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From The Editor 's desk

It is a matter of great pleasure that The Indian Journal of Home Science is going to be an "e-journal" from 2018. It will be published twice in a year, in January and in June. The over-whelming response of the contributors of the articles for the journal has expressed a strong support in the venture of the Association to publish journal as an" e-journal." The blind peer reviewed Journal has been recognized by UGC as well.

Sincere thanks are extended to the advisory committee, members of the editorial board and all those who have helped directly or indirectly to bring the electronic and print version of The Indian Journal of Home Science out. The experts of the field are extended heartfelt thanks for sparing their valuable time to peer review the manuscripts.

Surely, with the continued cooperation of the members of The Association, the Journal will go a long way .....

The Editor

Prof. Maneesha Shukul

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PROMOTING SAFE MOTHERHOOD: A NARRATIVE BASED ANALYSIS OF POSITIVELY DEVIANT BEHAVIOURS

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ABSTRACT

Pregnancy and child birth are the most critical periods that a woman goes through in her life cycle. Positive actions taken during this time can ensure a better health outcome for both, the mother and her child. To reduce maternal and infant mortality rates as mandated in the Sustainable Development Goals, programme based interventions alone cannot be enough. At an individual level, if a woman or the people around her who influence her childbirth related decisions can bring about the difference through small and easily doable actions, which may not be normative. It is against this background that the present study was conducted to identify the Positively Deviant (PD) behaviours related to safe motherhood that include actions that are small but progressive to bring about a positive outcome. The study was carried out in Haryana, a North Indian state with dominant patriarchy with most skewed sex ratio in the country. Narratives were collected and PD behaviours were identified after rounds of interaction with multiple community stakeholders and analyzed based on guidelines for Narrative Analysis, 2003, by University of Wisconsin. The study documented PD behaviours of community stakeholders, mother-in-laws and husbands, who were the primary facilitators of women's decision making related to pregnancy and child birth. PD behaviours included actions and motivations build through incentives or accompanying wife/daughter-in-law for antenatal checkups, going for contraception after birth of two girls or using a Bhajan Samiti as a forum to motivate women to access services from Delivery Huts, etc,. These were found to be making a big difference to the actual birth outcomes. These behaviours for safe motherhood need to be encouraged and advocated to men, women and other potential influencers to reduce mortality and morbidity rates without any additional costs of interventions or creating additional facilities and infrastructure.

Keywords: Safe motherhood, Positive Deviance, Positive deviant behaviors, Mother and child health, Birth outcomes

INTRODUCTION

Maternal Health and well-being: A multi-dimensional concern

To respond to the call to reduce maternal and child mortality today, given its global importance in the Sustainable Development Goals by United Nations; it is imperative that this problem be handled with utmost care and honesty. The Sustainable Development Goal 3 clearly articulates to "Ensure healthy lives and promote wellbeing for all at all ages" with target 3.1 specifically emphasizing on reducing global maternal mortality ratio to less than 70 per 100,000 live births. Across the globe, it is the poor and the developing countries that are wronged by this problem the most. Be it the quandary of resources, infrastructure or lack of awareness, the third world seems to be still battling hard with maternal mortality. Most maternal, newborn and child deaths can be prevented with available interventions. Many of the problems are driven by lack of access to services, lack of awareness, absence of reliable channels of communication in the form of health workers. A study by Kumar & Gupta in 2015 found "a significant difference in the utilization of maternal health care services by caste, women's age at first birth, educational attainment, place of residence, economic status and region". In addition the research evidence indicates that a young

and poor woman reports more complications during pregnancy and lesser use of any health care services (Mousumi, 2014). Lack of information and lack od access to health services due to poverty and social cultural norms exacerbate the poor health outcomes. Poor referral mechanism, absence of trained birth attendants and prevalence of home deliveries also majorly contribute to the direct causes of maternal deaths particularly in countries with poor health indicators.

Another dimension of causes associated with maternal mortality is social in nature; wherein social norms, often inhibit woman to access health care services. As per the report by BBC Media Action, 2014, unsupportive attitudes and norms are prevalent in many communities, especially among key decision-makers, men and older women. These inhibit women to access health services that she must at the time of pregnancy and childbirth. This situation is more visible especially in the rural set-up of India where a mother-in-law or husband or some influential community leader may have more say in the way an entire pregnancy and child-birth must be handled. The long hailed patriarchy and the grounded gender divide in our country can effortlessly be blamed for this. Consequently, women in the traditional Indian society lose control over their bodies and any decisions pertaining to it; it is people around her who decide and manipulate the puppet that she becomes.

Social Norms and Power Dynamics: Impact on Maternal Health

As observed in most countries of South Asia, mother-in-laws play a crucial role in the decisions revolving around accessing health care facilities and providers (Simkhada et al, 2010). A study done in Bangladesh by Chowdhury, Mahbub & Chowdhury, 2003, found that older women, especially mothers-in-law did not consider ANC essential during pregnancy and often discouraged their daughters-in-law from attending these. The power dynamics exhibit their control to such an extent that it has been found that family planning use was lower when the mother-in-law lives with the couple as compared to when the couple lives separately from the mother-in-law (Kadir et al, 2003).

Also, influence of the husband in decision making cannot be ignored, especially in a patriarchy and male dominated country like India. Evidence demonstrates that women were more likely to follow the appropriate practices when their husbands supported them (BBC Media Action, 2014). Agreement of partners regarding perceptions about the healthcare system appeared to be an important driver of decisions about delivery-location (Danforth et al, 2009). The study conducted by Upadhyay, et al, 2014 confirmed that both the woman and her male counterpart influenced the decision to utilize maternal health care services. They also remark that it is evident that non-indigenous women are vulnerable groups and have a limited decision-making capacity on their utilization of maternal health services. The involvement of husbands and mothers-in-law is indeed important in decision-making, indicating the need to consider the influence of household gender and power dynamics (Blanchard et al, 2015).

Positive Deviance: An innovative approach

As the phrase "Positive Deviance" suggests, it is an act that is different and leads to result that has a positive impact on the situation. Singhal, Buscell and Lindberg (2010) define Positive Deviance (PD) as "an approach to social change that enables communities to discover the wisdom they already have, and then to act on it". The approach was pioneered by Jerry and Monique Sternin in 1990 first to combat child malnutrition in Vietnam. The very premise of PD is that in every

community there are certain individuals whose uncommon practices or behaviours enable them to find better solutions to their problems than their neighbors who have access to same resources (Singhal et al., 2010). In PD, the highest level of expertise belongs to the individuals whose behaviours must change if a problem is to be solved (Toth, Benjamin & Everett, 2010). Hence, PD is led by internal change agents who present the social proof to their peers and because it amplifies already existing local wisdom, solutions and benefits can be sustained (Singhal et al., 2010). In US, lately, PD has been used effectively in several health care settings to significantly reduce the incidence of deadly health care-associated infections.

Positive Deviance and Safe Motherhood:

Initiated by Save the Children under the Saving Newborns Life (SNL) Initiative, a PD enquiry in Pakistan between 2001 and 2004 in eight villages of Haripur district in Pakistan North West Frontier Province engaged community members to discover the uncommon yet effective behaviours and strategies to reduce maternal and newborn mortality among them. Besides, the newborn, family members related to the newborn were identified as PD persons, such as father who saved money in case of obstetric emergency at delivery, a mother-in-law who prepared a delivery kit for the arriving newborn, a *dai* (midwife), who successfully resuscitated newborns that were not breathing and practiced appropriate hygiene in cutting the umbilical cord (Singhal, 2014).The involvement of the community at every step was the cornerstone of this PD study related to safe motherhood.

Research Premise: Analysing the synergy between Community Stakeholders, their Positively Deviant actions and Safe Motherhood

Based on this premise, that mother-in-laws, husbands and other community stakeholders are the potential influencers in decision making pertaining to pregnancy and childbirth, and that their little actions can make a big difference in the actual birth outcome; a qualitative research was carried out to understand their positively deviant practices and behaviours related to safe motherhood for their daughter-in-laws/wives/community women. Thus, the study aimed to identify and appraise the synergy between Positive Deviance and Power Dynamics and how best can they bring about healthier birthing outcomes. When most of the research literature tries to shun and looks at power and gender dynamics as a deterrent in achieving safe motherhood goals, this research study tried to use a flipped approach of Positive Deviance to identify ‘what was working’ rather that going deep into analyzing the problem and trying to figure out ‘what was not working’.

METHODOLOGY

The study was carried out in the villages of Haryana, a state where patriarchy still dominates the social order and has one of the most skewed sex ratio in the country. As the purpose of the study aimed at understanding power dynamics and positively deviant behaviours of the family and community stakeholders, state of Haryana seemed to be well suited as the research locale to examine the deterrents in accessing health care facilities or in other words, a location where the social odds were high. In depth interviews with probes tried to dig deeper to find, ‘what was still working’. Besides Haryana has also been hosting a state-specific innovation scheme “Delivery Huts Scheme” under National Rural Health Mission to promote safe motherhood. In fact, in few of the poor performing districts a special incentive based scheme (of giving 1 kg of Desi Ghee for timely and early ANC registration) was also running at the time of the study. Within Haryana, three

districts with high, medium and low HDI (Rohtak, Gurugram and Jhajjar) were selected respectively as the locale for the study.

Since the study aimed at identifying positive behaviours among the community stakeholders related to safe motherhood, it could have best been elicited through the use of narratives. "Narratives in personal story form deemed appropriate. Use of narratives for qualitative analysis is a recent technique; hence, certain guidelines were followed on initiating dialogue through the use of relevant probes in a personal interview.. Primarily guidelines by University of Wisconsin, 2003, and John Hopkins Bloomberg School of Public Health, 2008, for Narrative Analysis were followed. Thirty narratives were taken from community stakeholders. Stories of positive deviance were used as the primary method of seeking desired information from personal accounts of experience and results of programmes in people's own words. Personal interaction with the community stakeholders led to individual field notes and video recordings that transcended into thirty, 700 word narratives which was more of "Limited Portrait" as Riesmann, 1993 calls it. The process began with rapport formation, followed by debriefing, seeking consent from the participants and then probing. Some cases grew on personal losses, grief and other plethora of emotions.

To analyse the data from narratives, codes/metaphors and themes were made and then narrative text was then coded into these. A total of six codes were made which are operationally defined. These codes were context, institutional delivery/delivery hut, gender bias, role of health worker, contraception/family planning and positively deviant behaviours related to safe motherhood. One of the important dimensions of documenting narratives was identifying the PD behaviours related to safe motherhood which the respondents practiced, but were unaware of. Probing of people closely related to expectant woman helped in identifying these relevant, simple yet uncommon practices that led them to ensure a safe motherhood for the latter.

FINDINGS

Positively Deviant Behaviours or Practices related to Safe Motherhood

To have a holistic representation of these stakeholders, ten community influencers, ten mother-in-laws and ten husbands were interacted with on a one to one basis and their narratives were taken account of. The PD practices among the community stakeholders were identified after relevant probing at the time of documenting their narratives. These are the practices being indulged in by the respondents that were deviant and uncommon, which were not recognized by the individuals themselves. What made these cases positively deviant were that the behaviours that they practiced, others did not but led to a positive outcome pertaining to safe motherhood. For example, a husband making an alternate arrangement for institutional delivery for his wife is a positively deviant behaviour that other husbands may not be doing but if such a behaviour becomes a common practice it can save many a lives of mothers and neonates and need to be promoted through community action and media. The findings of identified positively deviant behaviours are reported category wise below.

Positively Deviant Behaviours at the Institutional Level:
Though, identifying positively deviant behaviours at the institutional level was not a research premise for this study; yet interestingly the study results found out that some of the institutional mechanisms have actually been instrumental in bringing about a dip in the maternal and infant mortality rates. In fact, NFHS IV data clearly indicates a marked rise in the percentage of institutional births from 35.7% (NFHS III) to 80.5% (NFHS IV) while a decrease in IMR from 42 (NFHS III) to 33 (NFHS IV).

There were unique and special programmess initiated by health planners for innovative schemes under NRHM that included the Delivery hut scheme (to promote safe motherhood); Free ambulance service 24X7 (to ensure safe referral and transport); Surakshit Maa Award (an incentive based scheme one of a kind that gave women a kg of Desi Ghee for early ANC registration). An intervention from Haryana Government which is 'Surakshit Maa Award' of giving a kg of Desi Ghee to the pregnant mothers who got their ANC registration done in the first trimester based on a lucky draw, was an innovative initiative that encouraged early ANC and reduced cases of miscarriages and abortions. Desi Ghee also was traditionally fed to the women in pregnancy and hence was welcome by most other in laws as a strategy to initiate early ANC. Women felt a sense of competition to win the desi ghee and hence became more cautious about their health. Rise in the increased percentage of ante-natal care in the first trimester from NFHS III (51.4%) to NFHS IV (63.2%) only asserts us to believe that how culturally nuanced schemes can be more effective.
All these schemes were free of cost facility, incentives along with safety of both mother and child that became important motivating factors. Also, Presence of a male health worker at one of the Delivery Huts that eased out communication between a husband and a health worker and ensured that the husband was able to share all his concerns related to wife's pregnancy. Male to male rapport was the key.

Positively Deviant Behaviours of Other Community Stakeholders:
For the purpose of this research, other community stakeholders were those people who were interacted with in the course of this study in order to document their PD behaviours related to safe motherhood. These included elderly women of the village, women opinion leaders, a respected teacher of a local government school and elderly and respected men of the community. The identified relevant PD behaviours related to safe motherhood being practiced by the community stakeholders included:

- Being happy and satisfied with only granddaughters in the family and not unduly pressurizing the daughter-in-law to have more children for the sake of having a male child and propagating the same message "*No discrimination between a girl and a boy"* to the other mother-in-laws in the community.
- Volunteering to work at a Delivery Hut (DH) and establishing rapport with the women coming to the DH; advising them on care during pregnancy, ANC and family planning.
- Using jokes to pass the message to the new mothers about avoiding intimacy to avoid immediate pregnancy.
- Lending out a personal property to the health centre to pursue its functions and taking an onus in its functioning.

- Holding meetings with the ANMs & ASHAs to work on the target audience and roping in clients through personal contacts.
- Befriending women and winning their confidence to convince them to adopt a safe motherhood behaviour especially by getting immunized and opting for institutional delivery.
- Elderly community stakeholders accompanying the health workers for field trips.
- Converging Anganwadi centre and Health centre and trying to spread awareness about safe motherhood messages at both places to ensure greater efficacy of health interventions.
- Inviting women who have been displaying good practices related to safe motherhood and family planning and letting them share their personal experiences with the women folk.
- Using a "Bhajan Samiti group" as a platform to discuss about women's health; the group starting its activity with initially a prayer chant followed by the dialogue on ANC, institutional delivery, safe motherhood, contraception etc.
- Taking a bold step like going for a ten year copper-t implant without letting anyone in the family know about it to avoid a fourth pregnancy so that she could focus on rearing the just born child and not unduly stress her body.
- Advocating to the mother-in-laws to let their daughters go for institutional deliveries and timely contraception. Creating awareness about the presence of a 24X7 free of cost ambulance service made available by the state government under NRHM that is strengthening the referral system.
- As a member of a self help group, establishing a strong network with ASHAs and facilitating ASHAs to put across the messages related to safe motherhood.

Positively Deviant Behaviours of Mother-in-laws

Some of the positively deviant behaviours being practiced by the mother-in-laws/ emerged out of their narratives that aided in their daughter-in-laws to have a safe motherhood experience are:

- Ensuring an institutional delivery for the daughter-in-law after losing a baby in a previous home delivery.
- Helping a daughter-in-law by not pressurize her for planning a second child.
- Taking the lead in motivating daughter in law to opt for contraception immediately after delivery not just to ensure a safe motherhood experience post c-section, but also to space the family sensibly.
- Mother-in-law insisting to sleep with the daughter in law for three months after delivery not just to comfort her and rear the child, but also to avoid intimacy between the couple.
- Mother-in-law taking cognizance of not so normal symptoms of pregnancy of the daughter-in-law and reporting it to the Delivery Hut during her ANC visit that eventually focused attention of the health workers to a much complicated case of anemia.
- Mother-in-law adhering to the message by the health workers and ensuring exclusive breast feeding for the first six months by the daughter in law to her child; going against the traditional norm of feeding "*Gutti"* (homemade pre-lacteal preparation) despite facing negations from family and relatives.

Positively Deviant Behaviours of Husbands:

Some of the positively deviant behaviours being practiced by the husbands/ emerged out of their narratives that aided in their wives to have a safe motherhood experience are:

- On wife's behest, buying pregnancy kit from the chemist away from village for early confirmation of pregnancy which led to early confirmation of pregnancy and consequent to early ANC registration.
- Realizing the importance of feeding colostrum to the new born and taking proactive decision for referral to a higher facility when the child was unable to suck the breast milk.
- Taking cognizance of the health worker's visit and convincing not just one's own pregnant wife but also fellow friends to convince them to register their wives at the CHC for ANC and institutional delivery.
- Husband empathizing with a wife who just had a c-section and letting her take rest and not stressing her physically.
- Husband choosing to not to sleep with wife after a c-section to avoid undue stress on her body and physical intimacy.
- Accompanying wife for the ANC sittings to comfort her.
- Using technology to "Google" simple remedies to answer wife's pregnancy wows like morning sickness and nausea.
- Resisting mother's pressure to go for prenatal sex determination by his wife to ensure a male baby.
- Husband taking a call not to have more than two children withstanding intense pressure from his mother to plan a third baby after the birth of two daughters with a desire to be get a grandson.
- Ensuring that the wife is given good post natal care and not missing on the Post Natal Checkups/appointment despite the worst of circumstances.

CONCLUSION & IMPLICATIONS

The findings of this research clearly point out that the state government had come up with unique schemes to promote safe motherhood which were acknowledged by these stakeholders. The findings also reveal that the health workers played a pivotal role in mobilizing women to access these services. Mother-in-law was found to be the most potent influencer in terms of decision making pertaining to pregnancy and child-birth. On the flipside, the research reiterated the deep-rooted gender bias within the state. Though most community stakeholders were shifting their mindsets in this regard, yet interventions of Behaviour Change Communication are a must and should strategically target these change agents. The study also found some positively deviant practices, like, provision of a kilo of Desi Ghee as an incentive for early ANC registration, going for contraception after birth of two girls and supporting gender equality, not letting the couple get intimate after childbirth or using a Bhajan Samiti as a forum to motivate women to access services from DH, etc, that were making a big difference in the birth outcome for these beneficiaries. It would not be wrong to say that it is the synergy between institutional mechanisms that promoted the PD behaviours which can be most promising solutions and have already shown results of reducing IMR and MMR. Strengthening the role of key stakeholders influencing safe motherhood practices and decisions through an innovative approach as Positive Deviance can go a long way in making Safe Motherhood a sustainable reality for every woman. Though Positive Deviance as an approach does has its limitations of scaling up, yet a micro level it can at least be used to identify behaviours that are doable by ordinary people and result-oriented. Once their identification is done at a micro level, mechanisms to disseminate them at a macro level must be devised.

Thus, positively deviant practices pertaining to safe motherhood not just need to be encouraged but also advocated to men, women and other potential influencers around, as it costs nothing but a slight shift in the behaviour, leading to a positive upshot.

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OCCUPATIONAL STEREOTYPES AMONGST CHILDREN: A GENDER PERSPECTIVE

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ABSTRACT

Through the process of socialization, children develop the concept of female and male appropriate behavior very early in their childhood. They take cues from their parents, teachers, school, peer group and media and start developing their sense of gender roles and expectations. Research evidence suggests that some gender stereotypes are well developed by 5 years of age and become rigidly defined between 5 and 7 years of age, making the early childhood years a critical period to deal with gender stereotypes. In light of this background, the present study aimed to explore the perceptions of children regarding adult occupations and games. A sample of thirty eight (38) girls and forty (40) boys was drawn from two (2) schools of North Zone of Municipal Corporation of Delhi. These seventy eight (78) children from grade V, were administered a structured Interview consisting of age appropriate picture cards depicting women/girls and men/boys in ten (10) occupations and ten (10) games. Each activity was portrayed once with a female and once with a male with a total of forty (40) picture cards. The tool used consisted of a three (3) point scale with three options to the question asked, "This is right- Always, Sometimes or Never" for each of the picture card depicting women and men in various roles within the family, at work and in sports. The objective was to understand children's perceptions from the environment in which they are growing up. On the basis of the responses received, children were classified as high or low in their stereotypical perceptions. Both girls and boys held stereotypical beliefs about involvement of women and men in various occupations and Boys, specifically, held more stereotypical beliefs about women.

Key Words: Gender stereotypes, traditionally stereotyped occupations, children's perceptions, gender identity

INTRODUCTION

Children and gender identity

Children start to form the concept of gender around age 2 and most children know if they are a boy or girl by age 3 (Martin & Ruble, 2004). Between the age of 3 and 5 years, children develop their gender identity and start understanding what it means to be a female or male. Almost immediately after becoming gender aware, children begin developing stereotypes which they start applying to themselves and those around them to gain understanding about their gender identity. These stereotypes relate to the roles and personality characteristics that women and men are expected to have which will enable them to carry out their respective sex roles (Whitebread, 2000). These stereotypes are well developed by 5 years of age and become rigidly defined between 5 and 7 years of age (Martin & Ruble, 2004) making the early childhood years a critical period to deal with gender stereotypes. These stereotypes may hinder the growth and development of a child to reach the full potential as they tend to internalize stereotypes which may have an impact on their self-esteem and academic performance.

There is a fine line between stereotypes and social acceptance. The stereotypes that we inculcate in our children shape how children will turn out to be. Children socialize themselves to fit in with their same gender group. This adjustment is all the more difficult for girls in our society which is

culturally obsessed with boy child. We need to focus more on individual characteristics of children rather than gender so that well-rounded development occurs and they reach their full potential (Brown, 2014).

Impact of stereotypes on children

From early childhood, children are socialized to develop gender as an important part of who they are and how they think. Children's views on various issues are influenced by adults around them and teachers in the school play a major role in influencing the minds of young children through their thoughts and actions. If teachers segregate the task in the classroom according to gender and if they label children according to gender even for the purpose of convenience, it can really influence the gender socialization patterns of children. It can communicate to young minds that there is a clear divide between girls and boys in the way they should conduct themselves, making them develop stereotypical beliefs about their own sex and the opposite sex.

Christina Spears Brown (2014) in her book 'Parenting beyond Pink & Blue: How to raise your kids free of gender stereotypes' mentions that we could get children to form stereotypes about each other just like they do with gender. Interestingly, children do this even when we totally make up the stereotyped groups. For example, the researcher gave elementary school children either a blue or red T-shirt to wear throughout the school day for six weeks. The students were randomly assigned these blue and red groups. Teachers treated those color groups in the same way they would use gender. For instance, teachers said, "Good morning, blue and red kids", "Let's line up blue and red lines". Children had their names on either a red or blue bulletin board and had either a red or blue name card on their desk. Teachers simply used colors in the same way as gender is used in many schools for segregation. The result was that only after four weeks, children formed stereotypes about their color groups. They liked their own group better than the other group. Red shirted children would say, "Those blue shirt kids are not as smart as the red shirt kids." Just like they do with gender, they said that all blue kids act one way. They began to segregate themselves, playing with kids from their own color group more than with those from the other group. They were also more willing to help kids from their own color group. In this study, there was also a control group. The classes where children wore T shirts but teachers didn't talk about the color groups. They didn't sort by color or use the color grouping to label each child. In other words, it was like being in a class of girls and boys where teachers didn't mention or sort by gender, they simply treated them like individuals. In these classes, children didn't form any stereotypes and biased attitudes about groups. It was concluded that children ignored the groups when adults ignored the groups, even when there were visible differences. Children pay attention to the groups that adults treat as important (Brown, 2014).

The role of education in the formation of gender identity

Conforming rigidly to the sex stereotypes is detrimental not only for all round personality development of children but also to their academic achievement. The role of school hence becomes all the more important to challenge those pre leaned sex stereotypes.Children tend to conform to sex stereotypes and develop a self-image strongly linked to their gender identity if schools reinforce stereotypical behavior by significant others like teachers and if children are given exposure only to those role models whose behavior is stereotyped and if they are only given the opportunity to engage in sex-appropriate activities (Whitebread, 2000). Young children are

motivated to conform because they are made to believe that gender is the most important aspect of their identity and they need to behave in sex appropriate ways.

Rationale of the study

A study of stereotypical perceptions of children provides a basis for evaluating various aspects of the educational system so that each child has an opportunity to develop to her/his full potential irrespective of their gender. This paper explains one aspect of a larger study which aims to examine the gender concerns in curriculum looking at textbooks through a gender lens, and understanding teachers' perceptions regarding the same occupations and games and examining their gender sensitivity in the classroom. The teachers need to play an instrumental role in helping children break away from the traditional sex-typed views on occupational roles. School being one of the most important agents of socialisation, needs to take up this responsibility so that the individual talent of each child is nurtured irrespective of their sex and stereotypical beliefs traditionally held by the society. With this in mind, the study aims to examine the perceptions of children regarding sex typed occupations and sports.

METHODOLOGY

A sample of 38 girls and 40 boys was drawn from two schools of North Zone of Municipal Corporation of Delhi (MCD). MCD area is divided into three zones- North Delhi Municipal Corporation, South Delhi Municipal Corporation and East Delhi Municipal Corporation. North Delhi Municipal Corporation being the largest zone was selected for the purpose of the study. It is further divided into six sub-zones. Children from one school each from two of these subzones- Civil Lines and Rohini were interviewed. Children studying in Grade V in these primary schools were interviewed by showing 40 picture cards depicting women and men engaged in various occupations and sports and were asked one common question, "This is right- Always, Sometimes or Never?" The structuredinterview consisted of these three responses to choose from. The response of each student was coded and the frequencies of children selecting each of the three options- Always, Sometimes and never were calculated. Also, sum of the ratings of girls and boys was calculated separately for each of the picture card depicting women and men in various occupations and sports. The percentage of girls, boys and overall percentage of children considering each picture as "always" right was calculated.

FINDINGS

In order to highlight the emerging pattern from the students' responses, sum of the ratings of girls and boys was calculated separately for each of the picture card depicting women and men in various occupations and sports. The percentage of girls, boys and overall percentage of children feeling "always" right to the picture card was calculated. For the purpose of analysis of the data, the occupations and sports have been classified into three categories-

1. **Highly stereotyped occupations and sports** are those for which more than 90% children/girls/boys felt that they were right for females and males.
2. **Moderately stereotyped occupations and sports** are those which 65% to 89% children/girls/boys felt that they were right for females and males.
3. **Least stereotyped occupations and sports** are those which 40% to 64% children/girls/boys felt that they were right for females and males.

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Perceptions of children regarding Feminine occupations and Sports

Table 1 shows that the occupations perceived by children as highly stereotypically feminine included cooking, washing clothes, sweeping, feeding children and that of a teacher. It can be seen all these occupations except that of a teacher are confined within the four walls of the house. Both girls and boys viewed cooking, washing clothes, sweeping the floor and feeding children to be highly stereotypically feminine jobs. 94-98% children felt that these jobs are "always" supposed to be performed by females. The only occupation that all the children (100%) had always seen women in was that of a teacher. There are three occupations which can be analysed as moderately feminine since more than 70% children could "always" see women as police officers, doctors and nurses.

Occupation is a major signal of self-identity. The Women and Work Commission (2006) reported that nearly two-thirds of women are employed in 12 occupation groups: the five C's- caring, cashiering, catering, cleaning and clerical occupations- plus teaching, health associate professionals (including nurses), and functional managers, such as financial managers, marketing and sales managers and personal managers while men are engaged in a wide range of occupations. Two-thirds of men are employed in 26 occupation groups comprising of more professional, management and technical roles than women (Millward et al, 2006).

Women are concentrated in nursing, literature, home economics, education and library science. Although these majors offer jobs that are vital to society, female oriented fields garner less pay and more competition for the fewer jobs (Lindsey, 2015). Similarly, gender stereotypes in sports affects their participation in sports and leisure activities.

Table- 1: Children's (overall) Perceptions of Stereotypically Feminine Occupations

Occupations		**Percentage of <u>children</u> who felt it "always" right for females**	**Stereotypically Feminine Occupations -Highly stereotyped (>90) -Moderately stereotyped (65-89) -Least stereotyped (40- 64)**
1.	Teacher	100	Highly
2.	Feeding children	98	Highly
3.	Cooking	98	Highly
4.	Washing clothes	97	Highly
5.	Sweeping	94	Highly
6.	Nurse	88	Moderately
7.	Doctor	80	Moderately
8.	Police	76	Moderately
9.	Traffic police	54	Least
10.	Pilot	43	Least

In this context, it is relevant to refer to another study about children's perceived competencies of women and men in given gender-typed occupations. The perceptions were assessed in a forced-choice manner by asking, Who do you think would be better as a [gender-typed occupations], a woman or a man? It was found that the occupations of car-mechanic and airplane pilot were rated as highly masculine while clothes designer and secretary were rated as the most feminine. Children, particularly boys, rated men as more competent than women in masculine occupations. Conversely, children rated women as more competent than men at feminine occupations. Also, older children rated men as more competent in general than women compared to younger children (Levy, Sadovsky & Troseth, 2000).These findings indicate that these stereotypic impressions get deeper with time and hence the early childhood has to be dealt with greater sensitivity at school by the teachers for developing gender sensitivity among young children and exposing them to new role models that may or may not be part of their immediate environment at home.

None of the sports (table 2) was found to be stereotypically feminine. The only two sports which were found to be moderately feminine were Tennis and Kho-Kho with 82% and 75% children feeling that females "always" play these sports.

Table- 2: Children's (overall) Perceptions of Stereotypically Feminine Sports
Perceptions of children regarding Masculine occupations and Sports

Sports	**Percentage of <u>children</u> who felt it "always" right for females**	**Stereotyped Feminine Sports -Highly stereotyped (>90) -Moderately stereotyped (65-89) -Least stereotyped (40- 64)**
1. Tennis	82	Moderately
2. Kho kho	75	Moderately
3. Kabaddi	69	Least
4. Hockey	57	Least
5. Cricket	55	Least
6. Kite flying	54	Least
7. Wrestling	53	Least
8. Karate	52	Least
9. Football	51	Least
10. Basketball	50	Least

The occupations perceived by children as highly stereotypically masculine (Table 3) included that of a police officer, doctor and traffic police with more than 90% children (including girls and boys) feeling that these roles are "always" performed by men in our society.

Table- 3:Children's (overall) Perceptions of Stereotypically Masculine Occupations

Occupations	Percentage of children who felt it "always" right for males	Stereotypically Masculine Occupations -Highly stereotyped (>90) -Moderately stereotyped (65-89) -Least stereotyped (40- 64)
1. Police	97	Highly
2. Doctor	94	Highly
3. Traffic police	94	Highly
4. Teacher	82	Moderately
5. Washing clothes	68	Moderately
6. Cooking	67	Moderately
7. Pilot	66	Moderately
8. Nurse	54	Least
9. Sweeping	51	Least
10. Feeding children	51	Least

Most of the sports were perceived by children to be highly stereotypically masculine (Table 4).

Table- 4: Children's (overall) Perceptions of Stereotypically Masculine Sports

Sports	Percentage of children who felt it "always" right for males	Stereotypically Masculine Sports -Highly stereotyped (>90) -Moderately stereotyped (65-89) -Least stereotyped (40- 64)
1. Cricket	100	Highly
2. Kite flying	99	Highly
3. Football	97	Highly
4. Kabaddi	95	Highly
5. Wrestling	93	Highly
6. Tennis	93	Highly
7. Hockey	90	Highly
8. Kho kho	89	Moderately
9. Karate	89	Moderately
10. Basketball	87	Moderately

These included Hockey, Cricket, Football, Wrestling, Tennis, Kabaddi and Kite-Flying with more than 90% children feeling that these sports are "always" played by males. The above finding is supported by another study which tried to examine the attitude of school children towards sports

and the degree to which they perceived the sports to be boys only, girls only or neutral. The study also revealed many sports such as football and wrestling in masculine sports category (Schmalz & Kerstetter, 2006).

In another similar study, a sample of 80 children- 40 girls and 40 boys with two age groups were presented with pictures of females and males engaged in various activities. There were 38 activities depicted- 14 traditionally male, 14 traditionally female, and 10 neutral. Each activity was portrayed once with a female and once with a male, for a total of 76 pictures. It was seen that children had greater difficulty in recognizing the pictures when the portrayal was non-traditional (Cann & Newbern, 1984).

Perceptions of Girls regarding Feminine occupations and sports

There were similar findings for girls when seen separately. The occupations perceived by girls as highly stereotypically feminine included cooking, washing clothes, sweeping, feeding children and that of a teacher and a nurse (Table 5). More than 90% of girls had "always" seen women performing these roles and felt that these should "always" be performed by women in our society.

Table- 5: Girls' Perceptions of Stereotypically Feminine Occupations

Occupations	**Percentage of Girls who felt it "always" right for females**	**Stereotypically Feminine Occupations** **-Highly stereotyped (>90)** **-Moderately stereotyped (65-89)** **-Least stereotyped (40- 64)**
1. Teacher	100	Highly
2. Cooking	98	Highly
3. Sweeping	98	Highly
4. Feeding children	97	Highly
5. Washing clothes	96	Highly
6. Nurse	92	Highly
7. Doctor	81	Moderately
8. Police	75	Moderately
9. Traffic police	53	Least
10. Pilot	41	Least

Again, police and doctor were two occupations which can be analysed as moderately feminine since more than 70% girls felt that these roles "always" suit women in our society. None of the sports was found to be stereotypically feminine. The three sports which more than 70% girls had "always" seen females playing were Tennis, Kabaddi and Kho Kho.

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Table- 6: Girls' Perceptions of Stereotypically Feminine Sports

Sports		**Percentage of Girls who felt it "always" right for females**	**Stereotypically Feminine Sports** **-Highly stereotyped (>90)** **-Moderately stereotyped (65-89)** **-Least stereotyped (40- 64)**
1.	Tennis	87	Moderately
2.	Kho kho	83	Moderately
3.	Kabaddi	78	Moderately
4.	Hockey	62	Least
5.	Football	57	Least
6.	Cricket	56	Least
7.	Wrestling	56	Least
8.	Basketball	55	Least
9.	Kite flying	54	Least
10.	Karate	52	Least

Perceptions of Girls regarding Masculine occupations and sports

The occupations perceived by girls as highly stereotypically masculine included that of a police officer and doctor with more than 90% girls feeling that these roles are "always" performed by men (Table7).Most of the sports were perceived by girls to be highly stereotypically masculine. These included Hockey, Cricket, Football, Tennis, Kabaddi and Kite-Flying with more than 90% girls feeling that these sports are "always" played by males (Table 8).

Table- 7: Girls' Perceptions of Stereotypically Masculine Occupations

Occupations		**Percentage of Girls who felt it "always" right for males**	**Stereotypically Masculine Occupations** **-Highly stereotyped (>90)** **-Moderately stereotyped (65-89)** **-Least stereotyped (40- 64)**
1.	Police	98	Highly
2.	Doctor	96	Highly
3.	Traffic police	89	Moderately
4.	Teacher	75	Moderately
5.	Pilot	66	Moderately
6.	Cooking	61	Least
7.	Washing clothes	61	Least
8.	Feeding children	54	Least
9.	Nurse	52	Least
10.	Sweeping	46	Least

Not many girls (less than 60%) had always seen men in roles like sweeping, feeding children and that of a nurse indicating the exposure of the young girls reinforcing the traditional belief that females take up the responsibility and role to nurture children and even in occupations requiring nurturing and taking care of someone, females take the lead. Kamla Bhasin (2003), in her book Understanding Gender, mentions that in our society, men are considered to be heads of the household while women are expected to bear and rear children, to nurse them and do all the household work

Table- 8: Girls' Perceptions of Stereotypically Masculine Sports

Sports		**Percentage of Girls who felt it "always" right for males**	**Stereotypically Masculine Sports -Highly stereotyped (>90) -Moderately stereotyped (65-89) -Least stereotyped (40- 64)**
1.	Cricket	100	Highly
2.	Kite flying	100	Highly
3.	Tennis	96	Highly
4.	Football	95	Highly
5.	Kabaddi	92	Highly
6.	Wrestling	89	Moderately
7.	Kho kho	88	Moderately
8.	Hockey	86	Moderately
9.	Basketball	86	Moderately
10.	Karate	86	Moderately

Perceptions of Boys regarding Feminine occupations and games

There were similar findings for boys when seen separately. The occupations perceived by boys as highly stereotypically feminine included cooking, washing clothes, sweeping, feeding children and that of a teacher. More than 90% of boys had "always" seen women performing these roles.

Again, police, doctor and nurse were three occupations which can be analysed as moderately feminine since more than 70% boys felt that these were the right roles for women.

Table- 9: Boys' Perceptions of Stereotypically Feminine Occupations

Occupations		**Percentage of Boys who felt it "always" right for females**	**Stereotypically Feminine Occupations -Highly stereotyped (>90) -Moderately stereotyped (65-89) -Least stereotyped (40- 64)**
1.	Teacher	100	Highly
2.	Feeding children	99	Highly
3.	Cooking	98	Highly
4.	Washing clothes	98	Highly
5.	Sweeping	91	Highly
6.	Nurse	83	Moderately
7.	Doctor	80	Moderately
8.	Police	78	Moderately
9.	Traffic police	56	Least
10.	Pilot	45	Least

The occupations and sports perceived as least stereotypical for women included pilot, traffic police and most of the sports including Hockey, Cricket, Football, Basketball, Wrestling, Kabaddi, Kite Flying and Karate. The three moderately stereotyped sports which more than 70% boys felt that females "always" played were Tennis, Kabaddi and Kho-Kho.

Table - 10: Boys' Perceptions of Stereotypically Feminine Sports

Sports		**Percentage of Boys who felt it "always" right for females**	**Stereotyped Sports -Highly stereotyped (>90) -Moderately stereotyped (65-89) -Least stereotyped (40- 64)**
		Female card	**Feminine**
1.	Tennis	78	Moderately
2.	Kho kho	68	Moderately
3.	Kabaddi	61	Least
4.	Kite flying	55	Least
5.	Cricket	54	Least
6.	Hockey	53	Least
7.	Karate	53	Least
8.	Wrestling	50	Least
9.	Football	45	Least
10.	Basketball	44	Least

Perceptions of Boys regarding Masculine occupations and Sports

The occupations perceived by boys as highly stereotypically masculine included that of a traffic police, police officer and doctor with more than 90% boys feeling that these roles are right for men. Pilot and Teacher can be analyzed as moderately stereotypically masculine occupations rated by boys. Just like girls, not many boys (less than 60%) had "always" seen men in roles like sweeping, feeding children and that of a nurse.

Table- 11: Boys' Perceptions of Stereotypically Masculine Occupations

Occupations		**Percentage of Boys who felt it "always" right for males**	**Stereotypically Masculine Occupations -Highly stereotyped (>90) -Moderately stereotyped (65-89) -Least stereotyped (40- 64)**
1.	Traffic police	98	Highly
2.	Police	96	Highly
3.	Doctor	93	Highly
4.	Teacher	88	Moderately
5.	Washing clothes	76	Moderately
6.	Cooking	72	Moderately
7.	Pilot	66	Moderately
8.	Sweeping	57	Least
9.	Nurse	56	Least
10.	Feeding children	48	Least

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Table- 12: Boys' Perceptions of Stereotypically Masculine Sports

Sports		**Percentage of <u>Boys</u> who felt it "always" right for males**	**Stereotyped Sports -Highly stereotyped (>90) -Moderately stereotyped (65-89) -Least stereotyped (40- 64)**
		Male card	**Masculine**
1.	Cricket	100	Highly
2.	Football	98	Highly
3.	Kabaddi	98	Highly
4.	Kite flying	98	Highly
5.	Wrestling	96	Highly
6.	Hockey	93	Highly
7.	Karate	92	Highly
8.	Kho kho	91	Highly
9.	Tennis	90	Highly
10.	Basketball	88	Moderately

Another study explored children's sex related occupational stereotypes with forced choice responses included categories ranging from extremely sex typed (eg. Only women), moderately sex-typed (eg. Mostly men, a few women), to neutral (eg. men and women) for 40 occupations. Results indicated that within male job classifications, males rated the jobs as more male oriented than did females concluding that boys were more stereotyped than girls. Within female job classification, there were no age or sex differences (Garrett & Temaine, 1977).

All the sports except Basketball which was moderately stereotyped were perceived by boys to be highly stereotypically masculine. These included Hockey, Cricket, Football, Wrestling, Tennis, Kabaddi, Kho-Kho, Kite-Flying and Karate with more than 90% boys feeling that males "always" engaged in these sports.

CONCLUSION AND RECOMMENDATIONS

There were some occupations and roles which children perceived as highly stereotypically feminine. These included roles traditionally performed by women at home like cooking, washing clothes, sweeping and feeding children. This seems to be a ubiquitous phenomenon since more than 90% girls and boys had "always" seen women performing these roles. The only other occupations that they felt women dominated were those of teachers and nurses. The reason could be presence of more female teachers at the primary school level, specifically in their schools.

Boys had more stereotypical attitude towards women in sports. More than 88% boys felt that males played most of the sports but the figure is as low as 44% for boys who felt that females "always" played most of the sports. In contrast, for most of the sports including Hockey, Cricket, Football, Basketball, Wrestling, Tennis, Kabaddi and Kho-Kho, more percentage of girls than boys felt that they are played by females. Boys, in a way, held more stereotypical beliefs about women.

The aim of the study was to understand the perceptions of children regarding occupations and sports in our culture. Children develop the concept of gender very early in their childhood. Through the process of gender socialisation, children learn what it means to be a female or a male and how they should conduct themselves according to their gender. School is the second most important agent of socialisation after parents. Therefore, it becomes the responsibility of the school curriculum to inculcate the right and unbiased values so that children perform to the best of their capabilities instead of restricting themselves with traditional and outdated social norms of what is appropriate and inappropriate according to their gender.

Textbooks and Teachers are both very important components of formal and informal school curriculum respectively. It becomes imperative that textbooks represent and portray women and men in equal and contemporary roles and occupations so that children get exposure to a range of occupations that they can take up as adults irrespective of their biological sex. Equally important is the role of teachers in the classroom and in conducting co-curricular activities and selecting the kinds of role models in their classroom discussions and assignment. Teachers need to reflect on their patterns of labelling children, assigning responsibilities, segregating classroom, assembly and dividing teams for various sports activities according to gender in schools.

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OPINIONS OF EMPLOYERS TOWARDS RECRUITING ELDERLY AFTER RETIREMENT

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ABSTRACT

The economic burden of an aging population depends partly on older adults' employment rates, which in turn depend partly on employers' willingness to hire and retain them. This paper reviews the managerial attitudes toward elderly. Although the available evidence is incomplete and sometimes inconsistent, many firms appear to have serious reservations about elderly. Employment prospects may be especially bleak for rank-and-file workers and those with limited skills. Despite the lack of consensus regarding the point at which a worker officially becomes an "older worker," there is no debate that elderly face a number of challenges in the workforce, some of which are due to common perceptions of elderly—whether they are accurate or not. Managerial attitudes toward elderly may improve in the future, however, as the population and workforce age. Addressing the needs, wants, and well-being of older people is essential for maintaining a healthy productive workforce in an aging society. This paper will draw on the results of the survey on the future of retirement to ask how widespread negative attitudes and stereotypes among employers are and whether these attitudes influence behavior towards older employees.

Key Words: Attitudinal problems, Employers, Recruiting Elderly, Workplace

INTRODUCTION

Population aging is one of the most challenging issues of the twenty-first century, facing both developed and developing countries worldwide. In the developed world, there has already been a substantial amount of research on aging and work to help understand the capacity and potential of older people. There is an emerging view towards maintaining ability, developing potential and continued competence (Ross, 2010). Elderly can compensate for a reduced ability to meet job demands by drawing upon the experience and applying their resources in a more economical way.

Older people's employment depends in turn on employers' willingness to hire and retain them. Firms may be reluctant to employ elderly if managers believe they are less energetic and flexible than younger workers or lack up-to-date skills. Managers may view elderly as particularly expensive, either because they demand higher salaries than younger workers or they incur more health care costs. Some employers also may be reluctant to train elderly because they believe they will retire soon, making it difficult for employers to recoup their training costs. The lack of training opportunities may exclude elderly from the best work assignments, hurt their promotion chances, and depress job satisfaction and earnings growth. On the other hand, some employers may prefer elderly to their younger counterparts because they value their experience, maturity, and strong work ethics. It is not immediately obvious, then, how managerial attitudes affect employment prospects for elderly.

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Employers Attitude towards Recruiting Elderly

Studies of employer's attitudes toward Elderly consistently find that Elderly are perceived to have a number of positive characteristics such as a good work ethics, acquired knowledge and experience, loyalty to the company, dependability, a commitment to quality, and productivity. Employment at older ages, however, depends not only on the willingness and ability of elderly to work but also on employers' willingness to hire and retain them. In surveys, employers usually say they value elderly' experience, maturity and work ethic, but often express concern about their relatively high salaries and benefits costs. One-quarter of employers in a 2006 survey said they were reluctant to hire elderly. Furthermore, some employers appear to discriminate against elderly. For companies happy to employ elderly, studies have shown that employers can reduce the barriers to working at older ages by offering phased retirement opportunities and reduced and flexible hours. Many stereotypes and prejudices related to the employment of elderly persons that employers usually exhibit to avoid employing them find no justification today and cannot be taken as valid arguments. Primarily, the demand for manual work has decreased, which suits elderly to a large extent. Similarly, due to the advances in medicine and better living conditions, the physical and mental health of the elderly population has improved, which enable them to be able to work longer hours than it was possible in the past. Besides, the living style has completely changed in the last two decades. All this has led to a situation that even those who count as the richest and who can safely retire, wish to continue to work and feel useful to themselves, to their families and to their society. The poor ones are forced to work even after they have formally retired because their pensions are small and often insufficient to allow a decent life. There is also a category of people that were laid off due to the crisis, who cannot exercise their right to retirement and hence want to find a new job. The motives of elderly people to go out to work may differ; however, what is common to all of these people is that they want to be actively working as long as they are able to work. Some wish to try new jobs and start up their own firms. Here they encounter numerous barriers of different forms. One stereotype is that older people are less physically active and less mentally prepared to answer the demands of their jobs than the younger age groups. These attitudes cannot be fully accepted given that the health (both mental and physical) of elderly people are much better nowadays than it used to be in the past. Hence, they represent a valid potential in terms of labor force, skills and experience that societies need to put to productive use. Experience with "active aging" shows that older people, when integrated into the society, lead a better quality life, live longer and stay healthier. A conclusion can be drawn that integration and participation in employment are closely connected with the concept of social cohesion, a vital constituent of a healthy society. This can be achieved through a more substantial support the society should provide for this category of the population in terms of encouraging them to be economically active as long as they choose or are able to be. The lack of policy that will regulate these issues leaves Elderly people to live their lives in poverty instead of recognizing their active economic and social contributions. It is in this view that we can rightfully conclude that aging is a natural process and that healthy elderly people are an important resource for their families, their communities, as well as for the economies of their countries. Since there are elderly active on the labor market, organizations may benefit by employing elderly with intrinsic work values, since these Elderly are more willing to invest in their work and relationship with the organization (Bal and Kooij, 2011).

In view of this reality, the present research seeks to conduct an enquiry to examining what the employers define as 'the demands of the job', the particular sets of constraints necessitated by

particular jobs or roles may highlight a range of practices that may operate within a single workplace, in relation to the staff engaged in different occupations. Although the elderly would not form the specific focus in this part, understanding the way which the employers would structure a working day provides an important context to understanding what they were able or unable to offer the Elderly in a form of flexibility. The employer and their characteristics of the organization such as size, retirement age, sector, and organization would define different forms of flexibility the employers can offer and the constraints would effect on flexibility adversely.

Research Questions:

The present research proposes to dwell on the following questions and analyze their implication in the interest of projecting the reality of silver workers and their employment.

Q-1 How many elderly get success in seeking a job after retirement?
Q-2 Do the companies welcome them as silver workers?
Q-3 Do they respect their work experience?
Q-4 Are they paid what they deserve? Or are they exploited?
Q-5 Are they treated in the way same as a young colleague in a unit?
Q-6 Are they given any extra benefits for being in their third stage of life?
Q-7Are elderly happy and satisfied with the type of job they do after their retirement?

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

Objectives:

- To study the profiles of organizations employing elderly
- To study the reasons for employers for recruiting elderly in their organisations/companies/ institutions/firms/ business houses/ corporate.
- To study benefits of employing elderly in their organisations/ companies/ instituitions firms/business houses/ corporate.
- To study the problems faced by employers by employing elderly in their organizations/companies/institutions/firms/business houses/corporate.

REVIEW OF LITERATURE

Mermin, Johnson, and Toder (2008) conducted a study on "Will Employers Want Ageing Boomers?"The main aim of the study was to examine employer demand for elderly currently and explores how this demand would be changing over time. The study focuses on the issues like personal and social benefits of increased work put on by older adults and the reasons why boomers were likely to work longer than younger generations, and also whether employers prefer to have elderly. About 36 percent of workers aged 65 or above were employed as managers or professionals, 17 percent of them worked in service occupations. Some 15 percent of old workers work in sales and 14 percent worked in office and administrative support occupations. Another 17 percent of old workers worked in blue-collar occupations that included construction, factory, and transportation jobs.

Most employers' surveys indicated that firms generally value elderly's knowledge and experience and reliability, and work ethics. About 47 percent of the employers said it was very true that late-career employees possessed "high level of skills related to what is needed for their jobs," as

compared with 38 percent of mid-career employees and 21 percent of early-career employees. Because late-career employees held at their back many years' of experience in their respective positions.

Swanberg, Sharon, and Mckechine (2007) conducted a cross-generational study on generational differences in perception of elderly' capabilities. The objective of the study was to examine the perception of elderly across four generations and also to study the effects of these perceptions on elderly. The sample of the study comprised of respondents who were employees in 388 stores and in 37 districts of a national retail chain. Elderly belonging to both the traditionalist's generation and the baby boom generation were very positive about them and also for the company they worked for. They perceived themselves as more reliable than younger workers. They also believed that they were more productive and great loyalty to their companies. Indeed they claimed the highest scores of employees' engagement. Such findings suggested that the lens of "generation" was proved useful for understanding that some level of conflicts might occur between workers of the older and the younger generation. These were but a few of the within-generation differences in a matter of thinking about people's values, attitudes, and work styles at workplaces in present time.

Brown (2006) conducted a study on "Business Executives' Attitudes Towards the Ageing Workforce: Aware but not Prepared? The purpose of this study was to understand business executive's views towards 50 + workers and corporate America's preparedness for the aging of the workforce. Chief executive officers and other "c"-level executives, senior vice presidents, vice presidents, and general manager's respondents for the online survey the conducted between July 10 and July 23, 2006. Nearly 74 percent of the respondents strongly or somewhat agreed positively that the U.S. economy might experience a shortage of skilled workers over the next decade. Whereas some 79 percent of them agreed that knowledge and experience that older employees carried away when they retire from jobs or leave the organization on any grounds would cause damage.

Center for Aging and Community of the University of Indianapolis, U.S.A (2006) conducted a study on "Gray matters: Opportunities and Challenges for Indian's Ageing Workforce". The main aim of the study was to gain a better understanding of how Indiana employers were preparing for the anticipated shortage of skilled labor due to the impending retirement of the baby boomers. The study also investigated an extent to which organizations perceived the pending loss of these employees as an important factor to affect their business operations. The sample of the study consisted of Indiana employers who were surveyed online. It made a group of more than 50 employees. The survey was conducted by the CAC for the period from March-May 2006. Over 400 employers responded to the survey. The findings of the study revealed that 55 percent of the respondents indicated that their organizations would be very likely to adopt a strategy to rehire retired persons to cope the loss. Over 41 percent and 43 percent of the respondents indicated that their organizations would likely have retiring workers to mentor their replacements or to write operating procedures describing their jobs before they retire. Further, about 20 percent of them considered steps such as hiring replacements and about 18 percent of them considered to train their replacements.

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METHODOLOGY

Population of the Study

The population of the present study comprised of employers from Vadodara city who have recruited elderly in their offices/institution/firms and business houses.

Sampling Unit

Sampling unit refers to the geographical area from where the samples are drawn. In the present study, samples of the employers who recruit these retired elderly were drawn from the Vadodara city of Gujarat state.

Sampling Frame

The sampling frame included fifty employers who recruit retired elderly on jobs post-retirement in the different organizations of Vadodara city of Gujarat State. While the employers were identified with the help of elderly or through the personal contacts of the researcher

Research Tool

A questionnaire was prepared to study reasons, advantages, and disadvantages, qualities, factors that influence the employers towards recruiting silver workers.

Plan of Statistical Analysis

Frequencies and Percentages were used to analyze the data.

FINDINGS

- Cent percent employers were males. Designations on which employers of the elderly were engaged included manager (28 percentages), department head (24 percentages) branch head (18 percentages) director (16 percentages) and development officer (14 percentages).
- Equal percentages (50%) of the employers belonged to the middle-aged and aged/elderly group. Both middle-aged and aged were working in the higher positions,
- The majority(60 percentages) of employers had work experience of 24 years or more than 24 years in the organization/company /institution/corporate/firm and 40 percentages of them had less than 24 years of experience. It clearly shows that high percentages of employers were having more years of experience.
- Forty percentages of employers were working in private organizations. Little less than one-fifthpercentages were working in corporate offices, little more than fifteen percentages were working in firms and 14 percent were working in agencies and remaining 12 percent were working in business houses.
- A high majority (72%) of the organizations had prescribed 58 years as their age of retirement while remaining had prescribed it as 60 years of retirement age for their employees.
- The very high majority (94%) of organizations/companies had employed 1 to 5 elderly in their organization, whereas only 4 percent of organization/companies had 6 to 20 elderly. Only one organization/ company had 21 to 100 elderly as their employee.
- The high majority (72%) of the organization/company had the same number of elderly as compared to last year. While 22 percent of them had less number of elderly and six

percentages of the employers were not sure about the difference in numbers of elderly in the organization company as compared to last year

- A high majority of employers (76%) were not sure about employing female elderly in their organization/companies. Whereas 14 percentages of employers refused to answer and only 10 percent of the employers had employed five female elderly in their organization/company.
- Almost half of the employers were responsible to manage the actual recruitment process, whereas little less than one-third percent were involved to specify the requirements for employees to be recruited. Twenty-two percent of them were involved in specifying both requirements for the employees and also conducting the interviews for actual recruitment.
- When asked why the organizations do not retain elderly, a very high majority (94%) of the employers gave the reason of government regulations/ policies whereas, 50 percent of the employers said that elder workers were more expensive and 34 percentages expressed that they were not valuable as younger workers.
- Higher Percentage of Employers did not believe in age as a factor to contribute to work sector. Rather than insisting on an age of an employee, they believed that they can contribute best to the organizations provided he/she possess efficiency and willingness to it.
- Majority of the employers reported that there is no formal policies/programmes to encourage employees who are approaching the retirement age
- Reliability, trustworthy, good listening quality and follows instructions carefully were the main qualities that employers prefer while employing elderly. The other qualities were a willingness to work longer hours, many years of experience, Innovative and mentally very sharp in decision making.
- Establish network of contacts and clients, helps in crisis, dedication provides significant business advantage, remain loyal to the organization was considered as the advantagesfor employers in recruiting Elderly
- Lower productivity, less receptive to training and skills. High wage expectation, fear change in the workplace, do not keep updated with technology were considered as drawback'sby employers in recruiting Elderly.

CONCLUSION

Many employers report lingering concerns about what they perceive as elderly' limited creativity and lack of willingness to learn new things, while at the same time telling surveyors that they value elderly' experience, knowledge, maturity, and work ethic. Many firms also express concern about the cost of employing older people, even though actual cost differentials by age are relatively small. Most workers believe that age discrimination in the workplace is widespread, and nearly one in five workers in their 50s reports that their own employer favors younger employees over older employees. Elderly also receive less on-the-job training than their younger counterparts. Additionally, quasi-experimental studies suggest that managers typically perceive elderly as less flexible and more resistant to change than younger workers and that they are reluctant to promote elderly to positions that require creative, highly motivated individuals. Employment prospects at older ages may be especially bleak for rank-and-file workers and those with limited skills. Well-educated managers and professionals are more likely than less-skilled workers to accumulate the specialized knowledge that employers say they value in elderly. More employers report in surveys that older managers and professionals outperform their younger counterparts than report that older

blue-collar workers perform better. Among working men in their 50s, those who did not complete high school are about 10 percentage points more likely than college graduates to report that their employers favor younger workers.

Managerial attitudes toward elderly may improve in coming years as the population and workforce age, especially if labor and skill shortages develop in certain industries or occupations. Perceptions of Elderly tend to be more favorable in workplaces with relatively high concentrations of elderly, which will become more common as the workforce ages. Similarly, older managers will likely become more prevalent in the future, and they generally have a higher regard for elderly than younger managers. Also, as younger workers become relatively scarcer in the next few decades, employers may be forced to turn more often to elderly, likely inducing new attitudes and policies. Managerial attitudes have probably not changed much yet at many employers because most firms have not yet addressed the challenges created by the coming aging of the population (Young 2007). Ongoing changes in the nature of work may also make elderly more attractive to employers in the future. Although some managers question older people's physical strength and stamina, the physical demands of work have declined steadily over time. Bearing these limitations in mind, the future of retirement survey is one of the very few attempts to capture employers' attitudes and practices in the workplace. The study has indicated that elderly's experiences of their workplace may be influenced by the size of the company. The study reveals that employers of small companies have higher levels of negative stereotypes and attitudes to older people, while larger firms are flexible about elderly both in the workplace and at the time of recruitment.

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A STUDY ON SEASONAL VARIATION OF THE PRIMARY AND SECONDARY AIR POLLUTANTS IN THE METROPOLITAN CITIES OF INDIA

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ABSTRACT

Metropolitan cities in India rank high in environmental pollution specially air pollution. Most of the cities are found to be exceeding the permissible limit of pollutants due to the rapid growth in urbanization. This urbanisation is occurring at an unprecedented scale which is posing serious environmental concerns in India for instance "Air Pollution". In the present study, the primary air pollutants {Oxides of Nitrogen (NO_x), Sulfur dioxide(SO_2), Carbon Monoxide(CO), Particulate matter ($PM_{2.5}$), Benzene, Toluene and Xylene (BTX)} along with the secondary air pollutant (Tropospheric Ozone,O_3) with the meteorological conditions have been assessed in different metropolitan cities of India. The Ahmedabad and Delhi were found to be dominated with the $PM_{2.5}$ ($236.45 \pm 45.4 \mu g/m^3$)due to the high vehicular traffic, industrial emissions, illegal construction, burning of crackers at the time of Diwali. The concentration of tropospheric ozone was found to be high during the winter months in Ahmedabad and during summers in New Delhi. This indicates that the high intensity of solar radiation, high ambient temperature which could have been the reason for the boosting up of the photochemical process in the formation of tropospheric ozone. Amongst all the four cities selected, Chennai recorded the lowest concentration of BTX, CO, NO_x and SO_2.There is an urgent need for an action plan to be developed with monitor and control the level of air pollution in these metropolitan cities as it poses a significant health risk for the population being exposed to these hazardous pollutants.

Keywords
Air pollution, Ozone, Chemical precursors, Meteorological precursors, Metropolitan cities

INTRODUCTION

Delhi, the capital city of India, has recently been ranked as the most polluted city in the world (WHO, 2016). Rapid industrialization and constant growth in population of India especially in the last decade has negatively affected the climate and air quality, (IITK,n.d.) impacts of which are clearly visible on the rainfall distribution and the monsoon resulting in an increase in the frequency of droughts and floods (Gadgil, 1995; Zhu and Houghton, 1996; Lal et al., 1996; Ramanathan et al., 2001; Menon et al., 2002). Air pollution is now clearly recognised as a world's major risk factor for many deadly diseases (State of global air, 2017) as a result of, the combined effects of different kinds of pollutants upon the physical and mental health of people and the quality of urban life in general (Apascaritei et al.,2009; Patronas,2009; Haiduc et al.,2009; Popescu et al.,2009). Especially, urban air pollution due to vehicular emissions (Barman et al., 2010), industrial growth and household pollution (Popescu et al.,2009) is a matter of concern now because of the harmful exposure on the urban poulation. The rapid increase in motor vehicular activities in Indian cities has brought in its wake a range of serious socioeconomic, environmental, health, and welfare impacts (Badami, 2005). The emissions from vehicles are responsible for higher concentration of pollutants like nitrogen oxides, carbon monoxide, volatile organic compounds, particulates, other organic and inorganic pollutants including trace metals and their harmful effects on human and

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environmental health (Caselles et al., 2002; Kaushik et al., 2006; Maitre et al., 2006; Curtis et al., 2006; Sharma et al., 2006; Jayaraman, 2007; Barman et al.,2010).

An air pollutant is known as a substance in the form of solid particles, liquid droplets, or gases in the air that can cause harm to humans and the environment (Mondal, 2016). They can be classified into two types of pollutants: primary pollutants and secondary pollutants. Primary pollutants are the ones which are emitted directly into the air i.e. Carbon monoxide (CO), Carbon dioxide (CO_2), Sulphur dioxide (SO_2), Nitrogen Dioxide (NO_2),Nitric Oxide (NO),Ammonia (NH3),Volatile organic compounds (VOCs), Lead (Pb),Particulate matter (PM) and these primary pollutants interact with each other's in the atmosphere to form secondary pollutants like Ammonium (NH4+), Tropospheric ozone (O_3),Sulphuric Acid (H_2SO_4), Hydrogen peroxide (H_2O_2), Sulphur trioxide (SO_3), Nitric acid (HNO_3) etc. Air pollution is more severe in metropolitan cities like Mumbai, Delhi, Kolkata, Hyderabad, Pune, Bengaluru and Chennai due to rising concentration of primary and secondary pollutants as a result of high vehicular density, rapid industrialization and reduction of green cover in urban areas. The present study aims to assess the concentration of these primary pollutants and secondary pollutants in the four metropolitan cities in India. The paper also studies the seasonal variation in the concentration of pollutants with refer.

METHODOLOGY

Indian cities are known as the most polluted in the world (Lim et al., 2013; Dholakia et al., 2014). India is now ahead of China and other developed countries. Air pollution is responsible for an increasing number in mortality and morbidity cases in the metropolitan cities of India (Guttikunda &Jawahar , 2011). The study was conducted in four metropolitan cities of India i.e. Delhi (North India), Kolkata (East India), Ahmedabad (West India) and Chennai(South India (Fig.1)

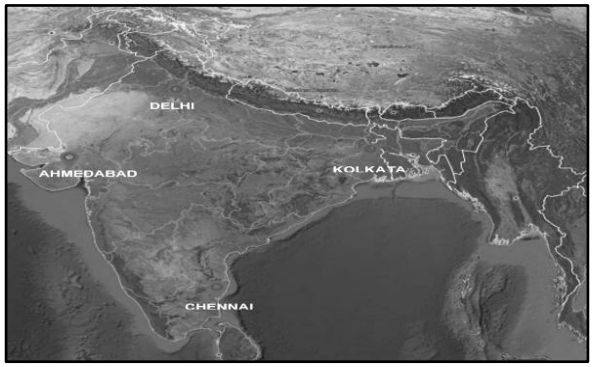

Fig- 1. Map of India Depicting the Selected Metropolitan Cities
(Source: Google Earth, 2017)

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Delhi (North India)

Fig. 2: Map of Delhi
(Source: Google Map)

Delhi , the capital of India is sitated at the northern side of India between the latitudes of 28°-24'-17" and 28°-53'-00" North and longitudes of 76°-50'-24" and 77°-20'-37" East(Fig.2). It shares the borders with Haryana and Uttar Pradesh. Delhi Has an area of 1,483 sq. kms (NIDM, 2017; Ghosh et al., 2017). The average annual rainfall in Delhi is 714 mm, 3/4th of which falls in July, August and September. During the summer (March- May) temperatures could rise upto 40-45 degrees Celsius and winters (December and January) are cold with low temperatures (4 to 5 degree) (IMD, 2010; Perrino et al., 2011). In addition to this, the monsoon season (Mid of July to Mid of September) experiences more than 80% of the annual rainfall in Delhi (Gulia et al., 2017).

Kolkata (East India)

Fig. 3: Map of Kolkata
(Source: Google Map)

Kolkata is the second largest city of India and is the capital of West Bengal with the Tropic of Cancer running across it(Fig.3). It is located between N 21°30' & 27° 30' and E 85° 30' & 89°45' (NIDM, n.d.). Kolkata is situated very near the Tropic of Cancer and experiences hot and humid weather conditions throughout the year (Kundu, 2003). This city has a tropical wet and dry Climate

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and gets most of its rainfall from the South-West Monsoon between the month of June and month of September.

`Chennai (South India)

Fig. 4: Map of Chennai
(Source: Google Map)

Chennai, the biggest metropolitan city of South India with situated at 13º 04' N latitude and 80 º 17' E longitude. It occupies an area of about 173 km^2(Fig.4) . The city is situated in the coastal plains. The Bay of Bengal and Indian Ocean both influence the climate of the coastal region. Chennai , which lies on the coast has moderate temperature throughout the year and has tropical monsoon type of climate. Average monthly temperature remains between 20-21°C throughout the year. (Shodhganga, 2008).

Ahmedabad (West India)

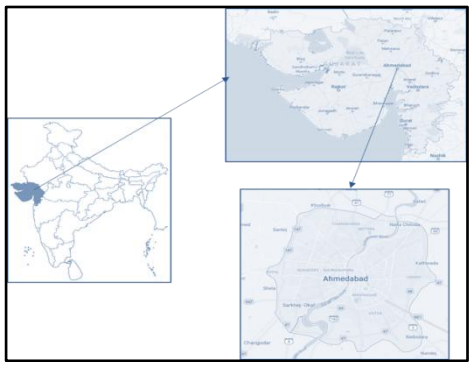

Fig. 5: Map of Ahmedabad
(Source: Google Map)

Ahmedabad is located in Central part of Gujarat. It lies between 21'-58' to 23'-3' North latitudes, 71'-37' to 72'-50' East Longitudes (Fig.5). The total Geographical area of Ahmedabad District is around 8087.59 Sq.kms (MSME, n.d.). The summer months in Ahmedabad are known to suffer

from very hot and dry climate. The minimum average temperature is around 23°C. It also experiences a very dry climate in the winter months (November to February).

The pollutant sample for the study, comprises of the annual data collection of air pollutants i.e. CO (Carbon Monoxide) , BTX (Benzene, Toulene, Xylene), NOx (oxide of Nitrogen) , SO_2 (Sulfur Dioxide), Particulate matter ($PM_{2.5}$), and Tropospheric ozone (O_3) with its meteorological precursors i.e. relative humidity (RH), Wind Speed (WS), Wind Direction (WD), Solar Radiation (SR) and Ambient Temperature(Temp). Four metropolitan cities have been selected from the four different zones of India i.e North, East, West and South. In each city, six air pollutants and five meteorological factors have been collected on hourly basis for one year (October 2016- October 2017), thus making the total data entries of air pollutants and meteorological factors to be 104,280 (11*24*395). Descriptive statistics (mean, standard deviation, minimum and maximum) have been used as statistical tool for the present study.

FINDINGS

The present study assessed the variation in concentration of primary and secondary air pollutant seasonally from Oct 2016-Oct 2017 in the selected metropolitan cities of India.

Table- 1: Annual concentration of primary and secondary air pollutants in the selected metropolitan cities of India

Cities	Conc.	NOx µg/m³	SO_2 µg/m³	PM2.5 µg/m³	OZONE µg/m³	CO mg/m³	BEN µg/m³	TOL µg/m³	XYL µg/m³
Delhi	Avg ± S.D.	170.8 ± 98.1	28.3 ± 7.5	131.1 ± 65.9	47.8 ± 16.8	1.6 ± 0.9	11.2 ± 6.2	40.0 ± 17.6	15.4 ± 7.8
	Min	64.9	17.3	41.4	19.3	0.8	3.1	14.1	3.9
	Max	336.3	43.9	275.7	88.1	3.7	22.1	85.0	30.8
Kolkata	Avg ± S.D.	80.0 ± 49.1	14.2 ± 10.4	NA	23.2 ± 10.5	1.3 ± 0.6	NA	NA	NA
	Min	36.3	4.9	0.0	12.6	0.5	0.0	0.0	0.0
	Max	232.5	36.6	0.0	53.9	2.8	0.0	0.0	0.0
Chennai	Avg ± S.D.	14.1 ± 4.8	3.8 ± 0.7	75.6 ± 25.9	30.9 ± 7.6	0.8 ± 0.3	0.4 ± 0.4	0.8 ± 1.1	0.9 ± 1
	Min	7.2	3.0	30.5	22.1	0.4	0.1	0.1	0.0
	Max	22.8	5.4	129.1	46.6	1.7	1.7	4.4	3.3
Ahmedabad	Avg ± S.D.	59.9 ± 28.7	61.6 ± 46.6	236.4 ± 454.4	54.8 ± 32.5	1.3 ± 0.7	8.6 ± 10	34.4 ± 38	25.0 ± 32.9
	Min	25.4	7.0	16.0	13.6	0.5	0.1	0.3	0.1
	Max	116.8	139.6	1780.6	98.3	3.0	36.2	115.4	123.8

The maximum annual average concentration of NO_x has been recorded at Delhi and the minimum annual average concentration of NO_x was observed at Chennai. Ahmedabad recorded the highest concentration of SO_2, whileon the other hand the minimum concentration of SO_2 has been observed at Chennai. Table 1 predicts that the highest annual average concentration of $PM_{2.5}$ was observed in Ahmedabad. The concentration of CO was found to be below the permissible limits in all the metropolitan cities.

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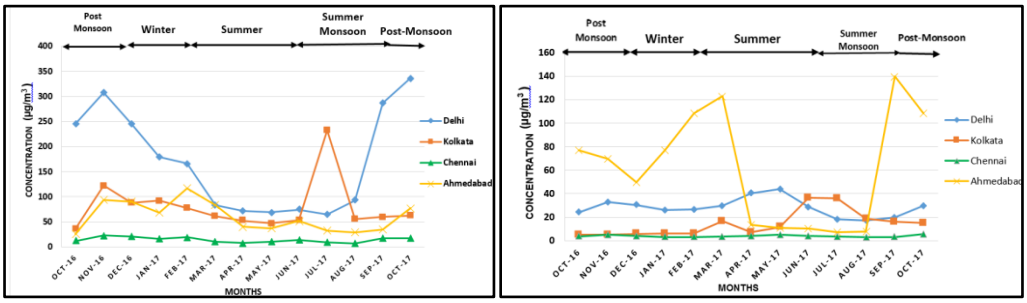
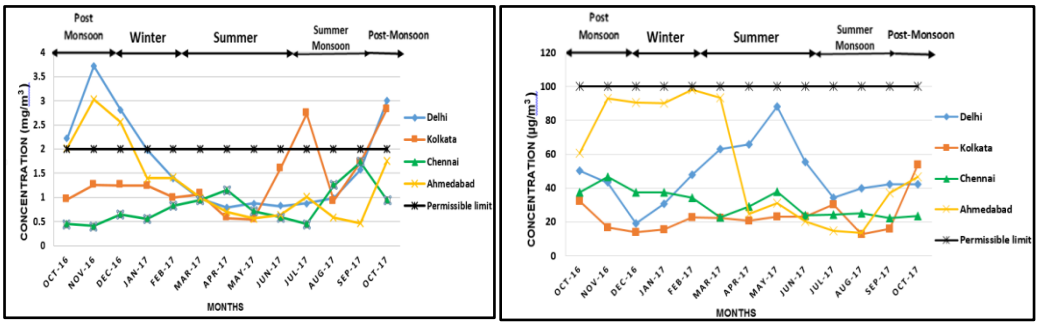
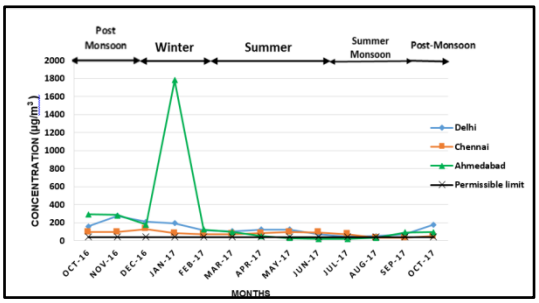


(a) NO_x (b) SO_2



(c) CO (d) Tropospheric ozone(O_3)



(e) $PM_{2.5}$

Fig 6: Seasonal Variation in the concentration of air pollutants in the metropolitan Cities

The maximum concentration (336.2 µg/m^3) of NO_x was observed in post- monsoon season (October'17)in Delhi and in summers (July'17) at Kolkata(232.4 µg/m^3). The minimum concentration of NO_x was found during summers(Fig.6a) in Chennai (8.183 µg/m^3). The peak concentration of NO_x was observed in post monsoon season. Post-diwali effects coupled with high vehicular density and unfavourable meteorological conditions (mid of Nov'17) could be the reason behind the peak in this season. Despite the ban on crackers, there was significant burning of fire crackers which contain chemical species like sodium oxalate, aluminium, arsenic, sulphur, manganese, iron dust powder, potassium perchlorate, strontium nitrate and barium nitrate etc. (Verma et al, 2014; Ravindra et al, 2003).This kind of chemical species in the firecrackers are responsible for the emission of NOx and other gaseous air pollutants (Liu et al, 1997; Verma et al, 2014) and produce huge amount of ambient particulate into the atmosphere of earth that could

have possibly lead to formation of thick clouds of smoke ((Drewnick et al, 2006). Other probable reasons for this peak could be combustion of fossil fuels like coal, gas and oil, burning of residual of crops in the adjoining states of Delhi.

The occurrence of maximum annual average concentration of SO_2 (139.6 µg/m^3)in early summers (Sept.'17) was observed at Ahmedabad. The minimum annual average concentration of SO_2 (3.9 µg/m^3) was recorded in the month of June'17 in Chennai(Fig. 6b). According to Central Pollution Control Board, the permissible limit of SO_2 is 50 µg/m^3 (annually) and it exceeded the permissible limit in Ahmedabad. The reasons for the high concentration of SO_2 in Ahmedabad could be the rapid growth in population as Ahmedabad is one of India's largest and fastest growing cities with a population over 7.3 million (WHO, 2016). This rapid urbanization has led to increase in air pollution from heavy duty vehicle-related emissions and stationary sources. Ahmedabad's dry and hot climate can exacerbate air pollution in the city as wind direction and wind speed, rainfall and temperatures all affect long-lived pollutants in a region with air pollution flowing into and out of the city as shown in Table 2 (AIR, 2016).

Table- 2: Annual average of the meteorological parameters in the selected metropolitan cities

Cities	Conc.	Relative Humidity	Solar Radiation	Temperature	Wind Speed	Wind Direction
		%	W/m^2	C°	m/s	°
Delhi	Avg ± S.D.	55.8 ± 13.03	107.9 ± 19.9	23 ± 7.14	1.03 ± 0.28	191.3 ± 42.5
	Min	28.1	65.5	11.1	0.6	71.8
	Max	69.3	133.9	31.5	1.5	238.6
Kolkata	Avg ± S.D.	112.9 ± 124.4	310.8 ± 621.8	28.1 ± 3.87	168.6 ± 72.3	1.86 ± 0.77
	Min	63.7	61.4	20.5	93.4	0.9
	Max	525.9	2372.2	31.9	362.0	3.4
Chennai	Avg ± S.D.	70.2 ± 5.5	188.3 ± 24.9	28.6 ± 1.8	1.14 ± 0.50	160.8 ± 39.2
	Min	60.7	152.0	25.6	0.6	90.3
	Max	78.2	226.3	30.9	2.1	207.8
Ahmedabad	Avg ± S.D.	44.2 ± 34.6	172.7 ± 81.3	29.1 ± 5.31	0.48 ± 0.24	188.49 ± 37.2
	Min	0.3	107.6	19.7	0.2	138.5
	Max	84.9	424.5	36.4	1.2	266.1

Chennai recorded the lowest concentration of SO_2 annually which could be due to the strong winds that help to dissipate the gaseous pollutants as Chennai is situated on the South-Eastern coast of India and influenced by the coastal atmospheric conditions(Jayamurugan, 2013) as shown in Table 2.

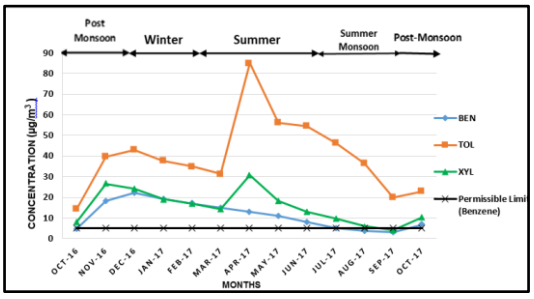
The annual average concentration of CO was found to be maximum in Delhi (3.7mg/m3) with the peaks in post monsoon season. High humidity levels combined with rising number of diesel run vehicles and diesel generators could be the possible reason for such high concentration of CO (Fig. 6c).Ahmedabad also crossed the permissible limits of CO during post monsoon season while Kolkata recorded a peak during summer monsoon season.

Fig.6d. depicts that the maximum annual average concentration of O_3 (98.3 µg/m^3) was recorded at Ahmedabad during the winter season whereas Delhi recorded a maximum of 88 µg/m^3 during the summers . The high concentrations of O_3 at Delhi and Ahmedabad could be due to meteorological

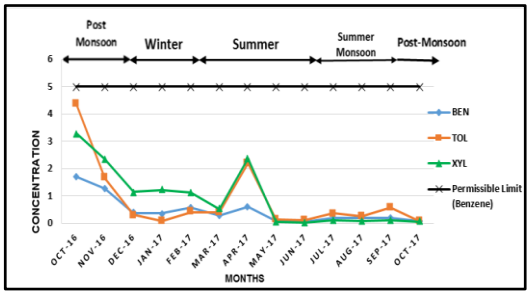
conditions such as high temperature and high solar intensity which contribute in the formation of tropospheric ozone(Table.2) (Tiwari, 2008). Ahmedabad has a very dry and hot climate throughout the year with a minimum temperature of 23^0C.This high ambient temperature and high solar radiation accelerate the chemical reaction for the formation of secondary pollutant (Clark and Karl 1982; Walcek and Yuan 1999). Effect of firework activities during Diwali on surface Ozone has also been reported in Delhi(Ganguly et al., 2009; Attri et al., 2001). In every metropolitan city of India, the lowest concentration of Ozone was recorded in winter season. This is may be due to the higher atmospheric constancy and an increased incidence of nocturnal inversions, which may haveenhanced the chemical scavenging of Ozone and dry deposition (Stephens, 1969; Tiwari et al., 2008; Ghosh et al., 2017).

Fig.6e depicts that the concentration of $PM_{2.5}$ is found to be exceeding its permissible limit (40 µg/m^3) in Ahmedabad and reaching its peak(1078 µg/m^3). The concentration was seen to be very high mainly in post monsoon and winter season. The reason for this high concentration in this season could be due to secondary particles, emissions from diesel based heavy duty vehicles, biomass burning, road dust, burning of solid waste, burning of crackers at the time of Diwali which fall during mid of October. Winters are accountable for increasing the concentration of air pollutants (Anfossi et al., 1990 ; CPCB, 2000) High concentration of pollutants is trapped close to surface of the earth because a layer of warm air acts as a cap on top of this layer (CPCB, 2016). A (Table.1) lower concentration of PM $_{2.5}$ was recorded in summer monsoon season. The reason for the lower levels could be the high humidity level and heavy rainfall in this season that helped in flushing out of air pollutants. Even the concentration of PM $_{2.5}$ was seen to be quite lower in this year (Oct'17) than previous year (Oct'16), the reason behind this might due to subsequent banning in fireworks in entire India on Diwali.

1.1 Benzene, Toluene & Xylene (BTX)



Delhi



Chennai

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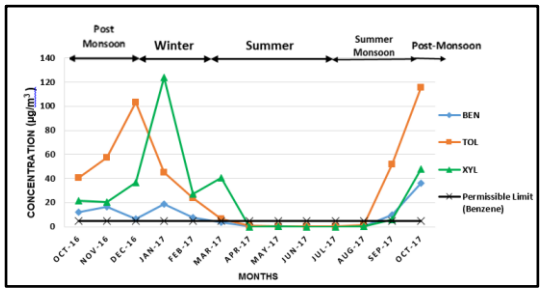

Ahmedabad

Fig 7: Seasonal Variation in Concentration of Benzene, Toluene, Xylene (BTX) at Delhi, Chennai & Ahmedabad

Fig.7 shows that the seasonal variation in the concentration of BTX at the selected metropolitan cities in India. As the concentration data for BTX in Kolkata was found unavailable, the rest three metropolitan cities data has been shown in Fig 7. The concentration of xylene was quite higher than acceptable limit(5 µg/m^3) in Ahmedabad during winter season, closely followed by toulene. Evaporation of gasoline during filling process in addition to vehicular exhaust emission and varying traffic density (Singh et al., 2012) could be the major reasons behind the maximum concentration of BTX. In Delhi, the maximum concentration was found of toluene during the summers. Chennai has the BTX concentration well within the permissible limits.

CONCLUSION

Based on the above findings, it can be concluded that the major reasons for emissions of air pollutants are anthropogenic activities. This study also revealed that the Ahmedabad and Delhi recorded the high concentration of primary and secondary air pollutants. $PM_{2.5}$ was found to be the most dominate pollutant in all the metropolitan cities. The possible reasons for this high concentration of fine particulate could be incessant construction activities going in these cities ,high vehicular density, usage of dirty fuel for trucks and waste burning in the metropolitan cities. Inaccessibility of data in Kolkata was a major limitation during the study. Besides this, the absence of certain data sets for primary pollutants (Benzene, Toluene, Xylene) created a gap which inhibited proper data analysis process. To make this analysis more meaningful, more pollutants can also be added for futher intensive research studies. To improve the air quality in the metropolitan cities , corrective measures have to be taken by the government of India These measures could include usage of clean fuel such as CNG, periodic check on vehicle pollution certificates, ban in diesel based old vehicles, ban in the burning of crackers and solid waste and monitoring of construction projects happening in these cities..

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PROBLEMS FACED BY SLUM HOUSEHOLDS OF BIKANER CITY IN ACCESSING FORMAL FINANCIAL SERVICES AND PRODUCTS

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ABSTRACT

Finance often plays an important role in the maintenance of the family. Financial management is essential for meeting day to day needs, dealing with life cycle events and unexpected emergencies and planning for the future. But some people are at a disadvantage because they could not manage their finance efficiently because either they do not have much money or they lack access to many formal financial institutions. For this, strong and vigorous financial institutions are required. Therefore, the significance of an inclusive financial system is accepted worldwide. In India, many initiatives had been taken by Reserve Bank of India (RBI) and Government of India (GOI). In this background, the present study was carried out. The objective of the study was to explore the problems of slum households in accessing formal financial services and other facilities. The sample consisted of 400 slum households from the eight randomly selected slums of Bikaner. Among them 351 slum households were financially included whereas 49 slum households were excluded from formal financial system. Pre-validated and pre-tested semi-structured interview schedule was used to collect the data. The findings showed that slum households were facing variety of problems in accessing formal financial services and products. Demand side problems were more prevalent than the supply side problems. In conclusion, there is more need of promoting use of formal financial services and other facilities in urban areas.

Key words: Financial inclusion, Slum households, Demand and Supply side problems

INTRODUCTION

Finance often plays an important role in the maintenance of the family. Financial management is critical for meeting day to day needs, dealing with life cycle events and unexpected emergencies and planning for the future (Rutherford, 2000).

But some people are at a disadvantage because they could not manage their finance efficiently because either they do not have much money or they lack access to many formal financial institutions such as banks, insurance companies and government system of social protection (Lund & Srinivas 2000; Rutherford 2000).Access to appropriate financial services and the knowledge and confidence to use them effectively are indispensible to protect people against risks and allow them to cope with fluctuations in income and liabilities over time (Sinclair, 2009). Limited access to affordable financial services such as savings, loan, remittance and insurance services to the vast majority of population is believed to be a constraint to the growth.

Financial services have failed to adequately reach poorer population for a number of reasons, including inadequate infrastructure; perception that lending to the poor is too risky to be commercially viable; inhibiting regulatory and legal environments; and limited understanding and awareness of financial services by the poor. Exclusion from such services or the inability to use them can lead to insecurity.

Financial exclusion refers to exclusion from affordable and appropriate financial products, including bank accounts, credit, savings and insurance. It is complex and multi-dimensional and can

come about as a result of a range of problems with access, conditions, price, marketing or self-exclusion (Kempson, Whyley, Caskey, & Collard, 2000).
Financial exclusion can result from a range of barriers:

- Access exclusion- for example, limited availability of or difficulty in securing appropriate services;
- Condition exclusion- for example, deposit or balance levels, identify requirements etc;
- Price exclusion-for example, unaffordable charges for services or penalties;
- Marketing exclusion-for example, the way in which products are promoted, their image or mode of delivery;
- Self-exclusion- for example, disengagement as a result of negative experiences or discouragement (Sinclair, 2001).

The problem of financial exclusion requires intervention from formal financial institutions to provide financial services and products on an affordable cost. Efforts also require for ensuring dissemination of correct information on correct time to low-income groups or who have traditionally been vulnerable, such as women, young people, senior citizens or people who live in rural and slum areas.Financial literacy and financial inclusion can help in removing these impediments. It can help in reducing inequality and poverty through several channels. For improving financial inclusion many initiatives had been taken in India.

Aim: In this background, the present study was carried out on urban slums of Bikaner district. The objectives of the study were to investigate the socio-economic profile of slum households and to explore the problems of slum households in accessing formal financial services and other facilities.

METHODOLOGY

The present study was undertaken in Bikaner district of Rajasthan. There were 28 surveyed urban slums included in Municipal Corporation. Out of which 8 slums were selected randomly using lottery chit method. From each slum 50 households were selected using systematic random sampling. Thus total number of selected households was 400. The data were collected through semi-structured interview schedule. The socio-economic profile of slum households was collected by using structured socio-economic scale by All India Coordinated Research Project (AICRP, 2006). Some modifications were made according to the objectives of the study. The dependent variable like problems faced by slum households in availing formal financial services and products was measured with the help of checklist prepared by researcher herself. The data were collected through direct face to face contacts. Frequency, percentage and rank order were calculated for analyzing the data.

FINDINGS

(A) Socio-economic profile of slum households

The major findings relating to socio-economic profile of slum households are given below:

- Almost two-third slum households (64.75%) were from scheduled caste/ tribe, followed by other backward caste (29.25%) and remaining were from upper caste (6%).
- A little more than half (50.50%) of the slum households belonged to joint families and remaining to nuclear families.

- More than half of the households (54.25%) had middle sized family (5-8 members).
- Almost all households (96%) had not any kind of organizational membership.
- More than three-fourth (77%) of the households had pukka houses .
- Almost all households (99%) owned no land.
- Regarding household assets, it was found that sanitary latrine, water tap and modern furniture were owned by 99.50 %, 99 % and 42.50 % of households respectively. None of the households owned bio-gas and grain storage bin.
- Nearly three-fourth of slum households (71%) had gas stove. It is remarkable that more than half of the slum households (59.50 %) had refrigerator. Large equipments like cooler, washing machine possessed by 57.75 % slum households and 51 % slum households had pressure cooker.
- As far as exposure of mass-media is concerned, television, newspapers/ magazines and radio/transistor were available in 91.50 %, 14.75 % and 8.50 % of households respectively. So, mass-media exposure was found to be fairly good in the study area.
- Two-third of the households (68.75%) had motor cycle as a mean of transportation. Bicycle was owned by 62per cent households and very few households (1.25%) had three or four wheeler. Six households (23.12%) did no town any vehicle at all.
- Electricity connection was found in majority of households.

On basis of the score obtained by slum households on socio-economic scale, they were categorized as high, medium, and low. Table 1 indicates the socio- economic status of slum households:

Table- 1: Distribution of slum households on the basis of socio-economic status

Table -1: Distribution of the slum households on the basis of exclusion from formal financial institutions n=400		
Socio –economic Status	***f***	***%***
High (35.67-53.50)	1	0.25
Medium (17.83-35.67)	313	78.25
Low (0-17.83)	86	21.50
Total	**400**	**100**

More than three-fourth of the households (78.25%) belonged to medium socio-economic status almost one-fifth (21.50%) were from low socio-economic status and only one household belonged to high socio-economic status.

(B) Extent of Financial Exclusion

The financially excluded slum households are shown in Table 2.

Table -2:Distribution of the slum households on the basis of exclusion from formal financial institutions n=400		
Total slum households	***F***	**%**
Financially included slum households	351	87.75
Financially excluded slum households	49	12.25

It was found that 12.25 per cent of the total slum households were financially excluded. In the present study financially excluded households are those slum households who did not have an account in any formal financial institutions and they were not using any service or product offered by these institutions. If they had an account in any formal financial institution and if they were using any formal financial services or products, they are treated as financially included. It is discernible from the Table 2 that, in spite of having a good number of financial institutions in urban areas, still 12.25 per cent of total slum households in Bikaner do not come under the ambit of any formal financial services.

(C) Problems in availing Formal Financial Services and Products

Slum households who had account in formal financial institutions were facing variety of problems in using services. The problems of using formal financial services by slum households were two-dimensional i.e. demand side problems and supply side problems. Demand side problems are related to the customer when they faced problems in accessing and using services from formal financial institutions whereas supply side problems are related to formal financial institutions when these institutions failed to reach all segments of society.

The major findings relating to problems faced by slum households are given below:

1.**Demand side problems-** These problems are listed in three categories relating to banking, finance, and literacy.

- **Relating to banking**

Table 3 elicited that under the problems relating to banking, 92.30 per cent of the slum households faced problems in the transaction through mobile and the internet. This problem holds the first rank.

For minimizing the financial exclusion, technology has been developing rapidly over past years resulting in newer ways to access financial services. Despite these improvements, slum households encounter difficulties due to less technical knowledge.

It is also noticed that 87.46 per cent of the slum households were unable to handle debit and credit cards and is the second major demand side problem related to banking. Slum households expressed in informal discussion that they did not understand the use of these cards. Lee (2002) also found that the poor were significantly less likely to use electronic banking, with the exception of ATMs in United States.

About 82.05 per cent of the slum households revealed that they were having low knowledge about financial products and services and this problem occupied the third position. Further, 66.09 per cent of the slum households felt inability to provide collateral. This problem holds the 4^{th} position. Due to low income slum households were unable to submit any thing as collateral.

It was seen that the lack of confidence (5.12 per cent), the odd environment of institutions (3.98 per cent) and misconception of formal financial institutions (3.41per cent) were considered as problems by a handful of slum households and thus, these problems occupy fifth, sixth and seventh positions respectively. It was reported informally by some slum households that they felt no benefit of formal financial services because they were having less money. Some households also expressed that they felt uneasiness in banks.

Table- 3:Distribution of slum households on the basis of faced demand side problems n=351 (Multiple Response)

Demand side problems		***f****	**Rank Order**
Relating to banking	No knowledge about transactions through mobile and internet	324 (92.30)	1
	Unable to handle debit and credit card	307 (87.46)	2
	Low knowledge about financial products and services	288 (82.05)	3
	Unable to provide collateral	232 (66.09)	4
	Lack of confidence	18 (5.12)	5
	Odd environment of institutions	14 (3.98)	6
	Misconception of formal financial institutions	12 (3.41)	7
Relating to finance	High cost of internet	268 (76.35)	1
	Low saving	181 (51.56)	2
	Irregular income	95 (27.06)	3
Relating to literacy	Low computer knowledge	317 (90.31)	1
	Problems in reading and writing of cheque, demand draft and postal- order	281 (80.05)	2
	Excessive writing work	196 (55.84)	3
	Low understanding of form	111 (31.62)	4
Others	No transportation	20 (5.69)	1
	Risk of losing money	13 (3.70)	2

**Note*. Figures in parenthesis represent percentages

Dupas, Green, Keats and Robinson (2012) also found a similar result that in Kenya, while 63 per cent of people opened an account, only 18 per cent actively used it. Survey evidence suggested that the main reasons people did not begin saving in their bank accounts were that: (i) they did not trust the bank, (ii) service was unreliable, and (iii) withdrawal fees were prohibitively expensive.

- **Relating to finance**

Under the problems relating to finance, it was seen that over three-fourth (76.35 per cent) of the slum households felt problems in using formal financial services due to the high cost of internet. It holds the first position. More than half (51.56 per cent) of the slum households revealed the problem of low saving due to their unstable occupation and is the second major problem relating to finance. As more than half of the slum households were engaged in labour work, they

were not getting fixed work and fixed salary. 27.06 per cent of slum households told that due to the irregular income they were facing problem in using formal financial services. Slum households told that they felt difficulty in repaying insurance instalments due to irregular income. Major constraints faced by weaker section of society in accessing the formal financial services in Singh and Goyal's study (2012) were lack of awareness about the banks and low income.

- **Relating to literacy**

It is also noticed from Table 3 that 90.31 per cent of the slum households were having less computer knowledge and is the first demand side problem due to inadequate literacy. The problem in reading and writing of cheque, demand draft and postal order holds the second position and it felt by a majority of slum households (80.05 per cent).

More than half slum households also revealed that they felt excessive writing work (55.84 per cent) in using their account followed by the problem of low understanding about form in depositing and withdrawing money (31.62 per cent). These problems are in third and fourth positions respectively.

- **Other problems**

Although distance from formal financial institutions is a much greater barrier in rural areas, no transportation also became a hurdle for some slum households who were residing far from the formal financial institutions (5.69 per cent). The negative feelings about self as well as about the formal financial institutions create trouble in using formal financial services. Only handful of the slum households expressed the problem related to the risk of losing money (3.70 per cent). They felt fear to take money from financial institutions to home and vice versa.

(ii) Supply side problems -These problems included problems related to institution and money. The supply side problems in using formal financial services have been presented in Table 4.

- **Relating to institution**

Institutional problems such as complicated paperwork, excessive rules, and regulations, unadjustable timing and inadequate support by staff create difficulties for slum households in availing formal financial services. Table 4 shows that the main institutional problem perceived by the slum households was related to the ATM machine. One-fourth of the slum households (25.07 per cent) revealed that they could not use ATM because most of the time it being out of order and thus this problem occupied the first position. In informal discussion, slum households told that many times ATMs being out of order when they want to withdraw money from ATM. So it's better that we use withdrawal form for cash.

Karuppusamy and Palanichamy (2011) found technological complexity and security concern were the major constraints faced by the respondents while availing value added services from the banks in Coimbatore district.

About 17.94 per cent of the slum households faced a problem of the excessive crowd in the institution and it holds the second position. Other institutional problems faced by slum households were a long distance from the residence (8.83 per cent),

excessive rules and regulations of institutions (7.97 per cent) and tedious and complicated procedure of work (6.55 per cent) and thus, these problems occupy third, fourth and fifth position respectively. Slum households reported that they felt problem due to the vast formalities of bank regarding availing credit. Most common reported barriers in an analysis report of Kunt and Klapper (2012) were high cost, physical distance and lack of proper documentation in 148 economies.

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Table- 4: Distribution of slum households on the basis of faced supply side problems n= 351 *(Multiple Response)			
	Supply side problems	*f**	Rank order
Relating to institution	ATMs being out of order	88 (25.07)	1
	Excessive crowd	63 (17.94)	2
	Long distance from the residence	31 (8.83)	3
	Excessive rules and regulations	28 (7.97)	4
	Tedious and complicated procedure of work	23 (6.55)	5
	Inadequate support and unsuitable attitude of staff	18 (5.12)	6
	Unadjustable timings	11 (3.13)	7
Relating to money	Requirement of more money for insurance	42 (11.96)	1
	High cost of mobile recharging	33 (9.40)	2
	High penalty charges	32 (9.11)	3
	High interest rate on loan	24 (6.83)	4
**Note.* Figures in parenthesis represents percentages			

A handful of slum households faced the problem of unsuitable attitude of the staff (5.12 per cent) and unadjustable timings of formal financial institutions (3.13 per cent). Bal, Dewangan and Perwez (2015) also observed that in Chhattisgarh, lengthy procedure, technical communication, problem of attitude and behaviour of bank employee and lack of time to explain by bank officials were major barriers in financial inclusion.

- **Relating to money**

Under the supply side problems relating to the money Table 4, further, depicts that the main financial problem faced by the slum households in availing formal financial services was the requirement of more money for insurance (11.96 per cent). This holds the first position. About 9.40 per cent of the slum households faced the problem of high cost of mobile recharging and this occupy second position. The almost same percentage felt the problem of high penalty charges (9.11 per cent) and this holds the third position. The high interest rate on loan holds the fourth position and it felt by a handful of the slum households (6.83 per cent).

The findings of present study also supported by findings of Kempson, 2006 who reported that barriers such as high charges incurred for temporary overdrafts, bounced cheques (both paid out and in) and failed direct debits increase the barriers for low income individuals to access financial services.

Alexander and Phiri (2010) also reported that in Malawi people who own bank accounts raised complaints and questions against the banks because of imposed high fees on bank transactions and services. As a result, many people had a negative image about banks and were not willing to save money with any bank. Salathia and Andotra (2014) enticed that high fees and service charges, inconvenient hours were the main barriers of financial inclusion.

CONCLUSION

It is observed that although various programmes have been launched and measures have been undertaken for financial inclusion, the success is not found to be noteworthy. However, only supply side factors are not responsible for the financial exclusion. Demand side factors are also equally responsible. As such, it may be a safe conclusion that it is likely both the demand side and supply side problems independently and collectively frustrate the financial inclusion of the slum households in Bikaner city. Thus, there is a need to solve both demand and supply side problems with the help of appropriate policies.

IMPLICATIONS

The study has contributed to the mass of knowledge significantly as the findings can be used by the financial institutions, Government agencies & policy formulators for a better understanding of the trials and tribulations faced by them.

1. The findings can be used as a guidepost for the effective solution in the context.
2. Regulators (RBI) and implementers (financial institutions) can utilize the findings of this study to formulate the future policy of financial inclusion.
3. The findings can be utilized by the implementers making an effective and innovative solution for dealing demand side problems.
4. The study will help the policy makers to plan a strategy for removing the problems of financial exclusion.

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A STUDY ON LOW BUDGET INTERIOR DESIGN OPTIONS

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ABSTRACT

In the present day, life has become more and more complex and is influenced by patterns of living in different parts of the world. The households have to see that every room and every object in the home fulfils the demand of both locality and aesthetic satisfaction. A good design should meet the requirements and needs of a user. Interior design has vast aspects in terms of designing materials, cost and sustainability, but living in 21st century is quite tough to have land where you get efficient space and sustainability at the same time. A person desires his dream home where he wants to reside with dear ones, some of the metro cities do not have good enough space for rooms with large families and some people may find difficult to find a prefect functional house. But it is never impossible to achieve dreams unless one stop working on it. Even small spaces can be designed functionally and much efficiently. The purpose of this paper is to bring out the most valuable and economically efficient interior designs options for the people who desire to design their home on the basis of economic budget. This paper aims at the low cost designing materials and options available in the market under economic budget and which fits their requirements. The objective of the study was to find out the expectations and requirements of the people who want to design their home. The sample of the study comprised of 60 homemakers from middle class families residing in Vadodara City. The purposive sampling method was used to select samples. From the results it was found that majority of the respondents needed their home to be designed under economical budget along with more sufficient storage requirements. Also respondents needed their home to be designed under their plot size itself. Hence this paper provides some economical solutions to design home. Moreover this signifies that even under limited budget a good house can be planned. This will help the middle class families to get their house designed under economical budget and to the Interior Designers who works in limited budget.

Key words: low budget, middle class families, economic design options.

INTRODUCTION

"Life without beauty would be far duller than it is" (Maugham,1978). The importance of art and beauty is hardly open to debate. Whether we consider the individual or the group, civilization or barbarism, ancient or modern times we cannot afford to neglect the aesthetic aspect of life. The art today is much more closer to the daily routine of every individual then it was generation ago. It has become an essential and unavoidable ingredient to living.

The house is a place which reflects the preferences, art appreciation, philosophy of life beauty and choice of its occupants. The control occupants have on their residential quarters permits them to mould the space available to create the environment, mood and expression, they would like to have and radiate the outside world. (Chauhan,1998)

A residence ought to be pleasing and attractive in appearance both on the exterior and the interior. A functionally designed house is planned from the inside out, the exterior develops from the

interior. In the present time the size of the house that an average family can afford is very small resulting into congestion. Hence, it becomes essential to make judicious use of size and space along with affordable and sustainable interior design.

Accordingly to Paintel (1973) " when one creates a home, one goes into minute detail which can only be accomplished by interior designers who conceive the concept as they step into the home of their client."

In the contexts of the present day, life has become more and more complex and is influenced by patterns of living in different parts of the world because of closer contacts with the circumstances, therefore demand a blending of the old and new, the old on account of tradition, suitability and habit, and the new in consequences of modern influences, accommodation problems, adjustments to different living conditions and service difficulties. The households has to see that every room and every object in the home fulfils the demand of both locality and aesthetic satisfaction.

A good design which meets the requirements and needs of a user is numerously significant, where clients needs are fulfilled under their convenience, interiors of any space is the most crucial part to dwell in, the environment must provide basic terms and needs where the person living feels peace and lively at the same time. Interior design has vast aspects in terms of designing materials, cost and sustainability, but living in 21st century is quite tough to have land where you get efficient space and sustainability at the same time.

In India, the technology to be adopted for housing components should be such that the production and erection technology be adjusted to suite the level of skills and handling facilities available under metropolitan, urban and rural conditions. (Adlakha and Puri, 2003). A person desires his dream home where he wants to reside with dear ones, some of the metro cities may not have good enough space for rooms with large families and some people may find difficult to find a prefect functional house. But it never impossible to achieve any dreams unless one stop working on it. Even small spaces can be designed functional and much efficiently.

When there is a need of perfect house along with necessary design elements, what a person can do is plan a budget according to his comfort, shaping the budget will give you a chance to choose all the design elements of the house. Then once the budget is finalised, designing a home at a provided budget is not a daunting task. A few design considerations, a few precautions and a steamlined process, that is all needed to achieved desired home under low budget.Interior design is not just a term use to design a space with adding beauty to it, interior designing is an art where your mind start speaking before you visualise things which need to be changed. Change is necessary in terms of planning and making a place work more functionally. There are certain psychological terms which depicts the mood of a person according to the surrounding environment, a person must be comfortable with the design and the right amount of money which he wants to invest.

In India where people are following culture and historic art, modernization has taken the mind sets to another level, where people living lavish lifestyle demand of having world's best interior design solutions and other people wants basic requirements with minimal interiors. Many scholars had showed the work of minimalism in terms of low cost and efficient interiors along with the best

ambience. It all lies in the practices of planning, maintaining home more environmentally and economically sustainable by following good guidelines provided by interior designers.

The present study of low cost interior design solutions for residential is planned to gain insight into the needs of the people who wants to have low cost and low budget interior designing solutions by understanding the requirements and materials to be used which are under the prescribed budget of the client.

OBJECTIVES

1. To find out the expectations of the clients from an Interior Designer.
2. To suggest ways of designing an Interior under Low Budget.

METHODOLOGY

Descriptive research design was adopted for conducting the present study. The sample of the study comprised of 60 homemakers from middle class families residing in Vadodara City. The purposive sampling method was used to select samples. Questionnaire and observation sheet were used as an instrument to gather the information from the respondents. The questionnaire was divided into two sections. Section 1 dealt with the background information of the respondents viz; age, education, total family monthly income, family and type of family, employment status of the respondents**.** Section 2 contained a scale to find out the requirements of respondents from an Interior Designer to design Low Budget interior for the house. The respondents were asked to respond to a 3 point continuum in terms of 'always', 'sometimes' and 'never' and the scores from 3 through 1 were given to the respondents respectively. The data were analysed using descriptive statistics such as percentage, frequency and weighted mean.

FINDINGS

Section-1 Background Information: The section dealt with the background information of the respondents. The background information included age, education, total family monthly income, family and type of family, employment status of the respondents**.** It was found that little more than one/fourth of the respondents (28.33%) were from 20 to 32 years of range, little less than half of the respondents (46.63%) were from 33 to 45 years of range and almost one/fourth of the respondents (25%) were from 46 to 58 years of range. Employment status of the respondents was found out in terms of home maker, employed and business .It was found that almost half of the respondents (50%) were home makers, less than one half of the respondents (41.66%) were employed and few of the respondents (8.33%) were in business. The mean income was found to be 30564 Rs.

Section 2 Expectations of respondents from an Interior Designer to design Low Budget interior for the house.

This section contained a scale to find out the expectations of respondents from an Interior Designer to design Low Budget interior design in the house. The respondents were asked to respond to a 3 point continuum in terms of 'always', 'sometimes' and 'never' and the scores from 3 through 1 were given to the respondents respectively.

Table 1 describes the requirements that respondents had from Interior Designer under Low Budget.

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Table- 1: Frequency and Percentage distribution of the respondents according to the expectations of the respondents from an Interior Designer to design Low Budget interior design in the house.

Sr.. No	Statements	Respondents(n=60)					
		Always		Sometimes		Never	
	Requirements of a Client	**f**	**%**	**f**	**%**	**f**	**%**
1	Design the house in an economic budget	50	83.33	10	16.66	0	0
2	The design should be functional	41	68.33	19	31.66	0	0
3	Vastu shastra consideration while designing	28	46.66	17	28.33	15	25
4	Keeping in mind the cost effectiveness of the material incorporated	44	73.33	16	26.66	0	0
5	Designing house with affordable materials	45	75	14	23.33	1	1.66
6	Reuse of existing furniture	30	50	25	41.66	5	8.33
7	Energy efficient appliances	43	71.66	16	26.66	1	1.66
8	Design space with more availability of natural light	51	85	9	15	0	0
9	Storage efficiency requirements	52	86.66	7	11.66	1	1.66
10	Materials which are trending	45	75	15	25	0	0
11	Materials which are locally available	40	66.66	14	23.33	6	10
12	Design a place which looks big even in small plot size	52	86.66	5	8.33	3	5
13	Design house on the basis of space availability	46	76.66	14	23.33	0	0
14	Furniture design on economic budget	50	83.33	9	15	1	1.66
15	Individuality of the furniture	34	56.66	23	38.33	2	3.33
16	The materials incorporated in design should have good life	46	76.66	14	23.33	0	0
17	The utility of each and every room should be kept in mind	49	81.66	8	13.33	3	5
18	The materials should be sturdy as well as easy to clean and take care	54	90	6	10	0	0

Almost half of the respondents required reusing of existing furniture. Little more than half of the respondents required cost effective materials, energy efficient appliances, materials which are trending and designing house on the basis of space availability. Little less than half of the respondents required Vastu shastra consideration in the house. More than three fourth of the respondents required that the design should be functional and materials incorporated to be locally available. Majority of the respondents required house to be designed in an economic budget with storage efficiency requirements, design a place which looks big even in small plot size, economic

furniture design, design space with more availability of natural light, utility of each and every room to be utilized and required materials which are sturdy as well as easy to clean.

Section-2 Suggestions for the respondents for Designing Interiors under Low Budget: A good design which meets the requirements and needs of a user is numerously significant, where Interior Designer fulfil clients need under their convenience, their personal likings under economic and efficient budget. Different types of materials and colours are available in market according to their sizes and price. These are some of the low cost materials, furniture and furnishings which can be used for designing Interiors of a space keeping in mind the budget of the respondents considering recent market survey done from Vadodara city

Indoor Flooring Options: Keeping in mind the cost effectiveness and durability of hard floor coverings, client can prefer installing vitrified tiles. As they are durable and strong also they does not absorb moisture thus becomes easy to clean. Varieties of colour, shape, polished, screen printed, digital glazed are available in the market. Price usually ranges between INR 50-150/sq.ft

Wall Coverings Options: Wall coverings play an important role in the appearance of a room. Since they can change the appearance of a room, and also because a wide variety of materials are available in the market. Under low budget paints such as Enamels and Emulsion paints are undoubtedly at low cost. Beside being inexpensive there is also scope for changing the decorative schemes frequently. Also to cut down the expense, one can just colour "one wall or a part of the wall", in different colour using texture paint or wallpaper.

Wallpaper Options: Wallpapers are becoming popular and available in many colours, patterns and degree of durability. Non washable wallpapers tend to cost low and are widely available. Also another option is that clients can go for sheets or one can frame a wallpaper over plain wall, reason is that it will emphasize the wall and create an illusion of attractiveness.

Ceiling Options: The major architectural element of interior space is ceiling and hence various designs and low budget options can be implemented. One can keep it raw by installing plain plaster board as a false ceiling or Plaster of Paris (POP) and Ceiling tiles can be designed where low designing charges will be estimated. The reason is that it is easy to install and is highly maintainable.

Window Design Options: Low budget options under window design can be done by installing Grills and Sliding window which is affordable, durable, provide enough privacy and is easy to install.

Soft Window Treatments Options: Soft window treatment like curtains and drapery provide beautiful and appealing environment to the room. Low cost option is Curtains and Draperies. They are available in different fabrics and texture and usually price ranges according to the fabric used.

Furniture Options for Sitting

Living Room : Furniture is the most important element in interior space as they cover half of the aesthetics. Furniture for sitting depends upon the room and budget. Usually living room requires sofa set but low sitting sofas can cut down expense and they are the most trending furniture now. Seen in cafeterias too. Reason to have this is that low seating sofas usually defines clean and spacious space also it is easily movable.

Materials for Kitchen Cabinets: Kitchen cabinets holds the essential needs of cooking hence it requires durability, scratch resistant, fire resistant and yet affordable. Low cost option is Pre-Laminated particle board and Wood-Plastic composite. Reason to install these is that it is durable, resistant and affordable also their skin does not scratch or fade easily. Its less susceptible to rot and decay, easy to maintain and is waterproof.

Counter Top Materials for Kitchen: Low cost option for having counter top material to install in the kitchen is Laminate. Laminated board counter is the material where Glossy Finish Laminate is the best option, as it provides excellent finish and can handle hot and heavy vessels. Another option is Granite, as it is durable and cheap.

Sink /Basin Options: Low cost option to install sink or basin is ceramic made and Stainless steel material sink/basin. As ceramic is suitable for bathroom as it has is good durability because of its natural material. Stainless steel for sink is affordable as it is easy to maintain and has good life span.

Outdoor Sitting Options: Low cost for outdoor sitting is aluminium or stone benches as they are affordable and they are all climate resistant. Also one can design patios using maximum plants which will provide shade and will enhance the beauty especially during summers.

Outdoor Furniture Design Options: Low cost options of outdoor furniture is to have Swings of cast iron and stainless steel which are good options to cut expense by adding coffee table, which can be of metal or wood and they are easily available in the market according to number of sittings.

Lighting options: Low cost option is to opt LEDs, as it doesn't warm up fast or emit too much heat. Also they use less electricity and are long lasting.

Utility space options: To cut down expenditure spent on designing extra utility space, designed can be done at already utilized space such as, those who have staircase within their homes can utilise this space by installing drawers and closets.

Indoor plants/garden options: Any plain wall can be turned into green wall by growing money plant on it, as it emphasize the wall and is low-maintenance plant. Also it will brighten up any décor and will give a feeling of garden inside the house. Pots and glass jars can be placed at a corner to grow flowering plants. Some options include money plant, aloe vera, spider plant, snake plant and Indian basil.

Outdoor flooring options:

Outdoor flooring can be turned creatively under low budget by installing Paver blocks usually made up of cement. Price ranges from INR 45-47/sq.ft for 50mm thickness. Available in variety of colour and design. As it have an excellent surface drainage quotient as rain water can seep easily, provide excellent traction for wheels and are easy for walking. Also a lawn can be designed between tiles and paver blocks in order get aesthetic appearance and cut the expense.

Outdoor shade/roof options:

Concrete, brick and stone are often overlooked for outdoor shade material. Concrete deals beautifully with the problem of overhead safety. Concrete uses a system of internal supports for wide spans. Together with its ability to be molded, concrete can provide maintenance-free shade that surpasses the durability of most other shade materials and is inexpensive. Also it is the great insulator and can be designed in garden for shade and also for car parking.

Repurpose and reuse of old items: (This method of designing is more of do it yourself method (DIY)

Repurposed and recycled products can be adapted to different styles example,

1) Vanities for bathrooms: Old dressers can be stored as vanities and drawers can be modified to different style.

2) Recycled glass bottle as lamp fixture: This is an easy method- discarded glass bottles and the top halves of the bottles can be reinvented as lamp fixtures.

3) Repurpose old crockery: Teapots or any ceramic crockery can be turned into flowering plants

4) Panes and Frames: old frames and windowpanes that have a vintage look can be restored as frame pieces to adorn the walls.

5) Repurposed Headboards: Shutters and old doors frames can be considered as substitutes for headboards. These can be repainted and installed on the wall behind the bed.

6) Recycled Pipes: Pipes in decent condition can be salvaged and painted which can be used as wall-mounted planters for the balcony.

7) Reuse old doors: old doors can be recycled as sliding doors for bathrooms and other areas.

CONCLUSION

From the above research it is concluded that low budget interior design and its options are very much required for low income families as they expect their homes to be aesthetically yet economically designed. As majority of the families required economically budget house and furniture design along with the storage efficiency. This can be made possible if the respondents implement on the terms of low cost materials and design which are locally available under required budget.

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SOFTWARE SIMULATION FOR SELECTING THE BASE MATERIAL OF HEADLOADMANAGER

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ABSTRACT

Head load carrying is a common practice adopted by the rural women of Haryana. Carrying load on head puts undue stress on the women's body making them prone to musculoskeletal discomforts. To reduce the drudgery of headload carrying, a Headload Manager (HLM) is available as an ergosolution. Till now it has been developed in GI sheet, stainless steel sheet, stainless steel tube and cane (Mrunalini, 2011). Our aim was to search more alternatives for the development of low cost, durable and light weight HLM. Aluminium alloy (Al-alloy) and Acrylonitrile Butadiene Styrene (ABS) were considered for testing as both have low weight and are highly durable. Comparison was done on the basis of Deformation, Von mises stress and Safety factor of the HLM after putting a load of 60 kg on it. Comparison of all these parameters was done with the help of simulation software named Analysis System (ANSYS). Results revealed that both the materials were suitable for the development of HLM but ABS was be preferred in making the HLM due to its low cost, lighter weight and fulfillment of all the minimum requirements.

Key words: ABS, Al-alloy, ANSYS, Headload Manager, Software Simulation

INTRODUCTION

Headload Manager (HLM) is a load carrying solution useful in carrying agricultural goods on head (Mrunalini, 2011). It is a useful tool for rural women as they are engaged in several head load carrying activities. In rural areas of Haryana, carrying load on head is an important task for women as they are involved in carrying different materials like fodder, water, fuel, dung, for their daily household activities. Till now the HLM has been developed in three base materials, i.e. GI sheet, stainless steel sheet / tube and cane. The cane model was the latest model and preferred over rest of the models due to its low weight and cost. But the model had some limitations, as it was difficult to develop in the region where cane was not available. In those regions, due to transportation charges its cost was even higher than the stainless steel model. Other major limitation was the requirement of higher level of expertise for its manufacture. Making products from cane is an artisan based work and requires great expertise. It is not possible to find such expertise everywhere. Therefore, Our aim was to search more alternatives for the development of low cost, durable and light weight HLM which could be developed everywhere without any regional restrictions.

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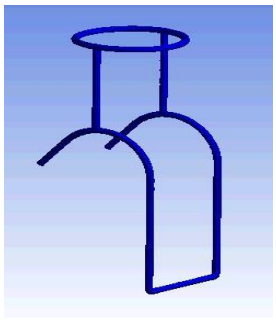

Fig 1: 3D Model of HLM

Aluminium alloy (Al-alloy) and Acrylonitrile Butadiene Styrene (ABS) plastic materials were considered fortesting as both have low weight and are highly durable. The testing was done in a virtual environment with the help of simulation software, Analysis System (ANSYS).Simulation is a technique to imitate the situation or process of real world without actually performing the activity. Software simulation is a boon for product developers as it provides a time saving and cost effective testing platform to check whether the product will work in the real situation as expected or not. It is highly economical and effective in minimizing accidents while performing the actual work. The process of software simulation starts with the development of model followed by its testing with the set of mathematical formulas. Comparison among both the selected alternatives was done on the basis of deformation, von mises stress and safety factors. Deformation, being the first parameter for comparison is the change in shape of metal on application of any external force. It may be of two types, elastic or plastic. When the deformation is temporary and metal regains its original shape after removing the force, it is called elastic deformation whereas if the shape of metal is not regained after removing the force, it is called plastic deformation. Second parameter for the comparison was Von mises stress which is generally used to check the strength of ductile materials. For a design to be functional, the maximum value of von mises stress should be lesser than the strength of the material. If the value exceeds, the design will not be able to withstand weight and the design would fail. Finally, the last parameter, i.e. safety factor or factor of safety may be defined as the ratio of ultimate strength of the material to the actual working stress. It is used to measure that how much stronger the system is than it usually needs to be for an intended load. Using the above mentioned parameters present study was planned with the following objective.

Objective: Comparing the properties of ABS and AL-alloy to select the best base material for the universal development of HLM.

METHODOLOGY

Testing of the HLM was done in two stages. First stage was the 3D model development and second stage was comparison of the alternatives i.e. ABS and Al-alloy.

Development of 3D model- The 3D model of HLM (Fig 1) was made on the latest version of PTC(Parametric Technology Corporation), the Creo Parametric 1.0. The hollow rod for making the body of HLM was assumed to have a thickness of 3 mm, the outer diameter being 9 mm whereas inner one being 6 mm.

Comparison of ABS & Al-alloy- For comparing the materials, a load of 60 kg was assumed to bekept on it. The 3D model from Creo Parametric 1.0 was imported to ANSYS and the alternatives were compared on the basis of total deformation, von mises stress and safety factor as a result of loading.

FINDINGS

It was observed that Al-alloy had the density of 2.76-3.53 g/cc whereas ABS plastic had the density of 1.0-1.05 g/cc. Comparison on the basis of amount of deformation, von mises stress and factor of safety of the materials after applying a load of 60 kg on them are given below in different sections.

Comparison on the basis of Deformation

In ABS material the maximum deformation of 8.2 mm (Fig 2) was observed which was minute for resins or plastics. In case of Al-alloy, the deformation was observed to be 0.268 mm (Fig 3) which is again very small for metals. The deformation was of elastic nature and acceptable. Hence both the materials were suitable for manufacture on the ground of deformation.

Comparison on the basis of Von-mises stress

Von-mises stress in both the materials was observed to be 21.73MPa (Fig 4 & Fig 5). The tensile strength of ABS plastic as well as Al-alloy was recorded to be 40-50 MPa & 70-700 MPa respectively which was higher than the Von-mises stress of the materials. From literature we know that a design to be functional, the maximum value of von mises stress should be lesser than the strength of the material. Hence, both the materials were safe for the industrial production of the HLM.

Comparison on the basis of safety factor

In ABS material the minimum value of safety factor was observed to be 1.96 which is very close to 2 (Fig 6) and in Al-alloy the minimum safety factor was 12.8 (Fig 7). Impact loads require a safety factor of at least 2 (Shigley & Mischke, 2001). It means that the product made from ABS plastic should be made of known materials with certification under reasonably constant environmental conditions, subjected to loads and stresses that can be determined using qualified design procedures. Proof tests, regular inspection and maintenance were required (Juvinall & Marshek, 2000).

On the other hand, the product made from Al-alloy had very high safety factor and did not involve any risk of manufacture.

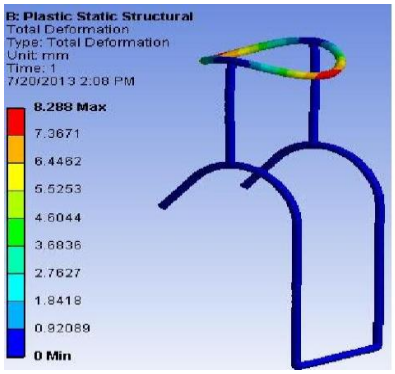

Fig 2: Deformation in ABS

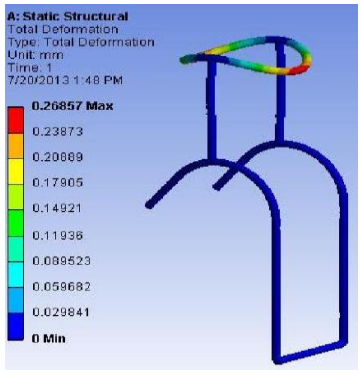

Fig 3: Deformation in Al-alloy

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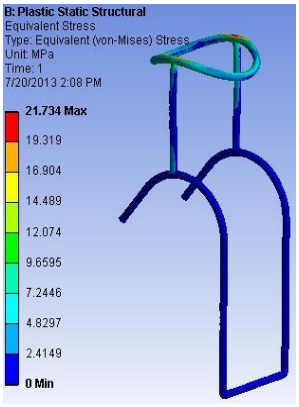


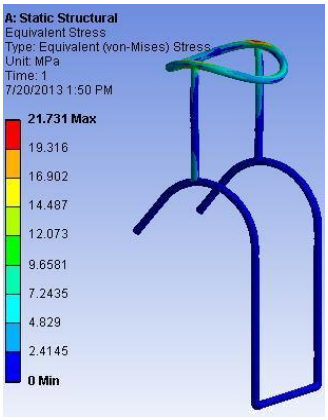
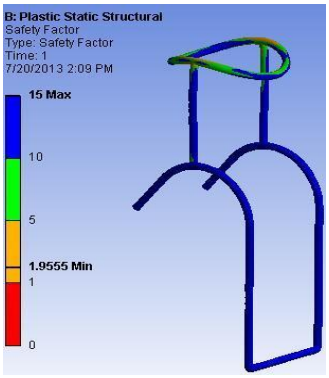


Fig 4: Von-mises stress in ABSFig 5: Von-mises stress in Al-alloy



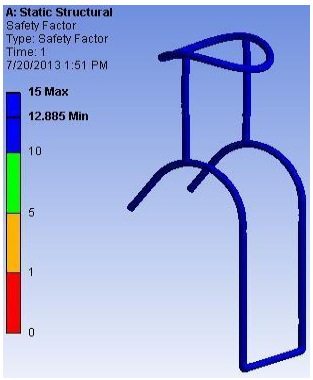


Fig 6: Safety factor of ABSFig 7: Safety factor of Al-alloy

Table 1 depicts that both the materials i.e. ABS material as well as Al-alloy were fit for the production of HLM. Both of them had acceptable level of deformation and von mises stress. But safety factor of ABS plastic was lower than Al-alloy which could be managed by keeping the load lesser than 60 kg, which will obviously be. Although the safe limit of carrying headload for rural women of Haryana was 21.1 kg (Kumari, 2014), the average load lifted by them in routine was 43.7 kg (Aprajita *et. al.*, 2015). For simulating the environment, a load of 60 kg was assumed for this study because itwas much higher than the maximum load lifted by rural women and our consideration was that there should not be any chance of accident if the load exceeded the average level of 43.7 kg. Since, ABS material was cheaper and lighter in weight than Al- alloy, hence it was preferred for the development of HLM because our main requirement was to make a cheaper, light weight and durable product. For making the ABS products, specialized molds are needed. Mold making is a onetime investment and can be used universally for multiple numbers of times to develop large number of products. Therefore, a large scale manufacture of HLM from ABS is recommended as it can handle the large initial setup charge and also benefit a large number of needy women residing in rural areas.

Table1: Comparison of ABS plastic and Al-alloy

Properties	ABS	Al-alloy	Inferences
Deformation, mm	8.29	0.27	Both acceptable
Von mises stress, MPa	21.73	21.73	Both acceptable
Tensile strength, MPa	40-50	70-700	Both acceptable
Safety factor	1.96≈2	12.89	Al-alloy better than ABS
Cost, Rs. per kg	115	501	ABS is cheaper than Al-alloy

CONCLUSION

The use of software simulation reduced the unnecessary wastage of time and money and gave the information about the strength, durability and risks involved in making the HLM from ABS Plastic and Al-Alloy. It can be concluded that both the materials were fit for the manufacture of HLM. Both of them had acceptable level of deformation, von-mises stress and safety factor. But from literatures it is known that ABS material is lighter and cheaper than Al- alloy. Our ultimate purpose is to keep the head load manager on the worker's body to reduce the effort made by them. So, it must be made from a light weight material. Moreover, the ultimate user of the HLM was rural women who do not spend enough money to buy such products. So, the cost of HLM should also be low. Therefore, ABS material was preferred in making the final product as it qualifies all the parameters and standards.

ACKNOWLEDGMENT

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EXTENT OF FINANCIAL INCLUSION OF RURAL HOUSEHOLDS OF BIKANER DISTRICT, RAJASTHAN

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ABSTRACT

Finance has a unique place in human life and it is at the root of human progress. In the absence of financial resources even the basic needs of the family could not be fulfilled. Financial Inclusion is the delivery of a range of formal financial services to the poor or disadvantaged. Financial inclusion cannot truly improve the financial condition of rural households without an understanding of financial services and products because they are lacking in education and do not have knowledge of financial services and products as well utilization of technology. Rural households need proper awareness and knowledge on financial services and products to promote effective financial inclusion. Therefore, the most important thing is improving the capacity building to an understanding of financial services and products to achieve full financial inclusion. In this background the present study was undertaken to study the extent of financial inclusion of rural households. The study was based on primary data collected from 390 rural households of Bikaner district. The multistage random sampling method was employed to select the sample. The data collection was done by using semi-structured interview schedule, prepared by researcher after reviewing relevant literature. For analyzing results, frequency, percentage, mean, standard deviation, range and correlation co-efficient were used. Findings revealed that rural households of the study area were socio-economically weak. The households, in general, were neither fully aware of nor availed the financial services and products other than Banks. Mobile banking and e-banking were also not used by the most of the households as well as they did not have much knowledge regarding formal financial instruments related to insurance.Rural households possessed medium level of financial knowledge and the use of financial services and products were also at medium level. Results of correlation analysis revealed a positive and statistically significant linear correlation between knowledge regarding availability of formal financial services and products with socio-economic status of rural households and financial inclusion.

Key words: Financial inclusion, Rural households, Extent, Knowledge, Use.

INTRODUCTION

Finance has a unique place in human life and it is at the root of human progress. In the absence of financial resources even the basic needs of the family could not be fulfilled. Financial Inclusion is the delivery of a range of formal financial services to the poor or disadvantaged. Financial inclusion cannot truly improve the financial condition of rural households without an understanding of financial services and products because they are lacking in education and do not have knowledge of financial services and products as well utilization of technology. Rural households need proper awareness and knowledge on financial services and products to promote effective financial inclusion. Therefore, the most important thing is improving the capacity building to an understanding of financial services and products to achieve full financial inclusion.

In this background, the present study was carried out on rural households of Bikaner district. The objectives of the study were, i) to assess the socio-economic status of the rural

households ii) to study the extent of financial inclusion of rural households iii) to find out co-relation of knowledge regarding availability of formal financial services and products with socio-economic status and financial inclusion of rural households.

REVIEW OF RELEVANT STUDIES

Monalisa (2015) in her study found that there was a lot more scope for banks to include people financially to give way to inclusive growth.

Bhatia and Saraswat (2011) revealed that a positive correlation was found between socio-economic status and financial inclusion. It supports the notion that the households having higher socio economic status had greater extent of financial inclusion.

METHODOLOGY

The present study was done in Bikaner district in Rajasthan. It covers about 30247.90 Sq. km. The district is situated in north western part of Rajasthan. The total population of the district is 23.63 lakh of which 12.40 lakh are males and 11.23 lakh are females. Out of total population 66.14 percent live in rural area. The total literacy rate of district is 65.10 percent.

Bikaner District has 6 panchayat samities, 933 revenue villages and 219 gram panchayats. There are different types of financial institutions available at Bikaner District namely banks, post-offices, finance companies, insurance companies, co-operative societies etc. The State Bank of Bikaner and Jaipur (SBBJ) is the lead bank of the district. The district has a financial literacy and credit counseling centre also.

A sample of 390 rural households was drawn using multistage random sampling method from villages of Bikaner district. The study was focused on collection of primary data from the field and data were collected by interview method from household level. The data were collected from the head of the household as he was supposed to manage financial resources of the family. The socio-economic profile of rural households was collected by using structured socio-economic scale .Data related to knowledge and use of financial services and products r was collected using a pre-validated and pre-tested semi-structured interview schedule prepared by the researcher after reviewing relevant literature. For analysis of data frequency and percentage distribution, mean, standard deviation, and correlation co-efficient were used.

FINDINGS

I Socio-economic profile of the rural households

Socio-economic profile of the rural households was collected on different social and economic indicators. Households were classified into three categories namely, high, medium and low socio-economic status on the basis of obtained scores by the households in following manner:

Table- 1: Distribution of rural households according to Socio–economic status n=390

Socio–economic status score	Socio–economic status	*F*	*%*
45-66	High	10	2.56
23-44	Medium	92	23.59
0-22	Low	288	73.85
	Total	**390**	**100**

It is evident from Table 1 that almost three-fourth households (73.85 per cent) were from low socio-economic status followed by medium status (23.59 per cent) and high status (2.56 per cent).

II Extent of Financial Inclusion of Rural Households

The extent of financial inclusion was analyzed on the basis of knowledge regarding availability of formal financial services and products and use of formal financial services and products results are described in following paragraphs:

- **Knowledge and use of formal financial services and products offered by different financial institutions**

Questions regarding the knowledge on availability of financial services and products offered by different financial institutions like Bank, Post-office, Microfinance Institutions, Co-operative Societies and Insurance Companies and use of same services and products were asked from the households on forty five aspects. Each right answer was assigned with a score of one. The detailed results are presented in subsequent sections:

- ***Knowledge and use of formal financial services and products offered by banks***

The large number of banks creates a larger scope of inclusion of all categories of people. It provides a platform which facilitates the use of financial services and products. Table 2 presents the distribution of rural households according to knowledge and use of formal financial services and products offered by banks.

It is clearly seen from the table that all households had knowledge regarding saving account but amongst them, 76.15 per cent were using the same.

Knowledge and use of fixed deposit, mobile banking, recurring deposit, overdraft facility, credit card, locker facility, internet banking, mutual fund and debit card were very low.

The reason behind that low use of internet banking can be that the internet facilities were not very much popular in the rural area and most of the people did not have the knowledge of computer and Internet.

Not a single household had knowledge regarding drop box and gift card and no one was using these products.

It can be inferred from above results that rural households were quite knowledgeable regarding availability of popular formal financial services and products like but they were using only some products and services. They had still less knowledge regarding comparatively new formal financial services and products.

The probable reason can be that that were lacking in financial literacy and source of information regarding new formal financial services and products. Another reason can be the lack of efforts on the part of the supply side.

N. Rao and P. Rao (2013) studied that in the rural areas of three districts of Andhra Pradesh, the households had little knowledge regarding the demand for specific financial services other than credit.

Table- 2: Distribution of rural households according to knowledge and use of

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formal financial services and products offered by banks n=390(Multiple response)				
Services and products	Knowledge		Use	
	f	%	*F*	%
Saving account	390	100.00	297	76.15
Insurance	35	8.97	12	3.08
Credit	337	86.41	90	23.08
Money transfer	37	9.49	21	5.38
Financial advice	152	38.97	118	30.26
Micro credit	1	0.26	0	0.00
No-frill account	176	45.13	126	32.31
Over draft	13	3.33	10	2.56
KCC	250	64.10	34	8.72
GCC	2	0.51	1	0.26
ATM	377	96.67	63	16.15
Mobile banking	21	5.38	21	5.38
Internet banking	5	1.28	3	0.77
Credit card	9	2.31	9	2.31
Debit card	2	0.51	2	0.51
Fixed deposit(FD)	26	6.67	22	5.64
Recurring deposit(RD)	19	4.87	3	0.77
Locker facility	8	2.05	7	1.79
Cheque book	274	70.26	70	17.95
Pass book	356	91.28	322	82.56
Drop box	0	0.00	0	0.00
Gift card	0	0.00	0	0.00
Mutual funds	2	0.51	2	0.51

- ***Knowledge and use of financial services and products offered by Post–offices***

Post-offices in rural areas can be effective vehicles in accelerating the financial inclusion activity. Table 3 presents results related to knowledge and use of financial services and products offered by Post-office.

It is seen from the table that majority of the households (88.46 per cent) had knowledge regarding saving offered by Post-office, whereas only 17.44 per cent households were using the same. It was found that no household was using recurring deposit. Not a single household had knowledge regarding Senior Citizen Saving Scheme and cheque facility and no one of them was using these products. It can be inferred from above findings that the knowledge of the households about formal financial services and products offered by Post-office was very low except savings and pension. One reason can be that earlier payment of NAREGA and pension was deposited in bank account but government has changed its policy and now electronic payment can be deposited in Post-office saving account also. In informal discussion it was also found that most of the time post-offices remained closed and if anything was asked then post master replied very rudely. Thus, rural households were

reluctant to use post-office services and products and they had low knowledge regarding financial services and products offered by post-office, except savings and pension.

Table- 3: Distribution of rural households according to knowledge and use of formal financial services and products offered by post-office n=390(Multiple response)

Services and products	Knowledge		Use	
	f	%	*F*	%
Saving account	345	88.46	68	17.44
Insurance	12	3.08	3	0.77
Money transfer	13	3.33	2	0.51
Financial advice	9	2.31	4	1.03
Time deposit	1	0.26	1	0.26
Recurring deposit(RD)	5	1.28	0	0.00
Provident fund	4	1.03	2	0.51
National saving certificate	2	0.51	1	0.26
Monthly income scheme	2	0.51	1	0.26
Pension	249	63.85	84	21.54

Knowledge and use of formal financial services and products offered by co-operative societies

Co-operative societies are playing a significant role in this and share a major credit in the growth of rural sector which along with government and private sectors contribute to the overall economy of India (Kaur, 2014).

The data regarding knowledge and use of formal financial services offered by co-operative society has been presented in the following table:

Table- 4: Distribution of rural households according to knowledge and use of formal financial services and products offered by co-operative society n=390(Multiple response)

Services and Products	Knowledge		Use	
	f	%	*f*	%
Saving account	230	58.97	99	25.38
Credit	109	27.95	49	12.56
Financial advice	90	23.08	72	18.46
Insurance	65	16.67	61	15.64

It is evident from the table 4 that more than half of the households (58.97 per cent) had knowledge regarding savings offered by co-operative society but only one-fourth of households (25.38 per cent) were using saving accounts. The knowledge and use of other services and products were not very good.

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➢ ***Knowledge and use of formal financial services and products offered by micro finance institutions***

Micro finance Institution, also known as MFI, is an organization that offers financial services to low-income populations. MFIs are an extremely heterogeneous group comprising NBFCs, societies, trusts and co-operatives (Sharma, 2007).

It is revealed from the table that households had very low knowledge regarding product and services offered by micro finance institutions.

Gloria and Santhi (2014) found that in villages of Coimbatore district, there was moderate awareness regarding MFIs among 30 per cent of rural respondents.

Table 5 presents data regarding knowledge and use of formal financial services offered by micro finance institutions:

Table- 5: Distribution of rural households according to knowledge regarding availability and use of formal financial services and products offered by micro finance institutions N=390(Multiple response)

Services and products	Knowledge		Use	
	f	%	*f*	%
Saving	37	9.49	10	2.56
Micro–credit	30	7.69	8	2.05
Micro- insurance	10	2.56	9	2.31
Financial advice	10	2.56	10	2.56
Pass book	10	2.56	10	2.56

Knowledge and use of formal financial services and products offered by Insurance companies

Access to insurance services for rural communities is difficult, and also to convey the insurance products among the rural households. (N. Rao & P. Rao, 2013).Table 6 shows data regarding insurance offered by insurance companies.

Table- 6: Distribution of rural households according to knowledge and use of formal financial services and products offered by insurance companies n=390(Multiple response)

Services	Knowledge		Use	
	f	%	*f*	%
Insurance	74	18.97	71	18.20

Less than one-fifth of the households (18.97 per cent) had knowledge about insurance and almost same number of households (18.20 per cent) was having insurance. The type of insurance was life insurance.

N. Rao and P. Rao (2013) found that out of 780 sample respondents, 65.89 per cent respondents did not have any insurance.

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- **Level of knowledge and financial inclusion**

To find out the extent of financial inclusion, level of knowledge and financial inclusion both were analysed on 45 dimensions separately. For questions answering 'Yes' a score of one was given and answer with 'No' got zero score. The score of all responses related to the use of formal financial services and products were added to give individual score of each of the households. After that, mean and standard deviation were calculated. On the basis of that, rural households were categorized into three groups namely having high, medium and low level of knowledge as well as having high, medium and low level of financial inclusion.

The distribution of rural households on the basis of their level of knowledge has been presented in Table 6.

Table- 7: Distribution of rural households according to level of knowledge regarding availability of formal financial services and products n=390

Level of knowledge	Knowledge score range	*F*	%
High	More than 13.74	67	17.2
Medium	5.72 to 13.74	266	68.2
Low	Less than 5.72	57	14.6
	Total	390	100

It is reflected from the above table that more than two-third of the households (68.2 percent) had a medium level of knowledge regarding formal financial services and products.

Less than one-fifth of the households (17.2 percent) had a high level of knowledge regarding availability of financial services and products. More than one-tenth households (14.6 percent) had a low level of knowledge regarding availability of financial services and products.

The distribution of rural households on the basis of their level of financial inclusion has been presented in Table 7.

Table- 8: ***Distribution of rural households according to level of financial inclusion n=390***

Level of financial inclusion	Use of Financial services and products score range	*f*	%
High	More than 8.48	62	15.90
Medium	1.54 to 8.48	267	68.46
Low	Less than 1.54	61	15.64
	Total	390	100

It is reflected from Table 8 that more than two-third of the household (68.46 percent) had medium level of financial inclusion, more than one-tenth households (15.90 percent) had high level of financial inclusion, and more than one-tenth households (15.64 percent) used financial services and products at low level and they came under a low level of financial inclusion. The probable reason of the medium use of financial services and products can be that most of the households were engaged in NREGA activities and some students were also

taking the scholarship and the payment of NREGA and scholarship could be got through an account in Bank or Post-office.

Prathap (2011) conducted a study in fisher households of coastal Kerala and found that 9.3 per cent households were totally excluded with no dealings with financial service providers for last three years.

III Correlation of knowledge regarding availability of formal financial services and products with socio-economic status and financial inclusion

To test the relationship between knowledge regarding availability of formal financial services and products with socio-economic status and financial inclusion 'coefficient of correlation' was applied and results are presented in following Table.

Table- 9: *Correlation of knowledge* regarding availability of *formal financial services and products with socio-economic status and financial inclusion n=390*

Variables	Correlation coefficient(r)	P- value (Two tailed)	Sig.
Socio-economic status	0.253	0.01	<0.05*
Financial inclusion	0.564	0.01	<0.05*

* Correlation is significant at the 0.05 level (2-tailed)

Table 9 indicates that had statistically significant linear relationship with socio-economic status of rural households (r (390) = 0.253, p=0.01) and financial inclusion (r (390) = 0.564, p= 0.01).The direction of this relationship is also positive, which describes that change in knowledge of rural households creates change in socio-economic status and financial inclusion in same direction. It clarifies that with increase in knowledge, socio-economic status and financial inclusion also tend to increase and vice-versa.

CONCLUSION

Rural households of the study area were socio-economically weak. The households, in general, were neither fully aware of nor availed the other financial services and products offered by formal financial services. Rural households possessed medium level of financial knowledge and on the other side the use of financial services and products were also at medium level. Knowledge had a significant association with socio-economic variables and financial inclusion. It can be inferred from correlation results that as increase in knowledge, socio-economic status and financial inclusion were also increased. Conclusively it can be said that although some steps have been taken to create awareness among rural households yet there is much more required to be done in this regard.

IMPLICATIONS

The analysis has brought some findings that have implication to this study.

- Findings can be utilized by the home scientists in creating programmes for awareness generation.

- Post-offices, and community based organizations such as co-operatives and micro finance institutions can develop a whole range of low cost product and services according to need of rural households.
- Useful for general public to comprehend the importance of formal financial services and products

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MANIFEST NEEDS AND INTELLIGENCE - A CORRELATIONAL STUDY

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ABSTRACT

The present paper aims to examine the correlation of adolescent needs achievement, deference and order with intelligence of first born and last born adolescents in the age group of 16 to 18 years. The effective sample of the study comprised of 600 adolescents, which included 300 boys and 300 girls which were further, categorized as 150 first born and 150 last born. For assessing needs Tripath's Personal Preference Schedule was used and for assessing intelligence, the Indian Adaptation by Test of 'g' culture Fair, scale 3, Form A by R.B Cattell and A.K.S. cattell was used. For analyzing the data Carl Pearson's correlation coefficient was used. The results revealed that there exist a significant positive correlation between need for achievement and Intelligence for first born females; the need for deference and intelligence were negatively correlated and the need for order and intelligence also yielded negative correlation.

KeyWords: Needs, Intelligence, Birth order

INTRODUCTION

Human have internal forces which nudge them into activity and tend to keep them moving in directions appropriate to the nature of the force. Some of these forces are biological conditions and some are psychological conditions. All these mainsprings of activity are called "motives", "drives" or "needs". We all share simple requirements for sustaining life and health. Too often needs get confused with wants, wishes, desires, substitutes or deficits. Human needs are quite simple but not often met.

Needs

Needs are minimal requirements of health and wellbeing. These are innate psychological nutriments that are essential for psychological growth, integrity and wellbeing. Needs are something that when fulfilled promotes integration and wellbeing and when thwarted, fosters fragmentation and ill being. These psychological nutriments are based on many factors viz. heredity, intelligence, gender, socio-economic and cultural status, age, health status, birth position etc.

A need is something that is necessary for organisms to live a healthy life. Needs are distinguished from wants because deficiency would cause a clear negative outcome such as dysfunction or death. Needs can be objective and physical such food or they can be subjective and psychological such as needs for self-esteem.

Knowledge of these needs and the factors associated with them is essential as this will help in guiding the adolescents to actualize their potential. With this rationale, the present study was conceptualized.

The following three needs were examined:

1. **Ach. Achievement** :-to do one's best, to be successful, to accomplish tasksrequiring skill and effort, to be recognized as authority, to accomplish something of great importance, to do a difficult job well, to solve difficult problems and puzzles, to be able to do things better than others, to write a great novel or play.

2. **Def. Deference**:- to get suggestions from others, to find out what others think, tofollow instructions and do what is expected, to praise others, to tell others, that they have done a good job, to accept the leadership of others, to read about great men, to conform to custom and avoid the unconventional, to let others make decisions.

3. **Ord. Order**:- to have written work neat and organized, to make plans beforestarting on a difficult task, to have things organized, to keep things neat and orderly, to make advance plans when making a trip, to organize details of work, to have meals organized and to set a definite time for eating, to have things arranged so that they run smoothly without change.

The development of needs is dependent on many factors i.e intelligence, sex, ordinal position, SES, peer pressure, school etc.

Intelligence

Intelligence is a very general mental capability that among other things involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. According to Linda Gottfredson (1994) Intelligence is goal directed adaptive behavior. Intelligence is the ability to do abstract thinking

Ordinal Position/ Birth Order

It is an important factor which affects the development of needs. Birth order is the chronological order of sibling births in a family. Parents often express amazement at the great difference, they see amongst children in the same family. Their surprise stems from the supposition that the children have the same biological parents and the same family environment. In fact sibling conceived at different times do not receive the same genetic input from the parents; neither is the family environment identical. Birth order, whether the child is first born last has an effect on his personality and with different personality traits.

AIM OF STUDY

To study the correlation between few adolescent needs and intelligence of first born and last born adolescents.

OBJECTIVES

The study was guided by the following objectives.

1. To assess the manifest needs namely achievement, deference and order of adolescents of age 16-18 years.
2. To examine the intelligence of adolescents of age 16-18 years.
3. To study the relation between intelligence and need for achievement.
4. To investigate the association between intelligence and need for deference.
5. To explore the relation between intelligence and need for order.

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STATEMENT OF PROBLEM

An adolescent is not a static, relatively unchanging object, like a lump of granite, but an adolescent is a dynamic, evolving organism at a particular stage of development. Roger defines adolescence as a "Process rather than a period, a process of achieving the attitudes and belief needed for effective participation in the society. There are certain needs which adolescent want to fulfill but are unable to do due to constraints. If the needs remain unfulfilled the adolescent may become dull, lethargic, depressive, frustrated or may become aggressive or violent. A need is equal to a psychological tension which is manifested in goal seeking behavior. Satisfaction of needs is fundamentally healthy and intrinsically good. The development of these is dependent on many factors i.e intelligence, sex, ordinal position, SES, peer group, school etc. Hence a correlational study was designed to study correlation between intelligence and needs i.e achievement, deference & order.

REVIEW OF LITERATURE

Verma and Sheikh (1998) explored the relationship between personalitytraits, personality needs and academic achievement of 600 class ten female students. The subjects were administered the Urdu adaption of Cattell's junior – senior High School personality Questionnaire (Form A) and Personality Inventory of Verma and Sheikh (1993). Marks obtained in the final examination were obtained from school records. It was seen that personality traits, intelligence, conscientiousness, self-sufficiency and personality needs for achievement and aggression were correlated significantly with academic achievement.

Cherian (1990) examined birth order and academic achievement of children.369 boysand 652 girls (all aged 13-17 years) in Transkei, South Africa and their parents completed questionnaires to provide birth order data and grades on standard examination were used to assess academic achievement. Data was discussed in relation to the effects of family size, sibling competition and family environment on academic achievement.

METHODOLOGY

Sample

The sample was confided to 600 subjects; of which 300 were girls and 300 were boys. Of these 300 boys, 150 were first born and 150 were last born and so also of 300 girls 150 were first born and 150 were last born.

The age group of these subjects was from 16 to 18 years. Their educational level was of std. X, XI and XII respectively. The male-female ratio was 1:1.

Tools used for data collection:

The following tools were used:

1. Tripathi's Personal Preference Schedule (TPPS)
2. The Indian Adaptation (Hindi translation) by Mrs. S. Rao of Test of 'g', culture Fair, Scale 3) Form A by R.B Cattell and A. K. S. Cattell's English version.

FINDINGS

Mean and SD were computed separately for the four groups for all the variables. Karl Pearson's correlation was applied. The results are displayed in the following tables:

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Table- 1.1: Mean S.D and Correlation between achievement and intelligence

Sr.	Categories	Achievement			IQ			
		Sample Size	Mean	SD	Mean	SD	Correlation	Significance
1	First Born Male	150	17.75	3.31	25.96	9.75	0.008	NS
2	First Born Female	150	14.81	3.92	23.38	9.76	0.263	SIGNIFICANT
3	Last Born Male	150	13.69	3.79	22.68	8.21	0.09	NS
4	Last Born Female	150	13.07	3.31	22.26	9.6	0.125	NS

NS = Non- Significant

Examination of Table 2.1 reveals that of all the four groups significant, positive, correlation between need for achievement and IQ was shown by first born female adolescents. The first born male adolescents failed to show a significant relationship

The next variable analyzed was deference. Deference means the characteristics which denote that these people take suggestions from others and let other take decisions. The mean, SD and correlation on the measure of deference are displayed in Table 1.2

Table- 1.2: Mean S.D and Correlation between deference and intelligence

Sr. No.	Categories	Deference			IQ			
		Sample Size	Mean	SD	Mean	SD	Correlation	Significance
1	First Born Male	150	10.97	4.06	25.96	9.75	-0.073	NS
2	First Born Female	150	10.17	3.66	23.38	9.76	-0.001	NS
3	Last Born Male	150	10.89	3.93	22.68	8.21	-0.112	NS
4	Last Born Female	150	11.01	4.11	22.26	9.6	-0.114	NS

NS = Non- Significant

From the above table it is seen that all categories of respondents revealed negative non-significant correlation between Deference and IQ.

The third need measured in the present study was order. ‘Order’ means to have written work neat and organized, to keep things in order, plan everything in advance and set a definite time for doing tasks so that everything goes on smoothly without change. Table 1.3 shows the computed scores for order.

From the table 1.3 it is seen that only first born male revealed a non- significant correlation between Order and IQ whereas the remaining three categories showed negative non-significant correlation.

The manifest needs achievement, deference and order are dependent on many factors. In the present study an attempt was made to examine the correlation between the manifest needs and intelligence. Ordinal position of the adolescents was also taken into account. The result of the study did not yield significant correlation except for first born female who showed a significant positive correlation between need for achievement and intelligence. Needs arise from the interaction from the person and his psychological environment. As needs are dependent on

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many other factors – culture, gender, home environment probably there was no significant correlation between intelligence and the three manifest needs that is achievement, deference and order.

Table 1.3: Mean S.D and Correlation between Order and intelligence

Sr.	Categories	Order			IQ			
		Sample Size	Mean	SD	Mean	SD	Correlation	Significance
1	First Born Male	150	12.53	3.78	25.96	9.75	0.038	NS
2	First Born Female	150	12.09	3.56	23.38	9.76	-0.09	NS
3	Last Born Male	150	12.36	3.8	22.68	8.21	-0.051	NS
	ast Born Female	50	3.12	.73	2.26	.6	0.022	NS

NS = Non- Significant

CONCLUSIONS

On the basis of the results of the study following conclusions were drawn:

1. Significantly high correlation between need for achievement with intelligence was observed in first born female adolescents than male adolescents.
2. Their existed no significant correlation between need for deference and intelligence.
3. The results revealed non-significant correlation of need – order with intelligence in first born male and female adolescents.
4. The assessment of data affirmed non-significant correlation between intelligence and need for order in last born males and females.

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EDUCATIONAL INTERVENTION TO IMPROVE PARENTS' ATTITUDES TOWARDS IMPARTING SEXUAL HEALTH EDUCATION TO CHILDREN WITH AUTISM

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ABSTRACT

Autism is a developmental disorder that affects almost every aspect of a child's development, yet those affected by autism experience the same physical changes of puberty and sexual development. Parents ought to provide sexual health education to their children; unfortunately most parents have conservative views and poor attitudes towards discussing sexuality. The present study was taken up to assess the effectiveness of an intervention program in improving the attitudes of parents towards imparting sexual health education to children with autism in the city of Bangalore. The quasi experimental design was adopted for the present study. The experimental and control groups consisted of fifty parents each. A self developed Likert type scale was employed to assess the attitudes of parents towards imparting sexual health education to children with autism. The investigator planned for a comprehensive educational intervention program on sexual health for a period of eight weeks for the experimental group. The pre-test data revealed that parents from both groups held similar conservative views and attitudes towards discussing sexuality related issues with their children. Post-test data revealed that parents of the experimental group had vastly improved attitudes and were more open to accepting their child's sexuality, while, parents from the control group showed only a slight improvement in their attitudes towards imparting sexual health education to their children with autism. Results of the present study indicate that a well planned educational intervention can greatly improve the attitudes of parents, enabling them to be effective sexual health educators for their children with autism.

Key Words: Attitude, Autism, Intervention, Parents, Sexual health education

INTRODUCTION

Autism is a complex neuro-developmental disorder causing significant impairment in a child's ability to communicate and socialize; it also involves restricted, repetitive and stereotypic patterns of behavior, interests, and activities that affect social, occupational and other areas of functioning (American Psychiatric Association, 2014). The estimated prevalence of autism in India at present is 1 in 66, among children between 2 and 9 years of age (Deshmukh, et al., 2013). Autism spectrum disorders are about 4.5 times more common among boys (1 in 42) than among girls (1 in 189) (Christensen, 2016).

Sexuality of individuals with autism is a rather under-researched aspect. Parents and professionals erroneously regard individuals with autism to be asexual, child-like and lacking interest in sexuality (Stokes & Kaur, 2005; Koller,2000). They are also sometimes viewed as inappropriately sexual or as having uncontrollable urges (Neufeld, Klingbeil, Bryen, Silverman & Thomas, 2002). Research proves that they are sexual beings who have the same experiences of pleasure, excitement and passion as their neuro-typical peers. They have age appropriate

sexual interests, but possess limited sexual knowledge and experiences (Henault, 2005). They lack the social skills that will enable them to discern how to express their sexuality in socially appropriate ways. Therefore, sexual health education provided within the contexts of human relations (SIECUS, 2001) and a social framework with rules will benefit individuals with autism greatly.

Unlike most children and adolescents, those with autism are likely to have limited or no access to the traditional means of acquiring sexual health education- through books, friends or the internet. For them sexual health education mostly takes place at home, and parents are their primary sexuality educators (Murphy & Elias, 2006). However, many parents report feeling uncomfortable and awkward educating their children about sexuality (Byers, Sears, & Weaver, 2008). They find the prospect of teaching sexuality education to their child with a disability quite disturbing (Ikeler, 1990). They may be unsure how to respond to their child's emerging sexual behaviors, particularly if the child is engaging in inappropriate behaviors (Ruble & Dalrymple, 1993). Holmes and Himle (2014) found that parents hesitate to provide sexuality education probably because they do not expect their child to develop sexual relationships and thus feel their child will not need or benefit from sex education. There is a misconception that sexual health education may arouse or excite individuals, and it primarily focuses on the physical act of having sex. When parents have a negative attitude towards sexual health education, they are less likely to employ healthy practices in teaching children with autism about the body, sexual changes and hygiene. Parents of youth with autism have reported needing guidance to effectively provide sex education, and state that they are not receiving such guidance from schools, healthcare providers, or communities (Ballan, 2012; Nichols & Blakeley-Smith, 2010).Therefore, there is a need to educate parents on aspects of sexual health education, in order to improve their attitude and make them effective sexual health educators for their autistic children.

Objectives: 1. To assess the prevalent attitudes of parents towards imparting sexual health education to children with autism. 2. To ascertain the effectiveness of an intervention program in improving the attitudes of parents towards the same.

METHODOLOGY

Sample: Through purposive sampling technique, the investigator identified 100 parents of children with autism from the city of Bangalore as sample for the present study, of whom 50 parents formed the control group while the rest 50 formed the experimental group. They were all parents of moderately and severely affected autistic children between5 and 15 years of age.

Tool used: A five point Likert type rating scale was developed by the investigator to assess the attitude of parents towards imparting sexual health education to children with autism. The tool consisted of a total of 28 items that enabled the assessment of parents' attitudes under the following five dimensions of attitude towards-

i. Sexuality and sexual behaviour of children with autism (4 items),
ii. Sexual health education (6 items),
iii. Imparting sexual health education to children with autism (7 items)
iv. Various sexual health concepts to be taught to children with autism (8 items)

v. Preventing sexual abuse among children with autism (3 items).

The options given to the respondents for rating each statement were strongly agree, Agree ,undecided, disagree and strongly disagree. Positive items were given a score of 5, 4, 3, 2 and 1 for the above mentioned response options respectively; whereas, negative items were reverse scored.

Method: The method adopted for the present study was the quasi experimental method. The investigator conducted a survey in the city of Bangalore to identify the special schools catering to the needs of children with autism, and then obtained permission from the special school authorities to collect data from the parents before and after an 8 week intervention program on sexual health education.

Pre-test: The investigator established rapport with the respondents from both the control and experimental groups, explained to them the need and importance of the study and sought consent from them to collect data. The respondents were assured that the data obtained from them will only be used for the purpose of research. The pre-test was conducted by administering the self developed attitude scale to understand the extent to which they were accepting the sexuality of their children and their attitude towards teaching sexual health education to their children with autism.

Intervention Program: The intervention program was designed by the investigator to create awareness among parents on the various issues related to sexual health and to familiarize them to different practices that they may inculcate in order to teach the children about sexual health effectively. The intervention program was conducted by the investigator for a period of 8 weeks (1 day each week), covering 8 different modules that lasted three hours each. The concepts to be taught to the children, and the methodologies and teaching aids that can be employed to teach the same to children with autism were discussed. At the end of each session the respondents sought clarifications regarding matters they found difficult to deal with in their homes and immediate environments. Various teaching techniques such as lectures, group discussions and power-point presentations, and visual aids such as flash cards, posters, puppets and models were employed to explain these concepts to the respondents. Respondents were also given activities after each session to help them recapitulate what they learnt. They were asked to do role-plays on teaching sexual health education, in order to help them shed their inhibitions. They were given home assignments, to ensure that they begin to practice what they learnt during the program. They were taught to prepare low cost teaching materials using locally available materials to make the teaching learning process both interesting and effective. The investigator addressed the following topics during the intervention program:

1. Sexuality and the need for sexual health education for children with autism.
2. Characteristics and behaviours of children with autism in relation to sexuality.
3. Leading a healthy lifestyle from pre-pubertal years- nutrition, fitness, etc.
4. Puberty and changes that accompany it in males, personal hygiene.
5. Puberty and changes that accompany it in females and menstrual hygiene.
6. Masturbation and its management.
7. Sexual safety skills and prevention of abuse.
8. Importance of leisure activities in reducing undesirable sexual behaviours.

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Post-test: On completion of the intervention program, the attitude scale used at the time of pre-test was re-administered to the respondents of both the experimental and control groups, in order to assess if there was any improvement in the respondents' attitudes towards imparting sexual health education to their children with autism.

The data obtained was scored, tabulated and analyzed using descriptive statistical measures.

FINDINGS

The socio-demographic information of the respondents is discussed below. The average age of the respondents from both the groups was 39 years, with almost 50% of them being younger than 40 years of age and the rest of them were aged between 40 and 60 years of age. Considering the gender of the respondents, both the experimental and control groups had 40 females (mothers) and 10 males (fathers) each. Ninety six percent of the respondents were Hindus, and 2% were Muslims and Christians respectively. 50% of the parents from both the groups were graduates, while almost 35% of them had completed either pre-university or high school education only. About 14% of the parents from the experimental group and 22% from the control group had done their higher education. Considering the occupational status of the respondents, 68% of them were home makers- most of them were mothers who chose to stay home for the sake of their child with autism; 21% of them were employed either full time or part time in the private sector; while the rest of the respondents either had their own business ventures or worked in the government sector. Almost 50% of the respondents from both the groups earned lesser than Rs 25,000/- per month, and 32% of them earned above Rs 40,000/- per month.

Hogg, and Vaughan (2005) defined attitude as 'a relatively enduring organization of beliefs, feelings, and behavioral tendencies towards socially significant objects, groups, events or symbols. **Table 1** below depicts the pre test scores for attitude of parents from both the control and experimental groups.

Table 1: Parents' Pre test scores for Attitude towards Sexual Health Education (SHE)

Dimensions of Attitude towards-	**Control Group (n=50)**	**Exp. Group (n=50)**	**Significance of 't' value**
Sexuality and Sexual Behavior	12.22 ± 2.38	11.94 ± 2.35	0.5919^{NS}
Sexual Health Education	19.20 ± 3.07	20.20 ± 3.50	1.5188^{NS}
Imparting SHE to Children with Autism	19.90 ± 3.75	20.22 ± 3.89	0.4187^{NS}
SHE Concepts to be taught	23.60 ± 5.15	24.26 ± 5.15	0.6407^{NS}
Preventing Abuse	8.32 ± 1.98	8.64 ± 1.71	0.8650^{NS}
Overall	83.24 ± 12.73	85.26 ± 13.11	0.7816^{NS}

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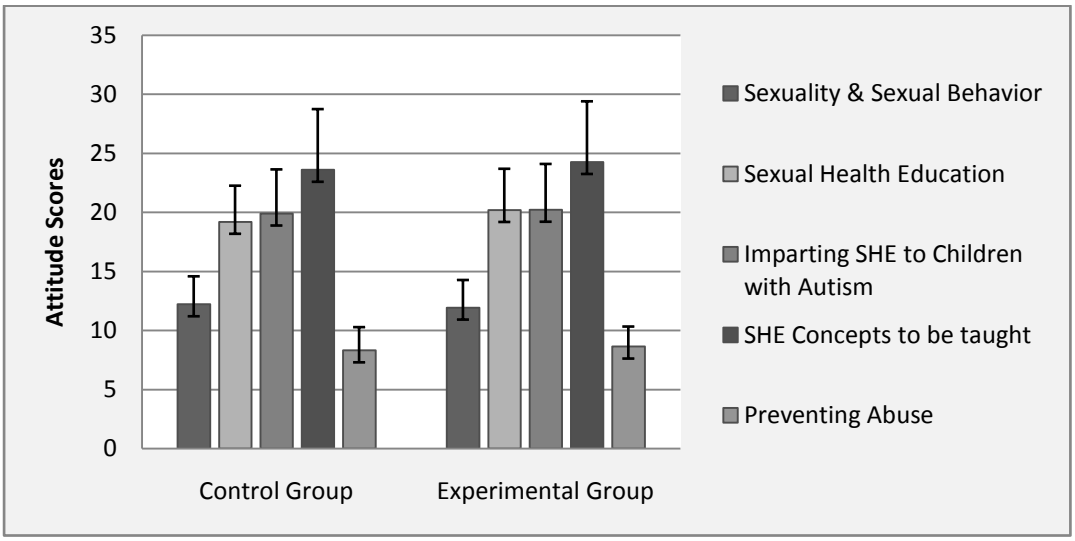

Fig. - 1: Parents' Pre test scores for Attitude towards Sexual Health Education

The data from **Table 1** and **Fig. 1** reveals that at the time of pre-test, parents from both the control and experimental groups held almost similar conservative views and unfavorable attitudes towards sexual health education for the five dimensions of attitude being studied. There was no significant difference between the groups in their attitudes for all the five dimensions considered. Feelings of hesitation, inadequacy and lack of knowledge contributed significantly to the negative attitudes they held. Petty and Cacioppo (1986) reason that one's initial evaluations and attitudes towards an object or subject are likely to be largely hedonistic, since the individual lacked the time, mental space or motivation to consider issue relevant arguments. Their attitudes will be primarily based on the positive and/or negative cues that they have associated with the subject in the past.

In the context of the present study, most parents themselves may have grown up with the idea that sex, sexuality and anything related to it is dirty, inappropriate, vulgar and bad, or that it is meant for adults and has nothing to do with children. Parents, owing to various factors such as their upbringing, religious views, cultural practices, educational background, etc. may have their own negative views and attitudes towards sexual health education for their children with autism.

In order to change such a mindset Milton (2003) and Walker (2001) report that training is required by parents if they are to be able to develop a positive attitude, self-awareness and confidence in the subject of sexual health. This clearly shows that parents require relevant information about sexual health for children with autism and they also need to understand their role as sexual health educators in the lives of their children. Parents of both groups agreed that they would benefit from educational intervention; however, only fifty parents gave their consent to attend the eight week intervention program regularly. Hence, the investigator provided intervention to fifty parents from the experimental group, and the parents of the control group did not receive any intervention.

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After a period of eight weeks, the same attitude scale was re-administered to the respondents from both groups. **Table 2** and **Fig. 2** depict the post test scores of parents from both the groups.

Table - 2: Parents' Post test scores for Attitude towards Sexual Health Education (SHE)

Dimensions of Attitude towards-	Control Group (n=50)	Exp. Group (n=50)	Significance of t value
Sexuality and Sexual Behavior	12.76 ± 2.18	17.06 ± 1.05	12.5694**
Sexual Health Education	18.70 ± 3.13	25.32 ± 1.74	13.0726**
Imparting SHE to Children with Autism	20.68 ± 3.26	29.70 ± 1.84	17.0413**
SHE Concepts to be taught	23.84 ± 4.43	33.20 ± 2.17	13.4174**
Preventing Abuse	8.32 ± 1.83	12.68 ± 0.91	15.0865**
Overall	84.30 ± 11.31	117.96 ± 6.67	18.1269**

** Significant at 1% level

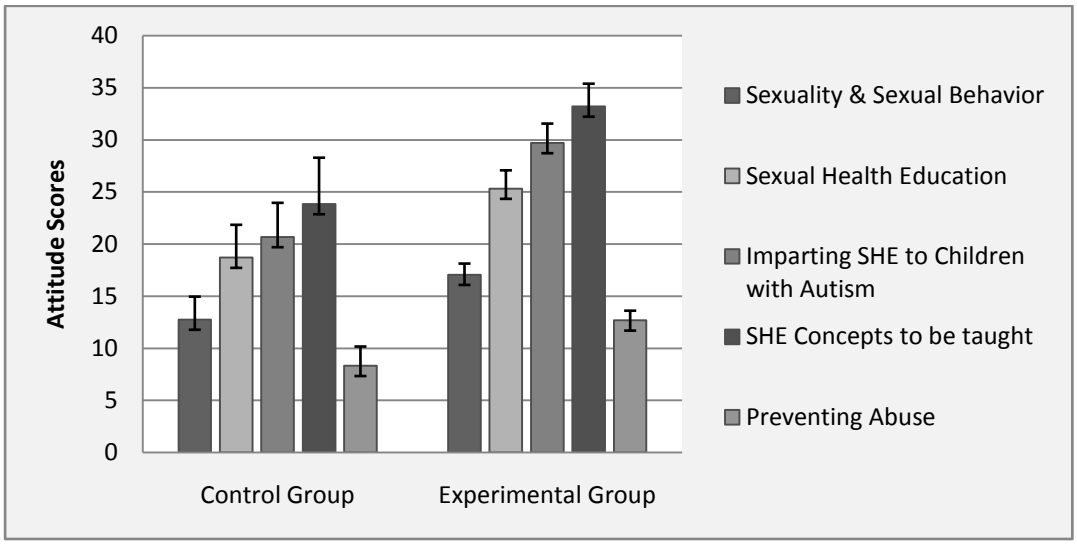

Fig.- 2: Parents' Post test scores for Attitude towards Sexual Health Education

The data reveals that at the time of post-test, there was a highly significant difference in the scores between the groups on all the dimensions of attitude being studied. This change can be attributed to the intervention provided by the investigator for the respondents of the experimental group. As parents of the experimental group understood the need and importance of sexual health education for their children with autism and as they understood their responsibility to teach and train their children on this sensitive issue, their attitudes improved and they scored higher on the attitude scale during the post-test. The overall post-test mean score of the control group was only 84.30 whereas, for the experimental group it was found to be 117.96. Petty and Cacioppo (1986) state that the formation and change of some attitudes becomes a very thoughtful process in which issue-relevant information is carefully scrutinized and evaluated in the light of their existing knowledge.

As parents of the experimental group spent eight long weeks analyzing the information provided to them during the intervention program, their attitudes and thoughts towards sexual health education for children with autism became more favorable over a period of time. Petty and Cacioppo (1986) proposed that attitude change occurs when the individual thoughtfully and carefully analyses the merits of the information presented to them. Cook and Flay (1978) have stated that an attitude change occurring due to such careful analyses tended to be more enduring and meaningful to the individual.

The findings of the present study are supported by a similar study conducted by Nichols in 2015, who developed an education program for parents with the aim of decreasing their anxiety and increasing their comfort and competence in addressing their child's sexual development. The parents met once a week for 90 minutes for a period of 10 weeks. They discussed their hopes, fears, values related to the sexuality of their autistic children. They learnt various concepts related to sexuality and were trained in the teaching methods and strategies that can be employed for each concept. The results of the study showed that parents' self report on comfort level in discussing issues related to sexuality had increased significantly. They also scored high in the aspects of acceptance, skill, experience, knowledge and competence, with the greatest gains in the areas of skill and knowledge in dealing with the sexuality of their growing children.

CONCLUSION

Thus, in conclusion, parents are bound to feel hesitant to broach the taboo subject of sexuality. Albeit, their negative attitude acts as a major barrier in imparting the much needed sexual health education to their children with autism. However, intensive educational intervention can positively influence their attitude, provided parents consider for themselves the merits of the information presented to them. In the long run, parents must periodically refresh their knowledge and skills in imparting sexual health education in order to maintain a positive attitude.

IMPLICATION

Results of the present study indicate that a well planned educational intervention can greatly improve the attitudes of parents, enabling them to be effective sexual health educators for their children with autism. Such comprehensive educational intervention programs on sexual health can be documented and replicated for the benefit of many more parents of children with autism in the future.

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ANALYSING THE WORK POTENTIAL OF PERSONS WITH DISABILITY IN GARMENT MANUFACTURING UNITS FOR DESIGNING NEED-BASED TRAINING PROGRAMMES

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ABSTRACT

Persons with disability are capable of performing efficiently in various industrial jobs if their potential is matched to the specific demands of the job. Garment Manufacturing Industry is one of the growing private sector industries and requires huge manpower. Most of the jobs in this sector are semi-skilled and repetitive in nature and can be easily handled by persons with disability.

Therefore, in order to facilitate the process of job mapping, skills and knowledge required to perform various tasks in different sections of garment manufacturing units were studied. This information was correlated with the capabilities of target population i.e., persons with locomotor, hearing and visual impairment and tasks were segregated for each group.

After incorporating feedback of various experts from industry, academics and NGOs, final checklist of tasks was developed where each task was defined with respect to physical abilities required and its suitability for the type of impairment. It was evident from the findings that most of the tasks could be performed by the target population. Hence, these tasks can be compiled together to develop need based training modules. Training in these disability specific modules would fetch them gainful employment in the garment manufacturing units.

KEY WORDS: Persons with disability, garment manufacturing units, job mapping, training modules

INTRODUCTION

In recent years, there has been growing awareness about the untapped potential and employability of persons with disability (PWD). Private sector employers are now offering jobs to them, realizing it as a business benefit. It helps the employers to pursue its corporate social responsibility and also to improve the public image of the company in the market.

However, employers are at times, apprehensive regarding increase in accident frequency and additional investments involved due to employees with disability. These problems can be overcome if they are placed adequately in the work setting. It has been seen that employers consider the physical standards when engaging workers rather than the job requirements. This idea of physical fitness as a condition for employment must be replaced by the concept of selective placement which is based on the principle of matching the abilities of the worker with the specific demands of the job he has to operate or handle (Prasad, 1994). Each placement must be of a highly individualized nature, in accordance with the characteristics and abilities of each worker with disabilities, each job to be performed and each employer company (Pallisera, Vila and Valls, 2003).

Role of garment manufacturing units (GMUs)

The Indian Textile and Clothing industry is one of the largest and critical industries in the Indian economy in terms of foreign exchange earnings and employment generation **(Koshy, 2011).** Garment Manufacturing under this industry is one of the most important and growing private

sector industry which needs trained manpower at every level and more so at the grass root level (Stitch World, 2009). Jobs in garment manufacturing units (GMUs) range from simple to complex and from low-skilled to highly skilled tasks involving cutting, sewing, finishing and packaging of garments in bulk. Most of the jobs are repetitive, non-hazardous, non-locomotive and semi-skilled in nature which could be easily handled by PWDs (Cooklin, 2007).

The GMUs comprises suppliers of readymade garments for both, domestic and export markets. It has been estimated that India has approximately 30,000 readymade garment manufacturing units and around three million people are working in the industry (http://apparel.indiamart.com/lib/garments/indian07251998.html).

However, the GMUs are worst hit with acute skill shortage which is eroding India's competitiveness in the global apparel geography (Koshy, 2011). Therefore, it would be unwise for the new economy in India to ignore the significance of untapped human potential of persons with disability (http://www.accessability.co.in).

Therefore, in order to prepare persons with disability for a specific job, analysis of the tasks they are expected to perform should be carried out. This process would facilitate job mapping and also help to identify the training needs of individuals who have to perform the job.

METHODOLOGY

Efforts were made to analyse the various tasks been performed in different sections of garment manufacturing units with respect to the physical capacity and functioning required to perform a particular task, use of senses and muscular coordination. Thereafter, job mapping was carried out to carefully match the potential of persons with locomotor impairment, hearing impairment and visual impairment (three most prevalent disabilities as per the Census of India, 2011) with the skill requirements for each task. The process of job analysis involved following steps:

Checklist of tasks performed in garment manufacturing units

Review of literature related to garment manufacturing process was done to establish the broad functioning of the garment manufacturing units. Besides, visits were also made to 25 units located in Delhi and NCR who expressed their willingness to participate in the study. A consolidated list of GMUs in Delhi and NCR was procured from Apparel Export Promotion Council (AEPC), Gurgoan. Since the list was very extensive, the personnel in charge in 25% of the GMUs from the list were contacted through random sampling technique.

Skills and knowledge required to perform various tasks

In order to gain further information on each task performed in different sections of GMUs, task analysis was conducted. The skills and knowledge required to perform each task was studied using following tools:

Observation of operator at work in GMUs

- The operators performing various tasks in the assembly line were closely observed to study the process, the physical abilities required and the work area available to perform each task.
- *Fact finding information from the operators and supervisors*

Detailed information on each task was further acquired from the operators performing the tasks. Information was also sought from the line/floor supervisors in each section to ensure the reliability of the information gathered from operators.

- *Self attempt to perform the job by researcher*

Besides the above, the researcher also made an attempt to perform the tasks which were difficult to understand through observation.

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Job mapping for the target population

The information gathered above facilitated the researcher in job mapping for the target population i.e., persons with locomotor, hearing and visual impairment. Physical capabilities required for executing each task were documented and analyzed. This information was correlated with the capabilities of each target group and tasks were segregated for them.

Feedback and recommendations from the experts

After job mapping, feedback was obtained on the tasks segregated for each target group from six industry experts i.e., HR managers/production managers/industrial engineers in GMUs, six academic experts from institutions running vocational courses in garment manufacturing process and six special educators in NGOs.

FINDINGS

Exploration of the work floors in GMUs revealed that majority of them specialised in ladies wear. Therefore, only those tasks which were commonly being performed for manufacturing high fashion ladies garments in different sections of GMUs i.e., fabric/accessory store, cutting, sewing, issue-receiving, washing, finishing and packaging were listed. Moreover, only those tasks which were directly related to garment manufacturing were included. Computer related tasks like record keeping of entry and exit of goods in each section and report making were not included.

Observation of operators and fact finding information from operators and line/floor supervisors facilitated the researcher in selecting the minimum skills and knowledge required for employing operators in different job profiles in each section of GMU as listed above. Besides, researcher also became aware of the precautions and safety measures to be followed while performing each task as safe working environment was of utmost importance, especially for persons with disability. Also hands on experience of performing some of the elaborate tasks further facilitated the researcher with knowledge about the latest technologies used and the functioning of different sections of garment manufacturing process.

Equipped with the required information, researcher made efforts to match the compatibility of a particular job to the target population and to recommend job modifications/accommodations, if possible. The tasks from the list were identified and segregated which could easily be performed by them. For persons with locomotor impairment in one lower limb, tasks involving operation of sewing machine were selected as they could use one of their functional lower limb to operate it. Whereas, for persons with locomotor impairment in both lower limbs, tasks which required only the use of upper limbs were identified. However, in order to accommodate them at work place, they should be provided with comfortable and movable high chair as otherwise operators stand and perform the tasks. Persons with hearing impairment could perform almost all the jobs as these were practical in nature and did not require sense of hearing. On the other hand, tasks for persons with visual impairment were identified which were repetitive or similar in method of operation and required use of other sensory organs or body parts instead of vision and some amount of manual dexterity. Moreover, the tasks would require less mobility, have lower risk level and involve development of cost effective work aids for assistance, if required.

The feedback of various experts from industry, academics and NGOs was quite optimistic for persons with locomotor and hearing impairment. However, the industry experts felt that scope of

employment of persons with disability in GMU was very narrow as 99% of the tasks required a certain degree of visual perception. Therefore, feasibility study was carried out with two persons, one with total and one with partial visual impairment to ensure the sustainability of the tasks shortlisted for them. Incorporation of valuable inputs/suggestions from the various experts and results of feasibility study led to the development of final checklist (Table 1).

Table- 1: Checklist of Tasks Developed After Job Mapping

S. No.	Checklist of tasks performed in	Physical abilities required	Suitable for type of impairment
I	**Fabric & Accessory Store**		
1.	Receiving of fabric packages and checking of length and width of each package	ST, W, B, L, C, V, MD	H.I.
2.	Shade sorting among fabric packages of same colour & preparation of batches/lots	ST, W, RW, V	H.I.
3.	Checking of folded fabric packages (Thaans) for any defects & folding back of checked fabric	ST, W, B, L, C, P, V, E-H Co	H.I.
4.	Checking of rolled fabric packages for any defects on automatically moving fabric checking machines	ST, W, B, L, C, V, E-H Co	H.I.
5.	Re-packing & storage of fabrics after checking	ST, W, B, L, C, V	H.I.
6.	Preparation of accessory/trim card for each garment	S/ST, W, RW, V	H.I.
7.	Sorting out of defective accessories, thread trimming etc.	ST, W, V, MD, E-H Co	H.I.
8.	Counting and arranging of accessories in different sections	S/ST, W, B, L, C, V	H.I.
II	**Cutting Section**		
1.	Spreading of fabric to form a lay & fixing of marker on top	ST, W, B, L, C, V, E-H-F Co	H.I.
2.	Helper in layering and smoothening out folds in fabric		H.I.
3.	Cutting of fabric lay	ST, W, V, E-H-F Co	H.I.
4.	Ticketing of cut garment pieces	S/ST, RW, V, MD, E-H Co	L.I. (lower limbs)& H.I.
5.	Re-checking, sorting & replacing of defective cut pieces	ST, W, V, MD, E-H Co	H.I.
6.	Re-cutting of pin tuck panel, embroidered pieces, yokes etc. using fixed pattern templates	ST, W, V, MD, E-H-F Co	L.I. (lower limbs) & H.I.
7.	Bundling & bar coding of cut garment pieces for issuing to sewing room	S/ST, RW, V, MD, E-H Co	L.I. (lower limbs) & H.I.
8.	Position marking for darts, pockets etc. using drill marker	ST, W, L, V, E-H Co	H.I.
9.	Applying fusible interlinings using fusing equipment/machine	ST, W, V, E-H Co	L.I. (lower limbs) & H.I.
10.	Stacking fused pieces in serial order at	ST, W, V, E-H Co	H.I.

S. No.	Checklist of tasks performed in	Physical abilities required	Suitable for type of impairment
	the receiving end of fusing machine		
III	**Sewing Section**		
A	**Manual tasks:**		
1.	Cutting of laces, straps etc. using a fixed template	S/ST, V/T, MD	L.I. (lower limbs), H.I. & V.I.
2.	Inserting strap adjusters	S/ST, V/T, MD	L.I. (lower limbs), H.I. & V.I.
3.	Manual tasks like inverting the stitched fabric flaps, collars, cuffs, waistband, button straps	S/ST, V/T, MD	L.I. (lower limbs), H.I. & V.I.
4.	Inserting drawstring into the garment	S/ST, V/T, MD	L.I. (lower limbs), H.I. & V.I.
5.	Marking points for pleat folding, pin tucks, cuff facing, neck band, sleeve attachment, buttons, buttonholes, lapel folds, loops etc.	S/ST, V, E-H Co	L.I. (lower limbs) & H.I.
6.	In line pressing & inspection	ST, W, V, E-H-F Co	H.I.
7.	End line inspection	S/ST, V, E-H Co	L.I. (lower limbs) & H.I.
B	**Sewing tasks**		
1.	Operating single needle lockstitch machine and overlock machine	S, V, MD, E-H-F Co	L.I. (one lower limb) & H.I.
2.	Stitching of tucks, darts, pleats, gathers (gathering foot)	S, V, MD, E-H-F Co	L.I. (one lower limb) & H.I.
3.	Assembling of different panels of garment and pieces to form parts like pockets, sleeves and collars	S, V, MD, E-H-F Co	L.I. (one lower limb) & H.I.
4.	Top stitching on garment parts	S, V, MD, E-H-F Co	L.I. (one lower limb) & H.I.
5.	Pocket, sleeve collar/cuff/waistband/zipper attachment	S, V, MD, E-H-F Co	L.I. (one lower limb) & H.I.
6.	Application of attachments like pleat folder, binder, belt folder for waistband, loop/strap folder, hem folder	S, V, MD, E-H-F Co	L.I. (one lower limb) & H.I.
IV	**Issue-receiving Section**		
1.	Counting of garments	ST, V/T, L	H.I. & V.I.
V	**Washing Section**		
1.	Helper tasks like removing work tickets from garments, manual rinsing of garments, packing of garments after washing	ST, W, B, L, V, E-H Co	H.I. & partial V.I.
2.	Operating hydro machine	ST, W, B, L, V, E-H Co	H.I. & V.I.
3.	Operating washing machine	ST, W, B, L, V, E-H Co	H.I. & partial

S. No.	Checklist of tasks performed in	Physical abilities required	Suitable for type of impairment
			V.I.
4.	Operating tumbler (drier)	ST, W, B, L, V, E-H Co	H.I. & partial V.I.
VI	**Finishing Section**		
1.	Operating button hole/tacking machine	S, V, E-H-F Co	L.I. (one lower limb) & H.I.
2.	Tacking/hemming/stitching hook & eye to the garment	S, V, MD, E-H Co	L.I. (lower limbs) & H.I.
3.	Cutting and trimming of trailing thread ends	ST, V, MD, E-H Co	L.I. (lower limbs) & H.I.
4.	Operating thread sucking machine	ST, W, B, L, V/T, H-F Co	H.I. & V.I.
5.	Identification and removal of various types of stains found in garments	ST, V, E-H Co	L.I. (lower limbs) & H.I.
6.	Initial & final pressing of garment	ST, L, V, E-H-F Co	H.I.
7.	Measurement checking according to the size specification sheet	S/ST, RW, V, E-H Co	L.I. (lower limbs) & H.I.
8.	Inspection of garments for poor sewing/any cuts/proper attachment of cuffs, sleeves, collars, fasteners, labels etc.	S/ST, V, E-H Co	L.I. (lower limbs) & H.I.
9.	Inspection of garments for fit &fall	ST, W, V	H.I.
10.	Preparation of accessory pouch/ style specific tags	S/ST, V/T, MD	L.I. (lower limbs), H.I. & V.I.
11.	Tagging of garments according to the size- manually or using a tag gun	S/ST, V/T, MD	L.I. (lower limbs), H.I. & V.I.
12.	Button closing, inserting of belts and folding of the garments	S/ST, V/T, MD	L.I. (lower limbs), H.I. & V.I.
13.	Packing of garments in poly bags	S/ST, V/T, MD	L.I. (lower limbs), H.I. & V.I.
VII	**Packaging Section**		
1.	Operating needle detector machine	S, L, V/T, H	L.I. (lower limbs) & V.I.
2.	Final checking for labels, tags etc.	ST, V, E-H Co	H.I.
3.	Size & colour assortment for packing	ST, W, RW, V, E-H Co	H.I.
4.	Box(carton) making for packaging	ST, B, L, KC, V/T, MD	H.I. & V.I.
5.	Packing of garments in boxes as per the buyer's specifications	ST, W, RW, V, E-H Co	H.I.

S= Sitting, ST= Standing, W= Walking, B=Bending, L= Lifting, C= Carrying, P= Pulling, KC= Kneeling & Crouching, RW= Reading & Writing, V=Vision, T=Touch, H= Hearing, MD= Manual Dexterity, E-H Co= Eye-Hand Coordination, E-H-F Co= Eye-Hand-Foot Coordination, H-F Co= Hand-Foot Coordination, LI= Locomotor Impairment, HI= Hearing Impairment, VI= Visual Impairment

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CONCLUSION

Thus, from the above checklist of tasks developed after job mapping, it was quite evident that persons with hearing impairment can perform almost all the manufacturing tasks in the units. All the tasks related to sewing of garments could be performed by persons with locomotor impairment in one lower limb provided they are trained to work on single needle lock stitch machine with under bed trimmer and auto lift. Moreover, persons with locomotor impairment in both lower limbs and visual impairment can perform a variety of manual tasks in cutting, sewing, finishing and packaging section. Therefore, these segregated tasks for each target group can be compiled together to develop need based training programmes which would make the persons with disability competent enough for gainful employment in GMUs.

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TABOOS RELATED TO COSTUMES OF RAJPUT COMMUNITY OF RAJASTHAN IN MEWAR REGION

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ABSTRACT

Rajasthan is a state rich in cultural heritage and traditional art and craft So are the Rajasthani costumes and culture unique.Rajputs are not a mixed community as Religious beliefs of them were so strict that no one else was allowed to disturb these. After some time these norms became so rigid that each smallest mistake could boycott a person from caste and no relation were allowed to maintain with him. So many Rajput families formed a different community. They conducted wedding among themselves. No matter how much difficulty they face. Rajputs traditional beliefs related to use of particular colour, print, style, and material in costumes and coiffure.

Key words: Rajput community, costumes, taboos

INTRODUCTION

Rajasthan, mean land of kings and princes. The origin of beautiful town of Mewarin the state of rajasthan in india is deeply rooted in mythology. The Ahar civilization of Mewar has been accepted as contemporary to the oldest of all civilizations.

Indus valley civilization in fact the Mewar dynasty traces its roots in the powerful sun, god and its history has been a continuous struggle for freedom of religion, thought and land against other rajputs. This land of rich tradition was a rajput kingdom for several centuries and in the later ages become a princely state under the British colonial rule. The very utterance of the term "Mewar" conjures (means to appeal solemnly) up before the mind's eye entire panorama of the Indian history. The region of Mewar, the family of Maharana and the concept of kingship have survived the Vicissitudes of time. Mewar is also regarded as the land from where the deities and men jointly spread "Manav Dharma" and varied principles of self-reliance and self respect to the Indian populace as a whole.

METHODOLOGY

Preliminary survey was conducted to collect information about Taboos related costumes and coiffure used by Rajput male and female on the basis of heavily populated suryavanshi Rajput was selected in Udaipur and Bhilwara district of Mewar.

A sample of 60 respondents was selected from each district comprising of 30 male and 30 female respondents of suryavanshi Rajput community to fulfil the purpose of present study. The data was collected and analyzed in the light of the objectives of present study.

FINDINGS

The study was conducted in Udaipur and Bhilwara district, as the heavy population of suryavanshi Rajputs found in both district.

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TABOOS RELATED TO CLOTHING

The Costumes worn are special and social occasion of both districts have been described in following table.

Table- 1: Distribution of respondents by their Costumes worn are special and social occasions by Rajput community n=120

S. No.	Colourful safa on engagement	Respondents					
		Udaipur		Bhilwara		Total	
		Number	%	Number	%	Number	%
1.	Red	13	21.66	14	23.33	27	22.5
2.	Pink	16	26.66	12	20	28	23.33
3.	Yellow	11	18.33	15	25	26	21.66
4.	Other	20	33.33	19	31.66	39	32.5
	Whether odhanies comes from maternal home of girl on marriage						
1.	Yes	60	100	60	100	120	100
2.	No	-	-	-	-	-	-

Table 1 highlights the various social costumes of Rajput community. All the respondents revealed that on the engagement ceremony, Rajput men mostly use multicoloured Safa (turban), i.e. chundri ka Safa. Rajput wear new and colourful clothes on the festivals/ functions: 68.33 per cent Rajputs are fond of wearing colourful and new clothes on the religious festivals like *Shivratri, Gangaur* and *Karvachauth* etc. only 31.66 per cent wear ordinary costumes in Udaipur. Similarly in Bhilwara, 71.66 per cent Rajput prefer Red new and colourful clothes on the festivals and functions 28.33 per cent wear ordinary costumes in functions and festivals.

Marriage: At time of marriage groom wear Achakan.' Shervani. Breeches safa/ pagri, duppatti, rumal Mojari etc. But never put on ' Turra" on his safa as like other grooms. Mordern generation also wears suit, pants, coat, Breeches, tie, etc. mostly dhoti is off white colour and safa chundri moliya or multi colour.At the time of engagement Rajput girl mostly wear lengha, Kurti, Kanchli and Odhani etc. In Present times Rajput have started to wear readymade Poshak and sari of Red, Pink, Rani, yellow and Saffron coloured clothes decorated with Jari work, Kundan work, Aari tari work. They have started to use Bala Chunri of Hath – lengha with tari work and Kurti-Kanchli semi georgette, velvet cloth, satin and garden cloth respondents mostly like the decorated clothes with fool-patti, bel- bunti, jal, birds and animals etc. At the time of engagement, Rajput girls mostly wear lengha, Kurti- Kanchli and Odhna well decorated by kala-bhut, Bel-bunti, jal birds, animals, Kari mode by Aari- Tari, jari-jarao, kundan work, jardaj, danka works salma sitara work with silver/golden threads.

The Length of lengha waist to heel on the even of Muklava girls used to wear these costumes and then departed to their husband's home. This departure and see off is known as "seekh" in general language. Farewell ceremony of bride groom is performed by putting on "pattu' (shawl)

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made of pure wool on his shoulders. In present time mostly the kurti, Kanchli, lengha and Odhani are in vogue. Odhanies are decorated by embroidery design made by bright golden threads, gota lace having the jaal bel bunta, fool patti, jari jarao, kundan work, zordozi work etc. Similarly sari lengha suit well decorated is used in hindu families. The colours of Bari are red, pink, rani etc Worn by the bride. Cloth like georgette, satin, net and velvet are used for making Bari after stitching and sewing art work is done on the garment. Bari is a well decorated garment specially made for bride. Odhanies are decorated and ornamentded by jari, gota kinav, sitara, kundan work, moti, cheeds etc. which gives it a gorgeours look. Kurti kancli is also decorated by embroidery work, the mirror work design zari work on the front part of kurti kanchli having bright work on the border parts with jari work kasida work and slama-sitara work to show it very decorative and fine on wearing. A pregnant woman after complication of seventh month of pregnancy goes to father's home for delivery wearing five decorated clothes of jari-jarao. On the birth of male child they wear yellow pomcha or laddu bhat lengha, suraj puja is done on seventh day of baby birth by wearing new clothes i.e. pomcha decorated by jari tara work. If the deliver female child, any type of yellow and pink odhna can be used by the women. It may be of chundri. There is no special custom on the birth of female child. **Rathore (1990)** also supported in his book that in Rajasthan women wear peela pomcha on the birth of male child. **Singh (1997)** mentioned that there is lotus shaped print on pomcha and due to this it was called pomicha. The basement of odhna is mostly pink, yellow or saffron colour and there is red border line and the middle part of cloth have design of lotus flower design. It is called peela in their local language and part on by the women who gave birth to born a male child. The full suit of yellow colure odhani is sent by the parent house with kurti-kanchli and lengha wearing which she performs all the social customs. In the same way on other ceremonial functions like engagement, marriage. Rajputs preferred to wear their traditional costumes. The costumes used during "Mourning" have been described in Table- 2

Table 2: Distribution of respondents by their Costumes used during 'Mouring' By Rajput community

Sr. No.	Colour of turban used by men during mourning	Respondents				n=120	
		Udaipur		Bhilwara		Total	
		Number	%	Number	%	Number	%
1.	Black	9	15	8	13.33	17	14.16
2.	Olive green	7	11.66	9	15	16	13.33
3.	White	11	18.33	13	21.66	24	20
4.	Light colour	21	35	19	31.66	40	33.33
5.	Other	12	20	11	18.33	23	19.16
	Mouning clothes of women						
1.	Yes	42	70	39	65	81	67.5
2.	No	18	30	21	35	39	32.5

Table 2 Indicates that 15 per cent men use black colour turban 11.66 per cent use olive green, 18.33 per cent white, 35 per cent light coloured and 20 per cent use other colure turban on the

death of their blood relation. They do not put new turban on any relative's death in Udaipur district. Similarly 13.33 per cent men use black colour turban, 15 per cent use olive green, 21.66 per cent white, 31.66 per cent light colour, 18.33 per cent use other colour turban on the death of their blood relation in Bhilwara district.

In Rajputs 12 days after death of head of the family the eldest son will put white turban (new) which indicate that now he is the responsible person of that family he also put on "Angocha" and put a woolen blanket which is countered as a pure cloth. Rajputs always put light colours, Brown olive green and dirty white turban on the death of old or young relative. The widow women cover her body with blanket. Other women who observe sorrow put on "Kangresi Chunri"(simple Chunari having no print, lace, goota and design on it) women used to wear old simple traditional clothes cotton clothes, kanchli, kurti odhana etc**. Mehra's (2004)** has also supported that white, dark blue, Khaki, Mehroom and black turbans are worn during period of mourning.**Sharma (1993)** has also supported that black, blue, green and brown coloured clothes indicate the death of a family member and the women expresses it by wearing these coloured odhana and clothes.

Clothes on special occasions, festivals and religious functions:

Festivals and special occasion in community: Rajputs observe all Hindu festivals like Deepawali, Holi, Raksha Bandhan, Shivratri, Janmashtmi, Gangaur, Teej, Hariyali Amavasys, Akha Teej. Dantarash, Dushhera, Rushi Panchami, Back Baras and Makarsankaranti etc. Rajput celebrate all hindu festivals especially they worship kul devi, every Rajput family have their own seprate "kul devi".
The costumes used for special occasions/ functions have been described in Table-.3.

Table 3: Distribution of respondents by their Costumes for special occasions/ functions

S. No.	Colour of clothes worn on festival function	Respondents n=120					
		Udaipur		Bhilwara		Total	
		Number	%	Number	%	Number	%
1.	Yes	60	100	60	100	120	100
2.	No	-	-	-	-	-	-
	Specific colour on special festivals						
1.	Yes	41	68.33	43	71.66	84	70
2.	No	19	31.66	17	28.33	36	30

Table 3 highlights the various types of clothes worn at the time of festivals, social customs and religious occasions by the Rajput community. Cent per cent respondents revealed that Rajput preference to wear colourful new clothes on every festival and social functions.

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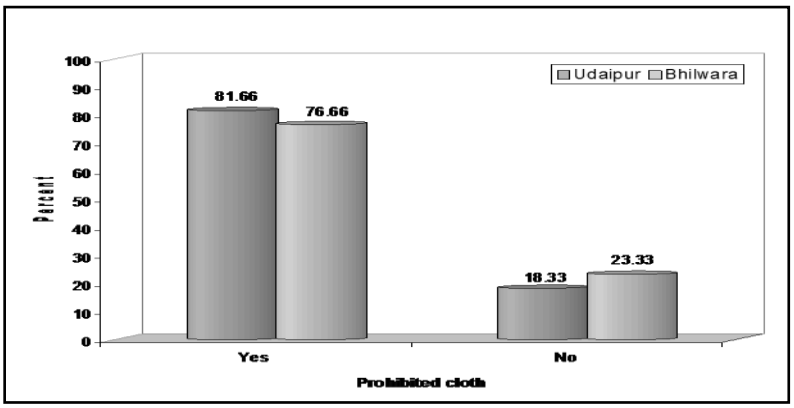
Prohibited clothes: Theprohibited clothes have been described in Table -4.

Table 4: Distribution of respondents by their Prohibited clothes for various age Groups

S. No.	Prohibited cloth	Respondents				n=120	
		Udaipur		Bhilwara		Total	
		Number	%	Number	%	Number	%
1.	Yes	49	81.66	46	76.66	95	79.16
2.	No	11	18.33	14	23.33	25	20.83

Table 4 shows that in Rajput community 81.66 per cent agreed that there are some restricted/prohibited clothes for the various age groups of society and they cannot be worn in any condition whereas 18.33 per cent says that there is no such restriction in Udaipur district.

Same as in Bhilwara Rajput community 76.66 per cent agree that there are some prohibited clothes for the various age groups of society whereas 23.33 per cent says that there are no any prohibited clothes



In Rajput community the prohibited clothes are as under:-

(a) For men:- Dark and dull colour such as black, brown, green, Khaki coloured clothes and pagri (safa)

(b) For women :-Modern clothes like jeans shirts, skirts top, blue, dull colours white, black colour etc.

Rajasthan is known as Rangila Rajasthan Because of its colourful and special designed clothes. All communities either rich or poor have charm to wear new and colourful on special occasions either it may be festivals or function or fair They usually wear good looking bright flower scent coloured clothes.

CONCLUSION

Rajputs wear new and colourful clothes on the festivals/ functions. Rajputs are fond of wearing colourful and new clothes on the religious festivals. In case of dealing of female child, any type of yellow and pink odhna can be used by the women. It may be of chundri. There is no special custom on the birth of female child but in case of and birth of male child women used wear peela pomcha. In Rajputs 12 days after death of head of the family the eldest son will put white turban (new) which indicate that now he is the responsible person of that family he also put on

"Angocha" and put a woolen blanket which is countered as a pure cloth. Rajputs always put light coloures, Brown olive green and dirty white turban on the death of old or young relative.

The widow women cover her body with blanket. Other women who observe sorrow put on "Kangresi Chunri"(simple Chunari having no print and design on it) women wear old simple traditional clothes cotton clothes, kanchli, kurti odhana etc.

Prohibitive clothes for men:Dark and dull colour such as black, brown, green, Khaki coloured clothes and pagri (safa) for women :Modern clothes like jeans shirts, skirts top, blue, dull colours white, black colour etc.

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A STUDY OF COLOUR PREFERENCES OF EDUCABLE AND TRAINABLE MENTALLY CHALLENGED CHILDREN

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ABSTRACT

The present research a study was conducted on "colour preferences of educable and trainable mentally challenged children."The purpose of conducting the study was dealt with as individual colour preferences in clothing fabrics. The subjects of this study were 250 mentally challenged educable and trainable children between the age group of 5 to 14 years of age out of which 60% were boys 40% girls**.** The test consisted of nine colour A line dress of rubia fabric. The collected data was consolidated and statistically analyzed. The data was initially treated with descriptive statistics (mean & SD) For inferential purpose the data was subjected to 2x2 ANOVA, The findings of the present study from the statistical treatment and analysis of the data revealed that ,there is existed significant difference between the trainable and educable mentally challenged children. The most preferred colour was red, yellow and black by trainable boys, Where as the most preferred colour was white ,red, yellow by educable boys Trainable mentally challenged girls gave the first preference to red colour followed by orange and yellow. Educable girls gave the first preference to white, followed by red and yellow.

Key words- colour, preferences, educable, trainable, mentally challenged, children.

INTRODUCTION

Mental retardation occurs in 2.5-3% of the general population. Mental retardation begins in childhood or adolescence before the age of 18. In most cases, it persists throughout adulthood. Intellectual functioning level is defined by standardized tests that measure the ability to reason in terms of mental age (intelligence quotient or IQ). Mental retardation is defined as IQ score below 70-75 In schools for the mentally challenged children, it was observed that the mentally challenged children are very much attracted towards different color lights, pictures, toys, games and music.

An educable mentally challenged student is a student who is mildly impaired in intellectual andadaptive behavior and whose development reflects a reduce rate of learning. The measured intelligence of an educable mentally handicapped student generally falls between two and three standard deviations below the mean, and the assessed adaptive behavior falls below that of other students of the same age and socio-cultural group. Their IQ score is from 50-70.

A trainable mentally challenged student is a student who is moderately or severely impaired inintellectual and adaptive behavior and whose development reflects a reduce rate of learning. The measured intelligence of a trainable mentally handicapped student generally falls between three and five standard deviations below the mean, and the assessed adaptive behavior falls below that of other students of the same age and socio-cultural group. Their IQ score is from 30-50.

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Colour

Colour affects human beings in their everyday lives, even during their very earliest childhood. In fact, studies have shown that babies respond more readily to bright, primary colours than to pastel colours. Colour is the first thing which a child can distinguish from one objective characteristic to another. Children can identify the colours and with growing age expand their differences in colour preferences. The first colour a baby can distinguish is red. Children like bright colours. Many authoritative researchers on colours have shown that, the child will increase their colour preference with their growing age.

Hence with due consideration present study is undertaken to study the colour preferences of educable and trainable mentally challenged children between the age group of 5 to 14 years. Since studies have already been done on normal children the investigator thought it is important to conduct study to get some insight into the colour and fabric design preferences of educable and trainable mentally challenged children.

AIM OF THE STUDY

The main aim of the study is to determine the colour preferences of educable and trainable mentally challenged children between the age group of 5 to 14 years of Nagpur city.

THE STUDY WAS PLANNED WITH FOLLOWING OBJECTIVES

1. To investigate the colour preferences of educable and trainable mentally challenged of Nagpur city
2. To investigate the colour preferences varied with age of children.
3. To investigate the colour preferences varied with sex of children.
4. To compare the colour preferences varied with two age groups younger (5 to 9 yrs) and older group (9 to 14 yrs).
5. To compare the colour preference of normal and mentally challenged children.

REVIEW OF LITERATURE

The investigator reviewed the relevant literature that was available to her. Quite a few studies on colour preferences of normal children have been done, but very little has been done on mentally retarded children.

The Review of Literature for the study was collected under two sections

1. Review related to educable and trainable mentally challenged children.
2. Review related to colour preferences of normal and mentally challenged children.

Salore (1964) conducted a study on "colour and design preferences of mentally retardedteenagers". The purpose of conducting the study was dealt with relationship among physical and personality characteristics and as individual colour design and texture preferences in clothing fabrics. The subjects of this study were 47 mentally retarded teenagers, 33 boys and 14 girls, ranging in the age 12 to 18 years from low socioeconomic levels. The test consisted of 78 colour slides of apparel fabrics. 11 variables delineate certain characteristics of colour,

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design, size and texture. Preference scores for each subject are calculated by totalling the number of choices for each variable.

Results Revealed That-

1. This group of mentally retarded teenager tends to prefer saturated colour with small designs and strong figure ground contrast as well as smooth textured fabric.
2. High school and college students tend to prefer highly saturated colours.

METHODOLOGY

SAMPLE: The sample of present study comprised of 250 educable and trainable mentally retardedchildren of different schools of Nagpur district between the age group of 5 to 14 years of age out of which 60% were boys 40% girls.

PROCEDURE OF DATA COLLECTION:

The data was collected in two phases

First Phase –A survey was undertaken to find out how many mentally retarded schools were therein Nagpur city and Nagpur district with the age group of 5 to 14 year old educable and trainable mentally retarded children and how many special schools are ready to co-operate the researcher for data collection

Second Phase-After selection of schools the data was collected on colour preferences of educableand trainable mentally retarded children

The structured interview method was used for the present study. The test was administered to individual child. The study was conducted under natural light. Nine coloured unisex A line garments, in three primary (red,yellow & blue), three secondary (orange ,green & violet) and three neutral colour (black ,white & grey)for girls and boys, was used for recording the rank order of colour preferences the garments were placed on table by random order. The table was placed in a place where natural lights, falls on all garments equally. Then the child was asked to show one he/she liked the best. The garment was removed from the table and the child was asked to show one he/she likes the best one from the remaining eight. The same procedure was repeated till one garment was left. After that the data was analyzed to find out the order of colour preferences the most preferred colour and least preferred colours.

STASTISTICAL ANALAYSIS:

The collected data was consolidated and statistically analysed.
The data was initially treated with descriptive statistics (mean & SD)
For inferential purpose the data was subjected to 2X2 ANOVA

FINDINGS

The data was categorized into two groups on the basis of age .The percentage of children based on age are displayed in table -1

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Table- 1: Distribution of mentally challenged children according to age.

Age	Boys		Girls	
	Total	**%**	**Total**	**%**
5-9 years	64	25.6	52	20.8
10-14 years	86	34.4	48	19.2
	150	60	100	40

From the above table it is seen that 25.6% of boys and 20.8% of girls belong in the younger age group and 34.4% boys and 19.2% girls belonged to the older age group.

IQ is the characteristic on the basis of which mentally challenged children are categorized. As the present study dealt with educable and trainable children, the data was categorized into two levels of retardation and is presented in Table 2.

Table- 2: Distribution of mentally challenged children according to IQ level.

Sr. No.	IQ		Boys		Girls
		Total	**%**	**Total**	**%**
	30-50				
1	(Trainable)	95	63.33	61	61.00
	50-70				
2	(Educable)	55	36.67	39	39.00
	Total	150	100.00	100.00	100.00

It is seen that 63.33% boys and 61% girls belonged to trainable category and 36.67% boys and 39% girls belonged to educable category.In the present study an attempt was made to study the preferences for colours and printed design of mentally challenged children. Therefore the data was categorized into four groups.

1) Trainable mentally challenged boys.
2) Educable mentally challenged boys.
3)Trainable mentally challenged girls.
4) Educable mentally challenged girls.

The data for trainable mentally challenged boys was subjected to mean and S.D. and the colour preferences. The results are displayed in Table- 3. It clearly reveals that the first or the most preferred colour was Red. The second preferred colour was yellow The third most preferred colour was Black. The least preferred colour was Grey.

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Table 3: Mean, S.D. and colour preferences. of trainable mentally challenged Boys

Trainable Boys				
Sr. No.	**Color**	**Mean**	**.D**	**Preferences**
1	Red	3.06	2.46	I
2	Yellow	4.37	2.84	II
3	Blue	5.19	2.41	VI
4	Orange	4.82	2.46	V
5	Green	5.72	2.39	VIII
6	Violet	5.31	2.27	VII
7	Black	4.79	2.23	III
8	White	4.81	2.73	IV
9	Grey	6.33	2.31	IX

The data for educable mentally challenged girls was subjected to mean and S.D. and the colour .preferences. The results are displayed in Table - 4

Table- 4: Mean, S.D. & colour preference score of educable mentally challenged girls.

		Educable Girls		
r. No.	**Color**	**Mean**	**SD**	**Preferences**
1	Red	1.42	2.5	II
2	Yellow	2.12	2.66	III
3	Blue	3.14	2.18	V
4	Orange	2.6	2.32	IV
5	Green	5.13	1.94	VII
6	Violet	4.9	2.35	VI
7	Black	5.9	2.74	IX
8	White	1.12	2.66	I
9	Grey	5.24	2.91	VIII

From the table, it is seen that the most preferred colour of educable mentally challenged girls was White – a neutral colour the second most rated colour was Red and the third most preferred colour was yellow- both the colour belonging to primary colour scheme. These children least preferred colour was blank –a neutral family colour.

Sr.No.	**ources of Variation**	**DF**	**SS**	**MSS**	**F**
	Gender				
1	Boys vs Girls)	1	0.05	0.05	0.02
	references of				
	Colors(Trainable				
2	s Educable	1	16.39	16.39	6.89*
4	nteraction	1	0.19	0.19	0.08
3	SS	32	76.10	2.38	
5	otal	35			

Significant at 0.05 level.

It is seen that gender as a factor failed to influence the colour preference of mentally challenged children. The results can be explained as follows The second factor of trainable vs mentally challenged children brought about significant differences i.e. the calculated value of F.=6.89 (for df1 & 32 is more than the table value at 0.05 level.

This means there are real difference amongst the two groups with reference to colour preferences. This can be explained in terms of I.Q. level. The I.Q. level of the child influnces the colour preferences. The child whose I.Q. is nearer to average IQ. gets a fair understanding of others reactions to his choice and therefore prefers colours which are approved by others. On the contrary low I.Q. children prefer colour as per the brightness of the colour without looking for approval from others.

Table 5 exhibits the colour preference of trainable mentally challenged boys of younger age (5-9 years**)**

Table- 5: Mean & S.D. scores of preferences of colours of educable and trainable mentally challenged boys of younger age (5-9 years)

Sr. No.	Color	Mean	SD	Preferences
1	Red	3.31	2.62	I
2	Yellow	4.53	2.71	IV
3	Blue	5.94	2.23	VIII
4	Orange	4.42	2.6	III
5	Green	5.73	2.5	VII
6	Violet	5.23	1.75	VI
7	Black	5.15	2.3	V
8	White	4.19	2.75	II
9	Grey	6.11	2.42	IX

From table 5 it is seen that the younger group of boys preferred the red colour first ,a primary colour, which was followed by white colour – a neutral colour and the 3rd most preferred colour was orange- a secondary colour .

Table 6 exhibits the colour preference of trainable mentally challenged girls of older age group (10-14 year). From the table it is seen that educable and trainable mentally challenged girls of older age group also gave the first preference to Red colour, followed by Orange colour and Violet colour. The least preferred colour was Grey.

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Table- 6 : Mean and SD score of preference for colours of educable and trainable mentally challenged girls of older age group (10-14 yrs).

Sr.No.	Colors	Mean	SD	Preferences
1	Red	3.23	2.55	I
2	Yellow	4.88	2.02	IV
3	Blue	5.48	2.28	VII
4	Orange	4.52	2.28	II
5	Green	5.17	2.4	VI
6	Violet	4.69	2.69	III
7	Black	6.08	2.45	VIII
8	White	4.92	2.82	V
9	Grey	6.1	2.7	IX

CONCLUSION

The results of present study revealed that Red colour is the most preferred colour by educable and trainable mentally challenged children of Nagpur city, followed by white, yellow and orange colour It is interesting to note that the respondent's most preferred colour red is from primary colours followed by white a neutral colour and orange (secondary colour) and least preferred colour were grey ,blue and green, Some related studies revealed that the normal children prefer primary colours as most preferred colour and so as according to present study the mentally challenged children prefer primary colours as most preferred colour.

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CELLULOSIC NONWOVENS EMBEDDED WITH *CAMELLIA SINENSIS* EXTRACT FOR IMPARTING MULTIFUNCTIONAL PROPERTIES

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ABSTRACT

Camellia sinensis is a rich source of polyphenolic compounds based on the isoflavan structure. The most common flavonols being the catechins, epigallocatechin (EGC), epigallocatechin gallate (EGCG), epicatechin (EC) and epicatechin gallate (ECG). The extract was spectrophotometrically tested and a sharp peak at 342nm was identified as kaempferol 3-O-2″-glucosylrutinoiside. A comparative study of the open bath, rota dyer and reflux method ofextraction confirmed the reflux method as most suitable extraction process. The application of aqueous extract of Camellia. sinensis dyes on nonwoven fabrics of varying GSM's was done by the pad dyeing process. The samples were further tested for their L, a* and b* values which lay predominantly in the yellow zone. The samples fastness properties, UPF values and perspiration fastness were found to be encouraging. The antibacterial properties for cotton 200 GSM nonwoven fabrics provided highest bacterial reduction (%). The study reaffirms the use of aqueous extract of Camellia. sinensis as an effective natural dye source with multifunctional properties on a nonwoven substrate.

Keywords: *Camellia sinensis*, nonwoven, cellulose, catechin, antibacterial.

INTRODUCTION

The textile sector catering to wellness, health and hygiene industry has seen a spurt in growth due to the influx of a large range of nonwoven fabrics in the segment. The nonwoven market has established a steady growth in several West European countries, United States of America and China, (Smithers Pira report, 2017). This turn towards sustainable nonwoven textiles is further anticipated in countries where disposable hygiene products are quickly displacing the traditional woven fabric domains. The preparation of nonwoven fabric directly from fibers offers a distinct advantage over the conventional fabric manufacturing process by contributing towards relatively shorter time and lower manufacturing cost (Lee, 2009).

Today nonwoven fabrics work extensively as bacterial barrier textiles in the wellness and hygiene industry. They suit several high end-use products which require specialty finishes that provide ultra-violet protection, anti-bacterial properties, high absorption and fastness properties etc. To meet these demands they are coated with chemicals that include inorganic salts, organometallics, iodophors, phenols and thiophenols, antibiotics, heterocyclics with anionic groups, nitro compounds, ureas, chitosan, formaldehyde derivatives, and amines (Gao & Cranston, 2008; Moris et al, 2016). Towards the end of the product lifecycle some of these compounds have toxic breakdown of harmful chemicals and consequent risks to human health

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and environment. Thus a growing segment of aware consumers today demands cleaner surroundings and healthy lifestyles (Teli et al, 2014).

The use of eco-friendly natural dye extract from *Camellia sinensis* provides an opportunity to cater to the customers need for nontoxic, non- carcinogenic, environment friendly products. *C. sinensis*also commonly called as 'Tea' is a non-alcoholic beverage, widely consumed throughout the world. It's refreshing, astringent flavour makes tea the second most popular beverage after water. According to Chinese legend Emperor Sheng Nung (The 'Divine Healer') discovered the healing powers of tea in 2737 B.C. when some tea leaves accidently blew into a kettle of boiling water (Ogle, 2009). Although first cultivated and used in South Asia, nowadays it is cultivated throughout Asia, Africa and parts of the Middle east (Mahmood et al, 2010).

Tea is obtained by processing of leaves of the evergreen shrub. Polyphenolic compounds based on the isoflavan structure, make up 30% of the dry weight of flush (the growing point of the plant, i.e buds and immature leaves) (Hamilton, 1995). These dried leaves contain flavonoids, flavonols and phenolic acids.The most common flavonols being the catechins, epigallocatechin (EGC), epigallocatechin gallate (EGCG), epicatechin (EC) and epicatechin gallate (ECG). (Fig.-1)The gallic acid ester epigallocatechin gallate (EGCG) is present in the highest concentration, making up over 61% of the epicatechin derivatives included in the green tea leaves (Kaur et al, 2012).

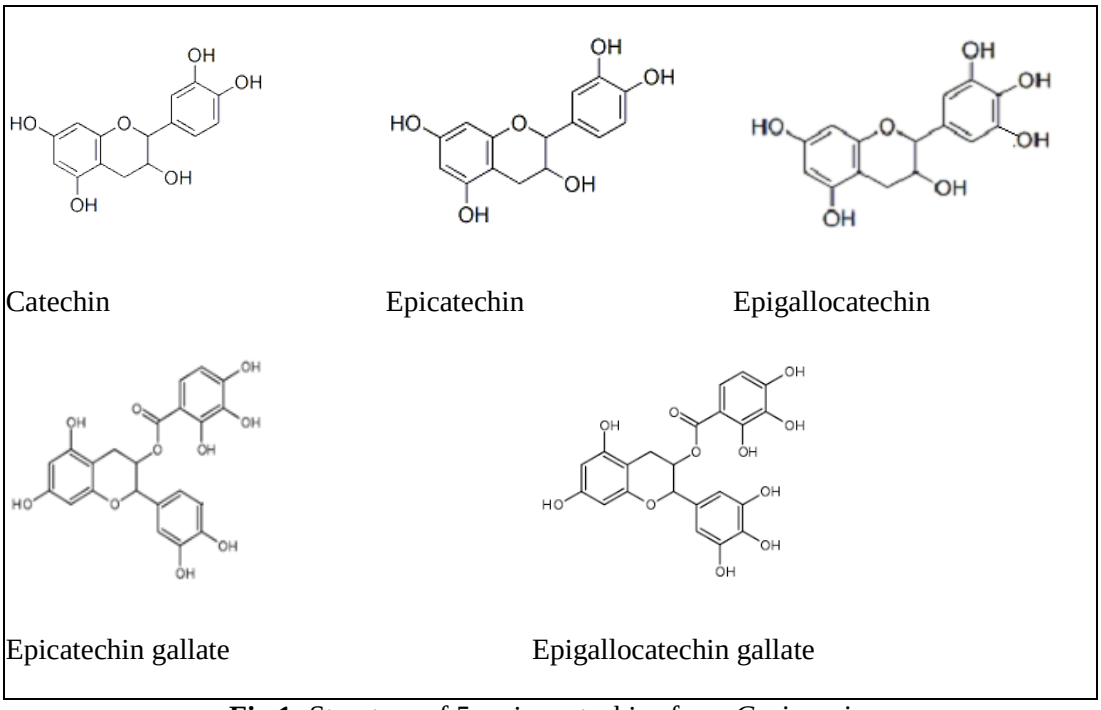

Fig.1: Structure of 5 major catechins from *C. sinensis*

The chief biochemical compounds that produce tea's distinct colour are polyphenols theaflavin and thearubugins (Maulik et al, 2011). These along with tannins play a role in making *C. sinensis* a natural dye source.

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The exhaust process is used as a conventional method to naturally dye fabrics with the reddish brown aqueous extract of *C. sinensis*. To achieve uniform dyeing with good fastness properties constant agitation over prolonged period of time is mandatory. However, the same cannot be applied to nonwoven fabrics as the process would disturb itsinherent physical structure. Little literature is available on dyeing and fixation methods used for naturally dyed nonwoven fabrics and the functional benefits they offer in the wellness industry.

The present paper therefore investigates the application of *C. sinensis*to promote usage of "green" agents in textile dyeing. The extract was checked for its wave length of maximum absorption (λmax) and optimization of extraction was done. Nonwoven cellulosic and regenerated cellulosic fabrics of varying GSM's were pad dyed with the aqueous extract at varied concentrations. It was followed by testing the nonwoven fabrics for their colour strength values, ultra -violet protection, fastness and antibacterial properties.

METHODOLOGY

MATERIAL

C. sinensis was procured from Tea traders, Asssam. Needle punched, nonwoven cellulosic fabrics of varying GSM's were sourced from Tata Mills, Mumbai. All chemicals used were laboratory grade.

1.1 Methods:

Methods of dye extraction*:*

For all the below mentioned extraction methods 10 grams of *C. sinensis* powder along with 100ml of distilled water was heated for one hour .

a. *Open bath extraction method*: The *C. sinensis* powder was heated in distilled water with constant stirring.

b. *Reflux method of extraction*: The powdered herb was refluxed in a round bottom flask, which was attached to a water jacketed condenser. To allow condensation of vapours back into the flask.

c. *Rota dyer extraction method*: Vigorous agitation due to movement of the rota dyer at constant temperature was used for the dye extraction.

The solution was then filtered and subjected to centrifugation for 10 minutes at 3000 revolutions per minute. Further filtration was done using a Grade – 2 sintered glass crucible. Thus a pure aqueous extract of *C. sinensis*was obtained.

Fabric treatment with extracts:

Padding of the aqueous extract was carried out with a vertical two – bowl pneumatic padding mangle at 20%, 30% and 40% concentration. The fixation was done by drying the samples at 120^{o} C for 3 minutes.

Measurement of Wave length of Maximum Absorption:

The aqueous extract was analysed through spectrophotometry. At first, the wavelength of maximum absorption (λmax) was measured employing UV- Vis 8500, UV-visible spectrophotometer of Hitachi, Japan. Once the λmax was determined, it was used as a fixed

point to analyse the colorant concentration in the three extracted solutions. All extracts were diluted to the same appropriate levels.

Evaluation of Colour Strength Properties of dyed fabrics:

Colour characteristics measurements:

The colour characteristics of all the dyed samples were analysed using a Rayscan SpectraScan 5100+ equipped with reflectance accessories. The K/S values were determined using expression: $K/S = (1-R)^2/2\ R$

Where: R is the reflectance at complete opacity, K is the Absorption coefficient; and S is the Scattering coefficient. In general, higher is the K/S value, higher is the depth of the color on the fabric. An average of four reflectance measurements were performed each taken at four different sample areas.

Determination of Colour Space Values:

The dyed fabrics were evaluated in terms of CIELAB colour space (L*, a*, b* and H*) values using the Spectra flash® SF 300. In general L* corresponds to the brightness (100= white, 0 = black), a* corresponds to red-green coordinate (+ve = red, -ve = green) and b* corresponds to yellow – blue coordinate(+ve = yellow, -ve = blue). As a whole, a combination of these entire co- ordinates enables one to understand the tonal variations achieved on the dyed samples.

Evaluation Fastness properties:

Colour fastness to light:

Test method ISO 105:B02:1994 was used for assessing light fastness. Assessment was done using blue wool scale. (Rating 1-8; where 1-poor, 2-fair, 3-moderate, 4-good, 5-better, 6-very good, 7-best, 8- excellent).

Colour fastness to Perspiration:

Test method ISO 105: E04 was followed for assessment. The samples were treated with acid and alkaline solutions individually at 37^0 C under pressure for 4 hours. The change in colour of the sample and staining of the undyed samples were assessed using grey scale

Ultraviolet Protection Factor:

Australian/New Zealand (AS/NZ) 4399:1996. UPF ratings were noted in the range of 290-400 nm. UV protection class was identified as follows:- 15-24 (Good), 25 -39 (Very good), 40 or greater (Excellent).

Antibacterial Properties of dyed fabric:

The antibacterial effectiveness of fabrics was tested out by standard AATCC Test Method 100-2004 (AATCC technical manual, 2007).

The test and control fabric samples were inoculated with *Escherichia coli* and *Staphylococcus aureus* microorganisms. The reduction in number of bacterial colonies formed was estimated by using following equation,

$R = 100(B-A)/ B$

where,

R = % reduction in bacterial count;

A = the number of bacterial colonies recovered from the inoculated, treated test specimen swatches in the jar incubated for 24 hour contact period;
B = the number of bacterial colonies recovered from the inoculated, untreated test specimens watches in the jar immediately after inoculation (at "0" contact time).

FINDINGS

3.1. Identification of Wave length of Maximum Absorption:

The absorption spectrums of catechins in water are observed in the range of 248 to 378 nm and have also been reported (Atomssa & Gholap 2015). Dry green and black tea leaves display a shoulder at the 360-380 nm range. This occurs because phenolic compounds like catechin undergo spontaneous natural oxidation producing poly-phenols or tannins due to the aerial oxidation, heat or exposure to UV radiations (Mitra, 2014). A similar graph was observed in Fig. - 2.The aqueous extract of *C. sinensis* obtained by all the three extraction process displayed a shoulder formed between 330nm and 380nm. Thus also indicating the presence of flavonols quercetin, myricetin and kaempferol in the extract(Mahmood et al, 2010). . A sharp peak at 342 nm was noted and associated with a glycoside identified as a kaempferol 3-O-2″-glucosylrutinoiside (Lin et al, 2008). This was used in all three readings as a benchmark for dye extraction and concentration.

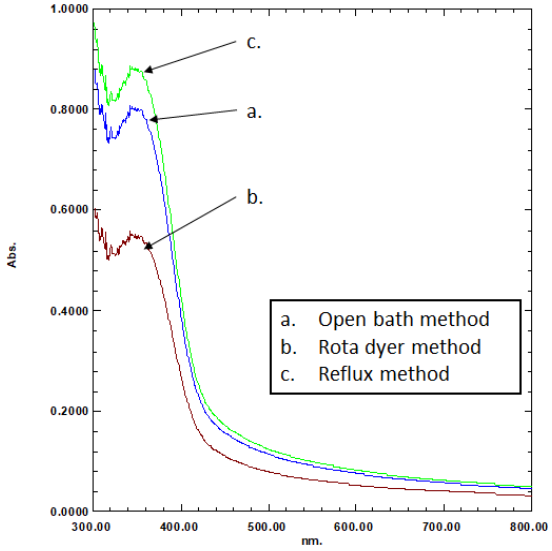

Fig.- 2:UV-Visible absorption spectrum of aqueous extract derived from *C, sinensis*

1.2. Comparative study of the three methods of dye extraction:

Once the aqueous solutions were derived from the open bath, reflux and rota dyer methods of extraction, they were compared spectrophotometrically at the fixed point of λ 342 nm.
It was observed that the reflux method of extraction gives the highest concentration of dye at 0.8867 and is (59%) higher than the rota dyer method of extraction which was noted at 0.5574. The open bath method gave marginally lower concentrations at 0.8088. The reflux method was therefore preferred and open bath method could be considered suitable second option for dye extraction.(Fig.-2). It also has an advantage as vapoursformed during the extraction process condense and return volatile compounds back to the dye stock due to the water jacket of the apparatus.

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1.3. Evaluation of pad dyed and dried cellulosic nonwoven fabrics:

Colour characteristics of cotton and viscose fabric pad-dyed with C. sinensis:

The relative colour strength of 200 GSM cotton nonwoven fabrics displayed the highest K/S values, followed by 200 GSM viscose samples.

Table – 1: Colour characteristic of Cellulosic fabrics dyed with*C. Sinensis*

Fabric	Concentration	L	a*	b*	K/s
Cotton 200 GSM (A)	20%	79.26	3.66	17.11	0.75
	30%	80.41	3.52	18.92	0.91
	40%	81.54	4.69	21.02	1.13
Cotton 100 GSM (B)	20%	81.59	3.92	17.95	0.66
	30%	82.33	3.72	19.46	0.87
	40%	83.25	3.72	20.88	1.06
Viscose 200 GSM (C)	20%	79.73	2.58	16.64	0.64
	30%	80.87	2.63	17.94	0.74
	40%	81.10	2.86	18.42	0.90
Viscose 100 GSM (D)	20%	78.57	1.90	14.99	0.63
	30%	79.03	1.36	15.21	0.74
	40%	79.61	1.07	15.37	0.80

A similar pattern was observed in the 100 GSM cotton and viscose fabric with 100 GSM viscose having the least values, (refer Table 1). This trend could be attributed to the increase in fabric density caused by change in fabric geometry during the dyeing process, thus reflecting in an enhancement or higher depth in colour. All nonwoven samples also followed a trend of higher K/S values with increase in dye concentrations irrespective of their fiber composition. Similar results of increase in colour depth values have been reported by other authors (Sultana & Akhter, 2015).

Influence on Colour Coordinates:

Results with respect to the colour coordinate L* indicate that shades obtained were bright as all values were recorded between the 50– 100 range. This is in tandem with readings for aqueous extracts of tea reported in literature (Kaur et al 2012). The L* values of viscose fabrics appear to be higher compared to cotton. The higher reflection of incident light could be attributed to the smoother and more cylindrical nature of fibers ascompared to cottons twisted ribbon like structure.

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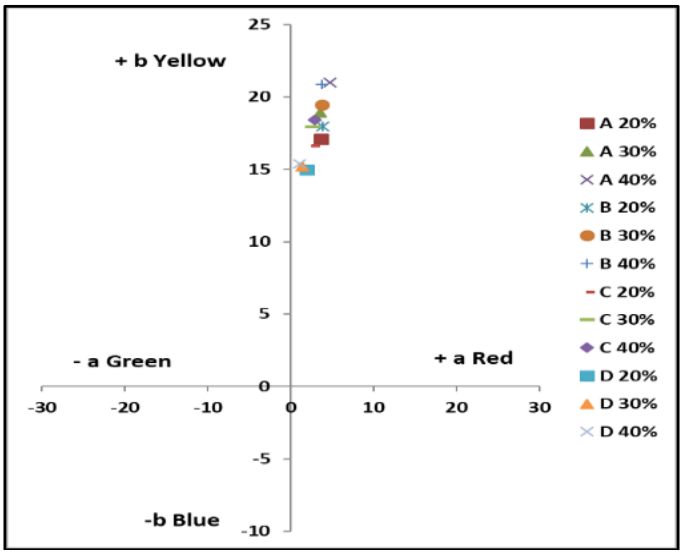

Fig. – 3: a*, b* plot of fixation methods used on *C. sinensis* dyed nonwovens

Series-(A: 200 GSM / B: 100 GSM cotton), (C: 200 GSM / D: 100 GSM viscose).
Fig. - 3. Shows that all readings have a clear leaning towards the red – yellow zone. The (+a) values indicate a hint of red undertones in the samples. It is also observed that the samples dyed with 40 % extract have higher yellow tones and gradually move towards displaying brighter shades compared to the samples dyed at lower concentrations which show a marked increase in the darker shades.

1.4. Fastness Properties:

Table 2. shows the fastness performance of the nonwoven pad dyed samples treated with aqueous extract of *C. sinensis*. The 200 GSM cotton and viscose nonwoven samples dyed at 40% concentration displayed the highest lightfastness values along with 30 % dyed cotton samplesas seen in Fig.-4. The photochemical oxidation of dye chromophore is largely responsible for lightfastness of naturally dyed fabrics (Prabhu & Bhute, 2012).

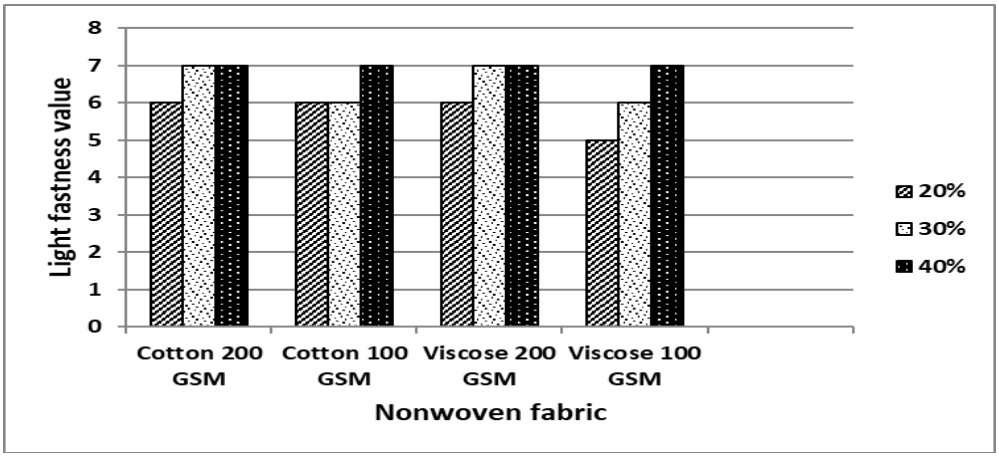

Fig. - 4: Relation between light fastness and *C. sinensis* dyed nonwoven samples.

It has been reported that a higher K/S value indicates greater penetration and higher aggregation of dye molecules inside the fabric (Tera et al, 2012). This helps understand the marked improvement in light fastness values with increase in dye concentration. It has also been substantiated by work reported from our laboratory (Teli & Shukla, 2017).

The results of perspiration fastness in Table 2. Indicate that the change in colour for 200 GSM cotton and viscose samples is similar, but a slight increase in resistance to staining of adjacent fabric was observed in the viscose samples.

An overall decline in grey scale ratingswas observed for alkaline perspiration fastness as compared to acidic conditions. A marginal drop in staining of wool values was consistently observed in the fabrics dyed with 40% dye concentration.

Table – 2: Assessment of light and perspiration fastness of cellulosic fabrics dyed with *C. sinensis*

Non – woven Fabric	Conc, (%)	Light fastness	Perspiration fastness					
			Acidic solution			Alkaline solution		
			CC	SC	SW	CC	SC	SW
Cotton 200GSM	20%	6	3/4	4	4	3	3/4	¾
	30%	7	4	4	3/4	3/4	3/4	¾
	40%	7	4	4/5	3/4	3/4	3	2/3
Cotton 100GSM	20%	5	3	¾	3/4	2/3	3	3
	30%	6	3	¾	3/4	2/3	3	3
	40%	6	3/4	¾	3	2/3	3	2/3
Viscose 200GSM	20%	5	3/4	4	4	3	3/4	3
	30%	6	4	4/5	4/5	3/4	3/4	¾
	40%	7	4	4/5	3/4	3/4	3/4	3
Viscose 100GSM	20%	5	3	¾	3/4	2/3	3/4	¾
	30%	5	3	¾	3/4	2/3	3/4	¾
	40%	6	3	¾	3	2/3	3/4	2/3

Note: CC- Change in colour, SC- Staining on cotton, SW- Staining on wool**.**

1.5. Ultraviolet Protective Factor:

The UPF values and protection categories for all samples showed improvement. All samples with the exception of 100 GSM viscose were found to have excellent readings above 50+, followed by Very good values for 100 GSM viscose samples. Thus it can be safely ascertained that the *C. sinensis*dyed fabrics provide excellent UV protection.

3.6 Antimicrobial properties:

C. sinensis is reported to contain nearly 4000 bioactive compounds. Polyphenols make up one third of these active compounds and are reported to be mostly flavonoids. *C. sinensis* extracts

being more effective on Gram Positive bacteria such *S. aureus* and *S. epidermidis* as compared to gram negative bacteria have been reported (Mahmood et al, 2010). This antibacterial property could beattributed to the bacterial cell membrane perturbation by the extract's bioactive compounds (Hamilton, 1995). Bactericidal catechinepigallocatechin gallate (EGCG) primarily acts as a strong bactericidal compound that causes leakage of 5,6-carboxyfluorescin from phosphatidylcholine liposomes present in the cell membranes. The observation that Gram-negative bacteria are more resistant to bactericidal catechins than Gram-positive bacteria can also be explained to some extent by the presence of negatively charged lipopolysaccharide (Ikigai et al, 1993).

As observed in Table 3, cotton samples pad dyed with *C. sinensis* extract showed lesser growth of CFU's as compared to their viscose counterparts. 200 GSM cotton samples showed maximum and100 GSM viscose fabrics showed the least % bacterial reduction.

Table - 3: Effect on antibacterial Properties of C. sinensis extracts, (30% conc)

Fabric	Antibacterial properties (% Reduction)	
	S. aureus	*E. coli*
Cotton 200GSM	72.69	64.90
Cotton 100GSM	62.00	58.63
Viscose 200GSM	64.29	52.15
Viscose 100GSM	57.48	46.63

CONCLUSION

Dyes from petrochemical sources pose a threat to the environment during their synthesis, application as well as at the end of the life cycle of the product. The successful use of *C.sinensis*on cellulosic nonwoven fabrics by the pad-dye-cure method of application and fixation proved to be a far more efficient technique. This is due to the decreased time and energy consumed as compared to the traditional method of exhaust dyeing of natural dyes. The samples obtained have showed encouraging results in terms of good colouration, UV protection and antibacterial properties and thus can be safely used to promote *C. sinensis* as an environment friendly "green agent".

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DESIGN & PRODUCT (SOUVENIR) DEVELOPMENT: INSPIRED BY VARIOUS ART & CRAFT OF M.P.FOR THE PROMOTION OF MP TOURISM

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ABSTRACT

A souvenir can be any object that can be collected or purchased and transported home by the traveler as a memento of a visit. Throughout the world, the souvenir trade is an important part of the tourism industry serving a dual role, first to help improve the local economy, and second to allow visitors to take with them a memento of their visit, ultimately to encourage an opportunity for a return visit, or to promote the locale to other tourists as a form of word-of-mouth marketing. Souvenirs as objects include mass-produced merchandise such as clothing: T- shirts and hats, postcards, refrigerator Magnets, miniature figures; household items: Mugs, bowls, plates, ashtrays, spoons, fudge, notepads, plus many others. Selling souvenirs has been repeatedly considered an effective way for communities to take economic advantage from tourism, especially in rural or poor areas.

We have a very rich tradition not just of tribal craft but tribal art too. Tribals have their own aesthetic sense. Paintings are an integral part of tribal life. The tribal paintings reflect all the dimensions of tribal life. The following art & craft of Madhya Pradesh using for design and product development Gond, Mandana, Pithora, Rock, Paintings and architectural art of Khajuraho & Sanchi. Motifs from each art and craft were selected and modified for product development. Mainly wearable products were selected for souvenir designing as the objective was to promote & to upgrade the tourism of Madhya Pradesh. So 5- T-shirts, 5-cap and 5-sun scarves were designed from each art. Out of these two highest scored designs were prepared and evaluated for the acceptability. Result shows that souvenir were highly appreciated and liked by most of the respondents and it is concluded that these designed wearable products can be used as souvenirs to promote tourism of Madhya Pradesh.

Key Words:-Design development, Souvenir, Art & Craft, Tourism, Acceptability.

INTRODUCTION

A souvenir can be any object that can be collected or purchased and transported home by the traveler as a memento of a visit. While there is no set minimum or maximum cost that one is required to adhere to when purchasing a souvenir, etiquette would suggest to keep it within a monetary amount that the receiver would not feel uncomfortable with when presented the souvenir. The object itself may have intrinsic value, or be a symbol of experience. Without the owner's input, the symbolic meaning is invisible and cannot be articulated.

The tourismindustry designates tourism souvenirs as commemorative merchandise associated with a location, often including geographic information and usually produced in a manner that promotes souvenir collecting.

Throughout the world, the souvenir trade is an important part of the tourism industry serving a dual role, first to help improve the local economy, and second to allow visitors to take with them a memento of their visit, ultimately to encourage an opportunity for a return visit, or to

promote the locale to other tourists as a form of word of mouth marketing. Souvenirs as objects include mass-produced merchandise such as clothing: T- shirts and hats,postcards, refrigerator Magnets, miniature figures; household items: Mugs, bowls, plates, ashtrays, spoons, fudge, notepads, plus many others (https://en.wikipedia.org/wiki/Souvenir)

The souvenir is an important component of the tourist experience, with most tourists bringing back mementos and souvenirs as evidence. People like to be reminded of special moments in their lives and to hold evidence of those special moments. However, despite the considerable previous research into souvenirs and purchase behavior, little research exists that investigates the motivations for souvenir purchase. In addition, there has been little investigation of the impact of gender on the souvenirs purchased and the motivations for purchase.

Shopping is said to be the most universal of all tourist activities and a tremendously important leisure pursuit. Taking home mementos and souvenirs as evidence hold great symbolic value related to pleasurable travel experiences and memories the owner associates. The acquisition of mementos and souvenirs is a recognized act related with many activities, including leisure and other travel experiences as few people will go for a vacation without purchasing some form of evidence to capture the experiences and memories. (Gordon, 1986; Littrell et al.,1994)

Souvenir objects are well known to all of us. We treasure them in our homes, our bags, and our pockets. The expenditure made by the tourist mostly come from accommodation, foods and shopping. Souvenir sales are no laughing matter; in the US it generates an annual sale more than $25 billion.(Love and Sheldon, 1998)

Selling souvenirs has been repeatedly considered an effective way for communities to take economic advantage from tourism, especially in rural or poor areas.

Madhya Pradesh is the largest state of India, with the highest tribal population. The paintings basically cater to the object of daily life in bright-multicolored hues. We have a very rich tradition not just of tribal craft but tribal art too. Tribals have their own aesthetic sense. Be it dance or music, paintings or craft, they consciously preserve their traditions. Paintings are an integral part of tribal life. The tribal paintings reflect all the dimensions of tribal life. The paintings are a combination of their tradition, memory and myths. Every artist maintains his or her respective tradition in paintings. The tribal are intimately attached to the birds, animals, their village, house and agriculture. In so far as the richness and diversity of tourism destinations is concerned, Madhya Pradesh is easily the best state of the nation. Also known as the “Tiger State of India”, the state has three world heritage sites namely Sanchi, Bheembetka and Khajuraho famous for their architectural beauty. Gond, Mandana, Pithora, Rock, Paintings and architectural art of Khajuraho & Sanchi were used to develop products. The aim of this study was to popularize MP tourism from souvenir development. In this study effort has been made to design and develop the products to be used as souvenirs with the following objectives-

1. To Design Souvenirs for MP tourism inspired from arts and crafts of Madhya Pradesh.
2. Product development in the form of wearable and non wearable souvenirs.
3. To find out the acceptability of the developed products.

REVIEW OF LITERATURE

Although souvenirs have received increased research interest in tourism studies, sociological research in this field still remains limited. This exploratory study aspires to overcome past research negligence on the values identified in social theory for commodities, such as Marx's

use and exchange values and Baudrillard's sign-value, as well as introducing an additional one, the spiritual-value. By using a sample of twenty respondents in Veria, a small city in Northern Greece, this study attempts to interpret souvenirs as commodities with certain values and to identify the functions that tourists expect to receive when purchasing them. Despite its limitations, this study provided a theoretical understanding of the sociological aspects of souvenirs' consumption in relation to the four values(Pavlos Paraskevaidis and Konstantinos Andriotis, 2015).

This study provides a new understanding of a number of aspects of customer purchase behavior when it comes to buying souvenirs. Regarding travel and tourism products, we may find relatively few researches into gender differences; some of the previous research has found that women tend to purchase souvenirs more frequently than men. According to this case study a strong support is identified as souvenirs for the visitors themselves, with this being stronger support amongst the females (Reena Ibadat, 2016)

This research studies the various reasons why tourists buy souvenirs during their vacation. This paper was conducted via interviews and questionnaire, which was distributed to 270 respondents around Sarawak. Data was analyzed using Means and Factor Analysis. The findings showed that tourists buy souvenirs because of: 1.Love, Beauty and Uniqueness 2.Gift to Loved Ones3. Has Picture and Remind Of The Place, 4. Traditional and Show Culture, 5. Wear and for Myself, 6. Cannot Find in My Own Country, 7. Learn Other Country and Culture, 8.Collection and Friends, 9.Different Shape, Color and Design 10.Proof and Research. This paper is of value to provide better understanding about tourists' preference of souvenirs especially for those retailers in the related industry (Janifer ak Lunyai and et. All, 2008)

Souvenir becomes destination or attraction– Tourists not only come to visit for its special local scenery or cultural activity, but sometimes for its special local product as well. It is a very common custom for Taiwanese tourists to purchase local souvenirs as gifts to bring back to friends and family. Turner and Reisinger (2000) indicated that tourists spent 2/3 of their total cost on shopping when traveling domestically, and 1/5 of the total cost went into shopping when traveling internationally. Shopping is a main or secondary factor for traveling, and is very important to tourists. It often is an important factor for whether a trip is successful.(Tzuhui A. Tseng and et. All, 2009).

METHODOLOGY

Design research is foundational to creating products, services, and systems that respond to human needs. In the public and international development sectors, understanding and meeting human needs are critical for improved livelihoods and better governance.

An organized course of action was followed the sections as under-

1. Selection of the sample
2. Development of the tool
3. Procedure of data collection
4. Analysis of data

1.Selection of the Sample

1.1Region wise Selection of the Painting

Gond paintings of Gondwana region, Mandana floor decoration of Malwa region, Pithora wall paintings of Bhagor region, Rock paintings of Bhimbetka, Sculptures of Sanchi and Khujraho

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1.2 Sources of Samples collected:
A. Paintings, Photographs & Sculptures displayed at museums
B. Literature
C. Public Libraries
D. Internet
Randomly 50 students and staff of Institute for Excellence in Higher Education, Bhopal was selected to study the acceptability of prepared products.

2. Development of the tool

2.1Rating Scales
5 Point Rating scales were developed for Acceptability survey.(Excellent, very good, good, average, poor)

3.Procedure of Data Collection

The study was conducted in 3 phases- Collection of motifs, Product Development for souvenir, Assessment of acceptability.

4. Analysis of Data

To achieve the objectives of the study the data were transferred on the table and tally sheets and coded, tabulated and analyzed statistically.

4.1 Statistical Measures

4.1.1 Frequency and percentage:Frequency and percentage were used to analyze the data.

4.1.2 Percentage:The rating score obtained by developed design of each category was converted in to percentage.

4.1.3 Ranking: Opinion of the respondents about developed designs was recorded on separate Rating Performa. Total score obtained by each souvenir made from developed designs was ranked in order of acceptance.

4.1.4 Acceptability Index: To assess the percentage acceptability of the developed designs on dress materials an acceptability index is formed

$$\textbf{Acceptability Index} = \frac{\text{Total scores of each Souvenir}}{\text{Maximum Score}} \times 100$$

FINDINGS

1. Selection of Motifs:

Motifs from following five arts and crafts of Madhya Pradesh were selected for product development.

- Gond Paintings of Gondwana Region
- Mandana of Malwa Region
- Pithora Paintings of Bhagore Region
- Rock Paintings of Bhimbetka
- Sculptures of Sanchi and Khujraho

07 motifs from Gond paintings, 04 motifs from Mandana, 08 motifs from Pithora, 05 motifs from Rock paintings, 09 motifs from Sanchi and 07 motifs from Khujraho were selected for preparing souvenirs.

2. Product Development:

Souvenir objects must represent the place where they come from. Thus, the first crucial question is: What reference is appropriate in order to communicate the destination?Five

typological subcategories for souvenirs were found suitable to offer a starting point for the design process:

A. Pictorial images: Postcards are the most common type of contemporary souvenirs. Picture books, drawings and photographs as well belong to this category.

B. "Piece-of-the-rock" souvenirs: This type of souvenir objects, which are literally "part of the whole", includes all kinds of natural material such as shells from the beach, stones or pinecones but also pieces picked up from the built environment.

C. Marker. The easiest way is to mark souvenir-suited objects – T-shirts, peaked caps, neckties, mugs, decorative wall plates, ashtrays, key rings etc. – with the name of a destination. Astonishingly, the simple applications of a few words to such are very common.

D. Symbolic shorthand. Typical monuments like the Statue of Liberty, the Eiffel Tower represent their location without the need of any marker.

E. Local products. This category includes various objects, ranging from indigenous food (Greek olive oil) and food paraphernalia (Mexican tortilla press) to identifiable local clothing (kilt from Scotland) and all kinds of local crafts.

In this study C. category of Souvenirs ie Markers was selected, as it was the easiest one to prepare.

Following mark souvenir- suited objects were decided to make.

1. Caps with embroidered symbols
2. T-shirts with screen printed local arts
3. Digitally printed Scarves inspired from art and crafts of MP
4. Other Souveneirs-Mugs, Key Chains, coasters, fridge, magnates denoting the special characteristics of local destination.

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Plate no. 1 - Selection of Motifs from Traditional Arts of M.P.

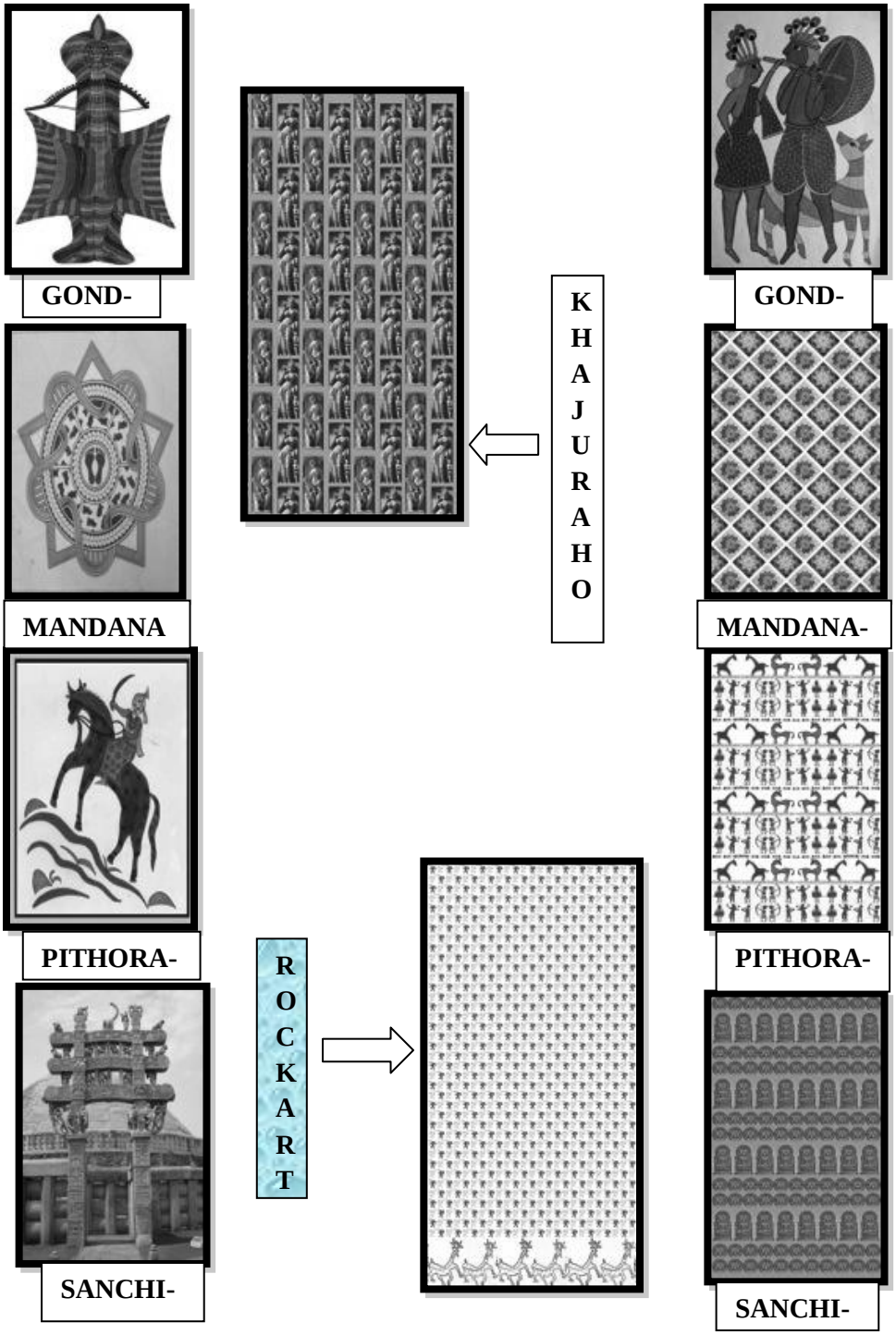

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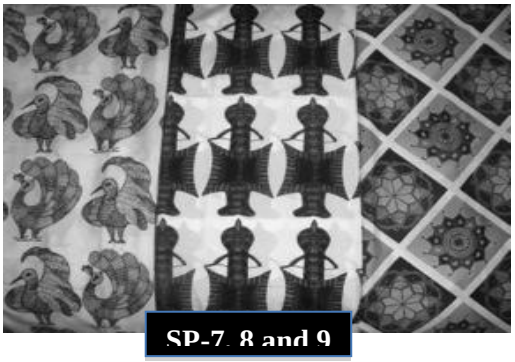
Plate No. 2 Souvenir Products

SP-1, 2 and 3

SP-4, 5 and 6

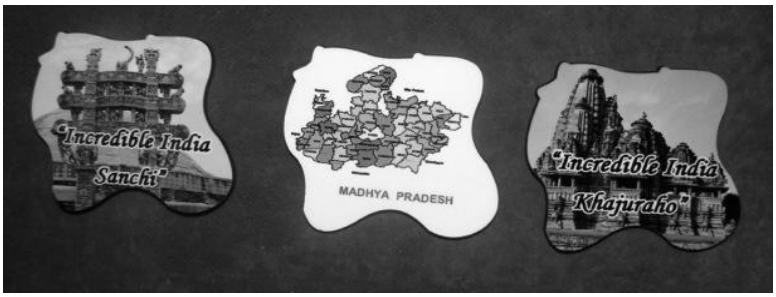


SP-7, 8 and 9

SP-10, 11 and

OS-1, 2

OS- 3, 4



O5-5 OS - 6 OS - 7

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OS – 8, 9

CP – 1, 2, 3

CP – 4, 5, 6, 7

CP - 8, 9, 10, 11

TP – 1, 2, 3

TP – 4, 5

TP – 6, 7

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Acceptability Survey: Size of the Motif , Placement of the Motif , Color Combination, Overall Appearance

were the attributes which were considered while evaluating all the Souvenir Products made by using six different Arts of Madhya Pradesh-

Table No. 1 Acceptability Index for Caps n=50

Rating Scale☆ - 5.Excellent, 4.Very Good, 3. Good, 2.Average, 1. Poor

Product Code	Size of the Motif (250)	Placement of the Motif (250)	Colour Combination (250)	Overall Appearance (250)	Total (1000)	Mean Score (20)	Acceptability Index (%)
CP-1	185	170	190	220	765	15.3	76.5
CP-2	195	210	165	200	770	15.4	77
CP-3	215	212	223	237	887	17.74	88.7
CP-4	176	189	198	205	768	15.36	76.8
CP-5	190	235	234	241	900	18	90
CP-6	203	195	216	208	822	16.44	82.2
CP-7	227	213	231	215	886	17.72	88.6
CP-8	194	206	219	224	843	16.86	84.3
CP-9	188	193	200	209	790	13.88	79
CP-10	238	219	237	224	918	18.36	91.8
CP-11	197	185	218	217	817	16.34	81.7
CP-12	187	159	239	236	821	16.42	82.1

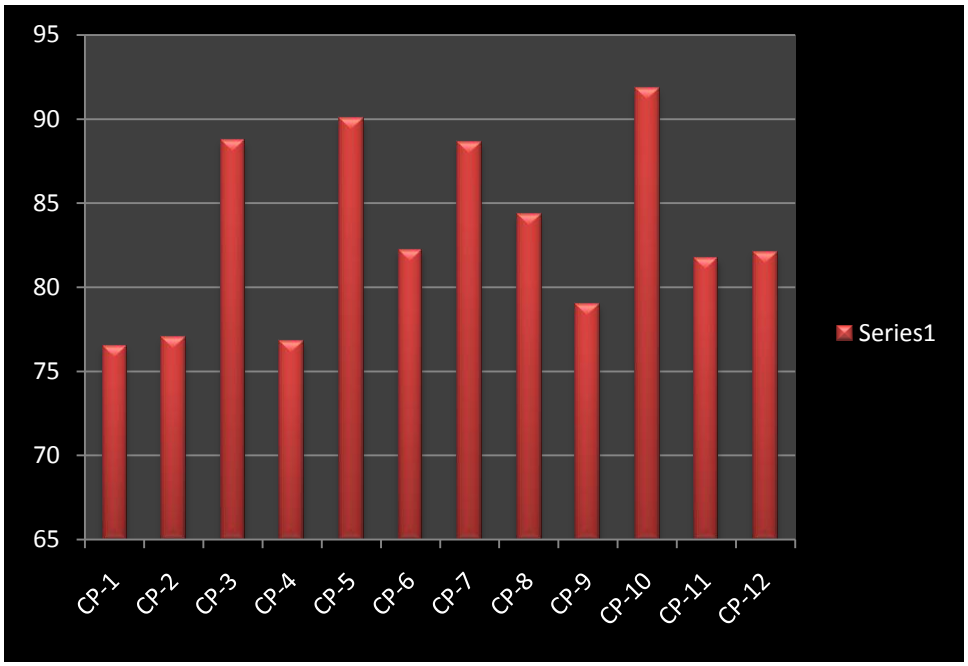

Fig. - 1 Acceptability for Caps

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Table no. 1 and Figure No. 1 shows that Cap Products (CP) – 10 was highly accepted by respondents (91.8%) with a mean score of 18.36 out of 20 followed by CP-3 with mean score 17.74. The acceptability index of Caps CP-7 is 88.6% and was next favored with a mean score 17.72, among all the developed Caps, CP-1 was least liked by the respondents with a mean score of 15.3 out of 20.

Table No. 2 Acceptability Index for Scarves n=50

Rating Scale: ☆5.Excellent, 4.Very Good, 3. Good, 2.Average, 1. Poor

Product Code	Size of the Motif (250)	Placement of the Motif (250)	Colour Combination (250)	Overall Appearance (250)	Total (1000)	Mean Score (20)	Acceptability Index (%)
SP-1	225	230	241	240	936	18.72	93.6
SP-2	221	219	235	238	913	18.26	91.3
SP-3	232	211	243	236	922	18.44	92.2
SP-4	210	198	234	239	881	17.62	88.1
SP-5	237	242	244	231	954	19.08	95.4
SP-6	198	210	227	225	860	17.2	86
SP-7	233	226	240	246	945	18.9	94.5
SP-8	196	208	224	215	843	16.86	84.3
SP-9	219	214	235	228	896	17.92	89.6
SP-10	225	237	241	239	942	18.84	94.2
SP-11	231	234	237	244	946	18.92	94.6
SP-12	196	189	214	208	807	16.14	80.7

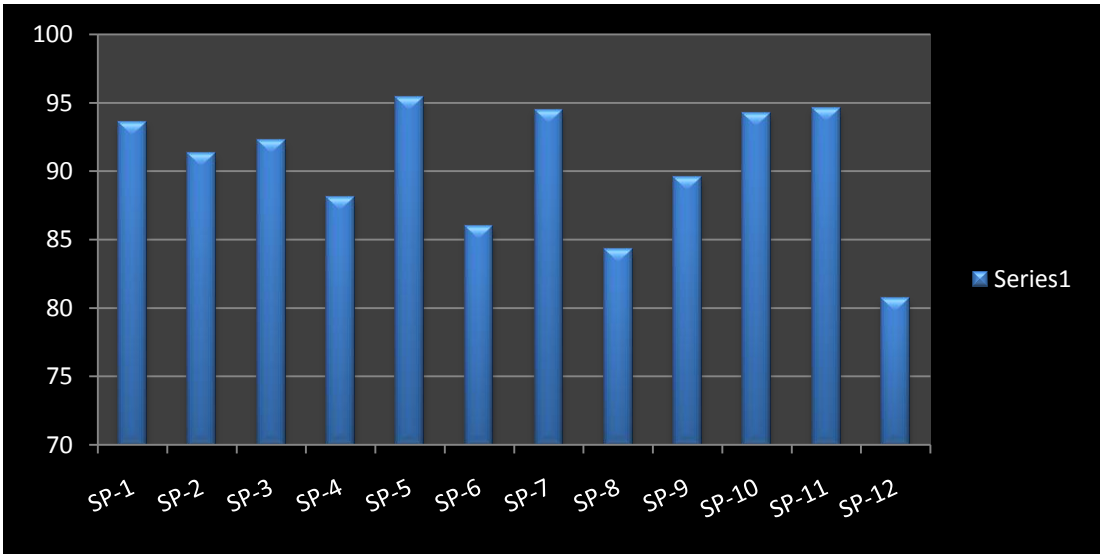

Fig.- 2 Acceptability for Scarves

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Table no. 2 & Fig no. 2 shows that Scarves Products (SP) – 05 was highly accepted by respondents (95.4%) with a mean score of 19.08 out of 20 followed by SP-11 with mean score 18.92. The acceptability index of Scarves SP-7 is 94.5% and was next favored with a mean score 18.9, among all the developed Scarves, SP-12 was least liked by the respondents with a mean score of 16.14 out of 20.

Table No. 3 Acceptability Index for T-Shirts n=50

Rating Scale☆5.Excellent, 4.Very Good, 3. Good, 2.Average, 1. Poor

Product Code	Size of the Motif (250)	Placement of the Motif (250)	Colour Combination (250)	Overall Appearance (250)	Total (1000)	Mean Score (20)	Acceptability Index (%)
TP-1	215	234	229	236	914	18.28	91.4
TP-2	199	218	194	203	814	16.28	81.4
TP-3	216	208	182	214	820	16.4	82
TP-4	186	197	189	209	781	15.62	78.1
TP-5	229	211	201	239	880	17.6	88
TP-6	175	168	195	212	750	15	75
TP-7	198	192	190	200	780	15.6	78

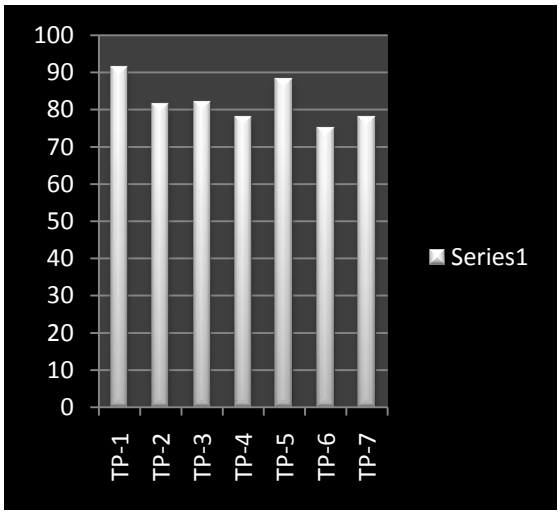

Table no. 3 & Fig no. 3 shows that T-Shirt Products (TP) – 01 was highly accepted by respondents (91.4%) with a mean score of 18.28 out of 20 followed by TP-05 with mean score 17.6. The acceptability index of T-Shirts TP-03 is 82% and was next favored with a mean score 16.4, among all the developed T-Shirts, TP-06 was least liked by the respondents with a

Fig. - 3 Acceptability for T-Shirts

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Table No. 4 Acceptability Index for Other Souvenir Products n=50

☆Rating Scale: - 5.Excellent, 4.Very Good, 3. Good, 2.Average, 1. Poor

Product Code	Size of the Motif (250)	Placement of the Motif (250)	Colour Combination (250)	Overall Appearance (250)	Total (1000)	Mean Score (20)	Acceptability Index (%)
OS-1	215	199	229	238	881	17.62	88.1
OS-2	235	225	232	240	932	18.64	93.2
OS-3	245	222	243	237	947	18.94	94.7
OS-4	196	198	228	205	827	16.54	82.7
OS-5	224	237	244	231	936	18.72	93.6
OS-6	233	235	216	228	912	18.24	91.2
OS-7	227	223	231	215	896	17.92	89.6
OS-8	224	236	239	244	943	18.86	94.3
OS-9	218	243	237	239	937	18.74	93.7

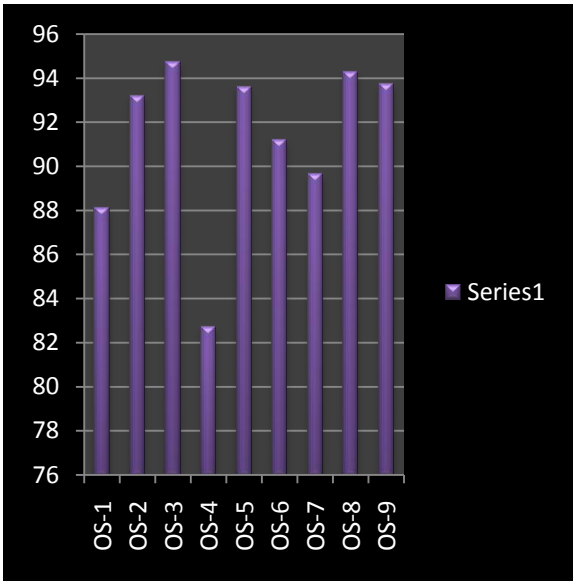

Table no. 4 & Fig no. 4 shows that Other Souvenir Products (OS) – 03 was highly accepted by respondents (94.7%) with a mean score of 18.94 out of 20 followed by OS-08 with mean score 18.86. The acceptability index of Other Souvenir OS-09 is 93.7% and was next favoured with a mean score 18.74, among all the developed Other Souvenir, OS-04 was least liked by the respondents with a mean score of 16.54

Fig No. 4 Acceptability for Other Souvenir Products

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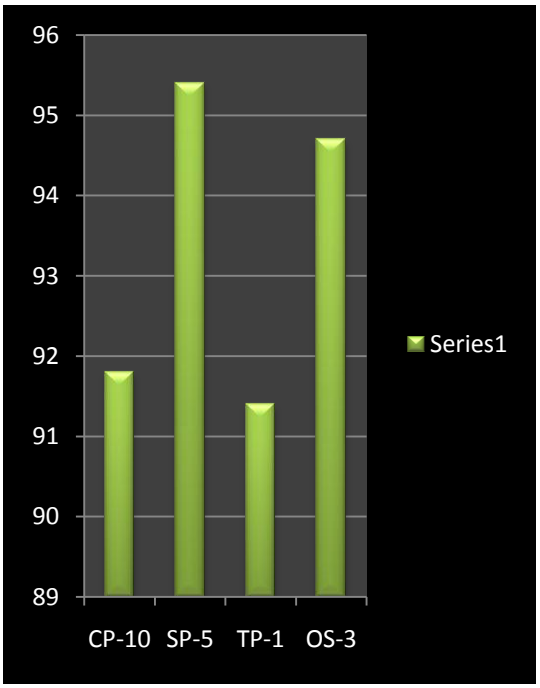
Table- 5: Acceptability Index and ranking of Souvenir Products scored highest among all Arts n=50

Rating Scale: - 5.Excellent, 4.Very Good, 3. Good, 2.Average, 1. Poor

Product Code	Total (1000)	Acceptability Index (%)	Ranking
CP-10	918	91.8	III
SP-5	954	95.4	I
TP-1	914	91.4	IV
OS-3	947	94.7	II



It is apparent from table no.5 and Fig. no.5 the varied scores obtained in the rating Performa showed that Scarf made from Pithora motifs (SP-05) got the highest acceptability among all 40 developed Souvenir products from all arts with 95.4%.of total respondents, whereas Cup (OS-03) made from Gond Painting motifs stood second rank with 94.7% acceptability index. Cap developed from Gond, paintings got third rank with 91.8%, approximately equal acceptability with 91.4%, T-Shirt (TP-01) made from Sanchi Sculpturewere least liked by respondents.

Fig.5:- Highest acceptability index among all arts

CONCLUSION

Souvenir shopping is an essential tourism experience for many people. This paper interrogates souvenir purchasers to evaluate acceptance and potential of the developed new souvenir objects. The present study was conducted to develop designs through various methods: Embroidery, digital textile printing, Screen printing, inspired by traditional art of Madhya Pradesh. Study of different traditional art of Madhya Pradesh and findings from assessment of acceptability it can be concluded that developed design on different souvenir products were highly appreciated and liked by the customers. Adaptation of designs from selected paintings, architecture structures and sculptures of Madhya Pradesh make new innovations in design development which holds bright future in fashion and textile industry, different traditional art

of Madhya Pradesh to be used in textile designing. Outcome of this study was due to modernization people are losing their interest towards tribal arts. Therefore, there was a need to increase the acceptability of tribal arts among the individual. This study was conducted to create interest of people towards the tribal arts of Madhya Pradesh, with the help of using computer software like coral draw and Photoshop.

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EFFECT OF NUTRITIONAL EDUCATION ON FAST FOOD CHOICES IN ADOLESCENTS

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ABSTRACT

Healthy eating by school going adolescent is important for good health and development. Optimum nutrition is essential for the healthy growth and development of adolescent. Healthy & nutritionally eating contributes to achieving and maintaining a healthy weight, and provides protection against chronic disease and premature mortality. Conversely, unhealthy eating early in life in particular the over consumption of fast food, as well as physical inactivity and a sedentary lifestyle, are predictors of overweight and obesity. Apart from other non- communicable disease like gastric problems, obesity and anemia are also related to unhealthy eating habits and patterns formed during this time. Fast food culture is vigorously uprising trend among adolescents. Fast food is a mass-produced food that is prepared and served very quickly. The food is typically less nutritionally valuable compared to other foods and dishes. While any meal with low preparation time can be considered fast food. High calorie meal come more fat cholesterol, salt and sugar and other nutrients than in healthier foods. Adolescence is a period where education about healthy eating is essentials for establishing healthy eating practices in later years.

The objective of this study to know about the "Effectiveness of nutrition education on fast food choices in adolescents (age 13-19 years) " because fast food lead lots of health problems. In this study total 100 school going adolescents (both boys and girls) were selected from different schools of Bhopal city. Student and student's mother's provided Nutrition education against choices of fast food. Result showed that the poor knowledge regarding Nutrition education and healthy diet. It was also seen that the fast food consumption was higher and bad eating habits cause health problems like obesity, gastric problems and anemia which shown by questionnaire. Nutrition education was done for children and children's mothers also to improve health status for children. In this study distributed healthy recipes booklets for mothers to make healthy foods for her children, changes were observed after given health education. Result showed that the increase better knowledge regarding Nutrition education and healthy diet or fast food consumption was decrease and improved health status of adolescents was also observed.

Keyword: Nutrition education, fast food, fast food choices, BMI, adolescents, health problems.

INTRODUCTION

Adolescent obesity has become a major health concern in the United States. An increased frequency of fast food restaurant dining is associated with higher intake of calories and calories from fat. The purpose of this study was to gain insight as to how food choices in a ''simulated'' fast food environment might be influenced by nutrition education in a group of adolescents.

Concepts, relationships, lifestyles are metamorphosed to accommodate the new jet age and eating habits too is no exception. Healthy nutritious foods have been replaced by the new food mantra – FAST FOOD! In the context of world economy, junk food is a global phenomenon. The availability of junk food and snacks at low prices and marketing strategies adapted by

manufacturers of such foods has triggered an evolution wherein, consumption of foods that require neither the structure nor the preparation of a formal meal. It seems to have engulfed every age; every race and the newest entrants on stage as adolescents particular. Through health education, a change towards good eating practices and adaption of healthy living is possible. In India fast-food industry is growing by 40 percent a year. in 2007 states that preventable diseases caused mainly due to poor diet as funk food consumption and lack of exercise could kill millions in developing world in the next 10 years.

Nutrition Education is any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food- and nutrition-related behaviors conducive to health and well-being. Nutrition education is delivered through multiple venues and involves activities at the individual, community, and policy levels. The increase in obesity and chronic diseases such as diabetes and heart disease worldwide reflects the complex interactions of biology, personal behavior and environment. Consequently there has been a greater recognition of the importance of nutrition education. Nutrition education is an essential component in improving dietary habits and food choices, in order to reverse the under nutrition and improve the nutritional diagnosis. Poor dietary habits and lack of physical activity can be the main reason for poor nutritional status among older adults. Promoting nutritionally adequate diets for all people is a major aim of FAO. Under nutrition, vitamin and mineral deficiencies, obesity and diet-related chronic diseases exist side by side in many countries. Increase knowledge of the nutritional value of foods. Nutrition is the science that interprets the interaction of nutrients and other substances in food in relation to maintenance, growth, reproduction, health and disease of an organism. It includes food intake, absorption, assimilation, biosynthesis, catabolism and excretion.[1]

The diet of an organism is what it eats, which is largely determined by the availability and palatability of foods. For humans, a healthy diet includes preparation of food and storage methods that preserve nutrients from oxidation, heat or leaching, and that reduce risk of food borne illness.

In humans, an unhealthy diet can cause deficiency-related diseases such as blindness, anemia, scurvy, preterm birth, stillbirth and cretinism, or nutrient excess health-threatening conditions such as obesity and metabolic syndrome;and such common chronic systemic diseases as cardiovascular disease, diabetes, and osteoporosis. Under nutrition can lead to the wasting of kwashiorkor in acute cases, and the stunting of marasmus in chronic cases of malnutrition. That's why nutrition education is more important in adolescents to maintain their health status, and avoid choices of fast food.

Aims:

The main aim of this study to know the effect of nutritional education on fast food choices in Adolescents (boys & girls).

Objectives:

- To identify the awareness of nutrition education in adolescents (boys & girls).
- To assess the fast food choices in adolescents (boys & girls).
- To calculate BMI (Body Mass Index) for health status of adolescents (boys & girls).
- To identify the after counseling effect of nutrition education in adolescents (boys & girls).

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- To distribute pamphlet for education & nutrition education counseling of the adolescents (boys & girls) and give healthy recipe booklets for their mothers , to improvement of her child health.

METHODOLOGY

In the study 100 adolescents (60 boys & 40 girls) will be selected randomly from schools of the Bhopal city in India and their mothers also selected. Study will find out the Effect of nutrition education on fast food choices in Adolescents (boys & girls). Using questionnaire as a data collection instrument, questionnaire included closed ended questions for the convenience of respondents apart from interview method also done for mothers.

Anthropometric measurements techniques will be used on the basis of height and weights of the adolescents (boys & girls) body mass index will be calculated to evaluate the health status of adolescents (boys & girls). Assessment of nutrition education on fast food choices in adolescents. Collected data will be tabulated and statistically analyzed to assess the awareness of nutrition education and fast food choices of adolescents (boys & girls). Statistical method like percentage, will be used.

For assessment of fast food choices of the adolescents (boys & girls) Questionnaire method will be used. In questionnaire method, dietary pattern of adolescents (boys& girls), frequency of fast food consumption, which fast food consume more, awareness of nutrition education etc questions are included. Counseling on nutrition education will be conducted to improve health status and choose healthy & nutritionally foods of adolescents (boys & girls) by giving them pamphlets and healthy recipes booklet for their mothers and educate them. And their feedback will be taken. In this study counseling adolescents (boys & girls) and their mothers also to given information & educate them about nutrition education and fast food choices.

- Given awareness and education of adolescents and their mothers about Nutrition and healthy diets.
- Given awareness and education of adolescents and their mothers about fast food and their effects.
- Adolescents (boys & girls) and their mothers will be given dietary counseling about balance diet and nutritious foods.
- Counseling a mothers for including a green vegetables and fruits for her Children's diet and make attractive & nutritious foods.
- Nutritious and healthy recipe booklets and diet charts were distributed to adolescents (boys & girls) to reduce fast food choices.
- Before counseling adolescents has poor knowledge regarding nutritional education and fast food choices but after counseling fast food choices are changed, adolescents consumed more fruits and vegetable or healthy foods. It will be possible through mothers counseling & education related to nutrition education and fast food choices.

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FINDINGS

This study deals about the effect of nutrition education of fast food choices in adolescents (boys & girls).The study was planned to assess awareness of nutrition education on fast food choices in adolescents. Apart from BMI also observed for health status.

The result of the research work are presented through different bar diagram, pie chart and graphical representation are used to make presentation easy to understand. Effect of nutrition education in adolescents was taken. In this study found a total percent of adolescents (boys and girls) which more choices of fast food.

In the study found that the consumption of fast food has become almost a global phenomenon, as more and more adolescents (boys & girls) are turned out irrespective of demographic traits. Adolescents (boys & girls) are attracted by fast food has assumed importance in recent times. Fast food included pizza, burger, Chinese foods, sandwiches, healthy foods and fruits & vegetables. Many fast food restaurants offer and adolescents (boys & girls) eat. The result showed that the before counseling adolescents eat more fast food and nutrition less foods, but after counseling fast food choices are changed adolescents eat more healthy & nutritionally foods.

Table- 1: Choice of fast food mostly consumed by adolescents (boys & girls)

Types of fast food	**Boys**	**Girls**	**Total**	**Percent%**
Pizza	25	15	40	40%
Burger	16	12	28	28%
Chinese food	11	7	18	18%
Sandwich	7	5	12	12%
Healthy foods	01	01	02	02%
Fruits & vegetables	00	00	00	00%

The fast food in the world today is a growing business. Fast food as general term which is used for food menu that are used in the production line techniques where suppliers specialize in products such as pizza, burgers, sandwiches, Chinese foods and many more. Table 1 showed that the 40% adolescents (boys & girls) consumed pizza and 28% adolescents (boys & girls) consumed burger and 18% adolescents (boys & girls) consumed Chinese foods and 12% adolescents (boys & girls) consumed sandwiches and 2 or 0% adolescents (boys & girls) consumed healthy foods and fruit & vegetables. The result showed that the most of adolescents (boys & girls) eat pizza, burger and Chinese foods.

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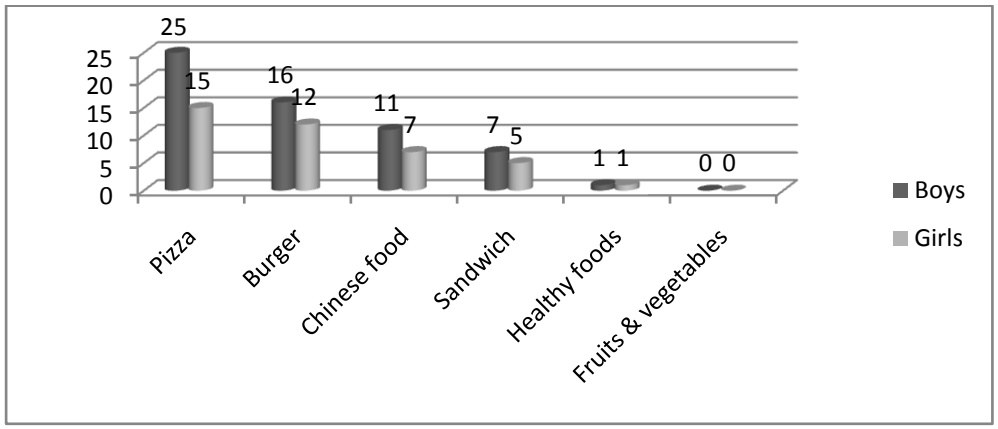

Fig. 1 Choice of fast food mostly consumed by adolescents (boys & girls)

Table-2: Average BMI and percentage of adolescents (boys & girls) (n: 100)

BMI value	No of adolescents		Total Percent % of both adolescents	Average BMI of both adolescents
	Boys	Girls		
<18.5 (Under Wt.)	6	5	11.0	17.6
18.5 - 25 (Normal)	13	11	24.0	23.4
25 - 30 (Over Weight)	17	13	30.0	27.8
> 30 (Obese) Grade I, II, III	20	15	35.0	32.8

BMI is a responsible indicator of the nutritional status of an individual. BMI was calculated from the weight in kilograms and height in meters of an individuals. BMI is a quick and easy way to determine stored body fat. Table 2 shows that category of adolescents (boys & girls). This calculation show the poor health status were found in adolescents. On average 30 and 35 percent of adolescents found overweight and obese (grade 1 obesity). This indicates that overweight and obesity was almost increasing rate in adolescents (boys & girls) due to consumption of fast food. And 24 percent adolescents were found normal and 11 percent adolescents were found underweight according to BMI grades.

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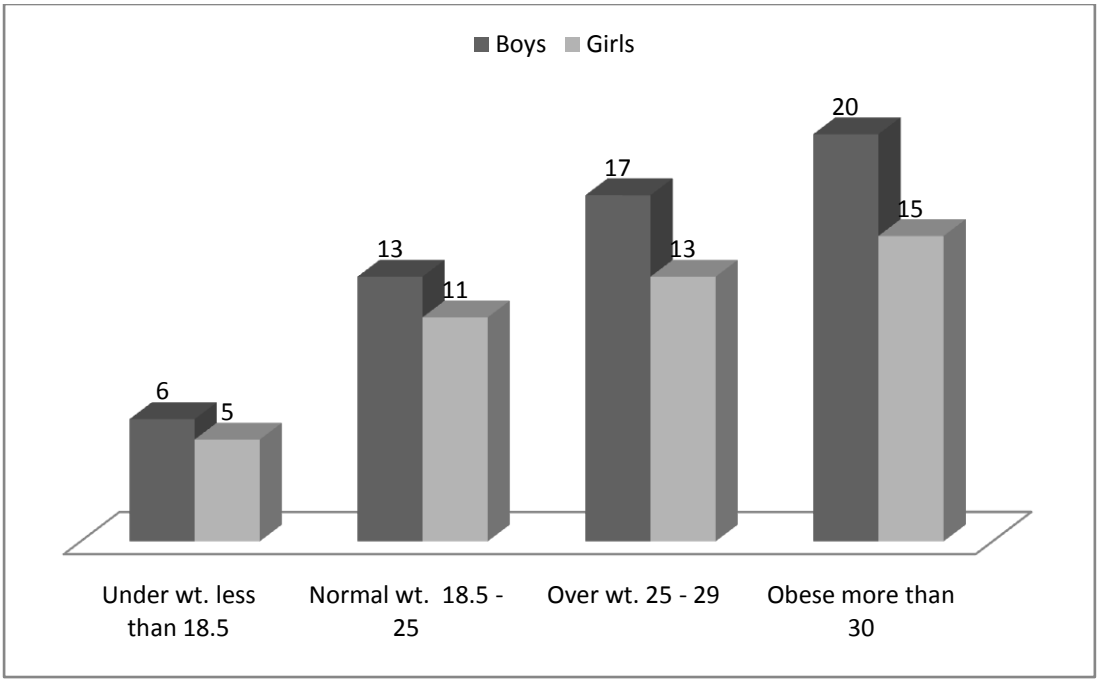

Fig.2 Total percentage of adolescents (boys and girls) on the bases of BMI category

Table- 3: Level of nutrition education in adolescents (Boys & girls) before counselling (n:100)

Adolescents	Total Number of students	Educated and aware	Total percentage	Uneducated and unaware	Total percentage
Boys	60	21	21%	39	39%
Girls	40	16	16%	24	24%
Total	100	37	37%	63	63%

The result showed that the before counseling 21 adolescents boys and 16 adolescents girls was know about nutrition education and aware. And 39 boys or 24 girls are unaware about nutrition education, they need more education.

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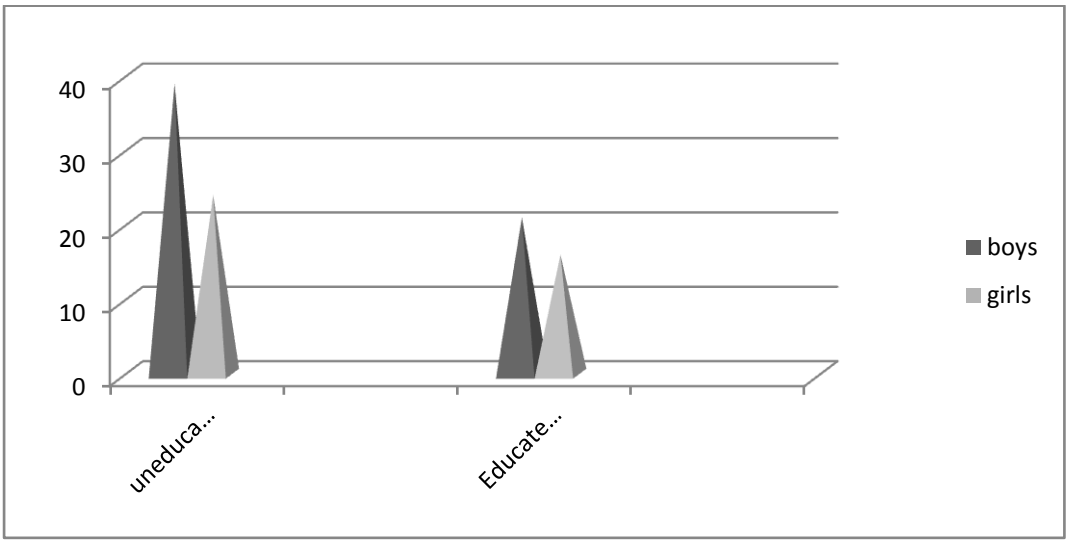

Fig.3: Level of nutrition education in adolescents (Boys & girls) before counseling (n:100)

After counseling : The impact of counseling on adolescents (boys & girls) effect of nutrition education and food choices food choices was recorded after one month through feedback process. All these data collected are analyzed and all the changes before and after counseling are captured in the result.

Table - 4: Difference of fast food choices mostly consumed by adolescents both (boys& girls) after counseling

Choices of fast food		No. of adolescents				
	Before counseling boys	Before counseling girls	Total percent	After counseling boys	After counseling girls	Total percent
Pizza	25	15	40%	17	11	28%
Burger	16	12	28%	9	6	15%
Chinese food	11	7	18%	7	5	12%
Sandwich	7	5	12%	4	3	7%
Healthy foods	1	1	2%	14	8	22%
Fruits & vegetables	00	00	00%	8	8	16%

Before counseling the consumption of fast food is higher in adolescents (boys & girls) it was found highly consumption of Pizza 40%, burger 28% and Chinese food 18%, or 12% of sandwich. And healthy foods or fruits & vegetables consumed very less quantity. And after counseling fast food consumption was decreased, it was found highly consumption of Pizza 28%, burger 15% and Chinese food 12%, or 17% of sandwich. And healthy foods or fruits

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&vegetables are 22% & 16% consumed. In this study the result showed that the counseling was so effective and useful.

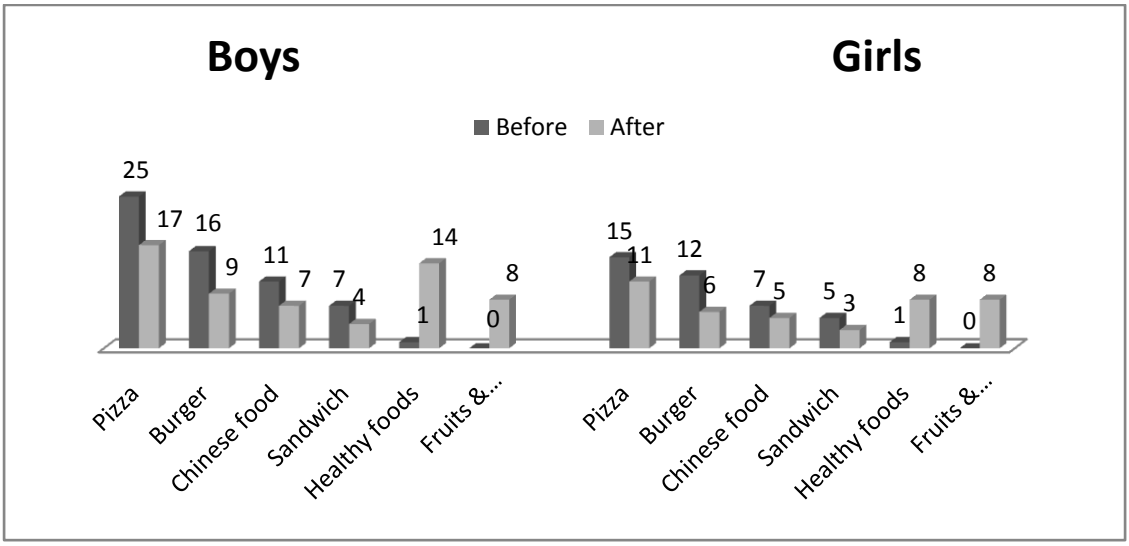

Fig.4: Difference of fast food choices mostly consumed by adolescents (Boys & girls) after counseling

Table- 5: Level of nutrition education in adolescents(Boys & girls) after counseling (n:100)

Adolescents	Total Number of students	Before counseling nutrition education	Total percentage	After counseling nutrition counseling	Total percentage
Boys	60	21	21%	50	50%
Girls	40	16	16%	32	32%
Total	100	37	37%	82	82%

The result showed that the before counseling 21 adolescents boys and 16 adolescents girls was Know about nutrition education and aware. And 39 boys or 24 girls are unaware about nutrition education, they need more education. But after counseling the level of nutrition education was increased. Nutritional education is very important for adolescents and their mothers.

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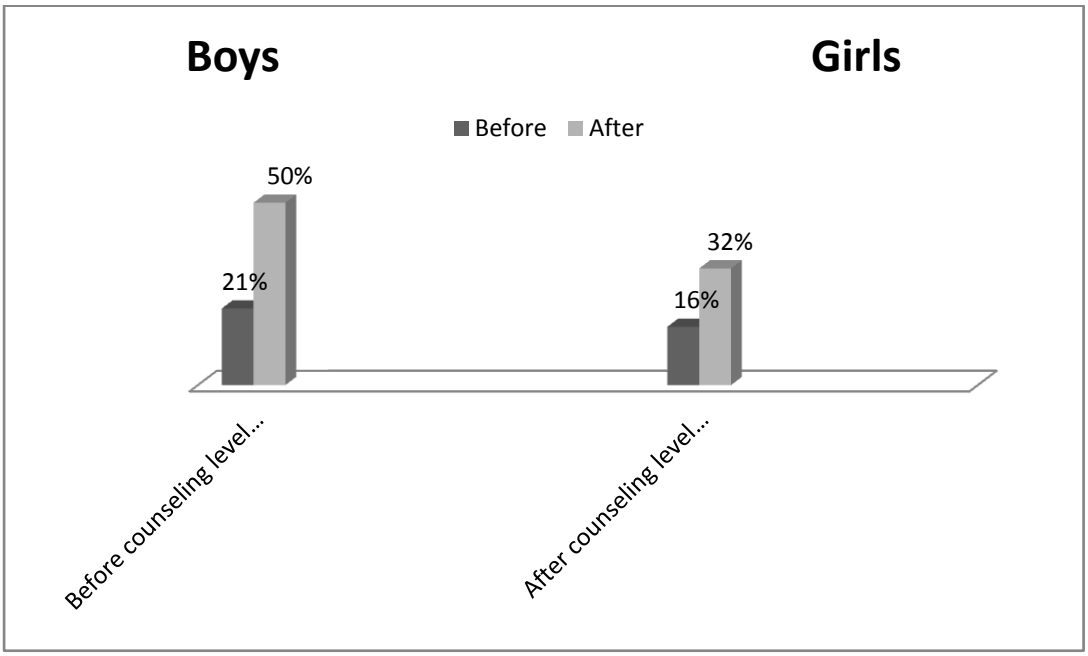

Fig.5:Level of nutrition education in adolescents (Boys & girls) difference after counseling (n:100)

DISCUSSION

The dietary history is an essential component of the nutritional screening. The dietary history provides information not only on the amount and quality of food consumed, but also on the eating patterns and behavior of the family.

In the study during the interaction with adolescents (boys & girls) it was observe that most of the adolescents (boys & girls) consumed fast food. They are consuming food basically to full fill their hunger and enjoyment; they are not having any knowledge about nutritionally adequate diet and harmful effect of fast food. It was found that intake of nutritious food is very low. The most important aspect of this research is to educate & counseled the mother of adolescents and adolescents (boys & girls) to take diet which are nutritious and balanced diet, or avoid choices and consumption of fast food.

CONCLUSION

Nutrition Education is any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food- and nutrition-related behaviors conducive to health and well-being. Before counseling adolescents and their mothers has poor knowledge about nutrition and healthy diets. In this study found a after nutrition education of adolescents and their mothers increase a awareness of nutrition and healthy diets. And healthy food choices are increased instead of fast food. For mothers healthy recipe booklets given to make healthy diets for her child. Intensive interactive nutritional education focusing on healthy food selection instead of fast food Fast food is convenient and tasty though it prepared with low nourishing or unhealthy ingredients. Youngsters spend more money on junk food. Fast food companies are targeting adolescents

(boys & girls) through great promotion strategies, delicious recipes and attractive advertisement. There are much greater side effects of fast food and adolescents (boys & girls) are unaware of its ill consequences. It can tend to many detrimental diseases. Adolescents (boys & girls) like to eat fast food, outside their homes. Hunger can be satisfied with fast food. Moreover, fast food is not a cost effective mean. Fast food also used for the sake of enjoyment and fun. Adolescents are have lack of knowledge regarding nutritional food and their benefits in the body. Healthy foods make physically, mentally, and socially healthy, and more choices or consumption of fast food leads lots of different health problems.

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CONSUMER'S ATTITUDES TOWARDS ORGANIC PRODUCTS IN BHOPAL CITY

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ABSTRACT

Organic food has been one of the fastest growing sectors of food industry in the past few decades as a legitimate alternative to conventional food. Organic food can be defined as the "product of a farming system which avoids the use of synthetic fertilizers, pesticides, growth promoters and additives". In the last ten years, there has been much attention paid to organic foods and how they are redefining the way in which we consume agricultural goods. Various health groups and universities have undergone studies in order to show that organic food is a better option for consumers. The aim of this paper is to identify the consumer's attitudes towards organic products in Bhopal city. This paper draws on a non-probability quota sample of 150 respondents to explore the attitudes of Bhopal consumers towards organic foodproducts.It is recognized that the data gathered in this study focus onthe area of new and old Bhopal. The specific area though, is considered to berepresentative of the total Bhopal population. Survey method is chosen and structured questions are asked to the respondents. Survey is only targeted to organic consumers in Bhopal city and no results from the non- organic consumers are included. Bhopal consumers seem to be informed about environmental and health issues. They seek information about the nutritional value of food and demand more products free from chemical residues. The result shows that most consumers associate organic consumption mainly with cereals andgreen tea. Although demographics seem to affect attitudes towards organics, their value in explaining actual behavior is minimal.However, there is an indication that the importance of motivation and barriers may vary for different product categories. Certain similarities in consumer's attitudes towards organicfood products have been identified. This paper attempts to provide evidence on the relatively under researched areaof organics attitudes and behavior in Bhopal.

Keywords: Organic foods, Food products, Bhopal, Consumer attitude

INTRODUCTION

The term "ORGANIC" can be broadly described as food grown without assistance of manmade chemicals. There in no common definition of organic due to the fact that different countries have different standards for products to be certified "organic. Due to increasing consumer dissatisfaction with conventional food and increasing environmental and health concerns about intensive production process in the last few years, consumer behavior towards organic products has attracted growing research attention.

Today foods are not intended to only satisfy hunger and to provide necessary nutrients for humans but also to prevent nutrition-related diseases and improve physical and mental well-being of the consumers. Although the concept of "organic food" seems to be well known to many consumers, the proportion of consumers who purchase organic foods on a regular basis is low. The increased consumers' interest in organic food has been attributed among others to the growing demand for food free from pesticides and chemical residues.

Organic products are obtained by processes friendly to the environment, by cultivation techniques that consider both the attributes of the final product and the production method.

Thus, increasing demand for organic food is expected to continue in the future. A variety of factors that can potentially influence organic food consumption have been identified in relevant literature. Concern for health, environmental protection, concern for the chemical residuesin conventional food products, pesticides, nutritional concerns, as well as improved taste and flavor in organic products are some of thefactors identified (Squires et al., 2001).

Health concern appears as the most important reason for purchasing and consuming organic food. Environmental concern, although not a priority issue seems to also affect consumption of organic products.The socio-demographic profile seems to affect consumer attitudes and buying behaviour towards organic food. Organic food attitudes are mainly influenced by gender, age, income, level of education and the presence of children in the household.

In particular, organic food buyers tend to be younger than non-buyers .Women seem to be more interested in organics than men, and they are more frequent buyers than men.Overall, more positive attitudes towards organic food have been detected in women as opposed to men. Age seems also to affect consumer attitudes towards organic food. Young people are more environmentally conscious but less willing to pay more due to their lower purchasing power, whereas older people are more health conscious and more willing to pay an extra price for organic food. Education has also been reported as a significant factor affecting consumer attitudes towards organic food products. People with higher education are more likely to express positive attitudes towards organic products; require more information about the production and process methods of organics have the confidence to negotiate conflicting claims in relation to organic food and are more willing to pay a premium for organic food . Moreover, demandfor organic food seems to be positively correlated to income. Higher income households are more likely to form positive attitudes and to purchase more organic food .However, Income appears to affect mainly the quantity of organic products bought and not the general willingness to buy. Higher income households do not necessarily indicate higher likelihood of organic purchases. The presence of children in the household has also been regarded as a significant factor, which positively influences consumers' organic food attitudes as well as buying behavior. It is generally recognized that there are also numerous barriers to the diffusion of environmentally friendly products, such as organic food, despite the green trend in consumer values and attitudes. The most common barriers stressed in the marketing literature include consumer's reluctance to pay higher costs, both in terms ofmoney and in time and effort, their skepticism regarding the higher quality of these products and the lack of availability of these products .A major repercussion in buying organics is the higher price compared to conventional food product prices .Among the factors that seem to affect consumers' willingness to pay are quality, trust in the certification of the product and name .Another obstacle to the expansion of organic food is that consumers are satisfied with the conventional food products the consume . Moreover, it is often suggested that organic products have limited availability.

Organic Movement in India-

India today is on threshold of an organic revolution, while India has traditionally been an organic agriculture nation. Food consumption patterns are rapidly changing nowadays as a result of environmental issues, concern about the nutritional value of food and health issues. Issues such as quality and safety in food attract consumer interest and affect buying behavior. Research on consumer preferences and demand for organics is increasingly attracting academic

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interest. In the majority of studies, many consumers denote that they have a preference for and an interest in organically produced foods.

Organic farming is a growing sector in India, which is encouraged by the government and many private initiatives. Therefore, production is expected to rise to meet the growing demand in the domestic market for organic foods. The increased range of healthy foods and the establishment of certificates for pesticide controlled vegetables indicate that there is a potential market. Consumers everywhere know very little about the production process, as there is no identification with the product and its producer. This might be true for India as well, and therefore leads to low levels of confidence in organic production, which would indicate that there is not enough information on the consumers' side about organic production. So it has to be explored how much knowledge of organic farming consumers already have, and how they would like to be more informed. Studies concerning consumer demand for organic food products are still under-developed in MP. Therefore, the present paper aims to understand the perceptions and attitudes towards organic food products in this region, to collect detailed information of the demographic characteristics and to identify the reasons affecting consumers' behavior towards organic food products.

In India organic products are grown under a system by agriculture this is a method of farming that work at grass root preserving the reproduction and regenerative capacity of the soil good plant nutrition and served soil management, produces nutrition food rich in vitality which has resistance to diseases.India produced around 1.34 million MT of Certified organic product which includes all varieties of food product namely sugarcane cotton Basmati rice, pulses, Tea, Spices coffee, oil, seed, fruits and their value added products. Among all the states Madhya Pradesh has covered largest area under organic certification followed by Rajasthan and Uttar Pradesh.

The organic movement in Madhya Pradesh

In 1969 at Kasturba Gram, Indore covering entire 200 has form under organic farming extensively adopted organic farming in the state during mid nineties through several special programmers. Since 98-99 fifty percent area in government form put under organic farming. Launched Bio-village concept- Initially in 313 villages during 2001-2002. A national seminar on organic farming held at Bhopal in may 2002 for extension of Bio-village.

Purpose of study

The present paper examined the factors that affect consumers' attitudes towards organic food. The aim of the study is to gain knowledge about consumers' perceptions, attitudes, and purchase criteria of organic foods.

METHODOLOGY

A self administered questionnaire survey was conducted in the new and old area of Bhopal market. A non-probability quota sample of 150 consumers were contacted. The Sample quotas attempted to reflect the population of each area. Personal interviews was conducted with the organic food consumers. Each interview lasted between 10 and 20 minutes.

The main aim of this study was to determine the factors that influence the intention to buy organic products. For this an research model was developed to identified the influence of consumer environmental beliefs, concern about product safety, concern about health, and two

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moderating variables: product price and product availability, on the intention to buy organic product

Conceptual model

Key factors included in the model are: importance of the price, consumers concern about their health and product composition, consumers concern about environment, availability of products on the market, and demographic factors (included as moderating factor).

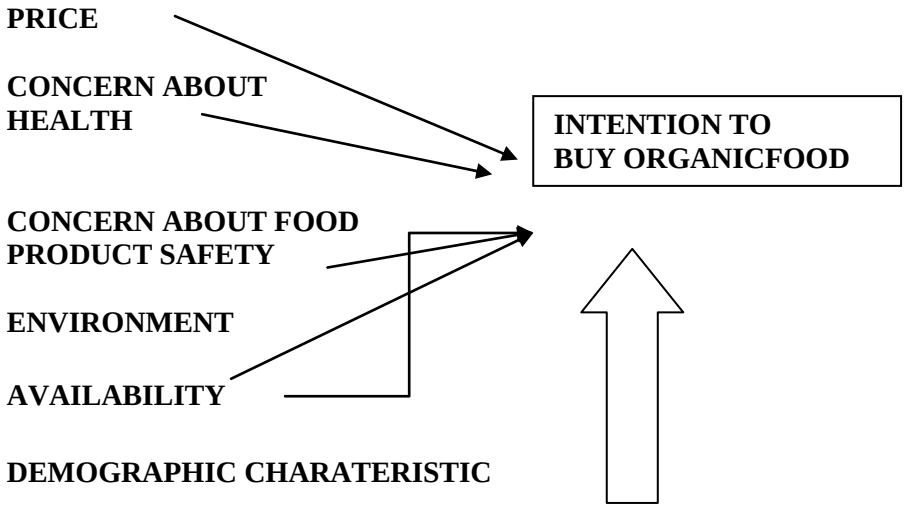

Fig.- 1. Conceptual model

In order to determine the factors influencing consumers' intention to buy organic products, and verify the effect on relationships two hypotheses have been formulated. Although most of the authors argue that health is one of the most important factors influencing an organic purchase of goods. In order to verify the hypotheses test was used. For the first hypothesis:

H1: Consumer concerns about health has a positive impact on the intention to buy organic products regression analysis was applied, in which the intention to buy is dependent variable and consumer concerns about health is independent variables.

While most authors agree that food price is an important factor influencing the intention to buy organic product under this assumption, we hypothesized that:

H2: Price has a negative effect on the intention to buy organic products.

Questionnaire

To assess factors that affect consumers attitude towards organic food, a questionnaire was developed. Most of these questions utilized five-point Likert scale response categories ,ranking from “strongly disagree (1)” to “strongly agree (5)” to accompany statements regarding consumption of conventional and organic produce, environmental awareness and organic food market perceptions.

The present paper concerns responses on purchase frequency of organics, and attitudes towards organics in general, demographic characteristics recorded of consumers in questionnaire.

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Sampling

This study was conducted to assess the consumer attitudes towards organic food in Bhopal city. After preparing questionnaire data was collected from different market areas.. Samples of organic products were collected from market survey from old and new Bhopal city. Bhopal market is distributed in different zones , geographic and demographic parameters . Survey was conducted for collecting samples from Supermarket, Malls, Retail shops, Health stores. Consumers were selected through Purposive Sampling for data collection in this study. Sample of 150 consumers are used to collect data but due to type two error some data was not appropriate and After excluding non-cooperative consumers 120 consumers were examined.

Statistical Analysis:Descriptive statistics and chi- square tests respectively are used in order to identify statistical significance to demographic variables and attitude towards organics. . The level of significance is set at a=0.05 .

FINDINGS

1 .Demographic Distribution:

Demographics is especially an interest of marketers as it is important to see how population is changing in numbers, and distribution of genders, age, economic situation etc.

For example, recent increase of women' economical activity put them in the first place for companies as women purchase much more than men. (Blackwell, 2001) Furthermore, distribution of wealth is in focus as it has importance to determine buying power and attitude of the organic food consumers.

1.1 Area

The table 1 reveals that the 39.17% of consumers were belonging to old Bhopal remaining of the 60.83% of consumers were belonging to new Bhopal. Therefore majority of the new Bhopal consumers were purchased organic product.

Table - 1: Area wise Distribution of consumers

S.No	Area	No.of Consumers	Percentage
1	Old Bhopal	47	39.17
2	New Bhopal	73	60.83
Total		120	100

1.2 Gender

Table -2: Gender wise Distribution of consumers

S.No.	Gender	No. of Consumers	Percentage
1	Male	54	44.82
2	Female	66	54.78
Total		120	100

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The above table 2reveals that the 44.8% of consumers were belonging to male remaining of the 54.7% of consumers were female .Therefore majority of the female consumers were purchased organic products.

1.3Age

Table 3: Agewise Distribution of consumers

S.No	Age Group	No. Of consumers	Percentage
1	**25-35**	21	17.43
2	**35-45**	47	39.01
3	**45-55**	40	33.2
4	**Above 55**	12	10
Total		**120**	**100**

The table 3 shows that17.43 percent of consumers are in between 25-35 years old age, 39percent of consumers are in between 35-45 years old age, 33.2 percent of respondents are in between45-55 years old age and remaining 10 percent of consumers are above 55 years old out of 50 consumers. The ages between 35-45 years are well aware about organic products, so that they purchase more in the study area.

1.4 Income

Table- 4: Income wise Distribution of consumers

S.No	Income Group	No. of consumers	Percentage
1	Middle income group	45	37.35
2	High- middle income group	48	39.84
3	High income group	27	22.41
Total		**120**	**100**

Furthermore, income distributions of the consumers are especially collected in the middle income group and high middle income groups with 77%. This is followed by 23% in high income group.

2. CONSUMERS ATTITUDE

The result of the research paper work is presented through different diagram and graphical representation is used to make presentation easy to understand .The findings of the study indicate the majority of Bhopal consumers demonstrate positive attitudes towards organic food. Attitude has a significant effect on purchasing a brand and choosing the place for shopping. Also, attitude measurement is necessary for finding out how marketing strategies and advertisements are influencing people. Attitude can show the way what buyers are likely to do in a defined situation. (Chisnall, 1995).

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2.1 Factors influence consumer attitude:

In terms of Environmental and health concerns factors are strong motives for consumers and seem to affect organic food consumption. Mostly consumers (78percent)are concerned about Environment and 70 percent of them consider organic products to be healthier consumers seems to consider organic food products of higher value composed to the conventional ones .Almost 43.5percent of them believe organic foods to be of better quality since they are free of pesticides and chemical residues. However when it comes to characteristics such as visual product quality and preference, consumers are not so strongly in favor of organic food .The issue of great concern that consumers does not satisfied with the quality of organic food products . The variety of organic products available in the market (63.9percent) and the freshness (28percent).A major obstacle to the expansion of organic food seems to be their higher price(78.3percent). More than half of the consumers consider positive image of the organic food products. Organic products are mostly seen as high safety level of guarantee and control. When we test whether "food safety" is a factor for consumers or not, we saw the (50percent) were agreeing with this statement

Table- 5 : Factors influence to buying organic food products:

S.NO	**Factors Influence**	**Consumers Ranking (%)**				
		S.A	**A**	**N**	**D**	**S.D**
1	Health	70	25	2.5	2.5	--
2	Safety	50	35	10	3	2
3	Animal Welfare	50	28	12	5	5
4	Positive Image	48.5	15	25	8.5	3
5	Taste	45	30	15	5	5
6	Freshness	28	30	25	9	8
7	High quality	43.5	34.5	115	6	
8	Environment	78	10	5	2.5	2.5
9	Availability	63.9	25	10.1	3	2
10	Price	78.3	11.7	5	5	--

S.A represents strongly agree, A for agree, N for neutral, D is disagree, S.D for strongly disagree and D.N means Do not know.

Table 5.1

S.No	**Consumers Ranking**	**No. of consumers**	**Percentage**
1	Strongly agree	84	70
2	Agree	30	25
3	Neutral	3	2.5
4	Disagree	3	2.5
5	Strongly Disagree	--	
Total		120	

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Chi-Square 0.05

P value	Df	X^2	S/NS
0.00001	4	212.25	S

Table 5.1 shows that health factor influence to consumers to buy organic food products. The scores obtained was statistically analyzed by Chi –Square test. The p – value is 0.00001.This result is significant at $p < 0.05$indicates that the independent variable affect the dependent variable and regression analysis statistically reliable. *Therefore hypothesis 1 is confirmed.*

Table 5.2

S.No	**Consumers rankings**	**N of consumers**	**Percentage**
1	Strongly Agree	94	78.3
2	Agree	14	11.7
3	Neutral	6	5
4	Disagree	6	5
5	Stronly Disagree	--	--
Total		120	

Chi-Square 0.05

P-value	Df	X^2	S/NS
0.00001	4	259.34	S

Table 5.2 shows that price is a major factor influence to consumers to buy organic food products. The scores obtained was statistically analyzed by Chi –Square test. The p – value is

S.NO	**Description of organic food**	**D.N Consumer ranking(%)**	**No.of consumers**				
		S.A	**A**	**N**	**D**	**S.D**	
1	Certified	782	15	5	-	-	120
2	Environmental friendly	5829.5	13	2	-	-	120
3	Chemical free	6224	8	2	22	-	120
4	Natural	6123	10	4	2	-	120
5	Nutritional	57	30.5	1.5	1.5	-	120
6	Healthy	7522	-	2	1	-	120

0.00001. This result is significant at $p < 0.05$ indicates that the independent variable affect the dependent variable and regression analysis statistically reliable. *Therefore hypothesis 2 is confirmed.*

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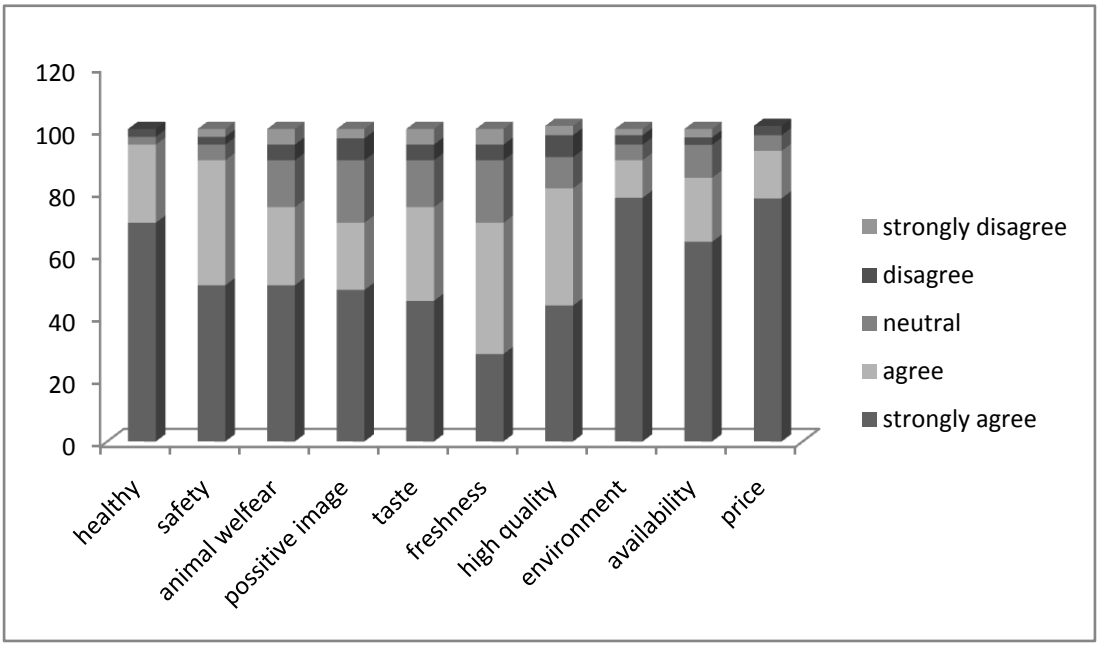

H2: Price has a negative effect on the intention to buy organic product

Fig. 2. : Factors influence to buying organic food products

2.2 Knowledge and Preference:

Consumer generally act based on the knowledge they perceive. Knowledge change the consumer perception either positive or negative attitude. The more information we get, the more we have either favorable or unfavorable attitude towards the product. Since organic food is good for environmental, and health it's very important people should be informed about the benefits, which in turn may lead the consumer towards the purchase intention.

2.2.1 Knowledge about organic food products in Bhopal

In this question understanding and knowledge of organic food among Bhopal consumers tested. Seven statements are given to the consumers and they marked in a 6 point scalefrom strongly agree (5) to strongly disagree (1) and don't know (0) answer is also added.

Results indicate that, 97% of the Bhopal consumers find organic products healthy. Overall average to health attribute of organic products got 4.6 rating which means majority strongly thinks in same way. Again most of the consumers (87.5%) agree on organic products contain high amounts of nutritional substances and mean of the ranking is 4.3. If we look at how Bhopal consumers' description of organic production methods, majority have positive image in their minds. 84% of the respondents think organic production methods are in a harmony with nature (4.3 ranks) and 86% agrees to organic food is grown free from chemical pesticides and fertilizers (4.4 ranks). Moreover, 87.5% of the consumers described organic agriculture methods as animal and environmentally friendly (4.4ranks).

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Table -6: Knowledge and Awareness about organic food

There is S.A represented strongly agree,A for agree,N for neutral, D is disagree,S.D for strongly disagree and D.N means Do not know.

2.2.2 Preferences of the shopping places inBhopal

In order to figure out the most preferred shopping places in the organic food market, Bhopal organic consumers are asked in which places they go for shopping when they want to buy organic products. Before asking the question, five places were identified as common shopping malls in Bhopal. Supermarket, organic shops, bazaar, specialized shops (bakery, butcher...etc) and fa the all choices. Majority of the Bhopal consumers, 33.2% prefer supermarkets; 33.2%, 26.56 prefer organic shops ;7.47 specialized shop, 21.58%; bazaar, , 10.79% from farms.

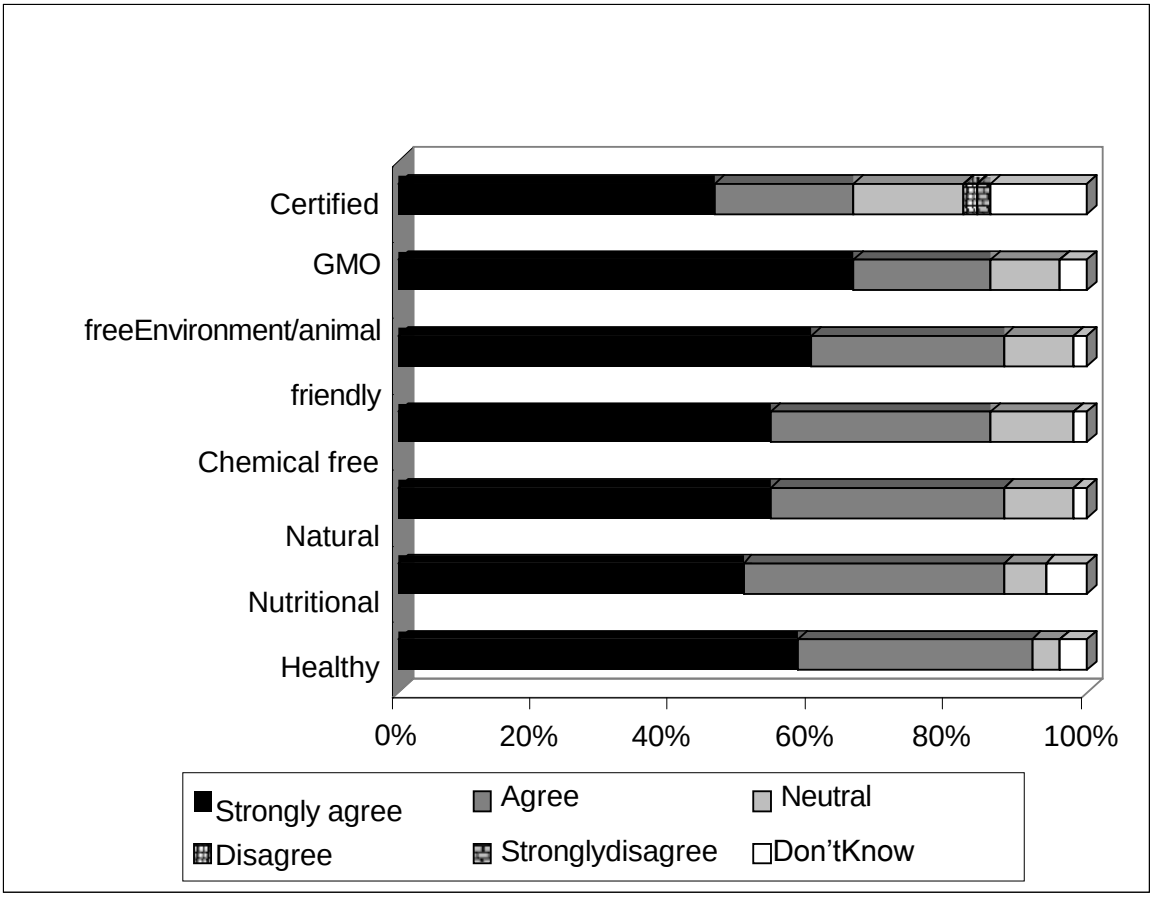

Fig.- 3: Knowledge and awareness about organic food

Table- 7-: Consumers shopping Preferances in Bhopal

S.NO.	Shopping Places	No. of Consumers	Percentage
1	Supermarket	40	33.2
2	Bazaar	26	21.58
3	Organic shop	32	26.56
4	Specialized shop	9	7.47
5	Farms	13	10.79
Total		120	

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DISCUSSION

Only a small proportion of Bhopal consumers purchase organic products regularly, inspite of the fact that the majority seem to have positive attitudes towards organics. Interms of the demographic variables analyzed in the study, income seem to be highlycorrelated with organics' attitudes and consumption. Higher income levels indicate a strong preference in organics consumption. Variations with respect to their age were recorded only in the buyer group. Young age group (25-35years old) denote a limited interest in organic sand a small preference in organics consumption based on environmental concerns. Older consumers (51 years old) seem to be more concerned with health issues.

The level of awareness and the perceived adequacy of information varies between men and women as the later seem to require more information on organics' productional though they do not seem to have more positive attitudes towards organics than men. This could be attributed to the fact that mainly women in families with children are traditionally in charge of the family food supplies and are concerned with the nutritional value of their food (e.g. women were more likely to agree that organic foodhas more vitamins than conventional food products). Consumers with higher educationand income levels were satisfied with the quantity and quality of information available.Discussion of barriers to buying organic food revolved around the organic food the issue of price and quality, assess and availability, visual products quality and presentation, limited trust in organic food production. Consumers indicated price as a major obstacle to purchasing organic foods.

CONCLUSION

The results demonstrate that the most important criteria affecting consumer's attitudes and buying behavior are health and environmental issues as well as production and price considerations .Level of awareness, availability and visual quality and performance seem also to have an effect in consumer's attitudes and purchasing patterns. Our findings confirm the significance of price as a barrier .However; other studies suggest that as supermarkets compete prices of organic products .With respect to organics' performance, quality has been identified as the single most important attribute. A quality improvement and a smaller price differential between conventional and organic foods would seem to be essential in order to increase the proportion of regular organic food buyers. Our results confirm that health is an important but not the only motive for buying organic products. Concern for the environment, animal welfare, and support of the local economy have also been reported as drivers of organic consumption. However, there is an indication that the importance of motives and barriers may vary for different product categories and future research should focus on product segmentation.

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DIET, NUTRITION AND DISEASE PROFILE OF TRIBAL ELDERLY MALE OF VADODARA DISTRICT

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ABSTRACT

Introduction: Advancing age seems to bring meaningless misery mainly because the elderly have been neglected and by passed by modern society. This makes it necessary to look into the various aspects of their problems, social, economic, psychological health and other allied aspects.
Objectives: To study the socio-demographic profile, lifestyle pattern, nutrition, diet and health profile of tribal elderly males.
Methodology: A total of 100 elderly males were selected from the villages and broadly classified in two groups i.e. 60 – 70 years (young elderly) and 70 +years (old elderly). The information on socio demographic profile, lifestyle factors, dietary, anthropometric and disease profile was collected using a semi-structured questionnaire.
Results: Socio demographic profile of the subjects showed majority was illiterate. Only 15% of subjects had pucca house and 86% practiced open defecation. All the subjects spent maximum time in sleep and 68.3% were addicted to bidi gutkha/tobacco etc. About 63% were underweight (BMI <18.5) and 96% were anemic. Calorie intake of all the subjects was less than 60% of the RDA. The intake of protein, iron and calcium was 26-50% of RDA. About 74% were suffering from oral problems and 56% from locomotors problems. Most prevalent minor illnesses were joint pain, body aches and dryness of skin.
Major outcome: the present study has added to the data bank in terms of situational analysis of nutrition, diet and health profile of tribal elderly and opened a new horizon in tribal research to contribute their better living.
Key Words: Diet, Nutrition, Tribal elderly male

INTRODUCTION

India is greying fast, with its elderly population next only to China, which has the largest number of elderly in the world. In India, the life expectancy has gone up from 20 years in the beginning of the 20th Century to 64 years today. Better medical facilities, care and low fertility made the elderly the fastest growing section of the society. The persons above 60 years of age are classified as aged persons in India. It took more than 100 years for the aged population to double in many countries in the world. But in India it has doubled in 25 years, 12 million elderly people in 1901 has been increased to 77 million in the year 2001. It has been estimated that the elderly population will reach 177 million in the year 2025. There are 635 tribal groups and subgroups including 75 primitive communities have been designated as 'primitive' based on pre-agricultural level of technology, low level of literacy, stagnant or diminishing population size, relative seclusion (isolation) from the main stream of population, economic and educational backwardness, extreme poverty, dwelling in remote inaccessible hilly terrains, maintenance of constant touch with the natural environment, and unaffected by the developmental process undergoing in India. There is a consensus that these scheduled tribes are the descendants of aboriginal population in India (Bhasin and Walter, 2001).

From the data available by census survey 2001 of Gujarat and Vadodara most of the elderly population lives in rural setup. Total elderly population live in rural Gujarat is 23 lacs and in urban 11 lacs and same scenario can be seen in Vadodara district, in rural total elderly population is 1,47,404 and in urban 1,09,330 where female elderly outnumbers the male elderly.

A study conducted on 662 elderly reported that rural elders (n = 256) had significantly poorer health status than urban elders (n=406) with respect to physical and social functioning, general and mental health (Mainous & Kohrs, 2003).

In a study by Chauhan et al. (2009), it was found that that 54% of subject could met energy intake between 51-75% of RDA in LIG whereas in MIG 74.0% of subjects had energy intake between 76 - 100% of RDA. The protein intake of majority of subjects (74.0%) in LIG were in range of 26-50% of RDA whereas in MIG majority of subjects could met 51-75% of RDA.In LIG the prevalence of underweight was 71% whereas in MIG -46%. In LIG 78% subjects belonging to 75 + years of age group were underweight whereas in MIG 52% subjects were underweight belonging to 60 – 74 years of age group.

A study conducted by Alrappa et al. (2005) to assess the diet and nutritional status of the tribal elderly ($\geq$ 60 years), showed that the mean consumption of all the foods and the median intakes of all the nutrients were below the Recommended Dietary Intakes (RDI) in both men and women. The mean heights and weights significantly decreased with increase in age in both males and females ($p < 0.001$). The prevalence of Chronic Energy Deficiency (CED = BMI < 18.5) was relatively higher (65.4%) in females compared with their male counterparts (61.8%). The prevalence of CED was significantly higher ($p < 0.001$) among the elderly living in kutchaand landless households. The tribal elderly are subsisting on inadequate diets, which are reflected in the poor intakes of all the nutrients and higher prevalence of undernutrition. Significantly higher proportion of tribal elderly are undernourished compared with their rural counterparts ($p < 0.001$).

Considering these facts and dearth of information on tribal local elderly population, the present study was planned with a broad objective of assessment of nutrition, diet and disease profile of elderly males of tribal Vadodara.

METHODOLOGY

There may be difference in lifestyle pattern of the tribal population as compared to urban and rural population. Therefore in this study villages with tribal population, in the Vadodara district were selected. The selected villages were Khunvad, Indral, Songir, Bhatpur, Timba, Jhervan and Bhadarpur. Within the village, the samples were identified by door to door survey, with the help of Anganwadis, primary health centers in the selected villages and social workers.

After taking their consent 100 subjects were interviewed at their convenient timings. They were subjected to a series of questions listed in questionnaire regarding socio-demographic attributes, lifestyle (activity and addiction pattern), anthropometric measurements using BMI WHO cut offs, dietary prolife by 24 hour dietary intake and the consumption of cooked foods like fried food, sweets, beverages, fat topping and was collected into frequent and non-frequent. Frequent consumption include daily, 2-3 times a week. The non- frequent

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consumption included weekly, occasionally and never. Disease profile included questions regarding a) major and b) minor illnesses experienced by the subjects using detailed checklist. All the subjects enrolled were further divided into two age groups i.e. 60-70 yrs (young elderly, n=81) and 70+ yrs (old elderly, n=19). After compiling the data, Mean ± SD or percent responses were calculated for all the parameters expressed numerically. The data was then analyzed using appropriate statistical tests as described.

FINDINGS

With respect to age groups the mean age was 65 years in 60 – 70 years of age group, and in 70+ age group it was 75 years. Majority of elderly males were married (79%) and less than one fourth were widower. Majority were illiterate 63% of the subjects were found to be labourer. Almost half of subjects had kutcha house, whereas 35% lived in semi pucca house and only 15% had pucca house. Percentage of a family member as a care giver was higher (68%) among the old elderly. Fifty percent subjects had their own water tap. More than three fourth of the subjects went for open defecation and only 14% had toilets at home.

Elderly males belonging to 70 + years of age group spent more time in daily living activities and leisure activities and comparatively less time at work. This suggests as the age increases the time spent on activity of daily living increases which indicates more involvement of elderly in later age groups in day to day activities because of locomotor problems and cognitive impairment. Mean time spent on exercise and religious activities was almost the same in both the age groups. Mean time spent on sleep was higher among old elderly.

In a study by Shringarpure and Mehta (2004), it was reported that more than 80% of the elderly men (> 60 years) out of total 91 elderly from the free living population of urban Vadodara had sedentary life style as more than 75% of total elderly spent 5 – 8 hours daily in sleep, more than 90% spent more than 8 hours in leisure activities and two third of subjects spent less than 5 hours in work related activities. Addiction to bidi was the highest in both age groups followed by gutkha/tobacco. Alcohol consumption was found to be very low and was present only in 60-70 yrs age group.

On comparison between the weight and height of elderly from both the age groups, it was found that the mean weight and height of both the age groups was almost the same, and also the mean of waist hip ratio for both the age groups was found to be similar.

Table- 1: Percentage of elderly males belonging to age groups showing nutritional status as per BMI classification

BMI SCORES (kg/m^2)	**60 - 70 Yrs n = 81**	**70+ Yrs n = 19**	**TOTAL N= 100**
<18.5 (Underweight)	61.73 (50)	68.42 (13)	63 (63)
18.5 – 24.9 (Normal)	38.27 (31)	31.58 (6)	37 (37)
24.9 - 29.9 (Overweight)	0 (0)	0 (0)	0 (0)
≥ 30(Obese)	0 (0)	0 (0)	0 (0)

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The anemic status showed that the mean hemoglobin levels were significantly ($p \leq 0.001$) lower in older elderly males (n=81, 9.58±0.74 gm/dl) as compared to the young elderly (n=19, 10.60±1.09 gm/dl).

Table- 2: Percentage of elderly males belonging to different age groups showing degree of anemia

DEGREE OFANEMIA	60 - 70 Yrs n = 81	70+ Yrs n = 19	TOTAL N= 100
Normal (≥ 13 g/dl)	4.94 (4)	0 (0)	4 (4)
Mild (10 –12.9 g/dl)	70.37 (57)	31.58 (6)	63 (63)
Moderate (7.1 – 9.9 g/dl)	24.69 (20)	68.42 (13)	33 (33)
Severe (≤ 7 g/dl)	0 (0)	0 (0)	0 (0)

It can be noted from table 2 that the total prevalence of anemia was found to be 96% in subjects, 70% of the young elderly were found to be suffering from mild anemia while 68.42% of old elderly were under moderate anemia category.

A community-based cross-sectional study carried out among the elderly populations of four different PTGs of Orissa, namely LangiaSaora (LS), PaudiBhuiyan (PB), KutiaKondh (KK) and DongriaKondh (DK) living in the forests of Orissa, India showed that severe anemia was seen in 70% of males and 76.7% of females in the LS, while in other groups the prevalence of severe anaemia ranged from 15% to 33%. (Kerkettaet.al, 2009)

As seen from the table 3, the mean nutrient intake of all the subjects indicated very low intake in terms of energy, protein, iron, calcium, fiber and β carotene when compared with standard RDA except fat and vitamin-C irrespective of age groups. There was a significant difference found between the two age groups in the intake of energy, protein, fat and iron. The table reveals that the intake of almost all the nutrients was more in young elderly as compared to old elderly. The intake of nutrients depended on the economic status of the subjects. They had not enough money to buy food and ignorance of low cost nutrient rich foods was also a determining factor. The intake of all the nutrients in the 70+ age group was lower than the 60-70 yrs age group. This may be because of oral problems, lower consumption in general because of age etc.

Table- 3: Mean nutrient intake of elderly males belonging to different age groups

Nutrients	RDA†	60 - 70 Yrs n = 81 Mean ± SD	70+ Yrs n = 19 Mean ± SD	't' values
Energy (Kcal)	1750	997.60±158.44	825±121.1	4.49***
Protein(gm)	60	26.08±4.81	22.55±3.97	3.34**
Fat(gm)	30	24.63±3.35	21.47±3.47	2.59*
Calcium (mg)	400	154.74±66.13	145.69±51.87	1.004
Iron(mg)	30	8.37±1.27	7.47±1.61	2.30*
Vit. C(mg)	40	28.84±7.53	26.51±7.81	1.18
Fiber(gm)	20	3.58±1.32	3.25±1.30	0.99
β – carotene(µg)	2400	227.9±110.70	234.76±118.37	0.86

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Figures in the parenthesis denote number of subjects†(source: Natarajan, 1991)
****significant at p ≤ 0.001, ** p≤0.01, *t p≤0.05*

The food frequency data showed frequent consumption of cereals and pulses, of roots and tubers and other vegetables in both the age groups but only 46.91% subjects in the 60-70 yrs age group frequently consumed GLVs. With regard to fruits, sweets and snacks, all subjects consumed on non-frequent basis. Subjects in both the age groups did not consume oil as fat topping and only used it for tempering. One major reason for the decreased consumption might be non-affordability of foods like fruits, milk, sweets, and non-veg. Almost half of the subjects belonging to the 70+ years of age group consumed less than 5 glasses of water in comparison to the young elderly. With regard to the fasting practices it was observed that majority of the people (74%) in both the age groups did not fast. In case of frequency of meals, majority of subjects (89.47%) in both the age groups consumed only two meals i.e. lunch and dinner per day frequently and skipped breakfast.

As observed from the figure 1, subjects of both the age groups showed highest percentage of oral problems i.e.74%. Among the subjects of 60-70 yrs age group almost 3/4 of subjects had oral problems and the percentage was seen to be 89.47% in old elderly. This was followed by locomotor problems which were found to be 56% and percentage was slightly higher i.e. 63.16% in the subjects belonging to 70+ age group. In general the prevalence of major health problems was found to be comparatively higher in old elderly than in young elderly. Many studies showed that most prevalent problems among elderly were those related to GIT, CNS, respiratory, followed by locomotors and oral cavity problems (Mehta and Mehta, 2003; Panchal et. al 2005).

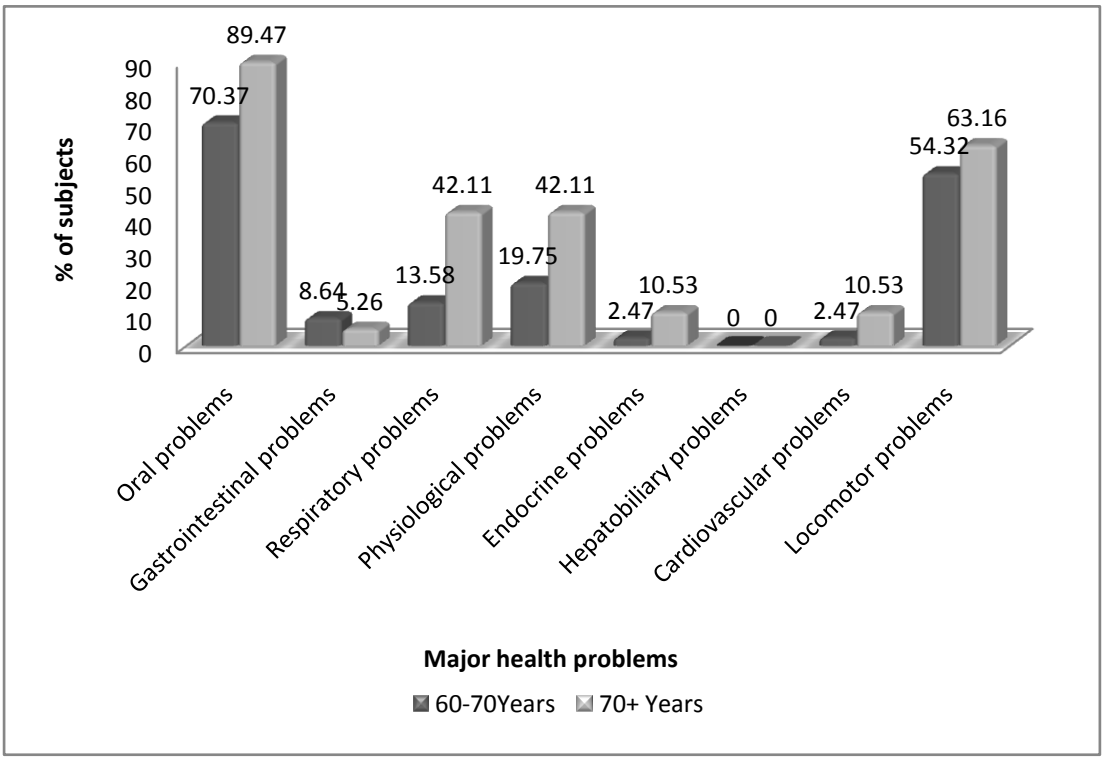

Fig 1: Percentage of elderly males belonging to different age groups showing prevalence of major health problems

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Figure 2 shows that the most prevalent minor illnesses among the both the age group of male elderly residing in tribal areas and the mean came out to be were pain in joints(56%) ranked first followed by body aches (42%), dryness of skin (38%), infections (25%), lack of appetite (21%), gas/flatulence (21%), sleep disturbance (13%).

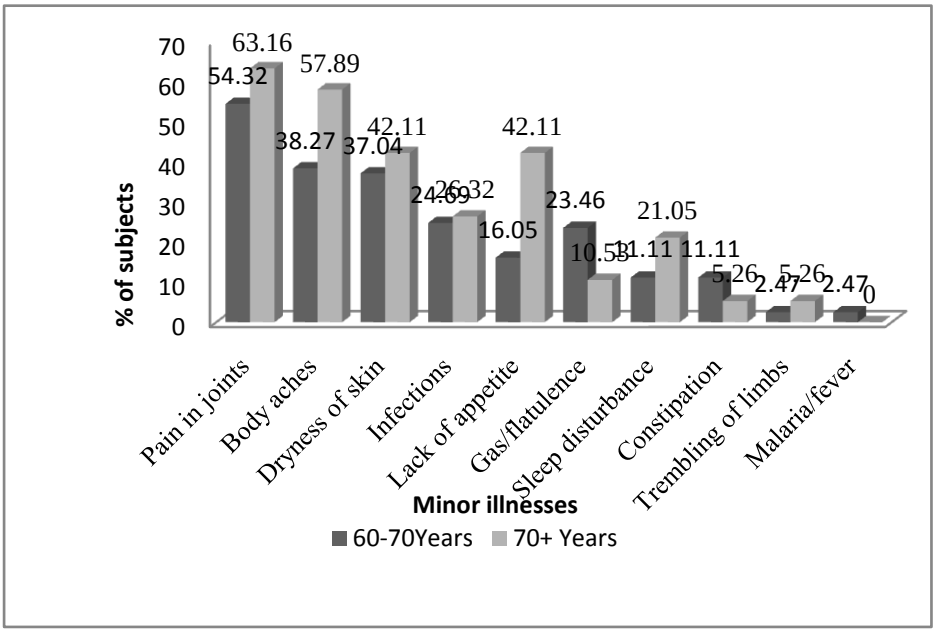

Fig 2: Percentage of elderly males belonging to different age groups showing prevalence of minor health problems

Other health attributes revealed that majority of the subjects among young elderly had normal ears, while almost half of older elderly could not hear low voices. Half of the total subjects had partial set of teeth and 57.9% of the old elderly did not have any teeth. On comparison between the two age groups it was found that majority of the subjects in 60-70 yrs age group could walk normally as compared to 52.63% in case of old elderly. Half of the total subjects complained of pain in bones, the percentage being slightly more in the older group. With regard to speech problem, it was observed that older elderly had more problems in speaking than younger elderly. More than half of older elderly were suffering from memory loss especially recent events. Majority of the people in both the age groups liked to socialize as before.

A study on 400 elderly reported bronchitis (6.3%) and bronchial asthma (11.5%) in males only. Forty eight percent had hypertension. Musculoskeleton problem was present in 11.6% in males. Thirty five percent had cataract. Feeling of lonliness was 21.05%, followed by feeling of neglect. (Prakash et al, 2004).

The subjects were accessed for the deficiency (clinical) signs and symptoms of various nutrients and the data is depicted in table 4. It was visible majorly for three nutrients i.e. protein (35%), iron (64%) and calcium (57%).

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Table- 4: Percentage of elderly males belonging to different age groups showing deficiency of various nutrients

S.No.	Nutrient deficiency	60 - 70 Yrs n = 81	70+ Yrs n = 19	TOTAL N= 100
1.	**Protein**	30.86 (25)	52.63 (10)	35 (35)
2.	**Vitamin – A**	1.23 (1)	0 (0)	1 (1)
3.	**Vitamin – B complex**	4.94 (4)	21.05 (4)	8 (8)
4.	**Vitamin – C**	0 (0)	0 (0)	0 (0)
5.	**Iron**	59.26 (48)	84.21 (16)	64 (64)
6.	**Calcium**	53.07 (43)	73.68 (14)	57 (57)
7.	**Iodine**	0 (0)	0 (0)	0 (0)

With respect to the different age groups, the deficiency of protein, iron and calcium was found to be more prevalent in the subjects of 70+ age group.
The reason for higher number of people suffering from nutrient deficiency in the 70+ age group could be less intake of food as compared to young elderly due to age factor.

CONCLUSION AND IMPLICATIONS

Thus, from the results of the study it is clear that the tribal elderly follow a simple life style and were grossly underweight. Their diet is simple and lacks variety; intake of milk and milk products, fruits and GLVs is very low. Disease profile is distinctly different. Protein, iron and calcium deficiency was more.

Present study has thus indicated distinct differences in the nutrition and health profile tribal elderly men. A lot more needs to be done to probe into the factors which are responsible for their poor health and low standard of living. However there is a clear need to provide greater exposure and facilities to upgrade the living standards of elderly in tribal areas that recommends capacity building of the administrators as well as the staff of the organization which could help to uplift the health and nutritional of elderly and providing a quality life for their later years.

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