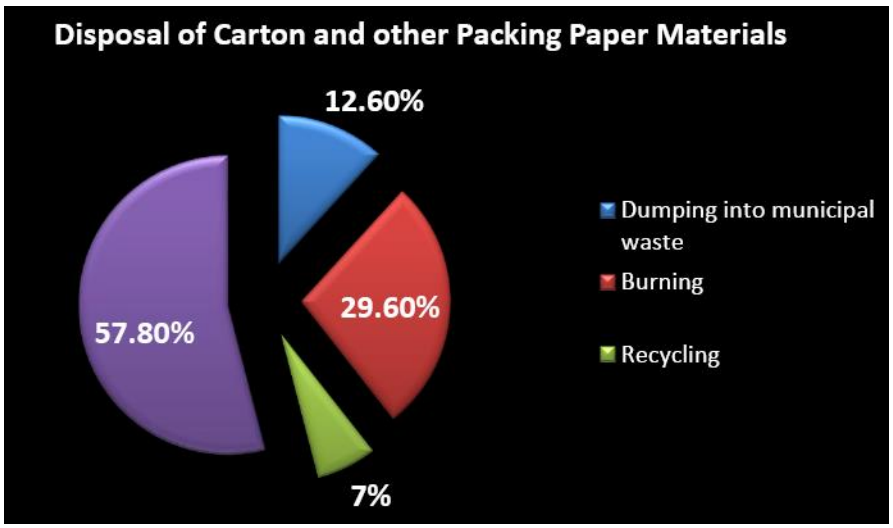

Figure 5: Disposal of Carton and other Packing Paper Materials

The study reveals that 57.80% of sample were selling the carton and other packing materials, 29.60% of the sample burn to dispose the carton waste, 12.60% of the sample were dumping this into the municipal waste bin and only 7% of the sample were using recycling method to dispose this packing paper materials. Recycling is done by making art and craft work, carry bags and other storage items. A minority of them were using paper waste for soil-less cultivation.

Awareness of creative utilization of paper waste

The earth is a 'closed system' – nothing disappears. In nature, the cycle of life operates in a circular system and waste generated by one organism becomes food for another. Fallen leaves decay and the nutrients are returned to the earth, to become food again for the tree. An exciting challenge facing city communities is to begin to imagine life without waste, where everything that is thrown away at one end of life becomes the technical or organic nutrient for another life. The study assess the awareness of the selected sample on creative utilization of paper waste.

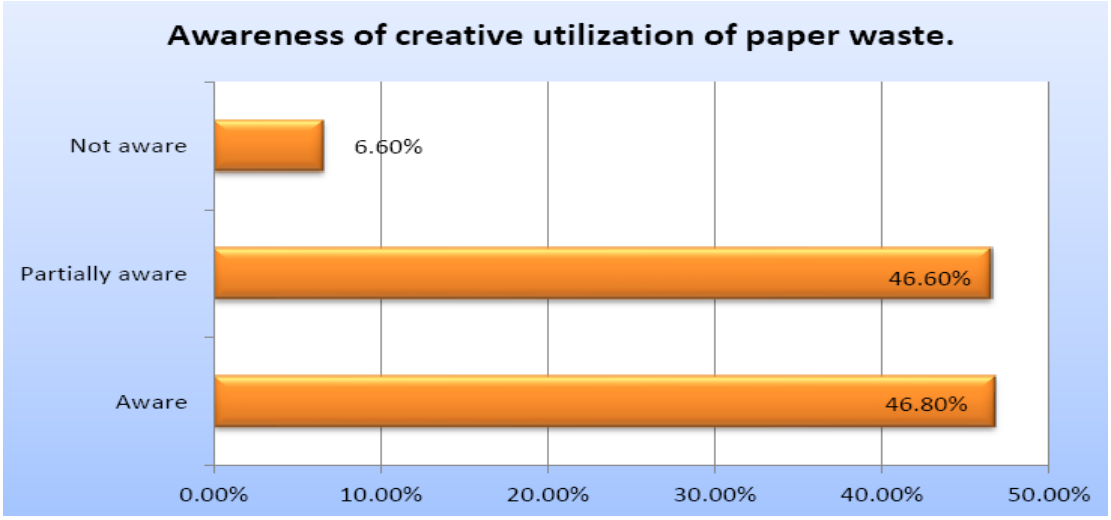

Figure 6: Awareness of Sample regarding Creative Utilization of Paper Waste

The study reveals that 46.8% of people were aware about the creative utilization of paper waste, 46.6% were partially aware and a minority of 6.6% were not aware on the creative utilization of paper waste.

Practice of Making of Creative Articles Out of Waste Paper

Creative recycling is good for the environment, saves money, and can form the basis of an enjoyable and engaging hobby. Today more and more people are taking one step further in this way, turning their recycling ideas into money-making projects, with some even building businesses around upcycling items that would otherwise have been thrown away. Making of creative articles or products increases the level of creativity in people, reduces cost of interior decoration and helps them in reusing and recycling, thus protecting Mother earth clutches of pollution.

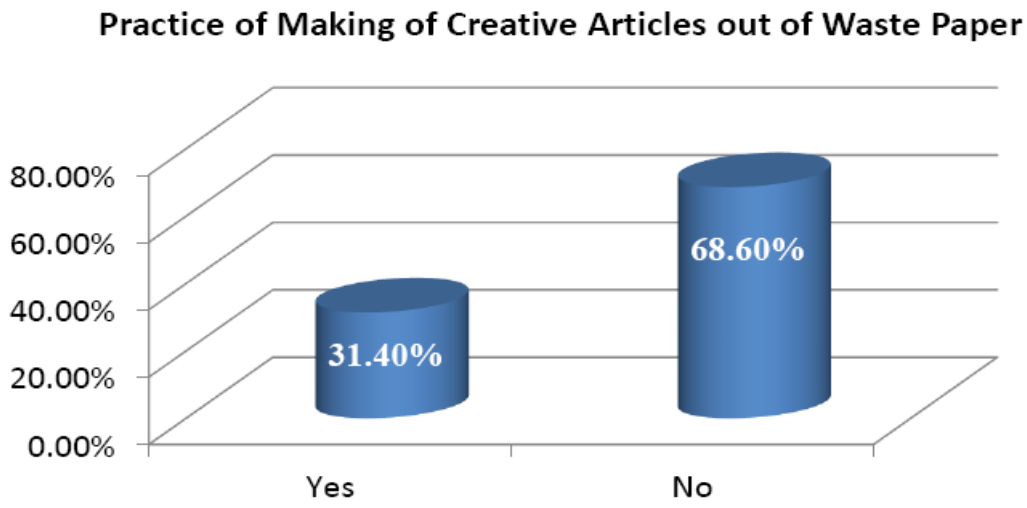

Figure 5: Practice of Making of Creative Articles out of Waste Paper

The study reveals that only 31.4% of people make creative articles out of waste paper and 68.6% are not making any creative articles out of the waste paper. The creative articles include paper crafts, paper bags and covers, paper pen and pen stands, toys, dolls, gifts, table mats, flowers, bottle art, home decors, photo frames, wall hanging, and other show pieces out of the waste paper.

Interest in Online Learning of Creative Recycling of Paper Waste

The paper waste can be utilized in different creative way and can make new products. This can be added to the interiors for both the decorative and functional purpose. The interest in online learning of creative recycling of paper waste was assessed in this study and was found out that 71.4% of them were interested in the online learning on creative recycling of paper waste.

SUMMARY AND CONCLUSION

Paper waste is a huge problem that people are less bothered. In fact, the issue can seem overwhelming. However, if every individual would change a few of their habits with regard to consumption and disposal of paper, there would be a great impact.Reusing an item several times before repurposing or recycling it prevents waste accumulation.The primary goal of solid waste management is reducing and eliminating adverse impacts of waste materials on human health and the environment to support economic development and superior quality of life. The present study 'Sustainable Solid Waste Management with Special Emphasis on Creative Utilization of Paper Waste'reveals that in most of the urban households the paper wastes generated is disposed simply by dumping, burning and selling. The disposal of newspaper, magazines or notebook, carton and other packaging material is mostly by selling and burning. Very few households were recycling these paper waste into innovative products. People were partially aware about the creative utilization of paper waste but unaware of the technology behind its utilization and most of them were interested in online learning of creative utilization of paper waste.

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DETERMINATION OF GASTROINTESTINAL SYMPTOMS UPON CONSUMPTION OF VARIOUS FOODS AND PRESENCE OF LACTOSE INTOLERANCE AMONG CHILDREN, ADULTS AND ELDERLY POPULATION OF URBAN VADODARA

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ABSTRACT

Several studies globally have reported that consumption of various foodsleads to the occurrence of gastrointestinal discomfort.Lactose intolerance is a condition caused due to the inability to digest lactose present in milk and milk products thereby leading to gastrointestinal symptoms such as stomach pain, acidity, vomiting, diarrhoea, bloating, nausea and so on.Often it gets undetected as patient might not be aware regarding the cause behind the occurring gastric discomfort. These symptoms and discomfort will hinder the absorption of nutrients derived from foods. **Objective:** The objective of the study was to determine occurrence of gastrointestinal discomfort caused due to consumption of various foods and to detect the presence and severity of lactose intolerance among the children, adults and the elderly population in urban Vadodara.**Hypothesis**: 1) Gastrointestinal symptoms can occur post consumption of various foods. 2) Lactose intolerant subjects will be detected among children, adults and elderly population. **Methodology:** Gastrointestinal symptoms were analysed using a semi-structured questionnaire for several food groups including milk and milk products. Those responding symptoms from milk and milk products were enrolled for hydrogen breath analyser test to detect lactose intolerance.**Findings:**Around 27.5% of the subjects reported to have experienced gastrointestinal symptoms due to the consumption of milk and milk based products followed by vegetables (14.2%), pulses (5.8%), fermented foods (6.9%), fruits (8.8%) and cereal products (3.2%).The present study revealed that 49.7% of subjects were lactose intolerant and classified into three categories: mild (>21 ppm), moderate (>60 ppm) and severe (>80 ppm). Lactose intolerance was found to be 11.02%, 8.75 % and 13.7% amongst children, adult and elderly population respectively. **Conclusion**: The present study was conducted in a population of urban Vadodara and prevalence of Lactose intolerance was detected to be 11.02%, 8.75 % and 13.7% amongst children, adult and elderly population respectively.

Keywords: lactose intolerance, hydrogen breath analyser, lactase and lactose.

INTRODUCTION

Milk and milk products are an excellent source of calcium and protein. Lactose is a form of disaccharide occurring in milk and milk derived products. It is comprised of the monomers glucose and galactose. Intestinal absorption of lactose is caused due to the enzyme lactase present in the brush-border of the intestine.From 8thweek of intra-uterine life, lactase activity can be observed at the surface mucosa in our intestine.Lactose intolerance is an inability to digest lactose present in milk and milk products due to the absence or decreased production of lactase enzyme and leads to occurrence of gastrointestinal symptoms such as bloating, stomach pain, vomiting, diarrhoea, nausea, constipation etc.Globally the incidence of lactose intolerance prevailing is found to be 5-15% among British population, whereas almost 100% of Asian population reported lactose intolerant. 25% of adults show decreased lactose digestion in North America.Worldwide, the prevalence of lactose intolerance is found to be 50% in South America, Asia, and Africa and is reported to be almost 100% in some Asian countries (Vesa H et al 2000). Lomer, 2008 mentioned in their study that Northern Europeans, North Americans, along with Australians have the lowest

rates of lactose intolerance. North India has reported to have 27.4% and whereas southern India has reported to have 66.6% of lactose intolerant (Tandon et al. 1981).

The present study was conducted in Vadodara with the following objectives.

OBJECTIVES

1. To determine the presence of gastrointestinal symptoms post consumption of various food products including milk and milk products

2. To detect presence of lactose intolerance among children, adults and elderly of urban Vadodara using Hydrogen Breath Analysis test

METHODOLOGY

Study design

Using cross-sectional study design and purposive sampling technique the study was conducted.

Screening subjects for gastrointestinal symptoms

A total of 3000 adults consisting of staff members and their families working in a university of Vadodara, 272 school going children (10 to 17 years old) and 950 people from elderly population were screened for the presence of any gastric discomfort after consumption of various foods by means of a semi-structured questionnaire.

Screening subjects for lactose intolerance

Subjects reporting gastric discomfort post consumption of milk and milk products were enrolled for **Hydrogen breath analyser test** to confirm the presence and determine the degree of lactose intolerance after obtaining their consent.

Hydrogen breath analyser test

Breath analyser is a device which analyses human breath. Breath analyser is substrate non-specific. The breath analyser can be hydrogen, methane or both analyser. The device used in this study is a hydrogen breath analyser. In this test, an oral dose of 25gm of lactose powder dissolved in 250 ml of water is orally administered to the subjects after an overnight fast and after 30 mins they had to blow out air through their mouth into the device for 6 times with a interval of 30 mins between each breath. This calculates the hydrogen emitted by the human gut post consumption. The subjects were not allowed to eat anything during the test period. However, drinking water was allowed. Patients were advised to avoid food rice in fats and spices the previous night of the test and antibiotics were avoided for 1 week before the test.

FINDINGS AND DISCUSSION

General information of Respondents

A semi-structured questionnaire was developed and 994 individuals comprising of 503 adults, 272 children and 219 elderly responded to the questionnaire given to them. Most subjects belonged to the age group of 17 to 35 years followed by 13 to 17 years (table 1). Around 42% respondents belonged to nuclear family whereas 15% belonged to joint family.

Table 1 General information of the respondents (N=994)

Parameters	Total subjects N(%)
Age	
10-12yrs	**92 (9.25%)**
13-17yrs	**180 (18.1%)**
18-35yrs	**397 (39.93%)**
36-50yrs	**52 (5.23%)**
51-60yrs	**54 (5.43%)**
61-80yrs	**165 (16.59%)**
80 and above	**54 (5.43%)**
Sex	
Female	**550 (55.3%)**
Male	**444 (44.6%)**
Types of family	
Nuclear family	**421 (42.3%)**
Extended family	**394 (39.6%)**
Joint family	**159 (15.9%)**

Gastrointestinal symptoms experienced by respondents upon consumption of the various food groups:

Food intolerances are opposing reaction to foods, the immune system do not play a role in this (Turnbull,2015).Symptoms of intolerance towards carbohydrates are caused mainly due to deficiency of enzymes or transporters or overloading of a transport system located on the brush border of the epithelium lining present in the small intestine. Fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAPs) are some of the short-chain carbohydrates that are poorly absorbed at the intestinal level (Berni Canani, et al, 2016).Wilder-Smith, et al (2013) mentioned in their study that prevalence of food intolerance among FGID (functional gastrointestinal disorders) was 60% intolerance towards fructose whereas 51% intolerance was detected towards lactose and 33% subjects showed intolerance for both. Any undigested fructose will lead to gastrointestinal discomfort and show symptoms similar to lactose

intolerance or IBS. Joshi et al (2015) found that 15.49% of children with type 1 diabetes had celiac disease. Makharia, et al (2011) also reported prevalence of celiac disease (1.04%) in a community of norther India. Simrén, M. et al (2001) mentioned that foods rich in carbohydrates, coffee, alcohol and hot spices along with fatty foods were most frequently reported to cause symptoms, most commonly such as gas problems and abdominal pain among IBS patients compared to healthy individuals. Lactose intolerance leads to symptoms such as abdominal pain, bloating, borborygmi, diarrhea along with nausea, dizziness, fatigue, constipation, pain in muscle and joints, tachycardia etc (Campbell, et al ,2004; Matthews, S. et al 2000). Burgio, et al (1984) showed the presence of lactose intolerance in more than half of the population in two groups of Italy, namely north and Sicily.

Gastrointestinal symptoms post consumption of food-groups such as milk and milk products, cereals, pulses, fermented foods, fruits and vegetables was assessed. It was observed that nearly 22.1% of the subjects reported to have experienced gastrointestinal symptoms due to the consumption of milk and milk-based products followed by vegetables (14.2%), pulses (5.8%), fermented foods (6.9%), fruits (8.8%) and cereal products (3.2%) (Table 2). As seen in table 3, majority of the subjects had gastrointestinal discomfort post consuming of milk followed by cheese and kadhi. Nearly one third of the respondents didn't experience any adverse gastrointestinal symptoms after consumption of various foods.

Table 2- Gastrointestinal symptoms experienced after consumption of various Food

Various food groups	Children(n=272)	Adult (n=503)	Elderly(n=219)	Total (N=994)
Milk and milk products	24.26% (66)	18.4% (93)	27.85% (61)	220 (22.1%)
Vegetables	19.85% (54)	14.31% (72)	13.24% (28)	154 (15.5%)
Pulses	1.01% (3)	8.15% (41)	7.30% (16)	60 (6.03%)
Cereal products	4.04% (11)	2.9% (14)	2.73% (6)	31 (3.11%)
Fermented foods	5.88% (16)	6.56% (33)	10.04% (22)	71 (7.14%)
Fruits	16.9% (46)	5.16% (26)	9.13% (20)	92 (9.25%)

Table 3 Gastrointestinal symptoms experienced by subjects of various age groups after consumption of various milkand milk products (N=274)

Milk and milk products	Children (n=99)	Adult (n=93)	Elderly (n=82)	Total -274 (N)
Milk	15 (15.15%)	57(61.3%)	53 (64.6%)	125(45.6%)
Lassi	5 (5.05%)	6 (6.45%)	2 (2.43%)	13 (4.74%)
Kadhi	9 (9.09%)	7 (7.52%)	4 (4.87%)	20ss (7.29%)
Milk powder	8 (8.08%)	5 (5.37%)	0 (0%)	13 (4.74%)
Chaach	8 (8.08%)	4 (4.30%)	3 (3.65%)	15 (5.47%)
Milk sweets	9 (9.09%)	2 (2.15%)	2 (2.43%)	13 (4.74%)
Milk chocolates	0 (0%)	0 (0%)	0 (0%)	(0%)
Ice cream	12 (12.12%)	3 (3.2%)	1 (1.21%)	16 (5.83%)
Cheese	17 (17.17%)	4 (4.3%)	7 (8.53%)	28 (10.21%)
Fruit custard	4 (4.04%)	2 (2.15%)	6 (7.31%)	12 (4.37%)
Yogurt	6 (6.06%)	3 (3.22%)	4 (4.87%)	13 (4.74%)
Condensed milk	6 (6.06%)	0 (0%)	0 (0%)	6 (2.18%)

Occurrence and severity of lactose intolerance (N=181)

Solomons et al (1980) mentioned in their study that 50 g of lactose was used for the breath test but that lead todiarrhoea and flatulence among patients during the test. Therefore another study was conducted by (Rana et al, 1995) in which the amount of lactose used was modified for conducting lactose hydrogen breath test. Patients positive with 50 g lactose were repeated with 25 and 12.5 g lactose in 1-week interval. 91.4 % patients were detected of LI with 25 g lactose and 42.8 % with 12.5 g lactose. Symptoms of diarrhoea (63 %) and flatulence (97 %) decreased to 22.8 and 34.2 % respectively with 25 g lactose. Therefore, 25 g of oral lactose dose was used for detecting the occurrence of lactose intolerance in our study. Yang Y et al (2000) mentioned in their study conducted in China, lactose intolerance occurred in 38.5% of children in the 3-5 year age group, and 87% of the 7-8 year and 11-13 year old groups. As seen in table 4, a total of 181 subjects- 62 children, 65 adults and 54 elderly were screened for presence of LI using hydrogen breath analyser test and it was concluded that 49.72% of them were lactose intolerant. The subjects with lactose intolerance in present study were divided into mild, moderate and severe categories depending on the severity of lactose intolerance. Majority of the subjects (80%) fell in the mild malabsorption category (Table 5).

Table 4- Presence of lactose intolerance amongst post HBA test (N=181)

Presence of lactose intolerance	Children (n=65)	Adult (n=62)	Elderly (n=54)	Total N (%) (N=181)
Lactose intolerant	30 (46.15%)	30 (48.3%)	30 (55.5%)	90 (49.72%)
Non- lactose intolerant	35 (53.84%)	32 (51.6%)	24 (44.4%)	91 (50.27%)

Table 5- Severity of lactose intolerance amongst the subjects (N=90)

Category	Children (n=30)	Adult (n=30)	Elderly (n=30)	Total N (%) (N=90)
Mild malabsorption (>21 ppm)	28(93.3%)	26 (86.6)	26 (86.6%)	**80 (88.8%)**
Moderate malabsorption (>60ppm)	2 (6.6%)	3 (10)	4 (13.3%)	**9 (9.4%)**
Severe malabsorption (>80 ppm)	0 (0%)	1(3.3%)	0 (0%)	**1 (1.1%)**

Mean values of Hydrogen breath analyser test (HBT) conducted (N=181)

Mean baseline readings amongst lactose intolerant subjects was higher than the mean baseline readings amongst non-lactose intolerant subject.

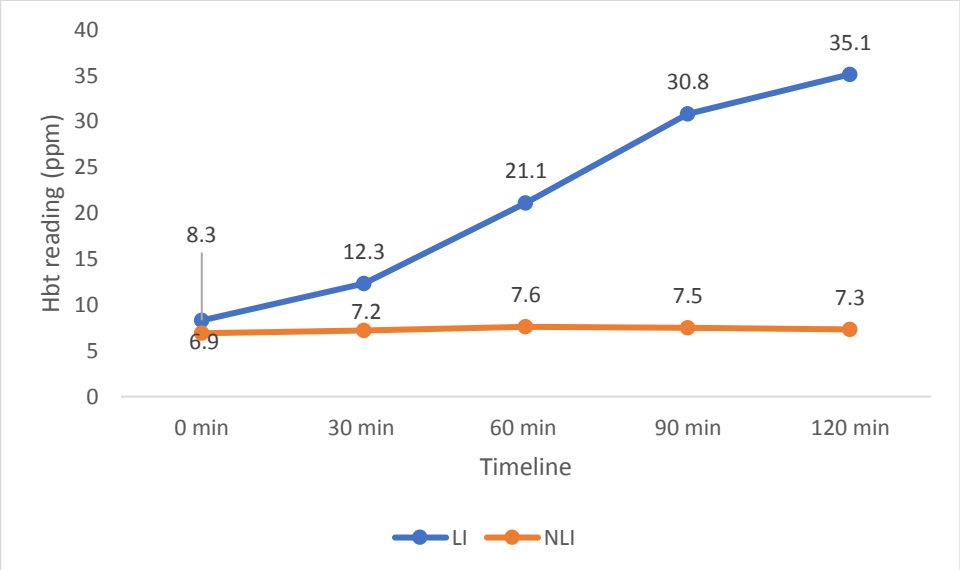

Figure 1 - Hydrogen Breath Analyser readings for Lactose Intolerant and Non-Lactose Intolerant subjects among children (N=65)

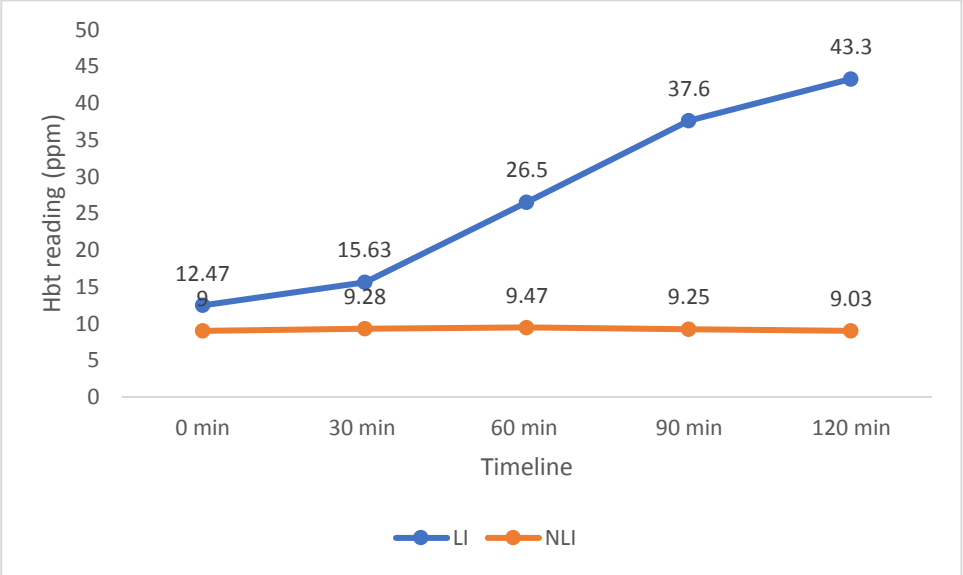

Figure 2 - Hydrogen Breath Analyser readings for Lactose Intolerant and Non Lactose Intolerant subjects among adult subjects (N=62)

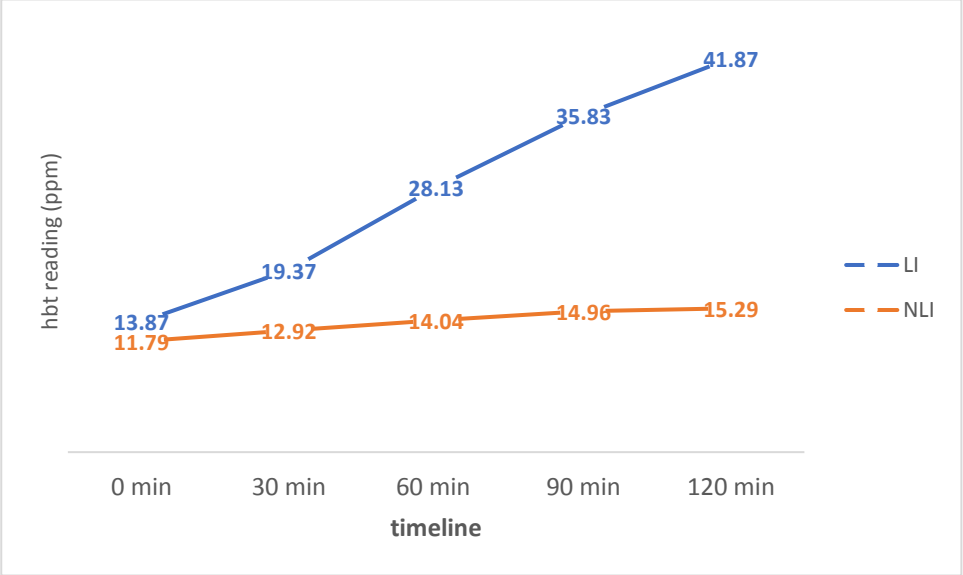

Figure 3 - Hydrogen Breath Analyser readings for Lactose Intolerant and Non-Lactose Intolerant subjects among elderly subjects (N=54)

SUMMARY, CONCLUSION AND IMPLICATIONS

The present study was conducted in a population of urban Vadodara comprising children, adults and elderlies to determine the presence of gastrointestinal symptoms experienced by them post consumption of various foods using a semi-structured questionnaire and to detect the presence and degree of severity of lactose intolerance using hydrogen breath analyser test and classifying

them into mild, moderate and severe category.On the basis of the result obtained from the present study, Hydrogen breath analyser test revealed that 49.72% of them were lactose intolerant and 88.8% subjects fall into the mild intolerance category. Prevalence of Lactose intolerance was found to be 11.02%, 8.75 %and 13.7% amongst children, adult and elderly population respectively. Hydrogen breath analyser is one of the effective devices to detect Lactose intolerance. The breath analyser used in this study was a hydrogen breath analyser. For further research, Lactose intolerance can be detected using a methane and hydrogen breath analyser and also genetic analysis. Intestinal gut microflora can also be analysed to understand lactose intolerance further.

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DIETARY PRACTICES AND SELF-CARE AMONG 'H.I.V' INFECTED WOMEN ON ANTI-RETROVIRAL THERAPY IN MANIPUR STATE, INDIA

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ABSTRACT

Reduced food intake, ART side effects, and improper care weaken the immune system and hasten disease progression. Study was carried out in two hospitals in Imphal- RIMS & JNIMS. Study was done in the department of biochemistry, RIMS. Study subjects were 442 women on antiretroviral therapy attending the ART centres of the 2 hospitals. Aim was to study the dietary practices and self-care among HIV infected women on antiretroviral therapy. Majority of subjects were in the age group of 35-40 years, 55.7% consisted of widows, 57.9% were Hindus, and 31.9% were housewives. More than half of the respondents (68.8%) had monthly income less than Rs. 5000 per month. Consumption of 2 meals/day was observed highest (47.05%). The women had different practices about their diet. Most recorded discomfort was anorexia (43 cases), followed by heartburn/ bloating (33 cases), Majority (34.38%) reported that they go to local pharmacies and take medicines for the discomforts, 29.41% women leave the discomforts as it is, while only 11.76% go to their respective ART centres if the discomforts are severe. It is strongly suggested that, compulsory diet counseling along with nutritional supplementation and monetary assistance for the low-income infected women, will have important therapeutic benefits.

Key words: Dietary practices, Self-care, HIV, ART, PLWHA, Opportunistic Infections etc.

INTRODUCTION

India has 28 states and 9 union territories. Out of these, 6 states have been identified to have very high prevalence rates regarding Human Immunodeficiency Virus (HIV), the State of Manipur being one of them. Acquired Immunodeficiency Syndrome (AIDS) is the end stage of HIV infection. HIV/AIDS is a serious public health emergency in Manipur, a small state in the northeast region of India. Since the beginning of Epidemiological Analysis (EA) in 1989, injecting drug users (IDUs) have constituted the highest number of HIV infected in the state through sharing of unclean injecting equipments.

Interventions so far have focused on IDUs but have neglected their spouses, sexual partners, and children. (Chitra A, 2010). As HIV lead to immune suppression, adequate and safe food with proper hygiene is very important to prevent opportunistic infections (OIs). And appropriate dietary modifications can significantly reduce both the side effects of medications and the symptoms of OIs.

Highly Active Antiretroviral Therapy (HAART), introduced in 1996 is the recommended treatment for HIV infection which combines three or more anti-HIV medications in a daily regimen. Anti-HIV medications are used to control the reproduction of the virus and to slow the progression of HIV-related disease (HIV and Its Treatment, 2011). And all the drugs may cause negative side effects

HIV-positive women experience certain side effects of drug regimens more than their male counterparts. Although many studies relating to the spread of HIV infection, its control, outcomes and benefits for PLWHAs etc. have been undertaken, specific studies on dietary practices and self-care among HIV infected people especially with regard to the women are however lacking. It was therefore considered necessary to take up the present study. (This paper is a part/section of a larger study investigating the Nutritional profile of HIV infected women attending ART Centres in Imphal)

Why women as study subjects: - As per the statistics of UNAIDS on World AIDS Day report 2012, worldwide, women constitute more than half of all people living with HIV/AIDS. Among young people aged 15-24, the HIV prevalence rate for young women twice is that of young men. Besides for the women in their reproductive years (15-49), HIV/AIDS is the leading cause of death. But Women's health is crucial for the prosperity of family and society. Hence the study was undertaken.

This study can provide guidance on both HIV-related and medication-related ailments, including appetite loss, bloating/gas, diarrhea, kidney disease, lipodystrophy, and wasting. Some of these conditions can be treated by self care without pharmaceutical interventions.

OBJECTIVE

To study the Dietary practices and Self-care among HIV infected women on antiretroviral therapy in Manipur state, India.

MATERIALS & METHODS

This is a cross-sectional study. This study was carried out in the two major hospitals in Imphal City: i) Regional Institute of Medical Sciences (RIMS), Lamphelpat, Imphal-West; and ii) Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Porompat, Imphal-East.

Study was done on randomly selected 442 HIV infected women (221 each) attending the ART centers in the 2 hospitals. Laboratory analysis were carried out at: - a) Department of Biochemistry in collaboration with the ART Centre, Department of Medicine, RIMS, Imphal. b) Department of Biochemistry (JNIMS) in collaboration with the ART Centre JNIMS, Imphal.

Inclusion Criteria- HIV positive women who are in the reproductive age group, those willing to participate in the study and cases on ART who have completed 6 months of therapy were selected for the study. But those under 15 years of age, who refuse to give consent, seriously ill and bedridden patients and cases who have not yet started ART were excluded.

Schedule for nutritional assessment consists of- Socio-economic and medical history, co-infections, health status, symptom management, etc., Anthropometric assessment, Diet survey by 24 hours recall method, Observation of clinical signs and symptoms of nutritional deficiency and Laboratory investigations/biochemical assessment.

Major Study and analysis of collected data, and analysis of diet surveys etc. were done in the Department of Biochemistry; RIMS. Ethical Approval was obtained from the Institutional Ethical Committee, RIMS. Guidelines of National Aids Control Organization (NACO) were given priority and were followed. Approval/clearance was sought from the Project Director, Manipur Aids Control Society (MACS), and then from the respective Nodal Officers of the ART centers. Approval and written consent from the women were also obtained. Information relevant to the

objectives of the study was collected personally in the specially designed pre-tested schedule. Necessary secondary data was gathered from concerned physicians, hospital records, etc.

Information was also collected regarding HIV infection-associated symptoms, use of traditional or non-traditional therapies, food beliefs and taboos, management of Opportunistic Infections (OIs), complications, details of status, ART history, etc. Referral information included medical history, current medication and ART-Regimen, vitamins/mineral supplements, functional status (WAB), lifestyle, substance use, activity and exercise, etc.

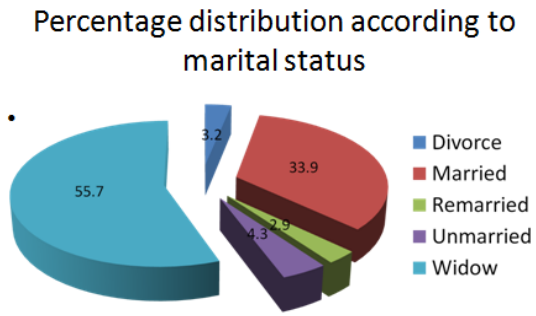
Study period was from April, 2009-October 2013. After thorough checking and scrutinizing the raw data, Statistical data processing and analysis was performed through SPSS version 21.

Results are reported as number of cases/frequencies along with percentages for the categorical variables. For quantitative data, descriptive statistics like mean and standard deviation (SD) are estimated and the observed different with the recommended allowance is tested by independent "t" test between two means whilst F-test is advocated among the means (more than two means). All comparisons are two-sided and the P-values of < 0.05 and < 0.01 are treated as the cut off values for significance and highly significance respectively.

RESULTS & DISCUSSION

Average mean age of the women was 37.62 years, with minimum of 21 and maximum of 61 years. Majority were in the age group of 35-40 years (30.8%) followed by those in the group of 30-35 years (27.1%) and those from the 40-45-year group with 21.9 per cent. Majority (34.2%) got married when they were 20-25 yrs, followed by those getting married around 15-20 years (29.9%).

More than half of the women (55.7%) consisted of widows, 33.9 per cent were living with their husbands and family, 3.2 per cent of the women were divorcee while 4.3 per cent still unmarried and single, whereas, 2.9 per cent had been widowed but remarried again.



Majority (57.9%) were Hindus followed by 37.8 per cent Christians (scheduled tribes), whereas only 4.3 per cent were Muslims (OBC-M). 57.7 per cent of the women were from nuclear families and 41.2 per cent were from joint families. About 1.1% were reported to be living alone at home (without any children) or in rented rooms near their place of present occupation. It was observed that few (7.0%) were illiterate while on the other hand, the largest percentage of the respondents had completed high school level (26.0%) followed by those completing middle school (15.6%) and higher secondary level (15.8%). A good number of women (17%) were graduates while 8 women (1.8%) were post graduates.

Regarding the occupation of the women, majority were housewives (31.9%), 19.5 per cent were having small scale businesses of their own, common business was that of having a small shop at the gate of their residence, while 15.6 per cent of the women were self employed and earning some income for themselves. About 7 per cent were government employees and 3.6 per cent were teachers in private schools. Some women (10.4%) were working in NGOs (Non-Government Organizations) working for the cause of PLWHAs (People Living with HIV). Few women were farmers (9.7%), and daily wage earners (1.6%). Regarding the occupation of the husbands of the women in the sample population, whether living or expired, information collected revealed that majority (18.3%) were unemployed, followed by those in business (17.6%), farmers (12.4%), self employed (11.1%), few (2.5%) in NGOs, contract works (4.3%), police (8.8%), government employees (8.4%), private school teachers (3.4%), drivers (5.4%), and in the forces (4.5%).

Majority of the women (76.2%) were still staying at their husband's place with their children and in laws, whether they were widows or if their husbands are still living, But a sizeable percentage (22.2%) returned to their parents and stayed at their maternal place after they became widows or after separation/divorce from their husbands. Some women in the sample (0.5%) stayed at relative's places, or in rented rooms (0.7%) especially if they work and need to live far from home), or at employer's place (0.5%) if they happen to be a maid/helping hand of a family.

More than half of the respondents had monthly income less than Rs. 5000 per month (68.8%) followed by those having income of Rs.5000-10,000 per month (25.1%) and very few (4.3%) were from families of monthly income of Rs.15000 and above. Maximum (86.2%) of the women in the sample population got the virus from their husbands who had previously been Intravenous drug users.

Information gathered regarding the children of the women in the sample revealed that, more respondents (28.7%) had 2 children, followed by those with 1 child (25.1%), and 19.9 per cent with 3 children, 7.4 per cent with 4 children while 13.7 per cent had 4 to 9 children. 12.7 per cent women comprise of single women and childless women.

About 6 per cent women reported that at least one of their children had died due to this virus, while 1.1% had 2 children dead, and 0.2% had so far 4 children dead from HIV infection. Regarding living children but infected and living with the virus, 19.2 per cent women had one infected child, while 3.8 per cent had 2 infected children.

Food habits: Food Habits included meal pattern, common food items, food beliefs & practices etc. Information gathered from the respondents revealed that, out of the total sample population, majority (81.44%) of the women in the study were non vegetarians, 11.76 per cent were although non-veg but usually subsists on a vegetarian diet, and the remaining (6.79%) were purely vegetarian.

Table-1: Food Habits

Food habits	N=442	%
Non-vegetarian	360	81.44
Non-veg. but take veg. diet	52	11.76
Vegetarian	30	6.79

Meal pattern: Analysis of meals and meal patterns of the women showed that number of meals consumed in a day ranged from 2-4 times with some rarely having a snack at afternoon tea time. Two meal a day was termed when only the lunch & dinner was regarded, the breakfast being very light or nil. Three, when a heavy breakfast, lunch & dinner were considered. Four, when the breakfast, lunch & dinner and afternoon or evening tea was adequate with solids.

Consumption of 2 meal/day was observed highest (47.05%), followed by 3 meal/day (44.34%), and 4 meal/day (8.59%). 2 meal patterns were common among the low-income families, while the 3 meal and the 4-meal pattern were observed among the middle- and high-income groups.

Table- 2: Meal pattern

Meal pattern	N=442	%
2 meal/d	208	47.05
3 meal/d	196	44.34
4 meal/d	38	8.59

Food items: Common food items in different meals were-tea, biscuit/ bread/ roti, fruits at breakfast; Rice, dal, some vegetable preparation, a meat preparation at dinner, and tea in the afternoon with some items bought from outside or some rice left from the morning. Tea was a frequently mentioned beverage, especially in morning so as to take the morning medications. But some women reported taking tea and the medicine but without any solids. Most popular meats were chicken (among the Hindus), smoked pork and beef (among Christians), and beef (by Muslims). Rice was the main food item consumed not only at lunch and dinner but also in the afternoon instead of snacks.

Early morning lunch was taken by the working women and also farmers who had to go out early in the morning. They usually take a light snack in the afternoon, and have a heavy dinner at night. Lentil and green gram dhal were common pulses, so also French beans, peas etc. Potato and colocasia, both green and black variety, and both roots and stems, was a favorite. Spinach, mustard leaves, cabbage were the common leafy vegetables. Other items included brinjal, squash, ash gourd, ridge gourd, cowpea pods, cowpea leaves, pumpkin etc, Mustard oil was the main cooking medium used. Familiar fruits were banana, amlas, and apple.

Consumption of sugars was limited to that taken with tea. Although few reported taking halwa, taking of sweetmeats was not reported. Less consumption of milk and dry fruits was reported by low income women specially. They were aware of its good benefits but had financial constraints.

Fish curry was reported using locally available small fishes with little oil, prepared not with a local condiment called maroi napaakpi (illium hookeri). Another favourite item of Manipuri Hindus and Muslims was a preparation of brinjal fry with small prawns with another local condiment called maroi nakuppi (illium adorosun), or brinjal with dry and soaked matar with this condiment, sometimes with the addition of mint leaves.

Details regarding food beliefs and practices with special reference to being an HIV infected individual, which they often termed as their “condition” revealed that: some of them were

found to take certain things in excess believing them to be good for their condition. Avoided foods due to allergy and fear that it may cause some bad effects included bitter gourd (believed to cause bad effect on their "condition"), brinjal (for allergy), very sour fruits(bad for stomach), fermented soya bean and bamboo shoots (bad for their condition) as answered by the women The women who had heartburns were scared to take vegetables. One popular dish of Manipur is "kangsoi", sort of a vegetable soup with or without potato but prepared with fermented fish and smoked fish, without oil, and "iromba" prepared of mashed mixed vegetables with fermented fish, was some frequent items consumed. A paste of green chilli or dry red chilli with fermented fish (local term 'morok metpa') was a regular side dish which the women reported they cannot do without. Only when they had severe stomach burns it was avoided. There was preference of hot foods if not for the stomach. Smoked beef or pork was a common side dish of the Christians. Consumption of Zarda paan was also observed among the women.

For those who could afford it, banana was an often-consumed fruit. But a certain case was that the women, a graduate, with a comfortable income, reported that she took 3-4 bananas a day because someone advised that bananas are good for her "condition". She had a lemon tree at home bearing good fruit but she did not take them as she was advised that sour things were bad for her. This, along with lots of other cases, proved how certain basic knowledge on nutrition and foods are an important need of the hour.

More than half of the women in the sample population had been receiving anti retroviral treatment for more than 3 years (53.6%). 17.9 per cent women had been taking for 2-3 years, some of them were on ART for as long as 11 years.

Information collected on common discomforts experienced by the women is presented in Table-3. Only 29.86 per cent of the women in the study population reported to have no complaints at the time of data collection.

Table: 3: Health complaints/Common discomforts

common discomforts:	N =442(%)
No complaints	132 (29.86%)
Fever	10
Anorexia	43
Diarrhea	11
Constipation	6
Fatigue/lethargy	26
Nausea/vomiting	11
Headache	13
Cough	22

Mouth sores	13
Numbness/tingling at hands or feet	20
Insomnia	26
Eye problems/blurring vision	23
Heartburn/bloating	33
Giddiness/drowsiness	28
Skin allergies/rashes	26
Shortness of breath	6
Skin allergies/ rashes	26
Hypertension	11
Problem with monthly cycle	3
Foul smelling mouth	5

Most recorded discomfort was Anorexia (43 cases), followed by heartburn/ bloating (33 cases), then giddiness/drowsiness (28), giddiness/drowsiness (28), insomnia (26), fatigue/ lethargy (26), rashes/skin allergies (26) etc. Others were fever (10 cases), diarrhea (11), nausea (11), headache (13), cough (22), mouth sores(13), tingling/numbness at hands or feet (20), eye problems and blurring vision (23),and others comprising of hypertension, problem with monthly cycle, foul smelling breath etc. Some women had overlapping symptoms at a time.

Upper abdominal pain, heartburn and bloating were the most common GI symptoms, while anorexia, nausea, vomiting were more frequent opportunistic infections (Olomos M A et al, 2004). Reduced appetite, nausea and vomiting were relatively prevalent in a study of dietary intake in HIV adults (Jean H et al, 2001).). Rash was observed as an adverse reaction in Nevirapine based regimen in a study in Vadodara, India. Most common adverse reaction was peripheral neuropathy and lipodystrophy in the stavudine group (Sharma et al, 2008). Anorexia was observed more in women with CD4 less than 200 in adults infected with HIV in Ivory Coast (Castetbon et al, 2000). ART is associated with lipodystrophy (Stambulin et al (2007).

When enquired what the women do when they have the above-mentioned discomforts, the answers of the women are presented in Table-2.

Table-4: Steps taken by the women when in times of health complaints/discomforts

Steps	**n**	**%**	**Steps**	**n**	**%**
Go to Doctor/Hospital	37	8.37	Do pujas	7	1.58
Leave it as it is	130	29.41	Go to ART centre	52	11.76
Take homeopathic medicine	17	3.85	Take medicine from pharmacy	152	34.38
Go to NGO	11	2.48	Take home-made/herbal medicine	13	2.94
Change/modify diet	23	5.20	---		

More than one third of the women (34.38%) reported that they go to local pharmacies, ask for advice and take the medicines from the pharmacy. This was followed by 29.41% women answering that they leave the discomforts and bear the pains as it is, as they felt that it might get better with time and also because they have neither the money nor the time for such matters, comparing it very triffle in regard to their HIV positive status, which was taking a big toll on them. Some women (11.76%) go to their respective ART centres if the discomforts are severe even if it was not their medicine hand-out day. Few women (8.37%), probably those who could afford, and from the higher income group, reported they go to doctors for the discomforts. Few women (5.20%) showed some positive result of the importance of dietary modifications while having the discomforts. Some examples were omitting oil and spices during attacks of heartburn, diarrhea, mouth sores, force eating of foods during bouts of anorexia for fear of getting weaker, etc.

CONCLUSION

This study highlights the problems faced by the HIV infected women regarding the impact of HIV infection, the health complaints and their inability to attend to it due to their lack of ideas of nutrition and low financial status, their increased vulnerability to opportunistic infections and side effects of antiretroviral treatment. It is strongly suggested that, compulsory diet counselling along with nutritional supplementation, or some sort of monetary assistance for the low-income infected women, will have important therapeutic benefits in AIDS patients as an adjuvant treatment in combination with antiretroviral therapy. A healthy diet is essential to maintaining good health across the life span. Malnutrition, infections, side-effects, deprivation of healthy foods, etc. cause much damage to the women and prevent them to be a productive member of ~~the~~ society. These women need medical support, financial support, proper counseling and nutrition education intervention.

This study was planned to document the problems faced by the HIV infected women regarding their overall health status in depth and to offer suggestions based on their coping strategies, and to help them to live a healthier life.

RECOMMENDATIONS/ FUTURE ASPECTS

The present study was a cross-sectional study. A longitudinal study of HIV patients on ART after nutritional supplementation with proper nutrition education could provide more informative results.

Conjugal efforts of government & non-governmental agencies will prove beneficial to achieve the goal of overall development of the HIV-infected women with special emphasis on nutritional status and health.

Monetary assistance and efforts must be made to encourage these women to participate in the different existing programs aimed for their care.

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INFLUENCE OF FOOD ADVERTISEMENT ON CHILDREN'SEATING BEHAVIOUR

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ABSTRACT

A huge amount of study done on the role of Advertisement on child's food habit suggests that food advertisements vastly affect children's food preferences and the purchase requests. The present study was conducted to find out the influencing effect of food advertisement on eating behaviour of 10-12 years old children. For this purpose, 240 school going children (120 girls and 120 boys) were selected from four upper primary school by simple random sampling method. Structured questionnaire was developed to collect information from the children. Interview schedule method was used for the collection of data. Results indicate that acquaintance to food advertisements increases children's preferences for the advertised products. It was amazing that almost 80 % of them watched T.V. daily. All children watched T.V. advertisements in between T. V. Program. Results revealed that usually children liked advertisements related food and they purchased it after watching advertisement. Out of 240, 199 children liked food advertisement but only 124 watched it repeatedly. 216 children liked to buy and eat the food products after watching T.V. advertisement and about 160 children were spent most of their pocket money on advertised food and almost all were satisfied with it. But 57% of them also purchased those new products which are not advertised on television. Results on watching T.V. and frequency of eating outside the home revealed that maximum daily viewers were eating outside home once a week and only1% of the respondents did not eat outside. The results also revealed that fast food and Mughlai food were most preferred food by the children. The most frequent item children usually preferred to eat was chocolates. The second most preferred item was cold drinks. It can be concluded that the new generation of children are spending most of their time on television and their food preferences are severely affected by advertisement. time and again it is matter of discussion that small children are more liable to advertisement messages in comparison to that of older people because they do not understand the influential nature of advertising. So, the government has to take necessary actions to control unrealistic offers and misleading acts in the advertisement made for children, especially in case of food related advertisement.

KEYWORDS: Food Advertisements, Children, Eating behavior

INTRODUCTION

Nutrition during childhood and adolescence is essential for growth and development, health and well-being (Story et.al. 2002). Further, eating behaviors established during childhood track into adulthood and contribute to long-term health and chronic disease risk (Perry et.al. 2010). Numerous studies have consistently documented that dietary intake patterns of children and adolescents are poor and do not meet national dietary goals (Munoz et.al., 1987).

Science and technology are playing fundamental role in the advancement of human race. Eventually, science brought a lot of gifts to mankind; one such is mass-media. This mass-media includes, Television, Radio etc. Out of them, Television is playing influential role in an individual's life. This is true in regard to the programs being telecasted or the advertisements aired in between. Advertisements are being used in every industry to get noticed by their prospective

customer, and thereby converting them into consumers. These advertisements are also shaping the lifestyle of the individuals in large-whether elders, teenagers or children. Especially, these advertisements are influencing the lifestyle of the children in much greater fashion, both in righteous and unrighteous direction. The degree of impact of advertising on adults may be problematic but the outcome is devastating for children. Advertisers of children's television used to appeal to the parents earlier but now they appeal directly to children who do not have the emotional or cognitive tools to evaluate what's being sold to them. Television is no more just a source of entertainment for children. They showcase 'the must haves' for a kid, making them a consumer even before they have reached the age of 3. Small kids, even below 3 years of age, are found dominating the purchase decision, which is again the result of increasing influence of advertisements. Today, when children accompany their parents to markets, the prior will ask for those products which have yet reached the market (Miryala, 2015).

While multiple factors influence eating behaviors and food choices of children, one potent force is food advertising (Story et.al. 2002). Today's youth live in a media-saturated environment. Over the past 10 years, children and adolescents have increasingly been targeted with intensive and aggressive forms of food marketing and advertising practices through a range of channels (Kraak & Pelletier, 1998). Numerous studies have reflected a positive relationship between the time spent on watching television (TV) and unhealthy food habits of children. Excessive T.V. viewing not only results in reduced physical activity among the children but also an increased calorie intake. Studies have also revealed that T.V food advertisements enhance the consumption of fast food and energy-dense snacks among the consumers. One study demonstrates that children are far more likely to eat unhealthy foods, if they spent more time on television. This suggests that it would be beneficial to reduce the amount of television time that children watch (Jennifer et.al., 2009). Majority of children were spending their free time on watching television. So, the parents should engage their children in various useful activities and to make them more productive. The present study has been structured to identify the potential effect of T.V. food advertising on food behavior of the 10-12 years old children.

OBJECTIVES

To study the Impact of food advertisements on Children's eating behaviour

METHODOLOGY

The present study was conducted on 10-12 years old school going children of Udaipur city. The city is situated in the southern part of Rajasthan. The data was collected from 4 upper primary private schools of Udaipur City of Rajasthan State. The total sample size decided for the study was 240 respondents of 10-12 years studying in selected four upper primary schools of the city which are within 15-kilometer periphery. From each school 60 students (30 Boys and 30 Girls) were selected by simple random sampling method. In this way 240 students were selected having television set and cable at their homes. The tool for the study is a self-made questionnaire. The questionnaire was divided into two parts: the first section questions were about demographic characteristics such as name, gender, location, Age, occupation, income. The second section was to find out the favorite television channel and food related advertisement, influence of television food advertisement on food habits. Personal interview method was used for data collection from students. After establishing rapport with the respondents, the purpose of the study was explained to them and the data were collected with the help of structured schedule. To analysis and interpret the

collected data, relevant purposive statistical tools was used. Mean score, factor analysis, chi square was used to analyses data statistically. The statistical analysis was made with SPSS 20.0 statistical software.

FINDINGS AND DISCUSSION

Basic Information:

The present study was conducted to find out the impact of food advertisements on food habits of children. The age wise classification of the sample showed that out of 240 children, 46% of the children were falling in the age group of 10-11 years while 54% of the children were found to be in the age group of 11-12 years. The gender wise classification of the sample selected for the study were according to the requirement i.e. 50% boys and 50% girls were taken as sample. The birth order of the selected sample depicted that 44.17% were at the youngest place, and 23.33 % were at eldest place while only 12.50% were the middle ones. Out of the total, 20% of the sampled children were the only child of their parents. The family type also influences the food habits and other behavior of the child and soothe researcher classified the sample on the basis of type of family in which they reside. Results revealed that 60% of the children lived in nuclear family and 24% were living in joint families with their grandparents and cousins. Approximately 16% of them had only one parent to stay with them. It was found that more than half the sampled children (56.67%) received the pocket money from their parents. Out of about 57% of the children (136) who were receiving the pocket money, their scale of amount varied vividly. It ranged from 56 children who were getting 100 to 200 Rs. as their pocket money to 30 respondents in range of 50 to 100 Rs. Though 28 children received 300 to 400 Rs. and only 5% of them were getting pocket money even more than 400 Rs.

Television Advertisement:

Television addiction of children was the most vulnerable and often parents were worried about this. It was amazing that almost 80 % of them watched T.V. daily. Only very few of them (5.83%) were watching T.V. for 2-3 days in a week. Table-1 and chart- 1 show the reason behind watching these T.V. shows. It conveyed that maximum children (72.50%) had a very usual reply of that they watched T.V. only for entertainment purpose while only 14.17% of them utilized it for the learning/educational purpose.

Table 1: Reason of watching T.V.

Reason of watching T.V.	Respondents	Percentage
For learning/ education	34	14.17%
For entertainment	174	72.50%
For Time Pass	24	10.00%
For Relaxing	8	3.33%
Total	240	100.00%

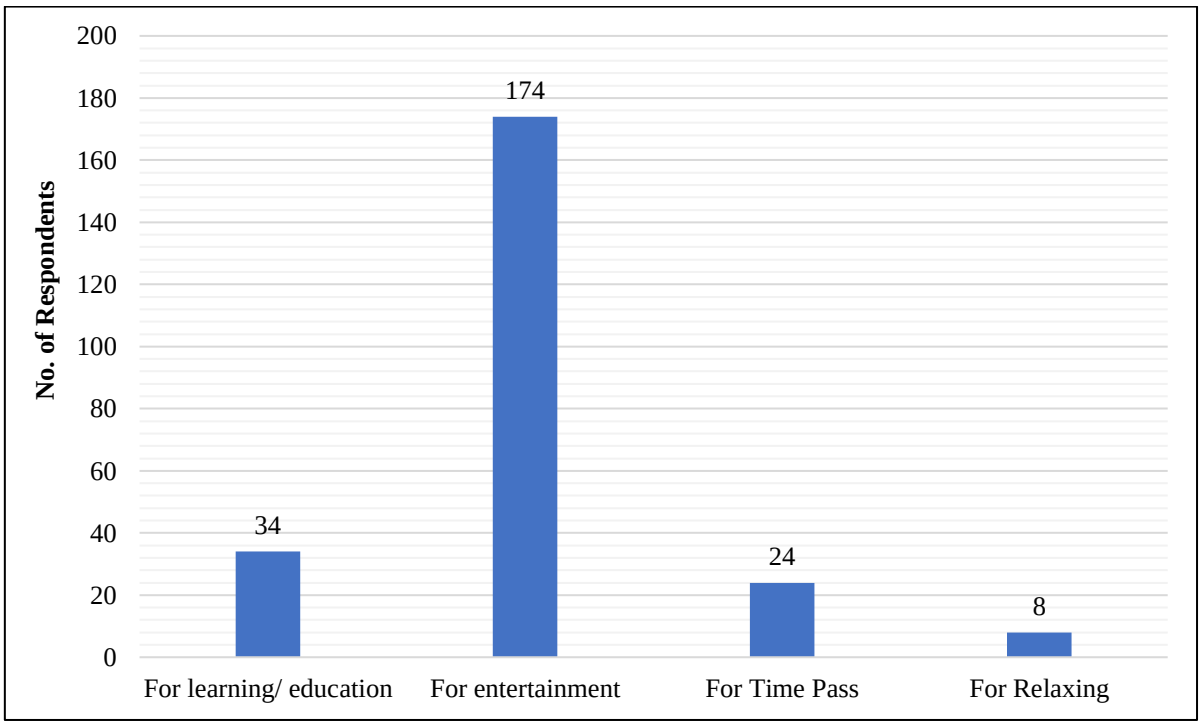

Chart 1: Reason of watching T.V.

All children watched T.V. advertisements in between T.V. program. Maximum number of children were fond of Cartoon Network channel followed by Disney Channel, Pogo, Hungama, Disney Junior and so on. All of them mostly preferred channels of cartoon serials and in that also particularly those stories that were focused on kids. This received the maximum (428-multiple) response. It was derived from the results that the most preferred cartoon characters which was favourite of the maximum sample respondent were Tom and Jerry, Nobita, Doraemon and Chhota Bheem. Results revealed that children did prefer to watch the T.V. Ads that were related to food products, which conveys that these Ads would definitely be encouraging or influencing them towards various eating habits. The second most favourite Ads was found automobiles.

Eating Behavior:

Maximum number of respondents i.e. 40.83% were taking 3 to 4 meals during a day, 28.33% were taking meal 4 to 5 times a day. They were interested to eat foods like chips, biscuits, chocolates and other ready to eat food. About 56% of the children were vegetarians and remaining 44% of them were non-vegetarian. only 3% of children did not have daily breakfast and it was found that almost 85% of the respondent's drank milk daily. Results also revealed 98.34% children agreed that breakfast was one of the most important meal of the day and it should not be skipped and the body requires a proper diet and nutritious breakfast in the morning to start the day (Table-2).

Table 2: Importance of breakfast as a meal

Importance of breakfast as a meal	Respondents	Percentage
Very important	208	86.67%
As important as other meals	28	11.67%
Not very important	2	0.83%
Not at all important	2	0.83%
Total	240	100.00%

Eating outside is always found to be a bit unhealthy as compared to routine home food. In the same sequence it was enquired that whether children eat out or not and if yes, then at what frequency. The result found was really alarming, as, maximum of them (118 respondents) generally prefer to eat outside once a week and only 1.67% didn't ever go for eating outside (Table 3).

Table 3: Frequency of eating outside home

Frequency of eating outside home	Respondents	Percentage
Less than once a week	86	35.83%
Once a week	118	49.17%
2-3 times a week	32	13.33%
Never	4	1.67%
Total	240	100.00%

When a cross table of watching T.V. and eating outside was prepared (Table-4, chart2), it was seen that maximum viewers of T.V. every day were eating outside home once a week and only1% of the respondents did not eat outside. The data revealed that 49.17% of the respondents went to eat outside once a week and 35.83% ate outside less frequently.

Table 4: Comparison of frequency of eating outside and watching T.V. by respondents

Frequency of eating outside	Frequency of watching T.V.				
	Every day	5-6 days	3-4 days	2-3 days	Total
Less than once a week	67	14	2	3	86
Once a week	107	6	3	2	118
2-3 times a week	17	6	0	9	32
Never	1	2	1	0	4
Total	192	28	6	14	**240**

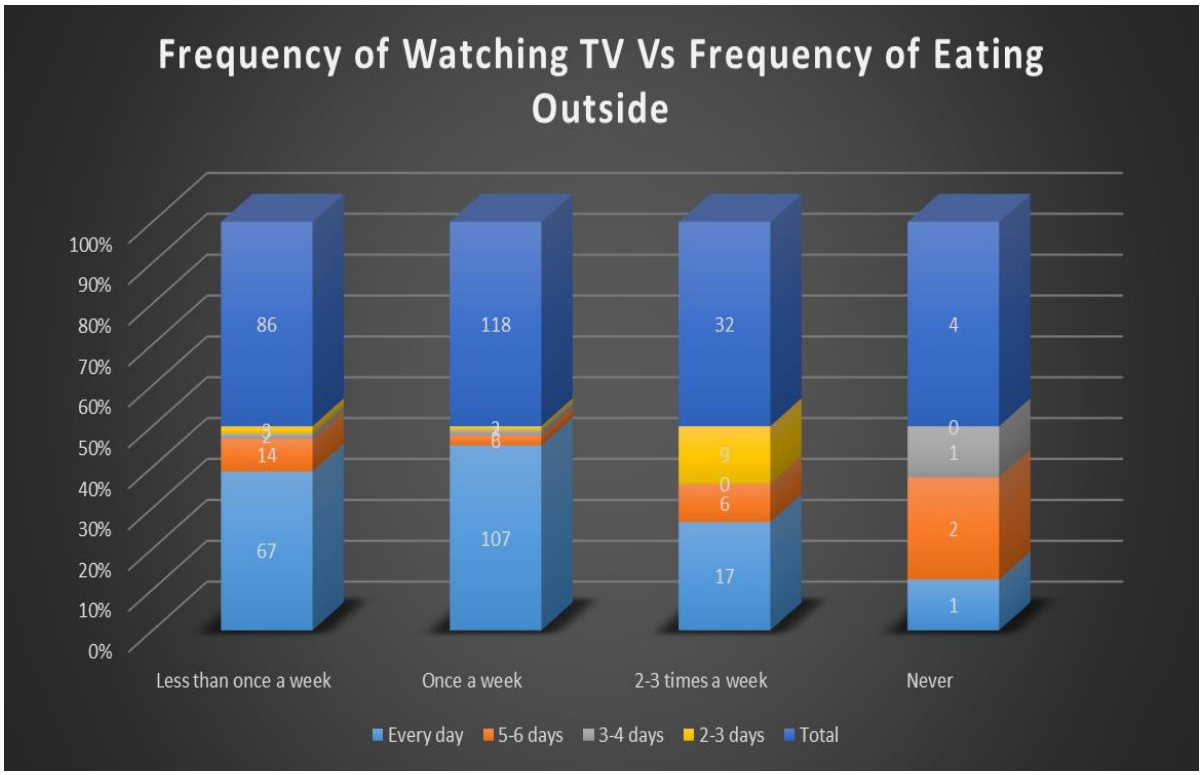

Chart-2: Frequency of watching T.V. in a span of weekdays

The results revealed that fast food and Mughlai food were most preferred food by the children (Table 5). The most frequent item children usually preferred to eat was chocolates. The second most preferred item was cold drinks. Whether aerated or not, but they are definitely injurious to the health of the child, as, these all items are artificially flavoured and not the real one (Table 6).

Table 5: Kind of food children prefer to eat out

Kind of food children prefer to eat out	Respondents	Percentage
Fast food	86	35.83%
Chinese food	42	17.50%
Punjabi food	20	8.33%
Mughlai food	82	34.17%
Any other	10	4.17%
Total	240	100.00%

Table 6: Frequency of consumption food items

S.N.	Food Items	Daily	3 Times A Week	Weekly	Occasionally	Never	Total
1.	Bakery Items	2	106	98	34	0	240
2.	Cold Drinks Items	98	73	46	17	6	240
3.	Chocolate Items	176	41	23	0	0	240
4.	Sweets items	31	51	88	62	8	240
5.	Ice Cream Items	54	96	68	22	0	240
6.	Chinese Food Item	0	44	146	39	11	240
7.	Gujarati Food Items	0	21	78	103	38	240
8.	Mughlai Food Items	0	11	97	46	86	240
9.	North Indian Foods	0	24	22	186	8	240
10.	South Indian Foods	0	98	102	19	21	240
11.	Street Food Items	0	100	117	21	2	240

Various factor regarding advertisement affect the eating habits of children were discussed with them (Table 7). Results revealed that usually children liked ads related to food and they purchased it after watching advertisement. Out of 240, 199 children liked food advertisement but only 124 watched it repeatedly. Out of 240 children, 216 liked to buy and eat the food products after watching T.V. advertisement and 69.44% were happy with their purchased food items. Two third (160 i.e.66.66%) of children spent most of their

pocket money on the purchase of advertised food and almost all were satisfied with it. But 57% of them also purchased those products which were not advertised on television. They (42%) requested their elders to purchase it for use. About 56 to 103 children did not give any reaction on tantrums, plead, blackmail and unexpectedly nice behaviour. Statistical test showed the significant relationship of time of watching television and eating behaviour of children.

Table 7: Factors affecting eating habits of children due to Advertisement

Factors affecting eating habits of children due to Advertisement		Rating					
S.No.	**Questions**	**Strongly Like**	**Like**	**Neutral**	**Dislike**	**Strongly Dislike**	**Total**
1	Do you like the food advertisement?	80	119	26	13	2	240
2	Do you want to watch the food advertisement repeatedly?	22	102	68	27	21	240
3	Do you like to buy the food products after watching T.V. advertisement?	118	98	8	10	6	240
4	Do you like to eat the food products after watching T.V. advertisement?	118	98	8	10	6	240
5	Do you enforce your parent to purchase the food after watching the food advertisement?	12	66	106	20	36	240
6	Do you spend most of your pocket money on advertised food?	98	62	56	20	4	240
7	Are you happy when you purchase the advertised food?	60	90	65	15	10	240
8	Do you purchase that product which is not advertised?	44	93	69	27	7	240

9	Do you use elder members of your home to make it purchase for you?	23	78	68	37	34	240
10	Do you use tantrums to purchase it?	12	94	70	44	20	240
11	Do you ask your friends to do it for you?	2	16	56	98	68	240
12	Do you Plead, Implore or Nag?	4	41	101	44	50	240
13	Do you Emotionally motivate/black mail?	8	98	78	32	24	240
14	Do you talk sweetly, and behave unexpectedly nice?	22	40	103	44	31	240
15	Do you wait for your parents to get in good mood & then ask?	78	97	39	22	4	240
16	Do you fall sick because you didn't get it?	0	2	202	13	23	240
17	Do you Show silent resentment?	33	92	66	35	14	240
18	Do you ask for another request for an agreeable option?	11	109	66	33	21	240
19	Do you get depressed?	33	103	65	29	10	240

CONCLUSION AND IMPLICATIONS

The present study was conducted on 10-12 years old children of Udaipur city, Rajasthan, to find out effects of advertisement on food habits of children. Results revealed that maximum children preferred watching T.V. Ads that came in between the shows. It was analysed that children did prefer to watch the T.V. Ads that were related to food products, which conveys that these Ads would definitely be encouraging or influencing them towards various eating habits. They spent their pocket money to purchase the food items which were advertised on T.V. This study suggested that watching food advertisement influenced children's food choices or eating behaviour. Food Advertisement increased consumption of that products in school going children which were shown in ads; how-so-ever, they are unhealthy and energy dense. The study also revealed that the food advertisers use tricks and gimmicks and teach bad food habits in the children. The TV ads

are severely affecting the eating behaviour of children; hence, the government has to take necessary action to control unrealistic offers in the children-based food advertisement. The government need to run some health welfare awareness programmes which must convey a proper message to children to understand and react on these ads.Parents also should take pain and try to make their ward realize the good and bad which is been shown in these ads.They should engage their children in various useful activities and to make them more productive.

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EFFECT OF A HERBAL NUTRACEUTICAL SUPPLEMENT ON THE BLOOD GLUCOSE LEVELS OF TYPE 2 DIABETES; A RANDOMIZED CONTROLLED TRIAL

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ABSTRACT

Diabetes mellitus is a metabolic disorder that affects people of all age groups. Despite the availability of different classes of oral hypoglycemic drugs, the incidence of complications continues to rise. World Health Organization has substantiated the utilization of herbal remedies to combat diabetes. Hence, the present study examines the hypoglycemic effect of a herbal nutraceutical supplement (containing *Tinospora Cordifolia, Corosolicacid, Gymnema, Cinnamon*) on type 2 diabetes (T2DM).In a parallel-arm randomized control trial, 60adults withT2 DM were enrolled, of whom 40 individuals were randomly assigned to receive herbal nutraceutical capsules for 60 days and 20 individuals were assigned to the control group, who did not receive any supplement. Blood samples were collected to measure glycemic responses at baseline, 30th day, 60th day and 90th day. 'Paired t–test' was used to compare the changes in the blood glucose levels. Results revealed that at baseline there was no significant difference between the experimental and control group on anthropometric and blood glucose parameters. Significant reduction in the mean fasting and postprandial blood glucose levels was observed in the experimental group after 60 days of supplementation compared to the baseline. It could be concluded that supplementation of herbal nutraceutical supplement (containing *Tinospora Cordifolia, Corosolicacid, Gymnema, Cinnamon*) for 60 days seems to lower blood glucose and it could be considered as an effective hypoglycemic agent in the management of T2DM.

Keywords: Blood Glucose level, Herbal supplement (Tinospora Cordifolia, Corosolic acid,Gymnema and Cinnamon), T2DM

INTRODUCTION

Diabetes Mellitus is a major global health problem and is now recognized as one of the leading causes of death worldwide (Uebanso *et al.,* 2007).According to the International Diabetes Federation (IDF) Diabetes Atlas, 2019, globally there are 463 million adults with diabetes and it is expected to rise to 578million by 2030 and 700 million by 2045(IDF Atlas, 2019).The goal of treatment in is T2DM to achieve and maintain optimal blood glucose, lipid, and blood pressure levels to prevent or delay chronic complication(American Diabetes Association, 2010). Besides exercise, weight control and medical nutrition therapy, oral glucose-lowering drugs and insulin injections are the conventional therapies for the disease (De Fronzo et al., 1992). However, these conventional therapies have adverse side effects, are expensive and require expertise (Piero et.al, 2011). Due to the side effects associated with the oral hypoglycemic agents there is presently growing interest in herbal remedies for the treatment of diabetes mellitus (Kim et al., 2006). The trend today is to turn back to natural substances to avoid the side effects associated with synthetic drugs (Huang et al., 1992). One of the greatest advantages of traditional medicinal plants is that, they are readily available and have no side effects (WHO, 1980). Medicinal herbs like *Momordicacharantia, Tinospora Cordifolia, Gymnemasylvestre, Enicostermmalittorale, Pterocarpusmarsupium, Salacia reticulate, Cocciniagluaca and Trigonellafoneumgraceum* are prescribed as single powder drugs or as combined herbal drugs (poly-herbal) for the treatment of diabetes (Sadhu, 2005). Evidence hints that the herb *Tinospora* may have anti-diabetes (Rathi et

al., 2002) and cholesterol-lowering effect (Prince et al., 2003). The herb T. Cor*difolia* has also shown some promising speed in healing diabetes foot ulcers (Purandareet at., 2007). *Corosolic acid*, the active ingredient of *Banaba* leaf extract has displayed potential anti-diabetes activity (Judy et al., 2003). The plant *Gymnema* is reported to increase glucose uptake and utilization. It also improves the function of pancreatic β-cells and may also decrease glucose absorption in the gastrointestinal tract. *Gymnemasylvestre* enhances the production of endogenous insulin there by lowering blood glucose levels (Baskaran et al., 1990). Mang et al. (2006) suggested that the extract of spice *cinnamon* seems to have a moderate effect in lowering serum fasting glucose concentrations in glycemically controlled diabetes mellitus patients. Because of these facts, the present study is undertaken.

OBJECTIVE

To examine hypoglycemic effect of an herbal nutraceutical supplement, which is a combination of *Tinospora Cordifolia, Corosolic acid, Gymnema and Cinnamon,* on T2DM

MATERIALS AND METHODS

2.1 Study Participants

Participants with T2DM in this parallel-arm, randomized controlled trial were identified from a diabetes camp conducted in Royapuram, Panaimarathotti, Chennai, India based on inclusion and exclusion criteria. Inclusion criteria were: age35-65 years, T2DM, currently receiving oral hypoglycemic drugs, fasting blood glucose level >100mg/dl, postprandial blood glucose levels > 120mg/dl, willing to give informed consent and follow study protocol. Exclusion criteria were: Currently receiving insulin, taking any herbal or ayurvedic medicine to control blood glucose, having any illness/complication that may affect study outcome, such as tuberculosis, cardiovascular disease, kidney disease, other complications of diabetes or states of pregnancy and lactation.

About 135 adults both male and female with T2DM visited the diabetes camp in overnight fasting state around 7.30 am. They were briefed about the study and its objectives by the investigator. Venous blood samples were collected to measure fasting and post prandial (1 $^1/_2$ hour) blood glucose levels by a well-trained phlebotomist. Based on inclusion and exclusion criteria, 60 T2DM of both sexes (30 males and 30 females) who expressed willingness to participate in the study were enrolled. Selected participants were randomly assigned to experimental group (n= 40) and control group (n=20). Experimental group participants received nutraceutical herbal capsule for a period of 60 days and control group participants were advised to follow their regular diabetic diet and prescribed medication.

The study was approved by the Ethical Committee instituted by the Department of Home Science, Queen Mary's College, Chennai, India. Written informed consent was obtained from all the participants prior to the commencement of the study.

2.2 Intervention methods and participants compliance

Participants assigned to the experimental group were provided with 2 bottles of nutraceutical herbal supplement which contained 60 capsules each, free of cost. Dosage regimen of the herbal supplement was clearly explained to the study participants and the prescribed dosage for the 60 days was 2 capsules /day, with each capsule containing 460 mg of herbal component. The entire dosage for the day was within safe limits as deduced from toxicological studies reported by Pingale & Sadashiv (2011). Participants were contacted over phone by investigator every week to ensure compliance and obtain feedback regarding the occurrence of any unusual symptom if any after the consumption of the supplement.

2.3 Outcome Assessments

Interviewer administered questionnaire was used to assess demographic profile, medical history and dietary habits at baseline. Anthropometric measurements such height, weight, body mass index, biochemical parameter i.e fasting and post prandial blood glucose levels were assessed on baseline (0 day), 30^{th}, 60^{th}, and 90^{th}day for both experimental and control group.Weight (kg) was assessed using bathroom weighing scale, height (cm) was measured using scale vertically. Body mass index (BMI) was calculated as weight (kg) divided by height-squared (m^2). Biochemical parameter was assessed in a National Accreditation Board for Testing and Calibration Laboratories certified laboratory. Fasting (≥8 hours) and postprandial venous blood samples were collected into tubes containing EDTA as an anticoagulant. Fasting and postprandial blood glucose was estimated using the glucose oxidase-peroxidase method (Roche Diagnostics, Basel, Switzerland).

2.4 Particulars of the supplement

The supplement given in the study was a Herbal Nutraceutical Supplement, manufactured as capsules by Oriens Global Marketing Pvt. Ltd., The supplement capsules contained 200mg of Tinospora Cordifolia, 50mg of Corosolic acid, 200mg of Gymnema and 10mg of Cinnamon. The composition of the Herbal Nutraceutical Supplement is given in table

Table 1: The composition of the Herbal Nutraceutical Supplement is given in table 1

Components	Amount
Tinospora Cordifolia	200 mg
Corosolic acid	50 mg
Gymnema	200 mg
Cinnamon	10 mg

The Herbal Nutraceutical supplement is an approved product under AYUSH certification.

DATA ANALYSIS

Statistical analysis was performed using SPSS software (version 20.0; SPSS, Inc., Chicago, IL). Data is shown as mean, standard deviation with standard error unless otherwise stated. Student's t-test was used to compare anthropometric measurements and mean blood glucose values. All tests of significance were two-tailed and a *P* value of <0.05 was considered significant.

RESULTS

Table 2 shows baseline characteristic of the study participants. Family history of diabetes (78.35) was reported by higher percentage of the participants. One third of the participants were recently detected with diabetes (less than 2 years) whereas 68.3% of the participants reported having diabetes for more than 2 years. Walking as a physical exercise for 30mins/day was reported by 30 % while 40% were not involved in any physical exercise. In accordance to the type of diet consumed, all participants were found to be non- vegetarian (100%).

Table 2: Baseline characteristics of the participants with type 2 diabetes (n= 60)

Characteristics	n (%)
Age	
35- 40	9(15)
41-45	9(15)
46-50	19(31.7)
51-55	9(15)
56-60	5(8.3)
61-65	9(15)
Family history of diabetes mellitus	
Yes	47(78.3)
No	13(21.7)
Duration of diabetes mellitus	
Less than 2 years	19(31.7)
2-5 years	14(23.3)
5-10 years	16(26.7)
More than 10 years	11(18.3)
Physical activity-Walking	
None	24(40)
Less than 30 mints/day	18(30)
30-60 mints/day	14(23.3)
More than 1hr/day	4(6.7)
Type of diet	
Vegetarian	0
Non-vegetarian	60(100)
Lacto vegetarian	0
Ova vegetarian	0
Lacto ova vegetarian	0

Table 3 compares the mean weight and BMI between experimental and control group. There was no significant difference in weight and BMI between control and experimental group at baseline. Similarly, no significant difference was observed in weight and BMI between the experimental and control group at the end of intervention period i.e. 60thday. Body weight and BMI decreased significantly from baseline in both experimental group and control group at the end of intervention period. However, the decrease in body weight and BMI of the control group participants cannot be considered as healthy weight loss as it is associated with a rise in blood glucose levels. An increase in fasting and postprandial blood glucose levels was observed on the 60th day as compared to baseline. Rise in blood glucose levels as seen in uncontrolled diabetes mellitus could cause wasting of lean body mass and thereby a decrease in body weight.

Table-3: Comparison of mean body weight and body mass index between experimental group (n=40) and control group (n=20)

Description	Mean ± SD	S.E	't' value	*P* value
Body Weight (kg)				
Baseline (0day)				
Experiment group	66.7 ± 12.6	2.0	0.03	0.98
Control group	66.8 ± 9.4	2.1		
Post- intervention period (60th day)				
Experiment group	65.8 ± 12.8	2.0	0.21	0.83
Control group	65.1 ± 9.3	2.1		
Control Group				
Baseline (0day)	66.8 ± 9.4	2.1	6.47	<0.001
Post intervention period (60th day)	65.1 ± 9.3	2.1		
Experimental group				
Baseline (0day)	66.7 ± 12.6	2.0	2.86	0.01
Post intervention period (60th day)	65.8 ± 12.8	2.0		
Body Mass Index (kg/m2)				
Baseline (0 day)				
Experiment group	26.1 ± 4.2	0.7	1.48	0.14
Control group	27.8 ± 4.1	0.9		
Post- intervention period (60th day)				
Experiment group	25.6 ± 4.2	0.7	1.3	0.20
Control group	27.1 ± 4.1	0.9		
Control group				
Baseline (Day 0)	27.8 ± 4.1	0.9	4.61	<0.001
Post- intervention period (60th day)	27.1 ± 4.1	0.9		
Experimental group				
Baseline (Day 0)	26.1 ± 4.2	0.7	2.42	0.02
Post- intervention period (60th day)	25.6 ± 4.2	0.7		

Table 4 shows no significant difference in the fasting and the post prandial blood glucose levels between the experimental and control group throughout the intervention period. A closer look reveals a considerable decrease in the blood glucose values of the experimental group as compared to the control group during the post intervention period. The lack of statistical significance in the blood glucose levels between the experimental and control group could be attributed to one or two extreme values obtained in the control group which is reflected by the high standard deviation value in the control group. However, a significant difference in blood glucose values during the wash out period between the experimental and control group depict that the lowered blood glucose levels of the experimental group sustained even after withdrawal of the supplement which was not the case in the control group that received no such supplement.

Table 4 Comparisons of mean blood glucose levels between the experimental and control group

Variables	Time period	Experimental (n=40)		Control (n=20)		't' value	*P* value
		Mean ± SD	S. E	Mean ± SD	S. E		
Fasting blood glucose (mg/dl)	Baseline (0 Day)	151.7 ± 31.1	5.03	140.1 ± 33.3	7.4	0.66	0.51
	Post intervention (30th day)	151.2 ± 40.4	6.39	146.7 ± 35.5	7.9	0.43	0.67
	Post Intervention (60th day)	141.7 ± 35.5	5.61	155.2 ± 38.8	8.7	1.34	0.19
	Wash out period (90th day)	141.1 ± 35.8	5.65	162.6 ± 38.4	8.6	2.143	0.03
Post prandial blood glucose (mg/dl)	Baseline (0 Day)	243.6 ± 60.8	9.61	215.3 ± 64.9	14.5	0.003	0.99
	Post intervention (30th day)	229 ± 70.6	11.17	228.9 ± 72.4	16.2	1.67	0.10
	Post Intervention (60th day)	212.8 ± 55.1	8.704	242.7 ± 74	16.5	1.76	0.08
	Wash out period (90th day)	204.9 ± 54.8	8.66	248 ± 74.1	16.6	2.55	0.01

Table 5shows no significant difference in the fasting and post prandial blood glucose values between the baseline and 30th day of the intervention period in the experimental group. Whereas, in control group fasting and post prandial blood glucose increased significantly on 30th day, 60th day and 90th day when compared to baseline. Significant reduction (at 1% level) in the mean fasting as well as post prandial blood glucose levels was observed after 60 days of supplementation with the herbal nutraceutical supplement in the experimental group as compared to the baseline.

Table 5 Comparison of mean blood glucose levels in the experimental (n=40) and control group (n=20)

Variables	Experimental Group				Control Group			
	Mean	**S. E**	**'t' value**	***P* value**	**Mean**	**S. E**	**'t' value**	***P* value**
Fasting blood glucose (mg/dl)								
Baseline (0 Day)	151.7 ± 31.1	5.0	0.07	0.945	140.1±33.3	7.4	5.04	<0.001
Post intervention (30th day)	151.2 ± 40.4	6.4			146.7±35.5	7.9		
Baseline (0 Day)	151.7 ± 31.1	5.0	2.504	0.017*	140.1±33.3	7.4	6.0	<0.001
Post Intervention (60th day)	141.7 ± 35.5	5.6			155.2±38.8	8.7		
Post Intervention (60th day)	141.7 ± 35.5	5.6	0.1518	0.88	155.2±38.8	8.7	4.48	<0.001
Wash out period (90th day)	141.1 ± 35.8	5.7			162.6 ± 38.4	8.6		
Post prandial blood glucose (mg/dl)								
Baseline (0 Day)	243.6 ± 60.8	9.6	1.53	0.13	215.3±64.9	14.5	3.8	<0.001
Post intervention (30th day)	229 ± 70.6	11.2			228.9±72.4	16.2		
Baseline (0 Day)	243.6 ± 60.8	9.6	2.763	0.009*	215.3±64.9	14.5	7.4	<0.001
Post Intervention (60th day)	212.8 ± 55.1	8.7			242.7±73.9	16.5		
Post Intervention (60th day)	212.8 ± 55.1	8.7	1.414	0.165	242.7±73.9	16.5	5.24	<0.001
Wash out period (90th day)	204.9 ± 54.8	8.7			248 ± 74.1	16.6		

The 't' value obtained (0.1518) for the difference in mean fasting blood glucose values between the post intervention and wash out period in the experimental group was not found to be significant. This indicates that there was no significant difference in the fasting as well as post- prandial blood glucose values between post intervention and wash out period and that the reduced blood glucose

values after supplementation remained without any significant change even after withdrawal of the supplement.

DISCUSSION

In the present study, a significant reduction was seen in the weight and BMI in the experimental group after supplementation with the herbal nutraceutical supplement, which indicates a healthy reduction in weight. Khogali et al., (2014) who studied the effect of cinnamon on blood glucose level and lipidemia among diabetes patients for 12 weeks found a significant reduction in the weight and BMI as compared to the baseline. Similarly, Rajalakshmi et al., (2010) found a significant decrease in body weight of alloxan induced diabetes rats compared to baseline parameters when they were treated with tinosporacordifolia for a period of 2 weeks. The decrease in weight and BMI of the control participant ts after 60 days without any supplementation cannot be considered as healthy weight loss as it parallels an increase in fasting and post prandial blood glucose levels after 60 days as compared to the start of the study. Therefore, the weight reduction in the control participants could be attributed to wasting of lean body mass commonly seen in uncontrolled diabetes mellitus.

With regard to blood glucose estimations, the herbal nutraceutical supplementation induced a significant reduction in fasting and post prandial blood glucose levels of the experimental group after 60 days of supplementation. Similarly, Shobhaet al., (2015) observed that the whole plant extract of TinosporaCordifolia significantly($p<0.001$) reduced the blood glucose levels towards normal values after 60 days of supplementation. The blood glucose lowering effect of TinosporaCordifolia is attributed to the insulin like behavior of the plant extract or its effect in activating insulin secretion. Grover *et al., (*2000) reported maximum anti-hyperglycemic effect in diabetes rats after oral feeding of aqueous extract of tinosporacordifolia at 400 mg/kg body weight for six weeks.

In vitro studies conducted by several investigators have reported that blood glucose concentration in T2DM mice decreased significantly after intake of cinnamon. Both dosages 5gm and 10gm of daily cinnamon intake lowered HbA1C by 10.25% and 5.73% respectively (Kannappan*et al.,* 2006; Qin *et al.,* 2010; Kim et al., 2010). These findings compare favorably with the observations of Crawford, (2009) who showed that 1gm cinnamon daily for 90 days significantly lowered HbA1c by 0.83% in T2DM (Crawford et al., 2009).Soni *et al*., (2009) showed that using 2g cinnamon had significant effect on the blood glucose of T2DM after 40 days and the findings confirmed that cinnamon is an effective material in decreasing the blood glucose of diabetes patients. Likewise, Joffe *et al*., 2001 found a decrease in fasting and post prandial blood glucose by 11 and 13 % in diabetes patients given a product containing gymnema leaf extract (400mg) twice a day for three months. In another trial, treatment of T2DM patients with a *Gymnemasylvestre* based product (1 g/day for 2 months) led to a significant decrease in fasting and post prandial blood glucose levels which were accompanied by increase in circulating insulin and C-peptide. In addition, it was found to stimulate insulin secretion from isolated human islets of Langerhans (Al-Romaiyan*et al*., 2010). A mild decrease in fasting (1%) and post prandial (1%) blood glucose level was also seen in T2DM treated for 4 weeks with 6 g/day of *Gymnemasylvestre* leaf powder (Paliwal *et al.,* 2009).

A similar blood glucose lowering effect was also reported by investigators working with corosolic acid. Miura et al., (2004) conducted several studies on genetically diabetes (KK-AY) mice on which corosolic acid was administered. A single dose of 10 mg/kg, corosolic acid significantly reduced blood sugar levels. This effect was shown to be associated with an increase in the muscle glucose transporter (GLUT4). In a subsequent study, they showed that a single dose of 2 mg/kg corosolic acid reduced blood sugar levels for up to 2 weeks (Miura et al., 2006), supporting the hypothesis that corosolic acid improves glucose metabolism by reducing insulin resistance. An aqueous extract of corosolic acid (150 mg/kg body weight) given to streptozotocin-induced diabetes mice for up to 15 days significantly decreased not only blood glucose levels but also exhibited a potent antioxidant effect (Saumyaet al., 2011). Administration of a spray-dried extract of corosolic acid (100 mg/kg body weight) for 28 days by gavage to alloxan-induced diabetes mice resulted in significantly lower blood and urine glucose levels (Tanquilut*et al*., 2009)

CONCLUSION

A decrease in the blood glucose levels both fasting and post prandial was evident after 60 days of supplementation with herbal nutraceutical supplement in T2DM.Thus the combination of Tinosporacordifolia, corosolic acid, gymnema and cinnamon in the form of herbal nutraceutical supplement seems to be effective in reducing blood glucose levels of T2DM. Even after withdrawal of the herbal nutraceutical supplement a reversal in the blood glucose response was not observed, instead the lowered blood glucose levels sustained. Reduced body weight and BMI recorded after 60 days of supplementation with herbal nutraceutical supplement in the experimental group indicates a healthy reduction in body weight. Hence it can be concluded that herbal nutraceutical supplement could be considered as ahypoglycemicagent, which could be recommended for the management and treatment of T2DM.

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VALIDATION OF THE DIABETES RISK SCORE CARD AS A SCREENING TOOL IN ADULT POPULATION (20 - 79 YEARS) OF VADODARA CITY

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ABSTRACT

The transcending prevalence of diabetes along with the quagmire of undiagnosed diabetes and pre-diabetes connotes the need for early detection through opportunistic screening for avoidance or delay of progression to type 2 diabetes.The study was planned with an objective to validate the Vadodara Diabetes Risk Score Card developed by Desai and Iyer in 2008 as a screening tool in the adult population of Vadodara city. For risk factor analysis, 501 free living adults were enrolled and data on anthropometric profile, medical history, diet, physical activity and Fasting Blood Sugar (FBS) was collected. The prevalence of overweight and obesity, hypertension, diabetes and coronary heart disease was 72.9%, 20.0%, 16.8% and 2.6% respectively. The significant predictor variables identified for diabetes were heredity, waist circumference and hypertension. Around 11.8% of the subjects had high FBS values (≥126 mg/dl).To identify the undiagnosed Impaired Glucose Tolerance (IGT) and type 2 diabetes mellitus cases, 47 subjects with high FBS values who gave consent were subjected to an oral glucose tolerance test. About 14.9% of the subjects were detected with overt diabetes, 6.4% with IGT and 6.4% with both impaired fasting glucose and IGT. To assess the sensitivity and specificity of the diabetes risk score card, the risk categories identified through the score card were compared against medical history of diabetes and newly detected diabetes. The tool with a cut-off score of ≥20 was able to identify 69% of the undiagnosed diabetics with a specificity of 62%. This risk score card can thus be used as a cost-effective and non-invasive tool for identifying undiagnosed diabetics and at risk individuals in urban Vadodara.

Keywords: Diabetes, Risk score card, Screening tool

INTRODUCTION

The prevalence of diabetes continues to increase unabashedly across the globe. Worldwide more than 463 million people were living with diabetes in 2019. If these trends continue, by 2030, some 578 million people are stated to have diabetes. Unfortunately, more than 50% of the diabetic subjects remain unaware of their diabetes status, which adds to the disease burden (International Diabetes Federation, 2019). India earns the dubious distinction of being termed as the 'Second Diabetic Capital of the World', after China. Also, the prevalence of pre-diabetes is mounting in India. Such a huge disease burden puts an enormous load on the country's health care infrastructure. This underscores the need for mass awareness and screening programmes to identify and curb the rising prevalence of diabetes in India. Screening for type 2 diabetes has important implications for individual health, day-to-day clinical practice, and public health policy(International Diabetes Federation, 2012). A diabetes risk score card may prove to be a simple, non-invasive and inexpensive tool in order to identify individuals with impaired glucose regulation and predict their risk of developing type 2 diabetes (Lindström and Tuomilehto, 2003). However, the risk score derived for a specific population may not be applicable to other

populations due to ethnic and regional variations (Spijkerman et al, 2004; Glümer et al, 2006). A region specificVadodara Diabetes Risk Score Card was developed by Desai and Iyer in 2008. This risk score card needs to be evaluated for its sensitivity and specificity. In this context, the present study was planned with the following objectives:

OBJECTIVES

1. To evaluate the risk factor profile of free living adults from Vadodara city
2. To map the prevalence of undiagnosed Impaired Glucose Tolerance (IGT) and Type 2 Diabetes Mellitus (T2DM) using Oral Glucose Tolerance Test (OGTT)
3. To determine the sensitivity and specificity of the VadodaraDiabetes Risk Score (VDRS) Card developed for the identification of IGT and T2DM subjects

METHODOLOGY

A prospective cross-sectional study design was used. For risk factor analysis, a total of 501 adultsin the age group of 20-79 years were enrolled from 11 societies selected in a concentric fashion from Vasna area of Vadodara city. A rapid assessment questionnaire was used to assess the risk factor profile based on anthropometrics, medical history, personal habits, diet and physical activity. Fasting Blood Sugar (FBS) was estimated using a glucometer. Out of the 501 adults, 111 individuals having FBS ≥ 100 mg/dl were approached for a glucose challenge in order to identify the undiagnosed IGT and T2DM cases. A total of 47 subjects who gave their consent underwent the OGTT. The OGTT was performed using 75 grams of glucose with fasting and 2 hour plasma glucose measurements. Known diabetics were not subjected to OGTT.

The VDRS developed by Desai and Iyer in 2008 is based on ten predictor variables identified using odds ratio. The variables include diabetic siblings, diabetic parents, one diabetic parent and the other parent from a diabetic family, Body Mass Index (BMI), Waist Circumference (WC), activity profile, hypertension, smoking, green leafy vegetable intake and fruit intake. In the VDRS the presence of a risk factor is allotted a score of 5. The scoring system ranges from 0-50 with ≤ 10 as low risk, 11-20 as moderate risk and > 20 as high risk. The risk score was calculated for all the subjects under study. To assess the sensitivity and specificity of the VDRS the risk categories identified through the score card were compared against medical history of diabetes and newly detected diabetes. Results are expressed as percentages and frequency distributions. A result was declared to be statistically significant only if the p value of an analysis was less than 0.05. The statistical analysis was carried out using Microsoft® Office Excel 2007 and SPSS. The study was approved by the local medical ethics committee.

RESULTS AND DISCUSSION

Majority of the subjects belonged to the productive age group of 40-59 years (50.9%). Information on medical history revealed that the most widespread condition among the subjects was overweight and obesity (72.9%), followed by hypertension (20.0%), diabetes (16.8%) and coronary heart disease (2.6%).

Risk factor scenario

Data on the prevalence of risk factors is given in Table - 1. Family history of diabetes was found in 23.3% of the subjects. Central adiposity indicates deposition of large quantities of abdominal fat, which consists of visceral fat and subcutaneous fat. Visceral fat increases the risk of

diabetes and hyperlipidaemia by favouring insulin resistance(Menon and Venugopal, 2018). Majority of the subjects were abdominally obese (77.4%) and had high BMI values (72.9%).Elevated levels of systolic blood pressure and diastolic blood pressurewere found in an alarmingly high 72.8% and 78.2% of the subjects respectively.

Physical inactivity and unhealthy diets are among the leading causes of the major non communicable diseases. Low fruit and vegetable consumption was reported in around 60.7% and 25.9% of the subjects respectively. Around 60% of the subjects had low physical activity levels, morefemales (65.4%) being physically inactive as compared to males (50.8%). High FBS values (≥ 100 mg/dl) were present in33.3% of the subjects. Nearly 12% of the subjects had FBS values ≥ 126 mg/dl. A similar risk factor profile in a free living urban population has been reported by another study (Mehan et al, 2006). In the study physical inactivity was reported in 74.4% of the study population and about 76% of the subjects had a low intake of fruits and vegetables.

Table 1: Risk Factor Analysis of the Subjects (N, %)

Risk factors	Males	Females	Total
	N = 177	**N = 324**	**N = 501**
Heredity of Type 2 Diabetes Mellitus	45(25.4)	72(22.2)	117(23.3)
Abdominal Obesity	104 (58.8)	284 (87.6)	388 (77.4)
Body Mass Index (Kg/m^2)			
23-24.9	40 (22.6)	63 (19.4)	103 (20.6)
≥25	49 (27.7)	124 (38.3)	173 (34.5)
≥30	25 (14.1)	64 (19.7)	89 (17.8)
Systolic Blood Pressure (mmHg)			
120-139	59 (33.3)	114 (35.2)	173 (34.5)
≥140	78 (44.1)	114 (35.2)	192 (38.3)
Diastolic Blood Pressure (mmHg)			
80-89	76 (42.9)	143 (44.1)	219 (43.7)
≥90	72 (40.7)	101 (31.2)	173 (34.5)
Smoking	18 (10.2)	0 (0)	18 (3.6)
Fruit Intake< 3 times/week	112 (63.3)	192 (59.3)	304 (60.7)
Vegetable Intake< 3 times/week	52 (29.4)	78 (24.1)	130 (25.9)
Low Physical Activity	90 (50.8)	212 (65.4)	302 (60.3)
Fasting Blood Sugar (mg/dl)			
100-125	36 (20.3)	72 (22.2)	108 (21.6)
≥126	21 (11.9)	38 (11.7)	59 (11.8)

Values in parentheses indicate percentage

A multi-factorial adverse risk profile contributes to the development of one or more medical conditions along with the debilitating complications and consequences associated with it. Majority of the subjects (84.9%) in the present study had 3-6 risk factors indicating the presence of a multiple risk factor scenario (Fig. - 1).

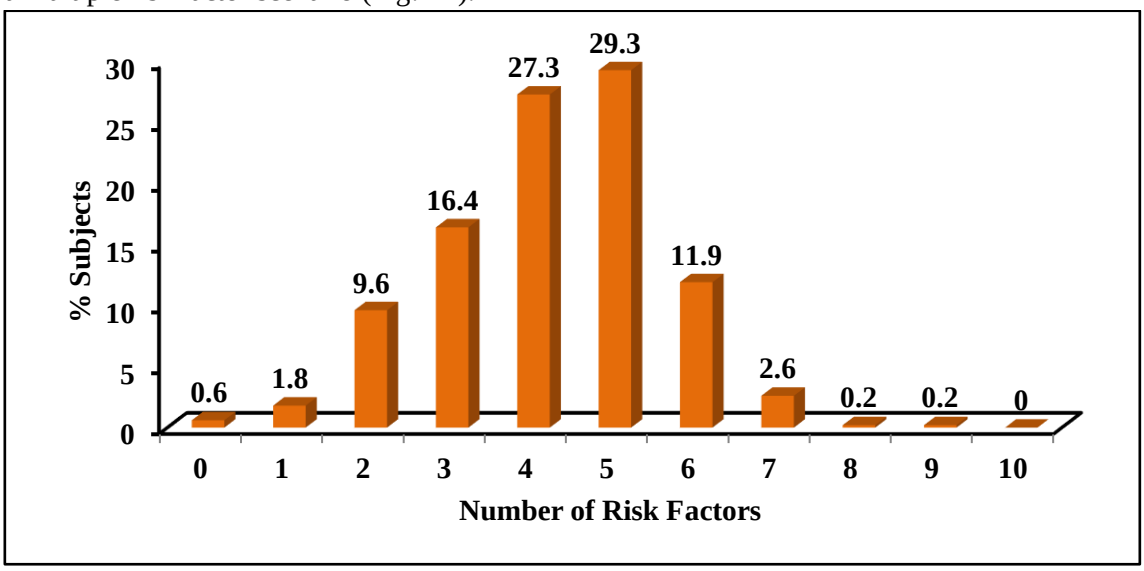

Figure 1: Frequency of Risk Factors among Subjects of Vadodara City

Odds ratio of subjects with history of diabetes v/s normal

As a number of risk factors were present among the subjects studied, it was thought worth-while to apply odds ratio (OR) to identify predictor variables for diabetes. Based on the odds ratio, the significant predictor variables for diabetes were heredity, WC and hypertension (Table - 2). Results of present study are in line with data from the DESIR (Data from an Epidemiological Study on the Insulin Resistance Syndrome) study which found that an increase in WC was significantly associated with diabetes incidence with a standardized OR (95% confidence interval) of 1.79 (1.45–2.21) (Gautier et al, 2010).

Table 2: Odds Ratio of Subjects with History of Diabetes v/s Normal Subjects (N, %)

Variable	History of Diabetes	Normals	OR (95% CI)
N	**84**	**417**	
Heredity Present	30 (35.7)	87 (20.9)	**2.11*** **(1.27-3.49)**
Heredity Absent	54 (64.3)	330 (79.1)	
Waist Circumferenceat Risk	72 (85.7)	316 (75.8)	**1.92*** **(1.0002-3.68)**
Waist CircumferenceNormal	12 (14.3)	101 (24.2)	
HypertensionPresent	66 (78.6)	191 (45.8)	**4.34*** **(2.49-7.56)**
HypertensionAbsent	18 (21.4)	226 (54.2)	

Values in parentheses indicate percentage;* Significant at $p < 0.05$

Prevalence of undiagnosed IGT and T2DM based on OGTT

The network of risk factors along with chronic hyperglycemia can lead to development of adverse metabolic alterations and complications. Diabetes, especially at-risk and undiagnosed untreated diabetes is a major segment for intensifying the potency of this network. Of the 47 subjects who underwent the OGTT, 15 were males and 32 were females. Overt diabetes was detected in around 14.9% of the subjects. About 6.4% of the subjects had IGT and 6.4% had both IFG and IGT (Fig. - 2). Dishearteningly, 12.8% of the subjects were at-risk of developing overt diabetes in the future.

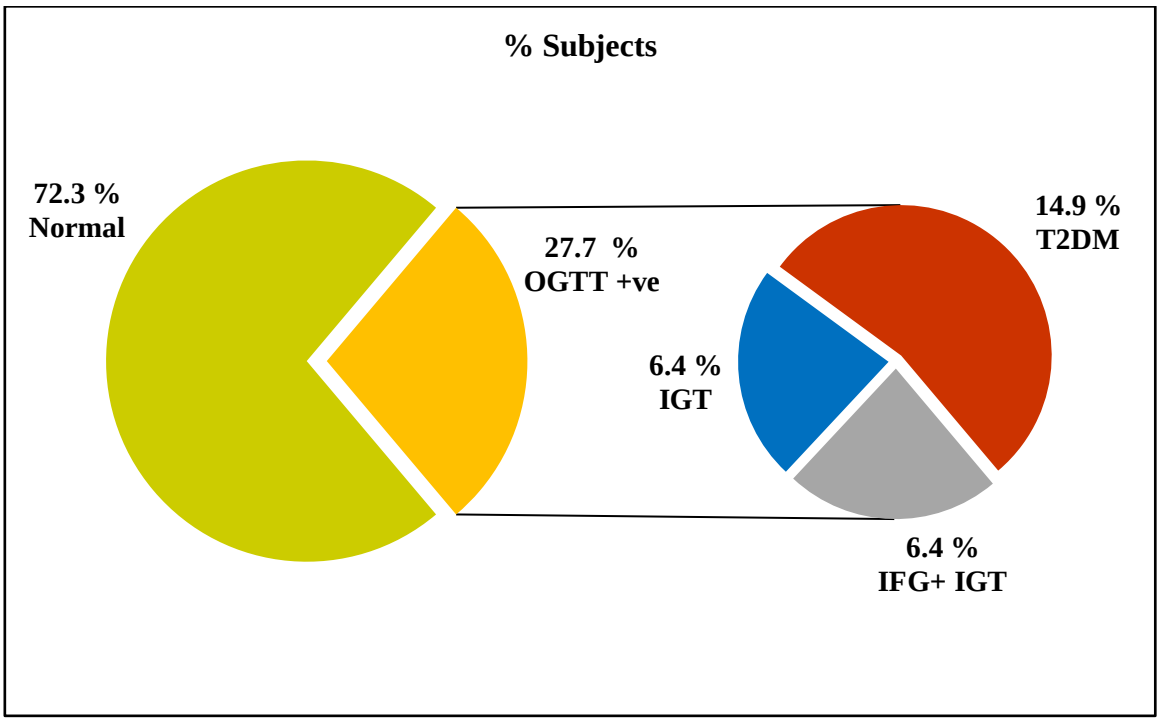

Figure 2: Prevalence of Diabetes Based on Oral Glucose Tolerance Test

Odds ratio of diabetes (total diabetics v/s normal)

The prevalence of total diabetic subjects (known history and newly detected diabetes) was found to be 19.3%. An attempt was made to calculate odds ratio of diabetes with various variables. The risk factors WC, BMI and Hypertension had higher risk for diabetes with OR 2.19, 1.95 and 7.77 respectively (Fig. - 3). Hypertension is common among patients with T2DM and may precede the onset of diabetes. A study on type 2 diabetic subjects from Vadodara city found 50% of the diabetics to be hypertensive (Venugopal and Iyer, 2010). This supports findings of present study that hypertension evolved as a predictor variable for diabetes.

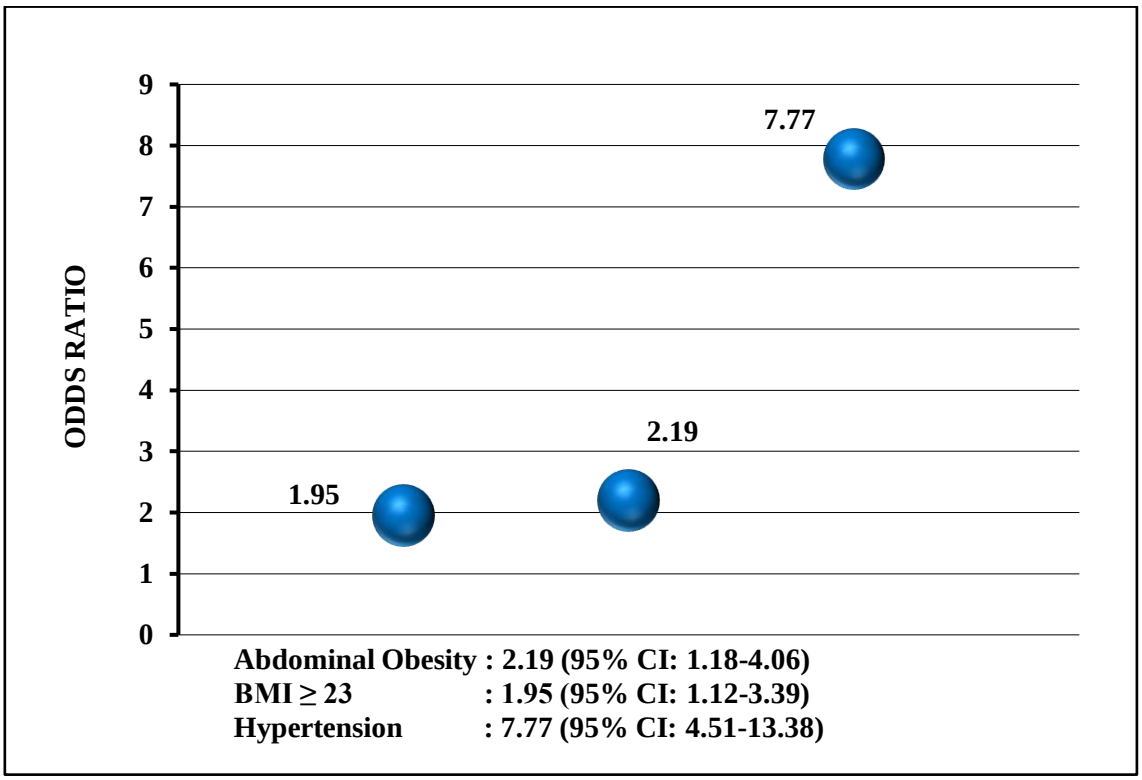

Figure 3: Odds Ratio of Diabetes (Total Diabetics v/s normal)

Validation of the VDRS

Risk score scenario of normal subjects and subjects with history of diabetes

Based on the risk score card, 95.2% of the subjects with a history of diabetes fell in the at-risk category (Table - 3). Majority of the normal subjects (86.5%) were found to be at a moderate risk (44.8%) or high risk (41.7%) of developing diabetes.

Table 3: Risk Score Scenario of Normal Subjects and Subjects with History of Diabetes (N, %)

	Subjects with medical history of diabetes	Subjects without medical history of diabetes
N	84	417
Low risk	4(4.8)	56 (13.4)
Moderate risk	32 (38.1)	187 (44.8)
High risk	48 (57.1)	174 (41.7)

Values in parentheses indicate percentage

Risk score scenario of subjects who underwent the OGTT

About 69.2% subjects detected OGTT +ve belonged to the high risk category (Table - 4). Among the subjects who were detected as normal, majority belonged to at-risk categories with only 11.8% in the low risk category, indicating that these subjects (88.2%) were also at increased risk of developing diabetes in the near future.

Table 4: Risk Score Scenario of Subjects who Underwent the OGTT (N, %)

	OGTT +ve	**OGTT –ve**
N	13	34
Low risk	0 (0)	4 (11.8)
Moderate risk	4 (30.8)	17 (50)
High risk	9 (69.2)	13 (38.2)

Values in parentheses indicate percentage

Sensitivity and specificity of the risk score card at various risk scores using OGTT

Since a number of subjects in the at-risk risk score card categories showed presence of the clinical condition and those in the low risk category showed absence of the same, it was considered worth-while to assess the sensitivity and specificity of the VDRS at various risk scores (Table - 5) to identify IGT and T2DM subjects. The VDRS with a scoring system ranging from 0-50, showed best sensitivity (69.23%) as well as specificity (61.76%) at a score greater than 20 i.e. presence of a minimum of 5 risk factors when compared with OGTT results. Also, the positive predictive value and negative predictive value at this score was 40.9% and 84% respectively. Higher VDRS scores increased the specificity but the sensitivity dramatically decreased. Conversely, lower VDRS values increased the sensitivity but the specificity drastically decreased. Hence a risk score greater than 20 was considered as the best high risk cut-off.

Table 5: Sensitivity and Specificity of VDRS at Various Risk Scores

Risk Scores	**N (%)**	**%Sensitivity (95% CI)**	**%Specificity (95% CI)**	**% Positive Predictive Value (95% CI)**	**% Negative Predictive Value (95% CI)**
>5	47 (100)	100 (75.12-100)	0 (0-10.38)	27.66 (15.64-42.64)	0
>10	43 (91.5)	100 (75.12-100)	11.76 (3.37-27.47)	30.23 (17.20-46.13)	100 (40.23-100)
>15	40 (85.1)	100 (75.12-100)	20.59 (8.74-37.91)	32.50 (18.59-49.13)	100 (58.93-100)

>20	**22 (46.8)**	**69.23 (38.61-90.72)**	**61.76 (43.57-77.82)**	**40.91 (20.75-63.63)**	**84 (63.9-95.36)**
>25	10 (21.3)	30.77 (9.28-61.39)	82.35 (65.46-93.19)	40 (12.40-73.63)	75.68 (58.80-88.20)
>30	1 (2.1)	0 (0.0-24.88)	97.06 (84.62-99.51)	0 (0-83.45)	71.74 (56.54-84)
>35	0	0 (0.0-24.88)	100 (89.62-100)	0	72.34 (57.36-84.36)
>40	0	0 (0.0-24.88)	100 (89.62-100)	0	72.34 (57.36-84.36)
>45	0	0 (0.0-24.88)	100 (89.62-100)	0	72.34 (57.36-84.36)
>50	0	0 (0.0-24.88)	100 (89.62-100)	0	72.34 (57.36-84.36)

Receiver Operating Characteristic (ROC) curve

An ROC curve was constructed to identify the optimum value of VDRS for detecting diabetes using American Diabetes Association criteria for OGTT (Fig. - 4). An ROC curve is a two-dimensional depiction of classifier performance. Area under the curve (AUC) was calculated to reduce ROC performance to a single scalar value representing expected performance. AUC is a combined measure of sensitivity and specificity. It is a measure of the overall performance of a diagnostic test and is interpreted as the average value of sensitivity for all possible values of specificity. The area under the curve was 0.655 (95% confidence interval: 0.480-0.830). Also, the AUC is significantly different from 0.5 (p-value<0.000) indicating the ability of the test to discriminate between subjects with and without the clinical condition.

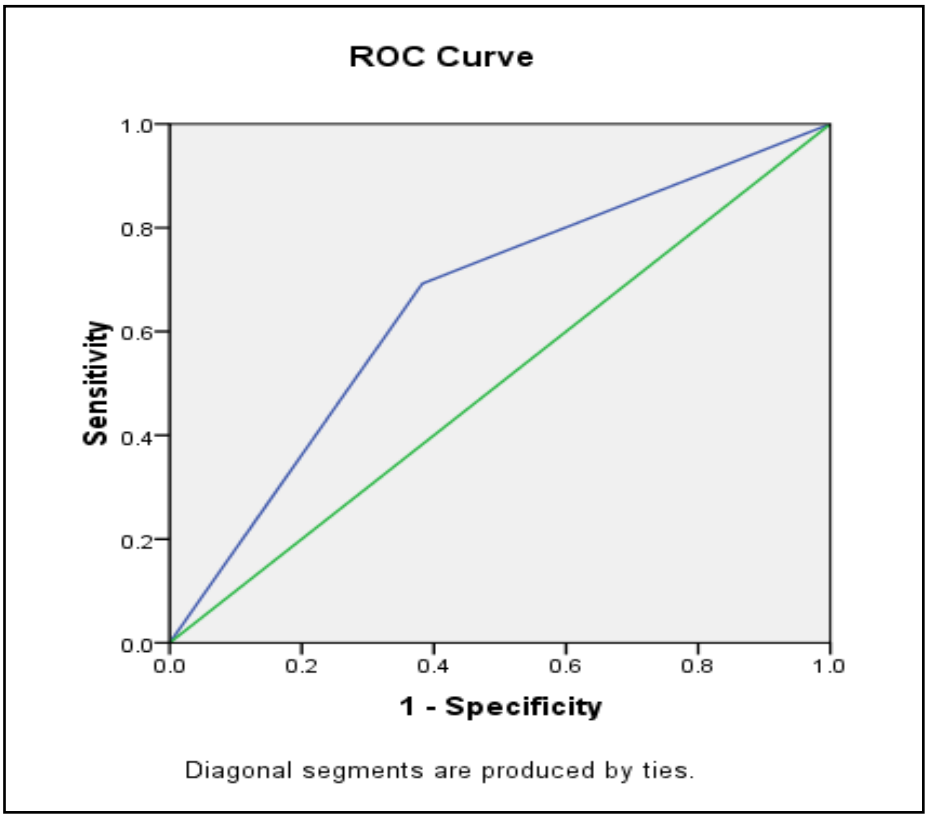

Figure 4: ROC Curve Showing the Performance of the VDRS

Results on similar lines have been revealed with the Indian Diabetes Risk Score wherein if a score ≥ 60 is used, 72.5% of the people with undiagnosed diabetes in a population can be detected, with a specificity of 60.1%.The AUC for the ROC was 0.698(95% confidence interval: 0.663-0.733)(Mohan et al, 2005).

CONCLUSION

The VDRS card can be used as a cost effective and non-invasive screening tool for identifying undiagnosed diabetics and individuals at risk of developing diabetes in the population of Vadodara city. A population-based screening characterized by a multi- stepped approach, starting with the VDRS followed by further invasive diagnostic tests can be applied thus reducing the cost related to diagnostic tests for screening the population at-large. Moreover, it is less time consuming and leads to higher compliance among the participants as it is easily accessible. It can prove to be a useful strategy at the population level and can help the policy makers to design cost-effective programmes which could bring down the prevalence of prediabetes and diabetes and also prevent/delay the development of related micro and macro vascular complications.

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PERCEPTION OF PARENTS REGARDING MID DAY MEAL PROGRAMME: AN EMPIRICAL STUDY OF UDAIPUR CITY

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ABSTRACT

India is struggling with two major problems related to children of India – one is that large number of students are still not going to schools and the other one is malnutrition and hunger in children is considerably large. Central government considered the issue of increasing enrolment, attendance and retention of students in schools and improving their nutritional status and decided to launch the National Programme of Nutritional Support to Primary Education (NP-NSPE) in 1995. Although Mid-Day Meal was launched with a view to get rid of these problems and over the years state government has been successful in this direction. But still there are many challenges facing the government. Therefore, the present study is an attempt to analyze the opinion of parents regarding the scheme, with particular reference to Udaipur district. A questionnaire designed for parents was divided into two sections – one for their basic demographic details and the other one for their opinion regarding MDM. This section contained 17 statements which were related to their opinion regarding the need of MDM, hygiene, nutritional value, improvements in child due to MDM, usefulness of the programme, serving care etc. In all 25-26 parents from each school were selected comprising 205 respondents in all. The collected data were analyzed using descriptive statistics, frequency, percentage, t test etc. Analysis of parents' opinion revealed that parents are satisfied with the quantity, quality and nutritional value of food provided in mid-day meal programme. They also agreed that teachers serve the food to their wards affectionately, without any discrimination and encourage their children to adopt good food habits.

Keywords: Mid-Day Meal, Nutrition, Girls

INTRODUCTION

The concept of child health and the importance of proper food in the maintenance of health have been recognized from the time immemorial. In fact, children are important asset of the country because they are the tomorrow's young men (Kumari and Jain, 2005). India is a developing country and has a fairly large population of children. About 27 million children are born every year in India but protein energy malnutrition (PEM) is a major nutritional deficiency affecting school age children in India. Food insecurity poses a severe threat to the health and overall development of children. Therefore, Indian government launched "National Programme of Nutritional Support to Primary Education" (NP-NSPE) on 15th August, 1995. From October 2007, the scheme included students of upper primary classes (six to eight) in 3,479 educationally backward blocks and the name was changed from National Programme for Nutrition Support to Primary Education to National Programme of Mid-Day Meals in Schools (Angelique ,2007).

India is struggling with two major problems related to children of India – one is that large numbers of students are still not going to schools and the other one is malnutrition and hunger in children is considerably large. Despite several attempts by union and state governments, the problem still persists. In particular, Rajasthan has some distinctive features – such as desert area, tribal population, backward people, prevalence of social evils and superstitions, illiteracy, agriculture-based economy etc. These features also contribute a lot to the above-mentioned major problems.

Central government considered the issue of increasing enrolment, attendance and retention of students in schools and improving their nutritional status and decided to launch the National Programme of Nutritional Support to Primary Education (NP-NSPE) in 1995. This centrally sponsored scheme was launched on 15 August 1995, initially in 2408 blocks of the country. Later all blocks of the country were included in the scheme by 1997-98. The objective of the NPNSPE was stated as follows by The Government of India:

> "The programme is intended to give a boost to universalization of primary education, by increasing enrolment, retention and attendance and simultaneously impacting on nutrition of students in primary classes"
>
> (GoI, 1995).

Although Mid-Day Meal was launched with a view to get rid of these problems and over the years state government has been successful in this direction. But still there are many challenges facing the government. Therefore, the present study is an attempt to analyze the opinions of parents regarding the scheme, in particular Udaipur district.

Review of Literature

For the purpose of the study various earlier studies were reviewed. Some of them are as follows:

Malik, Venkatraman and Baby (2018) collected opinion on perceived benefits by beneficiaries on functioning of the scheme in slums of Delhi i.e. in Madanpur Khadar and Nizamuddin Basti, with an objective to assess the perception, belief, opinion and acceptability of parents on Mid-day Meal Scheme. The results revealed that the children and parents were satisfied with the functioning of the programme, quality of food, menu. The children irrespective of their background were found to enjoy the sharing of food with visible social interaction. The poor parents had a very positive view on the Scheme, thus suggested for its continuation with addition of newer food items to enhance nutrition level.

Jayalakshmi and Jissa (2017) assessed the nutritional status of 6–10-year-old school children who were the beneficiaries of MDM and the child-related factors affecting their nutritional status. A cross-sectional study was performed among 322 children from 12 randomly selected primary schools in one block panchayat of Kerala state. The background information was collected from children and their parents, and anthropometric measurements of the children were observed. The prevalence of under nutrition was estimated using conventional indices (stunting, underweight, and wasting) and composite index of anthropometric failure (CIAF). Logistic regression analysis was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs). This study showed a higher prevalence of under nutrition among school-age children who were the beneficiaries of MDM Programme, and this indicated the need for continuous nutritional interventions and surveillance among these children.

Nath and Nath (2015) attempted to find out the impact MDM programme on enrolment, retention and achievement level of the students. Results disclosed that after the introduction of mid-day meals the percentage of enrolment increased. Parents were more interested to send their children. Due to the introduction of Mid-Day meals percentage of retention also increased. The headman expressed their opinion in support of introducing of Mid-Day Meals scheme at the primary level. The Mid-Day Meals programme helped increasing the attendance and enrolment of the poor students. The rural teachers and headman had unanimously positive attitude towards this Mid-Day Meals scheme.

Shalini et al. (2014) compared the nutritional status of rural and urban school children (aged 5 to 15 years) receiving mid-day meals prepared by the Sri Sai Mandali Trust in schools of Bengaluru, India. They reported that in spite of the children receiving mid-day meals their observed weight and height in both urban and rural were below the expected standards. They also believed that the magnitude of the burden of under-nourished students, as seen in this study, would have been much greater in the absence of the midday meal program.

Rana (2014) investigated the various aspects of this scheme like meal menu, locality of kitchen and sheds used for cooking food, quality and quantity of food distributed, frequency of inspection, hygienic condition, effect on student enrolment and retention etc. Researcher visited 20 schools from Chandigarh and 20 schools from Panchkula and a sample of 200 teachers was selected for opinionnaire. Study indicated that the scheme had improved the attendance of students in schools but still could not make up the increased enrolment and retention of students. The scheme is providing sufficient nutrition to the students but the areas like food safety, food variety, distribution time, responsibilities on teachers regarding the scheme and accountability of authorities need much improvement.

Sigma Research and Consulting Pvt. Ltd. (2014) conducted a research with the aim of understanding and establishing the need, impact and continuance of implementing the mid-day meal programme of Akshaya Patra. Thorough research was conducted across all the three feeding population categories i.e. beneficiaries of Centralised kitchens, Decentralised kitchens and Anganwadi Centres. The outcome of this study clearly established the positive impact of the mid-day programme. Classroom hunger was addressed significantly, with attendance and enrolment receiving a boost. The recommended nutritional requirements were being fulfilled and the food was healthy and hygienic too. Both parents and children confirmed to partaking the mid-day meal together, irrespective of caste, religion and economic status. This trend was observed across all locations signifying the importance of universalization of the meal.

Uma (2013) brought out the quality issues related to Mid-day Meal scheme and Right to Education Act, 2010. It was concluded that the clients of government primary schools were the children who belonged to the poor families. Though, the objectives and potential benefits of the MDM scheme were mainly: increased enrolment, attendance and retention; improved child nutrition; and social equity. Though, the enrolment statistics have improved and the dropouts might have reduced however, quality in education and food has also decreased.

World Food Programme (2013) stated that in the last few years, there had been an increase in the level of participation and investment of partners at all levels in school feeding activities. This might be because partners were responding to countries' increased demand for support, and also because they had recognized the role that school feeding can play to achieve social protection and child development goals. Formalizing partner coordination seemed to be a matter of priority, especially at the global level.

Paul and Mondal (2012) attempted to analyze the nature and impact of mid-day meal programme on academic achievement of students in some selected upper primary level schools of Burdwan district in West Bengal. The study covered three hundred students both in urban and rural areas encompassing 'Below Poverty Line' (BPL) and 'Above Poverty Line' (APL). The results of Chi-square test revealed that mid-day meal program had a significant positive impact in academic achievement of students. A multiple regression model was used to determine the extent of relationship between mid-day meal programme (via the factors- attendance, enrolment, retention and drop out) and academic achievement of students. The result of multiple regression model further indicated that there was significant positive influence on academic achievement of students by taking into consideration the factors – enrolment, attendance, retention and drop out of students. Furthermore, mid-day meal program has some other benefits like removal of classroom hunger, social and gender equality and formation of good habits of students (like washing their own hands and utensils before meal) other than academic achievement in school.

Evans et al. (2010) found that the differences between school meals and packed lunches were larger for all nutrients after the introduction of food-based standards compared with the period of no standards. However, differences between before and after standards did not reach statistical significance. The nutritional quality of packed lunches was poor compared with school meals. The introduction of food-based standards for school meals in 2006 had moderately improved the nutrient content of school meals, slightly widening the nutritional gap between school meals and packed lunches.

Thus, a need to conduct a study with reference to Rajasthan was felt.

OBJECTIVE

The study has following objective:

- To study the opinion of parents regarding MDM programme in Udaipur City

Hypothesis: Following hypothesis was framed for the research:

- There is no significant difference between opinion of parents and neutral opinion for various aspects of mid-day meal scheme

METHODOLOGY

Data Collection and Sample

The questionnaire designed to study opinion of parents was divided into two sections – one for their basic demographic details and the other one for their opinion regarding MDM. This section contained 17 statements which were related to the need of MDM, hygiene, nutritional value, improvements in child due to MDM, usefulness of the programme, serving care etc. These questions were asked on a 5-point Likert scale ranging Strongly Agree (5) to Strongly Disagree (1). The total sample comprised of 205 parents (25-26 parents from each school).

The collected data were analyzed using descriptive statistics, frequency, percentage, t test etc. Opinions of parents have also been showed with the help of bar graphs.

FINDINGS

Descriptive Statistics

In order to have knowledge about characteristics of data, descriptive statistics were calculated. Table 1 presents the descriptive statistics of the opinion of parents over various statements regarding mid-day meal scheme in the school of their wards.

Table 1: Descriptive Statistics regarding opinion of Parents

Statements	Mean	Std. Dev.	Skewness	Kurtosis
1. Are you satisfied with the quality of food served to your child under MDMP?	2.02	.139	6.999	47.448
2. The food provided under the programme is prepared with full care and hygiene.	2.04	.194	4.796	21.208
3. Has your child ever fell ill because of the food?	3.95	.216	-4.220	15.967
4. There is significant improvement in the health of your child due to MDMP.	2.61	.621	.488	-.635
5. Your child does not need MDMP.	3.88	.631	-2.034	4.763
6. Do you send your ward to school because of MDMP?	3.40	.831	-.851	-1.015
7. Your ward has developed good food habits due to MDMP.	2.00	.000	.	.
8. Due to MDMP, there is improvement in your child's educational level.	2.62	.587	.332	-.697
9. While serving food in MDMP, discrimination is done among children on the basis of caste etc.	3.90	.313	-3.204	10.051
10. Instead of cooked food, providing raw grain is a better option.	3.26	.566	-.032	-.427
11. MDMP should be closed.	3.93	.656	-.868	1.840
12. A lot of time of teachers is wasted in the execution of MDMP.	3.16	.648	-.168	-.656
13. MDMP is having adverse effect on the studies of their child.	3.67	.502	-1.068	-.084
14. Children are improperly served the mid-day meal.	3.97	.169	-5.627	29.951
15. Teachers also take advantage of MDMP.	2.97	.692	.039	-.898
16. Today, the main function in school is cooking food and serving to students instead of teaching.	3.60	.606	-1.276	.577

17. Do you feel that mid-day meal contains appropriate nutritional value for your child?	2.42	.534	.697	-.723

It was found that respondents are on agreement side for 7 items whereas they are on disagreement side for remaining 10 statements. Parents agreed with the statements that "You are satisfied with the quality of food served to your child under MDMP", "The food provided under the programme is prepared with full care and hygiene", "There is significant improvement in the health of your child due to MDMP", "Your ward has developed good food habits due to MDMP", "Due to MDMP, there is improvement in your child's educational level", "Teachers also take advantage of MDMP" and "Mid-day meal contain appropriate nutritional value for your child". The mean values for these statements are less than 3.0 which is the neutral opinion.

Parents disagreed that "Your child ever fell ill because of the food", "Your child does not need MDMP", "You send your ward to school because of MDMP", "While serving food in MDMP, discrimination is done among children on the basis of caste etc", "Instead of cooked food, providing raw grain is a better option", "MDMP should be closed", "A lot of time of teachers is wasted in the execution of MDMP", "MDMP is having adverse effect on the studies of their child", "Children are improperly served the mid-day meal" and "Today, the main function in school is cooking food and serving to students instead of teaching". The mean values of these statements are more than 3.0.

When the statements were further analysed, it was found that all the statements with which parents agreed are the advantages of MDM and all the statements to which parents disagreed are disadvantages of MDM. Apart from this, the standard deviations for all statements are very low, especially for statement "Your ward has developed good food habits due to MDMP", its value is zero. It indicates that opinion of parents for all statements do not differ much. The same is observed from the low value of skewness except for few statements. Kurtosis, which shows the peakedness of statistical distribution, is very high for some statements whereas very low for remaining statements.

Thus, it can be concluded that mean opinion of parents towards MDM is quite enthusiastic as they agree to advantages offered to them and disagree to disadvantages offered to them. This shows that parents are very much satisfied with the implementation of MDM in the schools of their wards. Then, remaining items asked on Likert Scale, have been analyzed using t- test and the results have presented in Table 2.

Table 2: Results of t Test

Statement	t	P-Value
Are you satisfied with the quality of food served to your child under MDMP?	-101.247	.000
The food provided under the programme is prepared with full care and hygiene.	-70.877	.000
Has your child ever fell ill because of the food?	63.071	.000
There is significant improvement in the health of your child due to MDMP	-8.892	.000
Your child does not need MDMP.	20.038	.000
Do you send your ward to school because of MDMP?	6.805	.000
Due to MDMP, there is improvement in your child's educational level	-9.279	.000
While serving food in MDMP, discrimination is done among children on the basis of caste etc.	41.216	.000
Instead of cooked food, providing raw grain is a better option.	6.543	.000
MDMP should be closed.	20.216	.000
A lot of time of teachers is wasted in the execution of MDMP.	3.556	.000
MDMP is having adverse effect on the studies of their child.	19.054	.000
Children are improperly served the mid-day meal.	82.256	.000
Teachers also take advantage of MDMP.	-.605	.546
Today, the main function in school is cooking food and serving to students instead of teaching.	14.284	.000
Do you feel that mid-day meal contains appropriate nutritional value for your child?	-15.446	.000

It is revealed that majority of parents are satisfied with the quality of food served to their child. Parents also agree that the food provided under the mid-day meal scheme is prepared with full care and hygiene and that their wards have never fallen ill because of the food. Parents opined that there is a significant improvement in the health of their child due to MDM. Parents agree that MDMP is essential for their children but do not agree that they send their child to school just because of MDM.

Parent opined that their children have developed good food habits due to MDM and their children's educational level has improved because of MDM. MDM is nutritious enough to help activate brain cells and increase learning power. Parents also opined that while serving food to them no discrimination is made among children on the basis of caste, colour, religion or gender. Parents prefer to be provided their wards with cooked food rather than raw grain. Parents do not want the MDMP to be closed. They also not agree that MDMP wastes a lot of time of teachers.

Parents do not agree that MDM is having adverse effect on the studies of their child neither they agree that MDM is not properly served. Parents agree that teachers also take advantage of MDM but they do not agree that cooking food and serving to students has become the main function in the school instead of teaching. Parents agree that MDM contain appropriate nutritional value.

CONCLUSION

This research paper presents the analysis of opinion of parents towards various aspects of mid-day meal programme. Analysis of parents' opinion revealed that parents are satisfied with the quantity, quality and nutritional value of food provided in mid-day meal programme. They also agreed that teachers serve the food to their wards affectionately, without any discrimination and encourage their children to adopt good food habits.

Parents should be sensitized towards the importance of mid-day meal along with home meal. They should be made aware that mid-day meal is only supportive meal not the substitute. Parents should also be counseled towards other girl beneficiaries programmes such as using sanitary pads, immunization, iron and folic acid deficiency tablets etc. In order to address malnutrition, there should be a written list of nutrients included in each meal. The list should also include micro-nutrients. The nutritional quality of food may be increased by incorporating green leafy vegetables, seasonal fruits and fortified foods. MDM guidelines provide for annual health check-up, but it has not been properly implemented. Therefore, it should be made mandatory and sufficient arrangements should be made for it.

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IMPACT OF TELEVISION VIEWING AND MOBILE USAGE ON NUTRITIONAL STATUS OF SCHOOL GOING CHILDREN (6-16 years) IN CHENNAI

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ABSTRACT

Childhood obesity is an emerging problem in Indian children. The adverse effects of television viewing and mobile usage were worse for the children who were also sedentary or had a higher-fat diet. The present study is planned to evaluate the dietary patterns and usage of mobile phones and television viewing through a questionnaire. The main objective was to correlate between the nutritional status of school going children and the frequency of TV viewing and mobile phone usage. An observational study by Random sampling method was conducted on 105 subjects aged 6-16yrs. Anthropometry measurements of the subjects were categorized as Obese, Overweight, Normal and malnourished. Four sites of skin fold were measured. Data was collected using Questionnaire for parents. Results revealed that prevalence of obesity and overweight by **BMI**, Triceps, Biceps, Subcapsular and Supra iliac sites were observed to be significant ($p<0.005$ for BMI, and $p<0.005$ for Triceps, Biceps, Subcapsular and Suprailiac). It was found to have a correlation between the nutritional status of school going children and the frequency of TV viewing and mobile phone usage ($p<0.005$) which was assessed by means of a questionnaire. To conclude, the study revealed a relatively high prevalence of overweight and obesity in children and adolescents. So, early detection and intervention is needed to prevent this condition.

Key words: BMI, Mobile phones and television viewing

INTRODUCTION

Childhood obesity is an emerging problem in Indian children and an increase in childhood overweight and obesity are major contributors to the adult obesity. The present study is aimed at evaluating dietary pattern as determinants of overweight in a school going children (6-16 years). The factors contributing to childhood obesity are such as parental obesity, eating behaviours, TV viewing andlack of physical activity. Child obesity is a strong risk factor for diabetes, hypertension and ischemic heart disease. An increasing number of hours spent watching television is one mechanism that may underlie in these rapidly rising rates and even mobile phone use and discovered a large use rate of 1.5-5 hours a day (Anura, 2007).

According to WHO, India ranks number 3 in obesity. BMI (Body Mass Index) is a well-known clinical tool to assess obesity. Childhood obesity increases the risk of obesity in adulthood and is associated with cardiovascular disease risk factors such as hypertension, diabetes and dyslipidemia. Recent reports indicated that the increase in childhood obesity is much more rapid in developing countries than in developed countries (Zhao, 2016).The American Journal of Paediatrics (2010) states that the perception has drastically changed based on evidence that obesity in childhood is associated with a wide range of serious health complications and an increased risk of premature illness and death later in life.

The television is a landmark of scientific invention and an amazing device that has become an integral part of our life and it has revolutionized the world of communication a part of having lots of advantages, excessive television watching leads to multiple health problems among children age between 6 to 16 years. Watching television is one of the reasons for reducing play amount in children. Watching television in childhood and adolescence has been linked to adverse health indicators including obesity, poor fitness and raised cholesterol (Hancox, 2004). As per The American Academy of Paediatrics (2013) recommendations the children should not watch more than 1 to 2 hours of television each day.

Mobile phone usage has been increased dramatically which could affect the health of the people. It can cause certain health problems such as headache, earache, neck pain, painful fingers, restlessness, morning tiredness, tingling fingers, fatigue, and eye symptoms and sleep disturbance among adults and children (Kanimozhy, 2016). Mobile phone usage is so strongly integrated into young children's behavior that symptoms of behavioural addiction, such as cell phone usage is interrupting their day to day activities.

OBJECTIVES OF THE STUDY

1. To study the body fat in children by using triceps skin fold callipers and anthropometry (Ht, Wt& BMI).
2. To assess the dietary pattern of the school going children
3. To assess the level intake of high fat diet
4. To assess the usage pattern of mobile phone and watching TV
5. To correlate between the nutritional status of school going children and frequency of television viewing and mobile phone usage

HYPOTHESIS

There is a significant correlation between the nutritional status of school-going children and frequency of TV viewing and mobile phone usage.

MATERIALS AND METHODS

The present research is observational study. The sampling method used in this study is Simple Random Sampling. The total number of samples included in this study is 105. The study was approved by the institutional ethical committee for student proposal of Sri Ramachandra Institute of Higher Education and Research**.**

Statistical Analysis: Statistical analysis was performed by using the Statistical Package for Social Science (SPSS) version 17.

Descriptive Statistics: In this study, the tools used for descriptive analysis are as follows: Percentage, Mean and Standard deviation.

Inferential statistics: In this study, the tests which were used for inferential analysis to compare continuous variables are as follows: One-way ANOVA, Chi-square test, F and t- test.

RESULTS AND DISCUSSION

Table – 1: Percentage Distribution of Subjects Based on Gender, Age Profile & BMI Categorization (N=105)

	Number	Percentage
Male	53	51
Female	52	49

From the above table it is clear that more than a half (51%) of them were boys while 49% were girls. The present study was based on healthy children (boys and girls) aged 6-16 years.

AGE	**Number**	**Percentage**
6-8 years	19	18
9-11 years	27	26
12-14 years	41	39
15-16 years	18	17

The above table represents that boys and girls samples were selected from ages 6 to 16 years. More are from 12-14 years of both boys and girls (39%) and the lowest number are from 15-16 years (17%).

CATEGORIZATION	**Number**	**Percentage**
Obese	27	26
Overweight	33	31
Normal	33	31
Mild malnourished	8	8
Severely malnourished	4	4

The above table shows that 57% were found to be obese and overweight, 31% were found to be normal where as 8% mild malnourished and only 4% were severely malnourished. In a similar study BMI was associated with a higher number of television viewers at home, watching tv for more than 3 hours per day, eating more than three snacks per day, watching tv at night and an

increase in the number of hours of watching TV over the weekend were significantly associated with an increased risk of Obese and Overweight (**Sameer,2013**) .

Table – 2: Anthropometric profile – Mean Distribution of Height, Weight, BMI (N=105)

CRITERIA	**6-8 years**	**9-11 years**	**12-14 years**	**15-16 years**
	Mean ±SD	**Mean ±SD**	**Mean ±SD**	**Mean ±SD**
Height (cm)	119.6±9.899	140±11.31	146.5±10.606	164.5±12.020
Weight (kg)	33±6.364	46±8.485	45.5±13.435	70.5±14.849
BMI (kg/m^2)	23.5±0.707	23.5±0.707	21±2.828	26±1.414
MAC (mm)	22.5±3.535	26±5.656	26±19.798	26±0.707

Table – 2 indicates the anthropometric profile of 6-16 years. The mean height of the subjects between the age group of 6-8 years was 119.6±9.899, which, when compared with the expected height of 129cm, was found that they were Mild stunted. For 9-11 years mean was140±11.31 which is compared with the expected height of 143cm and they were normal. For 12-14 years mean was 146.5±10.606 which is compared with the expected height of 156cm and they were mild stunted.For 15-16 years mean was 164.5±12.020 and they were compared with the expected height of 173cm and they were normal in the study. The mean weight of the subjects between the age group 6-8 years was 33±6.364 and compared with the expected weight of 25kg, which was found to be overweight. For 9-11 years mean was 46±8.485 and compared with the expected weight of 35 kg and they were obese. For 12-14 years mean was 21±2.828 ,when compared with the expected weight of 41kg , they were interpreted as malnourished .For 15-16 years mean was 70.5±14.849 and when compared with the expected weight of 62kg ,they were interpreted as Obese in the study. The mean BMI of the subjects between the age group 6-8 years was 23.5±0.707; for 9-11 years it was 23.5±0.707; for 12-14 years it was 21±2.828; for 15-16 years it was 26±1.414 in the study. The overall BMI showed that both boys and girls were normal (24.2±3.2). A BMI between 50-75th percentile is considered to be normal. Mid Arm Circumference (MAC) is used to assess for the nutritional status. Mid Arm Circumference is the circumference of the left upper arm, measured at the mid-point between the tip of the shoulder and the tip of the elbow (olecranon).The mean MAC of the subjects between the age group 6-8 years was 22.5±3.535; for 9-11 years it was 26±5.656, for 12-14 years it was 26±19.798, for 15-16 years it was 56±0.707 in the study.

Table – 3: Anthropometric Profile – Mean ± SD values of Body composition sites (N=105)

CRITERIA	6-8 years	9-11 years	12-14 years	15-16 years
	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD
Triceps(mm)	25±5.656	25±0.707	27±11.313	57.05±1.414
Biceps(mm)	25±4.242	27±4.242	24±8.485	55.05±4.242
Subcapsular(mm)	27.5±3.535	35±7.071	31.5±12.070	63.2±5.656
Suprailiac(mm)	31±1.414	37±4.242	35.5±13.435	76.8±7.071

The data in table -3- shows that the selected subjects were measured according to the WHO standards (2010). Skinfold measurement is widely utilized to assess the body composition and to determine the body fat of an individuals. The thickness of these folds is a measure of the fat under the skin, also called subcutaneous adipose tissue. The mean of Triceps of the subjects between the age group 6-8 years was 25±5.656, for 9-11 years it was 25±0.707, for 12-14 years it was 27±11.313, for 15-16 years it was 57.05±1.414. The mean of Biceps of the subjects between the age group 6-8 years was 25±4.242, for 9-11 years it was 27±4.242, for 12-14 years it was 24±8.485, for 15-16 years it was 55.05±4.242.

The mean sub capsular of the subjects between the age group 6-8 years was 27.5±3.535, for 9-11 years it was 35±7.071, for 12-14 years it was 31.5±12.020, for 15-16 years it was 63.2±5.656. An excessive abdominal fat stores around the stomach which leads to central obesity. The mean Suprailiac of the subjects between the age group 6-8 years was 31±1.414, for 9-11 years it was 37±4.242, for 12-14 years it was 35.5±13.435, and for 15-16 years it was 76.8±7.071 in the study.

Table – 4 Mean distribution of subjects based on Body composition sites * BMI

Interpretations (N=105)

Triceps Vs BMI Interpretations			
	MEAN±SD	F value	P value
Obese	31.26±5.972	7.576	.000*
Overweight	27.76±4.024		
Normal	30.91±9.632		
Mild malnourished	18.38±5.680		
Severely malnourished	21.25±6.292		

Biceps Vs BMI Interpretations			
Obese	31.44±6.548	8.955	.000*
Overweight	29.09±3.987		
Normal	29.88±8.827		
Mild malnourished	16.75±4.062		
Severely malnourished	22.25±6.602		
Subcapsular Vs BMI Interpretations			
Obese	36.59±6.363	7.498	.000*
Overweight	34.61±3.791		
Normal	32.55±10.165		
Mild malnourished	22.63±6.368		
Severely malnourished	23.25±7.805		
Suprailiac Vs BMI Interpretations			
Obese	42.30±6.638	16.428	.000*
Overweight	40.30±5.028		
Normal	35.36±9.017		
Mild malnourished	24.38±6.781		
Severely malnourished	23.00±4.690		

*** - Significant (p<0.005)**

Table -4 which illustrates analysis of the overweight and obese in children on the basis of BMI categorization and Body composition sites (Triceps, Biceps, Subcapsular and Suprailiac sites). The correlation between the BMI categorization and body composition was almost equal. The F test shows that there is a significant difference ($p<0.001$) in Body composition sites according to weight status. From the table – 3 mean distribution of subjects based on body composition sites vs BMI interpretations it was observed that the mean Triceps with obese is 31.26±5.972, Overweight 27.76±4.024, Normal 30.91±9.632, Mild malnourished 18.38±5.680, Severely malnourished 21.25±6.292. The mean Biceps with obese is 31.44±6.548, Overweight 29.09±3.987, Normal 29.88±8.827, Mild malnourished 16.75±4.062, severely malnourished 22.25±6.602. The mean Subcapsular with obese is 36.59±6.363, Overweight 40.30±5.028, Normal 32.55±10.165, Mild malnourished 22.63±6.368, Severely malnourished 23.25±7.805. The mean Suprailiac with obese is 42.30±6.638, Overweight 40.30±5.028, Normal 35.36±9.017, Mild malnourished 24.38±6.781, severely malnourished 23.00±4.690. Since the $p<0.005$, the null hypothesis is rejected.

Bandini, Vu, Must, et al, observe that the triceps skinfold (TSF) predicts the amount of body fat in 68%, whereas BMI predicts it in 38%. TSF (Triceps, Biceps, Subcapsular, Suprailiac sites) was closely associated with the overall quantity of body fat. BMI and the sum of skinfolds were very similar criteria for determining obesity, as they correspond in 92% as cited by **Jurij Planinsec (2009)**

Correlation between the nutritional status of school going children and frequency of TV viewing and mobile phone usage:

Table – 5: Number of hours children watch TV on an average in a day

CRITERIA	< 1 hour		1-2 hour		3-4 hour		>4 hour		**X^2 value**	**P value**
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**		
Obese	4	15	10	37	9	33	4	15	15.223	0.229^{NS}
Overweight	4	12	14	42	8	24	7	21		
Normal	5	15	12	36	14	42	2	6		
Mild malnourished	4	50	3	38	0	0	1	13		
Severely malnourished	0	0	2	50	2	50	0	0		

#Nil significant

Table – 5 shows the anthropometric data of the children, according to the BMI categorization, was compared with the number of hours watching TV in a day. The chi-square value was 15.223 and the p-value found to be nil significant. (p> 0.005) the null hypothesis is accepted. The association between the duration of TV viewing and the prevalence of obesity was found to be a non significant **(David Martinez,2016)**

Table – 6: Like to Watch TV programmes on mobile phones

CRITERIA	**YES**		**NO**		**X^2 value**	**P value**
	N	**%**	**n**	**%**		
Obese	14	52	13	48	3.360	0.499^{NS}
Overweight	22	67	11	33		
Normal	20	61	13	39		
Mild malnourished	3	38	5	63		
Severely malnourished	3	75	1	25		

 # Nil significant

Table – 6 shows the anthropometric data of the children, according to the BMI categorization. It was compared with the watching TV programmes on mobile phones. The chi-square value was 3.360 and the p value was found to be nil significant (p> 0.005) the null hypothesis is accepted.

Table – 7: Amount of time spent on the mobile phone on average in a day

CRITERIA	<30 mins		1 hour		1-2 hour		>3 hour		**X^2 value**	**P value**
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**		
Obese	8	30	5	19	9	33	5	18		
Overweight	4	12	16	49	7	21	6	18	16.724	0.160^{NS}
Normal	8	24	8	24	9	27	8	24		
Mild malnourished	4	50	2	25	2	25	0	0		
Severely malnourished	0	0	3	75	1	25	0	0		

 # Nil significant

Table – 7 shows the anthropometric data of the children, according to the BMI categorization. It was compared with the spending time on mobile phone on average per day. The chi-square value was 16.724 and the p value found to be nil significant (p value > 0.005) the null hypothesis is accepted.

The mobile phones usage was correlated with BMI may be related to the obesity among children and adolescents (Richard J Rose, 2007). The children and adolescents was using mobile phones more than 3 hours and have selected health problems and significantly increasing in headaches or migraine, skin itches and insomnia. **(Chang ta chiu, 2015)**

Table – 8: Effect of TV on children's behaviour

CRITERIA	+ve effect		-ve effect		Both		X^2value	P value
	n	%	n	%	n	%		
Obese	12	44	3	12	12	44	8.412	0.394^{NS}
Overweight	23	70	3	9	7	21		
Normal	19	58	5	15	9	27		
Mild malnourished	6	75	0	0	2	25		
Severely malnourished	3	75	1	25	0	0		

 # Nil significant

Table – 8 shows the anthropometric data of the children, according to the BMI categorization and was compared with the children's behaviour. The chi square value was 8.412 and the p value found to be nil significant ($p > 0.005$) the null hypothesis is accepted.

The researcher suggests that excessive television viewing was associated with negative effects on sleep, attention, inter personal relationships, and was associated with inattentive/hyperactive behaviour. It affects on the health and well-being of children and adolescents. (**Edith M Jolin, 2011**)

TABLE – 9 Frequency of consuming fast food

CRITERIA	Monthly		Weekly		Rarely		Never		X^2value	P value
	n	%	n	%	n	%	n	%		
Obese	7	26	9	33	8	30	3	11	21.609	0.042*
Overweight	8	24	10	30	15	46	0	0		
Normal	4	12	16	49	11	33	2	6		
Mild malnourished	2	25	3	38	0	0	3	38		
Severely malnourished	0	0	2	50	2	50	0	0		

*** - Significant ($p<0.005$)**

Table – 9 shows the anthropometric data of the children, according to the BMI categorization. It was compared with the consumption of fast food. The chi-square value was 21.609 and the p value was found to be significant ($p > 0.005$) the null hypothesis is rejected.

The school going children were consuming fast foods and high-energy foods was high, as is illustrated by the high percentage (60-70%) of schoolchildren and adolescents who consumed these foods weekly **(Ochola.S,2014**).

Table – 10: Type of foods consumed while watching TV

CRITERIA	Biscuit		Chocolate		Cake		Chips		X^2 value	p-value
	n	%	n	%	n	%	n	%		
Obese	4	15	5	18	15	56	3	11	22.461	0.33^{NS}
Overweight	12	36	4	12	9	28	8	24		
Normal	11	33	12	36	7	21	3	10		
Mild malnourished	0	0	2	25	5	63	1	12		
Severely malnourished	2	50	1	25	0	0	1	25		

 # Nil significant

Table – 10 shows the anthropometric data of the children, according to the BMI categorization, and was compared with the type of foods consumption while watching tv. The chi-square value was 22.461 and p-value was found to be nil significant ($p > 0.005$) the null hypothesis is rejected.

TV commercials for snack foods may be one of the factors affecting the increase in obesity among children and adolescents and there is a chance of central obesity (**Parvanta,2010**).

CONCLUSION

The study has revealed a highly prevalence of overweight and obese in a representative sample of 105 school-going children in Chennai. The findings of the present study suggest that limiting the television viewing as well as limiting the consumption of fried foods may be useful for the health promotion to prevent weight gain in childhood. The Questionnaire for parents is a useful tool to assess the frequency of tv viewing, mobile phone usage and dietary pattern among children with the varied body composition. To promote a healthy growth and development and the effectiveness of behavioural interventions for preventing a overweight and obesity in children and adolescents.

Limitations of the study:

- Small sample size
- To have an equal distribution of boys and girl's subjects

Suggestions for future studies:

Sample size can be increased to attain better outcomes

The nutrition education can be provided to the parents and children which can be prevent from the obesity.

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MEASUREMENT OF LEVELS OF VERBAL LEARNING DISABILITY AMONG SCHOOL GOING CHILDREN IN KUMAUN REGION OF UTTARAKHAND STATE

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ABSTRACT

Learning disabilities, also called learning difficulties, are conditions that make it difficult to learn and understand things in the same way others do. There are four types of verbal learning disabilities viz. reading, speech and language, writing and mathematical disabilities. The present study aimed to measure the level of verbal learning disability among children in Kumaun region of Uttarakhand State. Two districts -- Udham Singh Nagar and Nainital were selected for the conduction of study. 200 students from government upper primary schools from each district were selected so as to make a total sample of 400 respondents. Descriptive research design was deployed for the conduction of study. Verbal learning disability checklist tool were used for the study. Results revealed that out of 400 students, 17.25 per cent students were experiencing verbal learning disability. Severity of verbal learning disability showed that 16 per cent had some and 1.25 per cent had average verbal learning disability and no students were in the category of below average, above average, high and extremely high verbal learning disability. On further categorizing the forms of verbal learning disability, it was observed that more (30.5%) of students were suffering from reading disability, followed by math disability (23.25%), speech and language comprehension disability (18%) and writing disability (10.75%).

Key words: Verbal learning disability, reading disability, math disability, speech and language disability, writing disability

INTRODUCTION

According to National Joint Committee on Learning Disabilities (1988)

> **"Learning disability refers to a diverse group of disorders exhibiting difficulty in listening, speaking, reading, writing and performing mathematic calculations. These disorders may occur due to improper functioning of central nervous system of an individual and may occur throughout the life span of an individual**".

There are four types of verbal learning disabilities viz. reading, speech and language comprehension, writing and mathematical disabilities (Verbal Learning disability checklist Sood, 2012). National Institute of Neurological Disorders and Stroke defines reading disability or dyslexia as a brain based type of learning disability that affects individual's ability to read. Some of the common features exhibited by dyslexic are difficulty with spelling, phonological processing (the manipulation of sounds) and rapid visual verbal responding. Second type of verbal learning disability is speech and language comprehension disability in which problems in grammar (syntax or morphology), semantics (meaning) and other aspects of language may be experienced by the individual. Third type of verbal learning disability is writing disabilities or dysgraphia. Dysgraphia is a disorder related to inability to write. People suffering from dysgraphia lack basic grammar and spelling skills (for example having difficulties with letters p and q, b and d), and often may write the wrong word when trying to formulate thoughts on paper. Basic characteristics of individuals with writing disorder include difficulty in finishing school work and using basic writing in

everyday. They are also at a high risk for school dropouts. Fourth type of verbal leaning disability is mathematical disability which is also known as dyscalculia. Dyscalculia includes difficulty in understanding numbers, in learning how to manipulate numbers, and mathematical facts.

Rationale: Kumaun region of Uttarakhand state is still in its developing state. Education in the state is of prime concern but difficulties in obtaining education many a times get unnoticed. Verbal learning disability is one such problem which has direct influence on the process of obtaining education by affecting the learning process in children. Not enough special provisions in identifying children with verbal learning disability and method to deal with such children have been made in education system, especially in the state. Therefore, the present study was conducted with the following objectives:

OBJECTIVES

1. To measure the level of verbal learning disability among school going children
2. To assess and categorize the measured disability into reading, speech and language comprehension, writing and mathematical disability

METHODOLOGY

Study was conducted exclusively in Kumaun region of Uttarakhand State. Two districts Udham Singh Nagar and Nainital were selected. 200 students from each district of upper primary schools were selected so as to make a total sample of 400 respondents. Descriptive research design was deployed for the conduction of study. Verbal learning disability checklist by Vinod Sood (2012) was used for the study. The sample for the present study was screened out by the teachers. The data was analyzed using statistical techniques like frequency and percentage.

RESULTS AND DISCUSSION

Verbal learning disability, if left unnoticed, may have severe impact on development of a child and thus identification and assessment of children suffering from verbal learning disability is indispensable and therefore necessary actions may be taken for timely rectification of the problem.

The data presented in Table-1 shows that out of total 400 respondents screened out by teachers 69 (17.25%) were suffering from verbal learning disability. It was observed that 82.75 per cent students had no verbal learning disability, 16 per cent had some and 1.25 per cent had average verbal learning disability and no students were in category of below average, above average, high and extremely high verbal learning disability. Similar results were observed by Sridevi *et al.* (2015). They reported 19 per cent students were suffering from learning disability in a school.

It was seen in the present study that verbal learning-disabled students were being taught in the same manner as other students who were without verbal learning disability. No special attention or teaching methodology was adopted by the teachers. Since teachers were asked to identify the verbal learning disabled students, it can be seen that teachers were not trained enough to identify verbal learning disabled students. Only 69 students were found to be verbal learning disabled out of 400 screened students by the teachers through verbal learning disability checklist. Low level of knowledge and awareness about learning disabilities among teachers was reported by Shukla and Agarwal (2015) in Haridwar, Garhwal region of Uttarakhand. Baquer and Sharma

(2006) found that very little attention has been paid to educating the severely disabled. The enrolment rates are poor, educational performance is low, dropout rates are high.

Table-1 Distribution pattern of students on the basis of verbal learning disability

Level of verbal learning disability	N	%
51 and below (Normal Child)	331	82.75
52-71(some)	64	16.00
72-91(below average)	-	-
92-117(average)	5	1.25
118-137(above average)	-	-
138-157(High)	-	-
158-160(extremely high)	-	-
Total	400	100

Further, the type of disability was studied and it was seen that out of 400 students 30.5 per cent had reading disability and 69.50 per cent students had no reading disability. Out of 122 children exhibiting reading disability, 28.50 per cent had some, 0.25 per cent had below average and 1.75 per cent had average reading disability (Table -2). Ratio of children having some reading disability was more. Oakhill and Petrides (2007) found that reading disabilities (RD) are common and may have a lasting effect on children's academic life, self-esteem, and professional achievement.

Table-2 Distribution pattern of students on the basis of reading disability

Level of reading disability	Kumaun Region (400)	
	N	%
14 and below(Normal Child)	278	69.50
15-20 (some)	114	28.50
21-25(below average)	1	0.25
26-34(average)	7	1.75
35-38(above average)	-	-
39-44(High)	-	-
45-50(extremely high)	-	-
Total	400	100

It is clear from Table -3 that out of 400 students 72 (18%) children showed some or other form of speech and language comprehension disability. 16.25 per cent had some, 0.50 per cent had below average and 1.25 per cent had average speech disability. 82 per cent students had no speech and language comprehension disability. Sunderajan and Kanhere (2019) found that speech and language delay was 2.53 per cent among children aged 1-12 years. Low parental education, consanguinity, positive family history, multilingual environment and inadequate stimulation were the major responsible factors.

Table- 3 Distribution pattern of students on the basis of speech and language comprehension disability

Level of speech disability	Kumaun Region (400)	
	N	%
13 and Below (Normal Child)	328	82.00
14-18 (some)	65	16.25
19-24(below average)	2	0.50
25-31(average)	5	1.25
32-36(above average)	-	-
37-41(High)	-	-
42-44(extremely high)	-	-
Total	400	100

On studying writing disability among the respondents, it was observed that 10.75 per cent children experienced writing disability. The data presented in Table- 4 exhibits that out of 400 students, 89.25 per cent students had no writing disability, 8 per cent had some, 2.25 per cent had below average and 0.50 per cent had average writing disability. Kingendo and Njoki (2015) found that teaching and learning strategies for learners with dysgraphia were inadequate. Major factors were lack of teacher training in identification and inadequate teaching materials.

Table -4 Distribution pattern of students on the basis of writing disability

Level of writing disability	Kumaun Region (400)	
	N	%
11 and below (Normal Child)	357	89.25
12-15 (some)	32	8.00
16-19(below average)	9	2.25
20-25(average)	2	0.50
26-29(above average)	-	-
30-33(High)	-	-
34-36(extremely high)	-	-
Total	400	100

The data presented in Table -5 clearly represents that out of 400 students 23.25 per cent children had problem related to dyscalculia and 76.75 per cent students had no such problem. Out of 93 children showing math disability, 22 per cent had some, 0.50 per cent had below average and 0.75 per cent had above average math disability. Pandey and Agarwal (2015) found that 23.3 per cent school going children from private schools of Lucknow city were suffering from math disability.

Table-5 Distribution pattern of students on the basis of math disability

Level of math disability	Kumaun Region (400)	
	N	%
11 and Below (Normal Child)	307	76.75
12-16(some)	88	22.00
17-21(below average)	2	0.50
22-28(average)	-	-
29-33(above average)	3	0.75
34-38(High)	-	-
39-40(extremely high)	-	-
Total	400	100

It was observed in the present study that 30.5 per cent students suffered from reading disability, 23.25 per cent from math disability, 18 per cent from speech and language comprehension disability and 10.75 per cent from writing disability. A higher percentage of students experienced reading disability, followed by math disability, speech and comprehension disability and writing disability. According to Chacko and Vidhu kumar (2020) the prevalence of writing disability was highest ie.15.6 per cent, followed by reading disability (12.57%) and mathematical impairment (9.93%) among school going children in Kerala.

CONCLUSION

Out of 400 students, 17.25 per cent students had verbal learning disability, out of which 16 per cent had some and 1.25 per cent had average verbal learning disability and no students were in category of below average, above average, high and extremely high verbal learning disability. Higher percentages of children were suffering from reading disability (30.50%), followed by math disability (23.25%), speech and language comprehension disability (18%) and writing disability (10.75%). Lack of awareness on part of teachers as well as parents may contribute to the severity of problem among school going children. Therefore, there is an urgent need to identify verbal learning disabled students along with provisions of special educators to handle the problems of children should be made.

RECOMMENDATIONS

1. Government should employ educational psychologist and guidance counselors in schools to help verbal learning disabled students.
2. Regular workshops and seminars should be organized for teachers in schools to motivate and guide teachers towards assisting the verbal learning-disabled students.
3. Instruments and aids must be provided to verbal learning students in order to overcome their disability.

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ADJUSTMENT FACTORS OF POSTPARTUM WOMEN: AN EMPIRICAL ANALYSIS

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ABSTRACT

Adjustment during postpartum period is very difficult for the mother with the surrounding environment, family and with their neonate also. Adjustment to motherhood might elate negative emotions among women. During postpartum, women require adjustment with assembly of new needs and responsibilities, they may/ may not have sufficient support. In light of this, present study applies factor analysis for the sample consisting of 150 postpartum women to study adjustment factors. The factor analysis result revealed that KMO Bartlett test for cause and effect factors of the scale (.830) is in line with expectation and supports. Further, the use of the adjustment scale with 26 items leads to 7 factors acceptable to psychometric properties of postpartum women.

Key Words: Postpartum; Women; Factor Analysis; Adjustment

INTRODUCTION

Adjustment is a continual process wherein a person shapes his/her behavior to bring a progressively amicable correlation with his situation and himself (Gates and Jersild, 1970). A succession of adjustment starts when a need is felt and closures when it is fulfilled. An individual's adjustment has consequences for afterward wellness and adjustment during different areas of life, for instance family, cluster or social relationships, spousal family as well as arrival of new child in the family immediately with the birth of a baby. This period is known as postpartum period and hence postpartum is linked with the women's state after the birth of new born (Hill PD and Aldag JC. 2007, Coyle SB. 2009).

Approximately an hour after the delivery postpartum period begins, it embraces the upcoming one year (Mirmolaei et. al., 2011). During this significant period, postpartum attention should manage distinctive requirements of the mother and neonate, which consist of: the prevention, initial recognition and treatment of problems and disease, and providing guidance and assistances on breastfeeding, vaccination, immunization and maternal nutrition. From birth of new born, there is incontrovertible shift taking place in women's body, this includes not only the adjustments of healthy physical appearance as well as it was before pregnancy, but also the psychological resiliency to lodge care for a new (Berggren-Clive, 1998). Losing sleep is common is a common feature. During this stage, life is very complex for the new born and the mother. Care givers, at that time, are not clear about how to support the mother. Mothers' emotional adjustment might not be properly diagnosed at this time. The WHO (1998) suggests that postpartum check-ups ought to consist of testing intended for: back ache, breast pain, hemorrhoids, constipation, tiredness, incontinence, pain in perinea, difficult or painful intercourse, giddiness or fainting, headaches and depression.

When women give birth to their first child, it is the noteworthy and life-transforming moment for them. It consists of strong emotions, mood swings, change in physique, new and changed relationships as well as adjustment to new roles (Rallis, et. al., 2007). This is the time of intense transformation, making great demands on the women's flexibility and capability to adjust with changes. At times they may question their ability 'to mother' well. Women often experience inadequate, downhearted, and unable to deal with hopelessness and everyday life. For a young mother, postpartum period leads to confound growth of the usual switch into a new identity as a woman as well as a mother (Leahy-Warren and McCarthy, 2011). New mother typically reports facing the full range of emotions from excitement to joy, pride and a sense of divine development, to jealousy, anger, guilt, and frustration. They may also feel worried with the thought that their life is spinning out of control. Adjustment is difficult, in any case, in light of the fact that, as Albers (2000) composed: "Of the whole maternity care phase, postpartum stage possesses the least concern in education, practice as well as in researches". Some mothers depict feeling irritable, restless, not wanting to be with public or panic being alone, having bad dreams or startling considerations, feeling as if they are in profound, dull pit and are "going insane".

In this stratum, the present study will try to find the adjustment factors of postpartum women using the factor analysis technique. The study is divided in sections like Review of literature, Research Methodology, Data Analysis and Results, followed by the conclusion.

REVIEW OF LITERATURE

Adjustment during postpartum period is very difficult for the mother with the surrounding environment, family and with their neonate also. In a women's life integration of motherhood is a developmental crisis that is difficult, and investigated inadequately, to deal with society's expectations a woman for herself and the expectations she has for herself, the child itself and the father of the child (Mercer, 2011). During the first six weeks after delivery in women's lives, the maternal adjustment period comprise a latent crisis. This time women are vulnerable to self conflict and insecurity due to physical demands and the tasks of role transition and identity recognition. Postpartum is undeniably a serious stage of role transition and self-renovation (Franci Sheehan, 1981). Adjustment to motherhood might elate negative emotions among women. The pressure on women to resume work at her earliest but lack of family and social support makes it difficult to cope up with stressful and negative feelings (Held and Rutheford, 2012; Velterna et al., 1998). The postpartum period brings about many abrupt changes to adjustment to life – deviations to every day working of women, to their sleep patterns, to their associations with their partners, to their companionships, also to their view of themselves. During postpartum women requires adjustment with assembly of up-to-the-minute needs and responsibilities, by which they may have insufficient support and insufficient preparation (Goldstein, et. al., 1996; Milgrom et.al., 1999). Feelings of shame as well as guilt are regularly experienced by women at their apparent insufficiency at adapting to their newborn child, particularly in the social verdict generally expressed about feelings of women along with how they ought to perform better (Beck, 1999; Dimitrovsky et al., 2002; Dunnewold and Sanford, 2000; Kleiman and Raskin, 1994; Lamble and Morris, 1999).

During postpartum period significant changes result in fall in the quality of life of women (Hill et. al., 2006). Majority of women do not have sufficient awareness about the postpartum complications & care (Asghar Nia, et. al., 2005). Maternity care is the care for the duration of

pregnancy, labor as well as the period of postpartum. The care during postpartum period is part of maternity care i.e. worried about child and mother care during duration of time following child birth.

Postpartum period is time of significant changes among new parents, as, they should become acclimated to their new life and become skilled at new abilities also embrace new schedules (Fredriksson et al., 2003A; Leahy Warren, 2005). For new and older children parents, postpartum period is period of insecurities plus numerous inquiries (Fredriksson et al., 2003B). Numerous inexperienced parents have acquaintance of sentiments, of fatigue and trouble in sleep (McQueen and Mander, 2003). Simultaneously they are relied upon to be content and happy and to adjust to a lot of trouble. Normal postpartum adjustments signify normal psychosocial and biological adjustments to their life moments i.e. giving birth and does not harm the daily functioning of the women intrude on the newborn-mother bonding experience (Bennett and Indman, 2003).

Relationship adjustment is one of the significant associate among stress and depression during pregnancy and postpartum period (Carter et al., 2010; Whisman, et. al., 2011). Several researches depict pregnancy & postpartum as a difficult time for various couples, often characterized by turn down in relationship adjustment (Doss, et. al., 2009; Lawrence, et. al., 2008; Mitnick, et.al., 2009). Poor relationship adjustment raises the probability, severity, and perseverance of depression symptoms (Atkins, et.al. 2009). In marriages, child birth pretenses a number of challenges on adjustment prototypes. (Falana Bernard Akinlabi, et.al., 2013). Women feel negative emotions as well as difficulties adjusting to their new roles and describe their difficulties adjusting to the demands of motherhood (Rose Coates, et.al.2014).

Research on psychosocial aftereffects of care during postpartum period is concerned with confidence along with satisfaction of ongoing mother and also their strategies to manage with new circumstances. Data & bolster structure immense others and enough counsel from wellness experts has been demonstrated to make commitments to thoughts of skill along with satisfaction of moms of their new position to be considerably satisfied with got services. (Murray et al,2000; Tarkka, 2003; Leahy Warren, 2005). Therefore taking into consideration above discussion, the present study will determine adjustment factors of postpartum women using factor analysis.

RESEARCH METHODOLOGY

The present study is based on the field study of Agra, Uttar Pradesh, India. To accomplish the research work objective, a close-ended questionnaire has been used with face to face interview of postpartum women. Total sample consisted of 150 postpartum women. The questionnaire consists of 26 listed variables of adjustment based on five point scale (i.e. on likert scale). 150 questionnaires in total were filled by the postpartum women of the defined field. Face to face interview helped to have hundred percent responses which are first-rate in favor of surveying postpartum women. By using SPSS software empirical data have been analyzed through exploratory factor analysis.

DATA ANALYSIS AND RESULTS

Factor analysis, based on an exploratory principal component for assessing 26 items, adjustment scale with varimax rotation has been applied. For measuring the factor analysis suitability, the Kaiser-Meyer-Olkin test (KMO) and Bartlett's test of sphericity, has been

conducted. For a factor analysis to be valid, the result at 95 percent level of significance of Bartlett's Test of Sphericity should be less than 0.05. The measure of sampling adequacy with a value of 0.830(greater than 0.50) is ensured by the later one (Kaiser, 1974). For the validity of the tool (Table 1), final statistics supported with a value of 1945.603, df=325, significant at p=0.000 (Stevens, 2012).

TABLE I: KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	1945.603
	df	325
	Sig.	.000

Source: SPSS Output

Generally the sample is adequate when 0 < KMO < 1 if KMO > 0.5. We may continue with Factor Analysis, as the KMO = 0.702 and sample is considered as adequate in the present result. At 95 percent level of significance, the value of Chi-square at 325 degrees of freedom is 1945.603 approximately. For further analysis, factor analysis is a suitable technique as the variables are showing a significant relationship with a p-value of 0.00.

TABLE II: EXPLANATION OF TOTAL VARIANCE

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	7.091	27.273	27.273	7.091	27.273	27.273	6.477	24.911	24.911
2	4.047	15.565	42.837	4.047	15.565	42.837	2.456	9.448	34.359
3	1.777	6.836	49.673	1.777	6.836	49.673	2.301	8.849	43.207
4	1.371	5.272	54.945	1.371	5.272	54.945	1.699	6.535	49.742
5	1.345	5.171	60.117	1.345	5.171	60.117	1.694	6.514	56.256
6	1.087	4.182	64.299	1.087	4.182	64.299	1.575	6.059	62.315
7	1.033	3.975	68.273	1.033	3.975	68.273	1.549	5.959	68.273
8	.873	3.358	71.631						

9	.858	3.299	74.930						
10	.734	2.825	77.755						
11	.628	2.414	80.169						
12	.604	2.322	82.491						
13	.562	2.163	84.654						
14	.526	2.022	86.676						
15	.471	1.810	88.486						
16	.434	1.669	90.156						
17	.418	1.607	91.763						
18	.340	1.310	93.072						
19	.330	1.271	94.343						
20	.291	1.119	95.462						
21	.249	.959	96.422						
22	.241	.927	97.349						
23	.221	.848	98.197						
24	.188	.722	98.919						
25	.160	.615	99.534						
26	.121	.466	100.000						

Extraction Method: Principal Component Analysis.

Source: SPSS output

In case of factor analysis choose the components having Eigen Values greater than or equal to 1. Numbers of the variables used in the factor analysis are the initial components. Although, not all 26 variables will be retained, only 7 factors would be determined on extraction done through mixing appropriate variables (Table 2). The Eigen value contains by total column and variances of the factors are these values. The most variance will be accounted by first factor with highest Eigen values and the left over variance will be explained by the subsequent factors. In table- 7, factors from the beginning show 68.27 percent of variance. All the seven factors have been extracted based on Varimax Rotation with Kaiser Normalisation. Therefore, 26 variables used in the study have been clubbed into 7 factors showing the variability of the adjustment of postpartum women consisting of three–fourth variability.

Scree Plot: In Figure 1 the Eigen value against each factor has been shown through scree plot graph which shows sharp change after factor 7. In other words, it shows total variance accounts for lesser and lesser amount after factor seven.

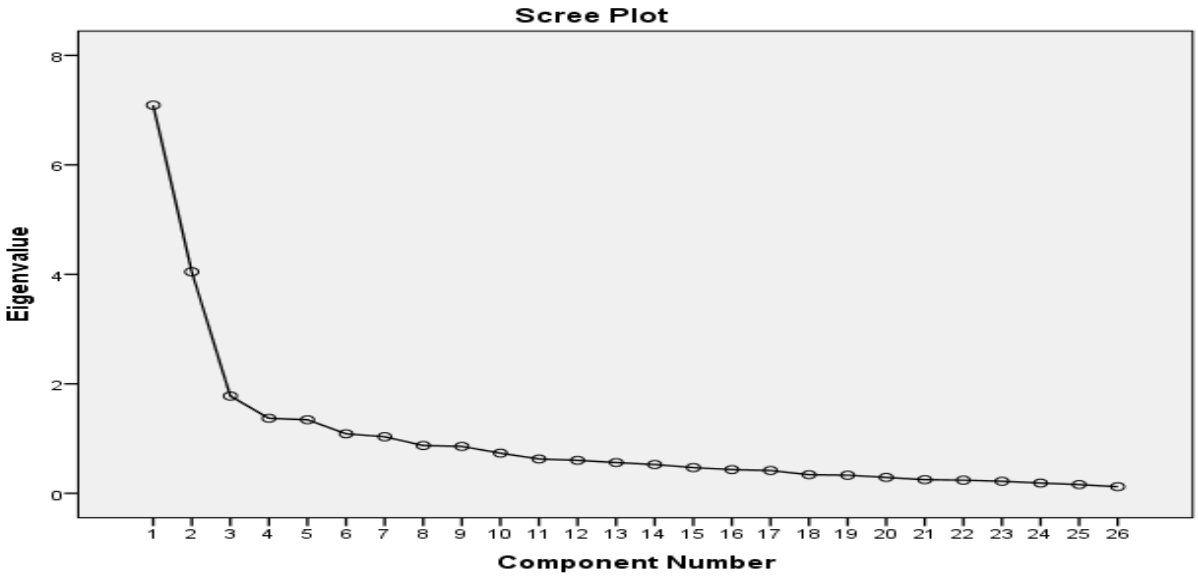

FIG.1 SCREE PLOT OF THE SEVEN FACTOR SOLUTION

Source: SPSS Output

Core factors identification: Further, the rotated factors have been taken out of the total factor which has been represented by the factor column and after data reduction these have been used as the final factors which are the core factors. Generally, every of variables are extremely loaded in individual factor & less loaded to the other factors. In each factor, included variables have been identified- the variable with the maximum value in every row is chosen of the particular factor to be a component.

As a result, after rotation, first factor accounts for the variance of 24.91 percent followed by 9.44 percent variance of the second, 8.84 percent of variance in third factor 3, 6.53 percent of variance in the fourth factor, 6.51 percent in the fifth factor, 6.05 percent of the variance in sixth factor and 5.95 percent in the seventh factor. Together all the seven factors define 68.7 percent. Each core factor included the variables to show variance in adjustment of postpartum women have been classified according to the factor names as follows:

TABLE III: FACTORS FORMED

Factor	Variables Included	Name of the Factor
	3. After the birth of baby, my parents say that I get worried too quickly on little things 4. After the birth of baby, I feel more satisfied and happier when I prepare meal myself 5. I manage my routine of food preparation as per breakfast, lunch, dinner even after the birth of my baby. 7. At times I have felt more anxious or worried after delivery than I usually do 12. I take proper decision about domestic household chores even after the birth of my baby. 13. I feel happy while doing household chores even after the birth of my baby. 14. After the birth of baby, I believe in the distribution of household works 15. After delivery, I try to ignore the situations of household works as much as possible. 16. Due to work overload after delivery, I feel irritated and angry most of the time. 18. I am always present to watch and nurse the child.	**Work, Child Care and Emotional Adjustment**
	1. I felt very depressed in the weeks or months following the birth of another child 2. After the birth of baby, my parents tell me that most of the time I get over protective. 8. After delivery, I consider myself a very nervous person or one who worries most of the time. 21. Sometimes I feel that other members of the family should also help me in taking care of the child	**Psycho-Emotional Adjustment**
	6. I prepare food for my child myself and do not depend upon packaged food items of market. 19. I give adequate time for the child care. 22. After the birth of baby, *I* am unable to fulfill my responsibilities towards my husband.	**Responsibility Adjustment**
	20. I feel very happy on embracing the child. 24. After the birth of baby, most of the time I couldn't match my needs as I desired.	**Self-Efficacy or Personal Feelings**
	17. After the birth of baby, Mood swings affect my job as well as my personal life. 10. After the birth of baby, when bad things happen to me, I usually feel they are my fault 11. I am generally interested in household chores even after the birth of my baby.	**Behavioural Adjustment**

	23. After the birth of baby, I often feel unloved by my husband. 25. After the birth of baby, I do every work according to my budget so that I can adjust in limited expenses or money. 9. After the birth of baby, I often feel angry at my life situation or those around me.	**Emotional and Budget Constraint Adjustment**
	26. After child's birth, I usually get tensed regarding the increase in expenses.	**Financial Concern**

Source: Author compilation of primary data

Table III has given names to the seven core factors as 'work child care and emotional adjustment; Psycho-Emotional Adjustment; Responsibility Adjustment; Self Efficacy or Personal Feelings; Behavioural Adjustment; Emotional & Budget Constraint Adjustment and Financial Concern related adjustment'.

CONCLUSION

Therefore, the adjustment scale used in the present study is applicable for assessing the factors influencing postpartum women. This scale is to assess women's level of adjustment after the birth of new born, which can help in promoting and planning interventions for their better adjustment in life situations during postpartum period. In this study of adjustment factors, exploratory factor analysis, has been conducted to provide information about dimensions or factors and confirm the quality of this adjustment scale variables during postpartum.

As a result of the exploratory factor analysis, seven core factors have been found to Study Adjustment Factors of Postpartum Women. It explained 68.7 percent of the variance in the pattern of associations between items. The adjustment scale contains 26 items and from these 26 variables 7 core factors has been identified through Factor analyses which are adjustment factors of postpartum women. The factors can be categorized as: 'Work, Child Care and Emotional Adjustment; Psycho-Emotional Adjustment; Responsibility Adjustment; Self Efficacy or Personal Feelings; Behavioural Adjustment; Emotional & Budget Constraint Adjustment; and Financial Concern'. All the 26 variables had strong loadings across the seven factors. The scree plot also confirmed the existence of seven factors. Thus, obtained factors play a significant role in the adjustment of postpartum women.

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THE RELATIONSHIP BETWEEN BIRTH ORDER AND SOCIAL COMPETENCE OF PRESCHOOLERS

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ABSTRACT

Social competence refers to the social, emotional, cognitive skills and behavior that children need for successful adaptation. Social competence also reflects having an ability to take another's perspective concerning a situation, learn from past experiences, and apply that learning to the changes in social interactions. A child's social competence is affected by how well he or she communicates with other children and with adults. Most children's social skill increases rapidly during preschool years. Children have distinct personalities and temperament from birth. Birth order may potentially play a major role in child's social competence. Alfred Adler was the first researcher to identify significance of birth order. The significance of sibling ordinal position as a determinant of behavior has long been debated in past and present literature. The purpose of the present study was to assess social competence of rural and urban children and to find out relationship between birth order and social competence of preschoolers. The study was conducted in Hisar city of Haryana state. A total of 200 preschoolers during the age 2-4 years were randomly selected from two localities i.e. rural (100) and urban (100). Social competence was measured by Vineland social Maturity scale (Sparrow et al,1984)[14]and social attribute checklist developed by Katz and Mc Clellan (1970).[6] The results of the study indicated that the scores of social competences declined consistently with increase of birth order in rural as well as urban areas. Chi-squares were also computed to find out that there existed significant difference between birth order and social competence of children. It also revealed that children from urban areas surpassed children from rural areas in social competence.

Keywords-birth order, social competence, preschoolers

INTRODUCTION

Social competence is a term covering a variety of internal factors and external behavior that influence the likelihood and quality of social interaction. It enables children to interact with peers (Adam 2018). A socially competent preschool child behaves differently from a socially competent adolescent. A child's social competence depends upon a number of factors including the child's social skills, social awareness and self confidence. The term social skills describe the knowledge and ability to use a variety of social behavior that are appropriate to a given interpersonal situation and that are pleasing to others in each situation. Social characteristics can be assessed reliably for social skills during early childhood (Houck, 1999). During preschool years, social competence involves the ability to separate from parents and engage with peers in shared play activities.

As children are socialized into their families, the children make a place for themselves and no two children make a place for themselves exactly alike, even in the event that they are identical twins.

Birth order refers to the order child is born in a family. Birth order is often believed to have a profound and lasting effect on psychological development. Alfred Adler was one of the first theorists to suggest that birth order influence personality. According to him first borns are

"dethroned" when a second child comes along and this loss of perceived privilege and primacy may have a lasting influence on them. Nearly 70 years after Adler Frank Sulloway discussed about birth order. According to Sulloway theory first born who are physically superior to their sibling at a young age are more likely to show dominant behavior and therefore become less agreeable. Later born searching for other ways to assert themselves tend to rely on social support and become more sociable. Ruth and Robert (1984) revealed that birth order and family size were correlated with the intellectual performance. Later, status in the birth order and larger family size were associated with lower school grades and performance. Socially, first born children are also considerably less arguable and open to new experiences than later born children. The resulting adult personality for these children are very conservative and stiff (Paulhusetal, 1999)

Dhillion and Gill (1987) in a study of ordinal position as determinant of intellectual ability, personality and interests found that ordinal position did not significantly affect personality and interest patterns of school students. The main effect attributable to ordinal position was observed only in intellectual ability.

Leman (2000) reports that organized, goal-oriented, believers in authority are the characteristics that help oldest born to achieve academically but damages close relationship with others. During preschool years social competence involves the ability to separate from parents and engage with peers in shared play activities. As the child ages, they tend to become more dominant in social setting (Stewart 2012). Green and Griffiths (2014) added that more responsibility is often times given to older sibling as well.

The relationship between social competence and birth order continues to be an area of discussion. The discussion centers on the influence of biological, social on social competence. There are studies which show the effect of birth order on social competence. Borne (2009)[2] reported that number of siblings and age of first borne sibling were related to children's behavior. Youngest children are more advanced in cooperative abilities compared to first born (Andre 2017). Sullowy (1996) suggested that birth order effect on personality traits. He argues that first borne are socially dominant compared to later born.

OBJECTIVE

(a) To assess social competence of rural and urban children
(b) To find out relationship between birth order and social competence of preschoolers

METHODOLOGY

Locale of the study

The study was conducted at two locations selected purposefully, viz., urban and rural. Hisar city was selected as urban location in Haryana state, and for rural location, two villages namely Mangali and Singhran were taken for collection of data. From Hisar city, preschool labs and homes of children were visited for data collection. The criteria of selection were easy approach and rapport with villagers.

Selection of respondents

A total of 200 children in two age groups, namely, 2 to 3 and 3 to 4 years were selected from urban and rural areas which were further divided over the age groups and gender, namely, 50 boys and 50 girls from the age groups of 2-3 years and 3-4 years.

Tools

Following tools were used for the collection of relevant data (to measure social competence)
1.Social attributes checklist developed by Kartz and McClellan (1970)
2.Vineland Social Maturity Scale (Sparrow *et al*., 1984)

1. Social attributes checklist developed by Kartz and McClellan (1970) was used to determine the child's social competence. It was used to observe, understand and support children whose social skills are still forming. The list is based on elements of young children's social competence and on studies comparing behavior of well-liked children with that of children who are not as well liked. If a child seems to have most of traits in the checklist, then he/she is not likely to need special help to outgrow occasional difficulties. On the other hand, a child who shows few of the traits on the list might benefit from adult-initiated strategies to help build more satisfying relationship with other children.
2. Vineland Social Maturity Scale (Sparrow *et al*., 1984) was used to determine how children take care of themselves and to get along with others. The prime emphasis was on whether or not a given activity is usually or habitually performed by the children. If it is usually or habitually performed, is it sometimes or partially performed or not at all. The various domains are described as below:
The first domain deals with communication, or how (the individual's name) speaks and understands others (and, if appropriate, reads and writes). Another area has to do with practical skills-that are needed to take care of one self. We call these daily living skills. The third area involved the skills that people need to g*et al*ong with others, as well as their play activities and use of leisure time. These are called socialization skills. The last area has to do with important physical skills. We call these as "motor skills"

Statistical Analysis

1. **Mean:**

The mean value was worked out by dividing the total by corresponding number of observations.

$$\overline{X} = \frac{\text{Sum of Observations}}{\text{No. of observations}}$$

2. **Chi- square test:**

This test was used for determination of association between social competence and birth order by using the following formula:

$$\chi^2 = \sum \frac{(o_i - e_i)^2}{e_i}$$

Where,

O_i is the observed frequency
e_i is the estimated frequency

The chi square calculated value was compared with chi square tabulated at 5 % and 1 % level of significance, respectively at [(m-1) (n-1)] degree of freedom where m is the number of rows and n is the number of columns.

RESULTS AND DISCUSSION

Socio-Personal Profile of Children

Table 1 indicates that children having first birth order were (37.00 %) and (50.00 %) in rural and urban areas as compared to children having second birth order (63.00 %) and (50.00 %) in rural and urban areas. Children having first birth order were maximum (58.00 %) in 2-3 years age group in urban areas as compared to (24.00 %) in the same age group in rural areas. Fifty per cent of children were having first birth order in age group of 3-4 years, whereas 42 per cent children were having first birth order in urban areas in same age group.

Majority of children (76.00 %) were having second birth order in rural areas in age group of 2-3 years as compared to 42 per cent in urban areas in 3-4 years age groups. A total of 58 per cent of children were having second birth order in the age group of 3-4 years in urban areas and 50 per cent of children were having second birth order in the same age group in rural areas.

Table 1: Profile of children on socio-personal variables

N=100 each

Variable	Age in years		
	2-3	3-4	Total
Birth order	Rural		
First	12(24.00)	25(50.00)	37(37.00)
Second	38(76.00)	25(50.00)	63(63.00)
Total	50(100.00)	50(100.00)	100(100.00)
	Urban		
First	29(58.00)	21(42.00)	50(50.00)
Second	21(42.00)	29(58.00)	50(50.00)
Total	50(100.00)	50(100.00)	100(100.00)
Family Size	Rural		
Small (Upto 5)	15(30.00)	11(22.00)	26(26.00)
Large (Above 5)	35(70.00)	39(78.00)	74(74.00)
Total	50(100.00)	50(100.00)	100(100.00)
	Urban		
Small (Upto 5)	38(76.00)	40(80.00)	78(78.00)
Large (Above 5)	12(24.00)	10(20.00)	22(22.00)

Total	50(100.00)	50(100.00)	100(100.00)
Father Education	Rural		
Upto Primary	27(54.00)	33(66.00)	60(60.00)
Above Primary	23(46.00)	17(34.00)	40(40.00)
Total	50(100.00)	50(100.00)	100(100.00)
	Urban		
Graduation	30(60.00)	32(64.00)	62(62.00)
Post Graduation	20(40.00)	18(36.00)	38(76.00)
Total	50(100.00)	50(100.00)	100(100.00)
Mother Education	Rural		
Upto Primary	27(54.00)	36(72.00)	63(63.00)
Above Matriculation	23 (46.00)	14(28.00)	37(37.00)
Total	50(100.00)	50(100.00)	100(100.00)
	Urban		
Graduation	17(34.00)	32(64.00)	49(49.00)
Post Graduation	33(66.00)	18(36.00)	51(51.00)
Total	50(100.00)	50(100.00)	100(100.00)
Father Occupation	Rural		
Farmer	17(34.00)	32(64.00)	49(49.00)
Labour	33(66.00)	18(36.00)	51(51.00)
Total	50(100.00)	50(100.00)	100(100.00)
	Urban		
Business	25(50.00)	25(50.00)	50(50.00)
Service	25(50.00)	25(50.00)	50(50.00)
Total	50(100.00)	50(100.00)	100(100.00)
Family Type	Rural		
Joint	22(44.00)	21(42.00)	43(43.00)
Nuclear	28(56.00)	29(58.00)	57(57.00)
Total	50(100.00)	50(100.00)	100(100.00)
	Urban		
Joint	12(24. 00)	9(18.00)	21(21.00)
Nuclear	38(76.00)	41(82.00)	79(79.00)
Total	50(100.00)	50(100.00)	100(100.00)
Number of Siblings	Rural		

One	2(4.00)	3(6.00)	5(5.00)
Two	17(34.00)	24(48.00)	41(41.00)
Third and above	31(62.00)	23(46.00)	54(54.00)
Total	50(100.00)	50(100.00)	100(100.00)
		Urban	
One	25(25.00)	8(16.00)	33(33.00)
Two	12(24.00)	26(52.00)	38(38.00)
Third and above	13(26.00)	16(32.00)	29(29.00)
Total	50(100.00)	50(100.00)	100(100.00)
Family Income	Rural		
High	17(34.00)	13(26.00)	30(30.00)
Low	33(66.00)	37(74.00)	70(70.00)
Total	50(100.00)	50(100.00)	100(100.00)
	Urban		
High	31(62.00)	21(42.00)	52(52.00)
Low	19(38.00)	29(58.00)	48(48.00)
Total	50(100.00)	50(100.00)	100(100.00)

(Figures in parentheses denote percentages)

Performance of children for social competence

Table 2 clearly indicates about mean performance of children for social competence on Vineland Social Maturity Scale during the age of 2-4 years. Social competence of boys was at par with girls in both rural and urban areas. In rural areas, social competence of boys during the age of 2-3 years and 3-4 years was at par to that of girls. In urban areas social competence of girls (398.48) in the age group (2-3 years) was at par with that of boys (395.4) and social competence of boys in the group (3-4 years) was better than girls (z = 2.19*). There was also significant differences over locations (z = 4.67**) in age groups of 2-3 years and (z = 2.02*) in age group of 3-4 years.

Table 2: Mean performance of children for social competence on Vineland Maturity Scale during age of 2 to 4 years

Gender	**2-3 years**	**3-4 years**	**Overall mean**
Rural			
Boys	352.36±58.12	337.8±47.53	345.08± 53.05

Girls	334.2±70.70	362±63.17	348.1±67.81
Overall mean	343.28±64.70	349.9±56.66	346.59±60.60
Z-test (boys vs. girls)	0.992 NS	1.53 NS	0.248 NS
Urban			
Boys	395.4±26.03	343.72±48.80	369.56±46.70
Girls	398.48±65.13	310.8 ±56.94	354.64±75.01
Overall mean	396.94±49.11	327.26±55.05	362.1±62.61
Z-test (boys vs. girls)	0.219 NS	2.19*	1.19 NS
Z-test over location	4.67**	2.02*	0.714 NS

** Significant at p=0.01
* Significant at p=0.05
NS= Non significant
± Value indicate standard deviation

Performance of children for Social Competence on Social Attribute

Table 3 clearly describes mean performance of children for Social Competence on Social Attribute Checklist during the age of 2 to 4 years**.** Social competence of boys in rural areas was higher than girls in both age groups 2-3 years (z = 2.83**) and 3-4 years (z = 2.41**). There was also significant difference (z = 3.70**) in social competence of boys and girls in rural areas on the basis of overall mean Similarly, social competence of children in urban areas was at par to that of children of rural areas on the basis of overall mean. In urban areas in the age group 3-4 years, social competence of boys is significantly higher (z = 2.95**) than girls. The difference in social competence was significant over the location in age group 2-3 years (z = 2.22*). Kumra (1994) indicated that gender differences in social competence in rural and urban children

Table 3: Mean performance of children for social competence on Social Attribute Checklist during the age of 2 to 4 years.

Gender	2-3 years	3-4 years	Overall mean
Rural			
Boys	23.12±2.50	24.24±2.71	23.68±2.65
Girls	21.08±2.60	22.72±1.70	21.9±2.30
Overall mean	22.1± 2.71	23.48±2.40	22.79±0.63
Z-test (boys vs. girls)	2.83**	2.41**	3.70**
Urban			
Boys	23.88±1.99	23.64±1.63	23.88±1.80
Girls	22.72±3.42	22.2±1.82	22.46±2.73
Overall mean	23.3±2.83	22.92±1.86	23.11±2.40
Z-test (boys vs. girls)	1.48 NS	2.95**	3.10
Z-test over location	2.22*	1.33 NS	1.33 NS

** Significant at p=0.01;
* Significant at p=0.05
NS= Non significant
± Value indicate standard deviation

Association of social competence with birth order of child:

Vineland Social Maturity scale was significantly related to birth order of child in rural areas (χ^2=5.59) but not related to birth order of child in urban areas. Also, Social Attribute Checklist was not significantly related to birth order of child in rural areas (χ^2 =0.98) but significantly related to birth order (χ^2 =4.0*) of child in urban areas. This may be due to the fact that in rural areas first born child is given more preference than second born child and in urban areas parents do not devote to children because of busy schedule as both father and mother were working. The association between social competence and birth order was not significant on Social Attribute Checklist as children were able to perform well on Vineland scale than on Social Attribute Checklist.

Table 4: Association of social competence with birth order of child

Variables	Rural				Urban			
Birth Order → / Social Competence ↓	First	Second	Total	χ^2 value	First	Second	Total	χ^2 value
Vineland Social Maturity Scale								
Low	17(27.87)	44(72.13)	61	5.59*	26(52.00)	24(48.00)	50	0.16 NS
High	20(51.29)	19(48.71)	39		24(48.00)	26(52.00)	50	
Total	37	63	100		50	50	100	
Social Attribute Checklist								
Low	21(33.33)	42(66.67)	63	0.98 NS	30(60.00)	20(40.00)	50	4.0*
High	16(43.24)	21(56.76)	37		20(40.00)	30(60.00)	50	
Total	37	63	100		50	50	100	

** Significant at P=0.01 with 1 d.f. NS= Non significant
*Significant at P=0.05 with 1 d.f.

CONCLUSION

Based on the above findings it can be concluded that children from urban areas surpassed children from rural areas in social competence. Pacholik (2018) indicate a slight predominance of social skills of children in rural areas than urban areas. Also, social competence was significantly related to birth order in rural areas and urban areas when measured by Vineland Social maturity scale and Social attribute checklist respectively. Martin (1975) also reported that child's ordinal position in the family constellation was an important mediator in a child's social development.

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WHY DO I BUY WHAT I BUY: UNDERSTANDING SELF-REGULATION OF PURCHASE BEHAVIOR IN INDIAN URBAN MIDDLE CLASS CONTEXT

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ABSTRACT

In the present scenario, many transformations are taking place at political, economic, social, psychological as well as environmental levels. While redefining their life with respect to material gains or spiritual-simplistic living, people in the Indian society are exercising their capacity to purchase material goods and services unseen before globalization and open market economy. This paper focuses on the factors of purchase behavior with respect to self-regulation. For the purpose, a survey was conducted with 300 participants in the age groups of 21 years to 77 years, having primary purchase capacity, from urban middle-class families. The study draws from the social constructivist approach of the impact of social development and social factors constructing the individual reality of lived experiences. Materialistic values scale, buying motives scale and self-regulation questionnaire were used for data collection. Linear regression analysis and multivariate analysis of variables were performed to analyze the data from the survey. Materialistic values emerged as an important factor that contributes to self-regulation. Self-regulation of purchase behavior was found to be determined by age, marital status, and gender.

Key words: Materialistic values, Self-regulation, Purchase behavior, Indian urban middle-class.

INTRODUCTION

To Buy or Not to Buy

Purchase capacity has become equivalent to survival. In order to live in the society, some form of purchase behavior is engaged upon on an everyday basis. The craze after money is unceasing and the capacity to earn money determines the purchase capacity of an individual. Many studies have focused on understanding the patterns of purchase behavior particularly from the perspective of type and avenue of purchases made (do Paco, Alves, Shiel, & Filho, 2014; Eccles, 2002; Khare, Mishra & Parveen, 2012; Rani, 2014).

Materialism emerges as an important factor that contributes to consumer behavior. In turn, materialism is highly promoted by industry, advertising agencies, and government bodies. Having the 'right' material goods has become vital to many because of hoped psychological benefits, such as moving closer to an ideal identity, creating a desired social image, and achieving positive emotional states (Das, 2014; Escalas, 2013; Jain, Khan & Mishra, 2017; Khare & Rakesh, 2011;

Kumar, Kim & Pelton, 2009). The consumer ideology is also guided by material acquisition when higher ability to consume is viewed as success of people in general (Dutt, 2006; Gaur, Mani, Banerjee, Amini & Gupta, 2019). Further, materialism is promoted to keep the economy running by presenting goods and services that promise something more, new, or different on a regular/continuous basis. Therefore, the level of satisfaction with material goods can never be absolute (Basaran, & Buyukyilmaz, 2015; Chen, Chang, & Chen, 2017; Mathews, Ambroise, & Brignier, 2009).

Self and the Buying Process

People are not just consumers. People derive deeper level satisfaction when their sense of identity and connectedness is formed by working, transacting with others, having meaningful goals and relations in life, and building their sense of well-being. Their core level satisfaction is not always associated with the ability to consume and acquire material things. Hence, personal values and ideologies may act in conflict with promoted goals of higher consumption. However, it is seen that the traditional, stable, and contextual means of identity construction (i.e., community, religion, family, nationality, or class) are fading from more and more urban living set-ups and many people are ascribing to material factors for achieving identity at an individualized level (Badgaiyan & Verma, 2014; Dittmar & Kapur, 2011). The pursuit of material goods and thereby the image portrayed by it as well as the temporary happiness/gain is considered to be distracting away from intrinsic goals and it is linked with lower well-being (Escalas, 2013; Jain 2019; SivaKumar & Gunasekaran, 2017; Khare & Rakesh, 2011; Redden & Haws, 2013).

Self-regulation in the Buying Process: An Indian Traditional Conception

The Indian tradition approaches self-regulation as a continuous quality of the self, which only gets strengthened with practice and slowly becomes an integral part of the behavior (state within and outside) as well as personality (trait within) of the individual. With a close link between self and work in Indian tradition (*Svadharma* = *sva*~self and *dharma*~duty), it is worth noting that every behavior is a result of guidance from cognitive and behavioral aspects of duty in everyday living. This consistent and continuous dutiful sense of practice (*Svanigrah*) builds self-regulation (Bhawuk, 2011; Rao & Paranjpe, 2016; Rapaille, 2006; Tov, Diener, Ng, Kesebir, & Harter, 2009).

In terms of process, belief in *karma* has its impact largely through its influence on/promotion of a long-term orientation. A long-term orientation decreases the importance of momentary happiness and hence has higher (and more accurate/realistic) expectations (Kopalle, Lehmann, & Farley, 2010). In terms of paradigm, *Sthitpragya* (it is a Sanskrit term that means *Sthit* = present and available and *pragya* = insightful observing), is a stance of viewing life in the present moment, free from all attachment and emotion, and therefore, it provides the unchanging self-orientation. This unchanging nature of self provides the perspective wherein the future self is not viewed as more accomplished, rather, the self is viewed as an inexhaustible source of inner bliss (Paranjpe, 1998). The increasing tendency toward material acquisitions and growing value of money runs counter to traditional Indian values and practices of "*sayyam*" meaning regulation and "*niyantran*" which means control.

Indian Urban Middle Class and Purchase Behavior

While redefining their life, people of our nation are exercising their new found capacity to purchase material goods and services hitherto unforeseen in the Indian society (Jain, 2019; Jodhka & Prakash, 2016; SivaKumar & Gunasekaran, 2017; Varma, 2007).

The present research helps to identify the process of self-regulation of purchase behavior in Indian urban middle-class individuals with primary purchase capacity.

Research Questions

1. What is the effect of materialistic values and buying motives on self-regulation of purchase behavior in the contemporary Indian urban middle-class context?
2. What are the differences in self-regulation of purchase behavior due to gender, age, and marital status?

OBJECTIVES

Broad objective

The broad objective of the research is to identify individual differences in behavior and practices indicating self-regulation or failure of it, in relation to purchase behavior among people with primary purchase capacity.

The specific objectives of the research are:

1. To find out the relation between materialistic values, buying motives and self-regulation.
2. To find out the effect of materialistic values and buying motives on self-regulation.
3. To determine how gender, age, and marital status impact self-regulation related to purchase behavior.

METHODOLOGY

Research design

A survey method with exploratory design (Creswell, 2012) was adopted.

Sample and Sampling Technique

The sample was drawn from urban middle-class population in Vadodara city. The selection of participants was based upon the criteria of earning an income and more than 21 years of age. Purposive and snow balling techniques were used to identify prospective participants. The participants were contacted through various workplaces in Vadodara such as banks, university, hospitals, district court, schools, etc. The Sample Size was 300.

Tools for Data Collection

The tool for demographic details was constructed by the researcher.

1. Demographic Form: Name, contact number, age, gender, monthly income, marital status, etc. (self-developed).
2. Materialistic Values Scale [Richins & Dawson (1992) and revised by Richins (2004)].
3. Scale for measuring Buying Motives (Dittmar & Kapur, 2011).

4. Self-regulation Questionnaire (Brown, Miller, & Lawendowski, 1999).

RESULTS

This section begins with a socio-demographic profile of the participants. It describes the relationships among the self-regulation, materialistic values, and buying motives, and addresses the differences with respect to socio-demographic variables.

The age range of participants was 21 to 77 years with maximum number of participants (94) in the 21-30 years age group. Most (n=215) of the participants were married.

Table 1: Gender wise Distribution of Demographic Characteristics of Participants

Categories	Women	%	Men	%	Total
Age Range (years)					
21-30	60	20	34	11.3	94
31-40	35	11.6	43	14.3	78
41-50	35	11.6	24	8	59
51+	26	8.6	43	14.3	69
Total	156	52	144	48	300
Marital Status					
Unmarried	49	16.3	26	8.6	75
Married	98	32.6	117	39	215

Correlation between self-regulation, materialistic values and buying motives

Table 2: Correlations between Self-regulation, Materialistic Values, and Buying Motives ($p<0.01$)

	Factors	Self-Regulation	Materialistic Values	Buying Motives
1.	Self-Regulation	1	-.31**	-0.01
2.	Materialistic Values		1	.50**
3.	Buying Motives			1

There was significant negative correlation between materialistic values and self-regulation ($r=-0.3$, $p<0.01$), and there was significant positive correlation between materialistic values and buying motives ($r=0.5$, $p<0.01$).

Effect of Materialistic Values and Buying Motives on Self-regulation

Table 3 shows the results from the two-way analysis of variance for materialistic values and buying motives on self-regulation. There is a significant difference in materialistic values scores across self-regulation [$F(2, 292) = 3.47$, $p< 0.03$]; a significant interaction effect of materialistic values and buying motives with regard to self-regulation [$F(3, 292) = 4.57$, $p< 0.004$]; and there is no effect of buying motives on self-regulation.

Table 3: Two-way ANOVA for Materialistic Values and Buying Motives on Self-regulation

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Materialistic Values	1942.59	2	971.29	3.47	.03
Buying Motives	304.68	2	152.34	.544	.58
Materialistic Values*Buying Motives	3838.31	3	1279.44	4.57	.004
Error	81711.20	292	279.83		

Multivariate Analysis for Demographic Factors on Self-regulation, Materialistic Values and Buying Motives

Significant multivariate effects were found for age, gender and marital status (see Table 4) on self-regulation, materialistic values and buying motives.

Table 4: Significant Multivariate Effects (at p<.05 level)

Sr. No.	Variable(s)	Wilk's Lambda	*F*	*df*	Error *df*
1	Gender	0.963	2.274	5	294
2	Age	0.785	2.402	30	1158
3	Marital Status	0.899	2.114	15	806.48
4	Gender*Age	0.953	2.266	6	558

Table 5: Univariate Analyses of Variance for Self-regulation, and Impulse Buying through Gender (at p<0.05)

Dependent Variable	Type III Sum of Squares	df	df Error	Mean Square	F
Self-regulation	1717.717	1	298	1717.717	5.803
Buying Motives	424.463	1	298	424.463	3.877

The results indicate that only the mean difference of self-regulation and buying motives are statistically significant. This indicates that men have higher self-regulation and buying motives as compared to women.

Table 6: Univariate Analyses of Variance for Self-regulation and Impulse Buying through Age (at p<0.01)

Dependent Variable	Type III Sum of Squares	df	df Error	Mean Square	F
Self-regulation	4988.078	6	293	831.346	2.868
Materialistic Values	690.066	6	293	115.011	3.134
Buying Motives	2677.067	6	293	446.178	4.304

The post hoc analyses indicate that participants in age group of 21 to 30 years of age have statistically significant higher self-regulation as compared to age group of 41 to 50 years. In case of materialistic values, participants in age groups of 31 to 40 years, 51+ years have statistically significant higher materialistic values as compared to age group of 21 to 30 years. Post hoc analysis for buying motives shows that participants in the age-groups of 31-40 years and 51+ years have statistically significant higher buying motives as compared to age group of 21-30 years.

Table 7: Univariate Analyses of Variance for Self-regulation through Marital Status (at p<0.01)

Dependent Variable	Type III Sum of Squares	df	df Error	Mean Square	F
Self-regulation	3062.786	3	296	1020.929	3.479

The post hoc analyses indicate that unmarried participants had statistically significant higher self-regulation as compared to participants who were married.

DISCUSSION

Self-regulation has emerged as a multi-faceted concept which permeates all aspects of living (Paranjpe, 1998; Tirtha, 2007; Yadav, 2017); particularly it holds greater implications for individual trajectories of health and well-being (Mroczek, Spiro III, Griffin, & Neupert, 2006). However, in the current research, self-regulation is found to be predicted by materialistic values. If materialistic values are high, then self-regulation is low. This holds true from the perspective of Indian tradition also wherein higher materialistic values are viewed as opposed to self-regulation and self-transcendence (Paranjpe, 1998; Tirtha, 2007).

Self-regulation of Purchase Behavior with respect to Gender

Past research shows that gender socialization differently shapes behavior of men and women. Generally, women engage in prevention focused self-regulation such as reduced participation in adventure-seeking; whereas men engage in promotion focused strategies such as increased risk-taking behavior (Coyne, Vaske, Boisvert, & Wright, 2015; Sharma, 2007). Women are supposed to exhibit higher self-regulation due to gender norm socialization (Raval, Martini, & Raval, 2007). However, from the results in the present research, it is seen that men scored higher on self-regulation as compared to women. This finding requires further probing with respect to decision making and types of purchases made differently by both men and women. For women, it may be difficult to ascertain the goals and reaching them as they are generally taught to prioritize others' needs over their own (Carter, 2014; Chanana, 2006; Ram, Strohchein, & Gaur, 2014).

Further, men scored higher on materialistic values and buying motives as well. This indicates that the purchases made by men were guided more by the materialistic values and higher buying motives. This also in a subtle way shows the difference in delay in gratification with respect to gender, as it has been shown in numerous past studies (Dittmar & Kapur, 2011; Hosseini-Kamkar & Morton (2014); Nolen-Hoeksema, & Corte 2004; Sharma, 2007).

Self-regulation of Purchase Behavior with respect to Age

Participants in age group of 21 to 30 years have higher self-regulation scores as compared to participants from age group of 41 to 50 years. This result is also supported by the proposed explanation of change in self-regulation due to societal factors and aging (Mroczek, Spiro III, Griffin, & Neupert, 2006). Personality dimensions do not change but the behaviors consistent with those personality characteristics do change over a life-time due to life events (Paranjpe, 1998; Roberts, 2006). Therefore, a variation in self-regulation in terms of age can be understood better by viewing the marital status, presence and number of children, income earned, savings planned by younger participants for a bigger purchase, like a house in the future, materialistic values, monthly income, type of profession, and type of family.

Self-regulation of Purchase Behavior with respect to Marital Status

Unmarried participants had higher scores on self-regulation as compared to married participants. The reasons could be presence of more needs as a family, more availability of monetary resources if the partner is also earning (this was also observed as a significant variable in the results), number of children (resulting in more purchases and also depletion of financial sources sooner), and also the need for future safety of family. Although self-regulation seems to develop as an individual construct; it will be beneficial to understand it from the perspective of committed relationship status of people.

Limitations: The limitations of the study are: Self-rating was the main source of data. Tangible and intangible goods and services were considered together as a single unit. There was unequal sample size in each personal demographic factor.

CONCLUSION

This research reveals that culture-context interface is pertinent for the final behavioral outcome. Cultural beliefs and values cannot be segregated from the context of behavior in general and pertaining to self in particular. In practice, however, Indian urban middle-class participants are guided more by materialistic values and buying motives for the types of purchases they make. This 'belief-practice dissonance' is present in all of us and shapes behavioral choices in general. The self is viewed as a continuous entity which undergoes changes at various levels, hence, the self-regulatory understanding and practices also differ with respect to age and other life-stage related events. Life-stage plays a significant role in self-regulation of purchase behavior.

Gender, age, and marital status play a role in shaping the self-regulation of purchase behavior of Indian urban middle-class participants. Self-regulation of purchase behavior as a phenomenon is understood better when it is placed in context of lived experiences of people and their behavior in a certain life situation.

There is a great scope to study self-regulation in a longitudinal method to track it across different life stages so as to create more in-depth understanding across the life span.

Implications

The study brings to light the need for cultivation of core strengths of one's personality and developing self-regulation as a characteristic with more practice. The market driven economy has compelled people to join an invisible unending race where everyone is aiming to hoard more. A departure from value-based living to a move towards an "exterior shell" (the materialistic buying, hoarding and showing-off), particularly in the Indian urban middle class is observed.

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