PROJECT REPORT ON ENVIRONMENTAL STUDIES

TITLE OF THE PROJECT

FLORAL DIVERSITY OF WEST BENGAL AND IT'S IMPORTANCE

NAME	REGISTRATION NO	UNIVERSITY ROLL&NO
AKASH SHARMA	137-1111-0056-21	212137-21-0027

COLLEGE ROLL NO- 0047

VIDYASAGAR METROPOLITAN COLLEGE

39, Sankar Ghosh Lane, Kolkata- 700006

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I would also like to thank my classmate for the discussion I had with them and last but not the least the all mighty and my parents for their co-operation and help without which the completion of the project would had been a distant reality.

PLACE: KOLKATA   **Dept. of Environmental Studies**

Date- 26/05/2022   ……………………………………….

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INTRODUCTION:

Diversity or more specifically species diversity is the variety of living organism found in natural habitat or surrounding environmental. Floral and faunal diversity of an area portrays the health of the habited and natural wealth of that region. It is also very important for conservation perspectives. Proper conservation initiative can only be taken when proper biodiversity database of an area is available. It is important to have and understanding of bio- diversity of an area so that the local people and students can be aware of the richness of bio- diversity of the place they are living in and their responsibility to maintain that richness.

One is able to understand the richness of floral diversity of West Bengal from the statistics that it contributes almost 12% of the total angiosperm diversity found all over India despite deltaic parts of West Bengal possesses a combination of more than 60 species of the Sundarbans Mangrove ecosystem consisting of true mangroves, mangrove associates and obligate mangrove. This combination outnumbers the total mangrove diversity that the rest of India has to offer.

Diversity is further reflected in different types of ecosystem available here like mountain ecosystem of the north, forest ecosystem extending over the major part of the state, fresh water ecosystem, semiarid ecosystem in the western part, mangrove ecosystem in the south and coastal marine ecosystem along the shoreline.
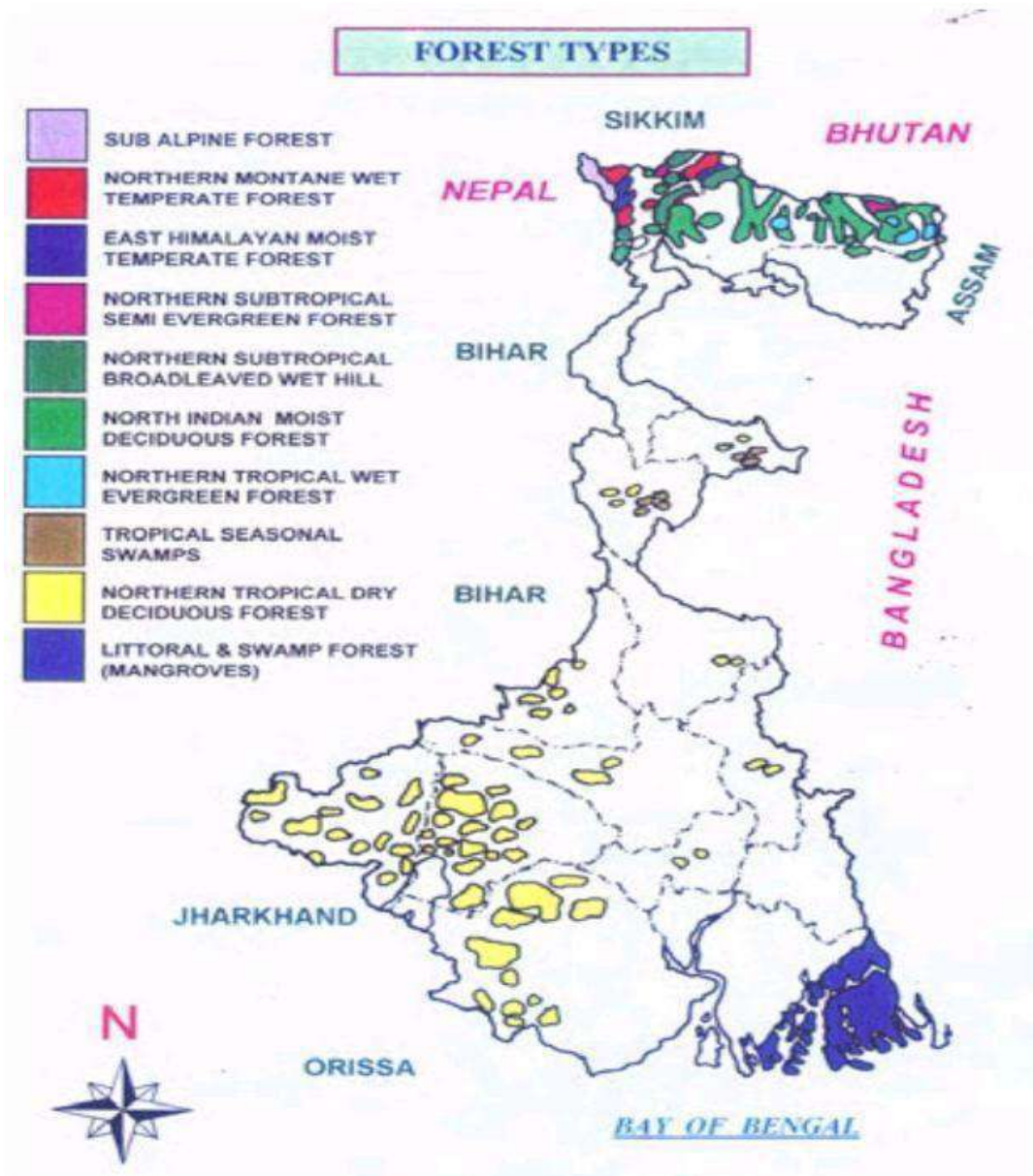
FOREST TYPES

- SUB ALPINE FOREST
- NORTHERN MONTANE WET TEMPERATE FOREST
- EAST HIMALAYAN MOIST TEMPERATE FOREST
- NORTHERN SUBTROPICAL SEMI EVERGREEN FOREST
- NORTHERN SUBTROPICAL BROADLEAVED WET HILL
- NORTH INDIAN MOIST DECIDUOUS FOREST
- NORTHERN TROPICAL WET EVERGREEN FOREST
- TROPICAL SEASONAL SWAMPS
- NORTHERN TROPICAL DRY DECIDUOUS FOREST
- LITTORAL & SWAMP FOREST (MANGROVES)

SIKKIM BHUTAN NEPAL ASSAM BIHAR BANGLADESH BIHAR JHARKHAND ORISSA BAY OF BENGAL

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Figure **2-2** The map of forest type

2-17

4

SIGNIFICANCE OF THE STUDY:

The fauna and flora of West Bengal possess the combined characteristics of the Himalayan and Sub Himalayan Gangetic plain. Biodiversity is shaped by the biotic and abiotic components of its environment and this state has rich assemblage of diverse habitats and vegetation designated with the help of eight different forest types. Diversity further reflected in different types of ecosystem available here like mountain ecosystem of the north, forest ecosystem (semi – evergreen, deciduous, dry moist and tidal varieties) extending over the major parts of the state, fresh water ecosystem, semiarid ecosystem in the west tern parts, mangrove ecosystem in the south and the coastal marine ecosystem along the shoreline.

These diverse ecosystem has resulted in rich faunal diversity of the state and consist 10,013 species out of a total of 89,451 species of animals present in our country, thus representing 11.19% of our countries fauna. The floral diversity of the state is also enriched by 4,622 species out of a total of 44,594 floral species in India, and 10.36% of our countries flora.

District wise analysis show that highest number fauna is present in Kolkata (4256), and then in Darjeeling(4166) then Jalpaiguri(1563) south 24 P.G.S(1516) north 24 P.G.S(943) etc.

Status of the flora:

West Bengal has recorded to far 152 species of flora as threatened. Table 2 given below provide a least of such species along with their region of occurrence. Out of these threaten plants, 5 species are considered to be rare, four species and endangered and two species as vulnerable.

The floral diversity is conspicuous in Darjeeling Himalayas along with Terai – Dooars region in the foothills of northern part of West Bengal and in the mangrove forests of Sundarbans adjacent to the Bay of Bengal. Plant association in Darjeeling Himalayas is characterized by abundance of various trees like Oak, Laurel and bamboos apart from several species of Rhododendron, Orchids, ferns bryophytes and lichen. Here orchidaceae type flowering plant form the single largest family with nearly 600 species. There are ten dominant families of angiosperms in the area. It would not be out of the context to mention that 40% of the total Himalayan flora indigenous and majority of them occur in the eastern part. As many as 15 species of gymnosperms occur in the eastern Himalaya with existence of at least 5 genera in this region. Among the pteridophytes which include fern allies, 70% of Polypodiaceae taxa of India are observed in this region. About 50% of more than 2000 moss species are grown in this region while more than 320 species liverworts are found here with high percentage of endemism. About 728 taxa of lichens out of 2000 species said to be existing in India, occur in the eastern Himalaya with a variety of fungal flora too. This region is also medicinal and aromatic plant of different genera. This is also considered as a center of origin of about 82 species of top plants. A tentative list of flora of West Bengal has been give in table 3.

Floral Diversity Of West Bengal

SL NO	NAME OF GROUP	TOTAL NUMBER OF SPECIES

1	Algae-
	   a. Marine Algae
	   b. Others-
		658
		 50
		 608

2	Fungi	860
3	Lichens	510
4	Bryophyta	642
5	Pteridophyta	530
6	Gymnosperm	21

7	Angiosperm
	   a. Monocots-
	   b. Dicots-
		4387
		 3237
		 1150

8	True Mangroves	32

Table2: Numerical break up of taxa occurring at Pathra and its vicinity, Paschim Medinipur, West Bengal.

Type	Family	Genus	Species
Dicots	35	76	81
Monocots	7	10	13
Pteridophyte	2	3	3
Total	44	89	97

Table3: Dominant families with number of species

SL NO	Families	Total No. of genus	Total No. of species
1	Asteraceae	9	9
2	Fabaceae	6	7
3	Euphorbiaceae	5	5
4	Amaranthaceae	3	4
5	Acanthaceae, Poaceae	4	4

Description: As of 2009, recorded forest area in the state is 11,879km which is 13.38% of the state's geographical area, compared to the national average of 21.02%. Reserves, protected and unclassed forest constitute 59.4%, 31.8%and 8.9%, respectively , of the forest area. Part of the worlds largest mangrove forest, the Sundarbans is located in southern West Bengal. From a phytogeographic view point, the southern part of west Bengal can be divided into two regions: the Gangetic plain and the littoral mangroves forest of Sundarbans. The alluvial soil of the Gangetic plain, compounded with favorable rainfall, make this region especially fertile. Much of the vegetation of the western part of the state shares a floristic similarities with the plants of the Chota Nagpur plateau in the adjoining state. The predominant commercial tree species is Shorea robusta, commonly known as the Sal tree. The coastal region of Purba Medinipur exhibits coastal vegetation; the predominant tree is the casuarina. A notable tree from the Sundarbans is the ubiquitous sundarim from which the forest gets its name.

The distribution of vegetation in northern west Bengal is dictated by elevation and precipitation. For example, the foot hills of the Himalayas, the dooars, are densely wooded with sal and other tropical evergreen trees. However, above an elevation of 1000meters(3300ft), the forest become p0redominantly subtropical. In Darjeeling, which is above one 1500meters(4900), temperate-forest trees such as oaks, conifers, and rhododendroas predominant.The southern deltaic parts of west Bengal possesses a combination of more than 60 species of the Sundarbans. The mangrove ecosystem consisting of true mangroves, mangrove associates and obligate mangrove in the state of west Bengal.

The Importance Of Floral Diversity

The term flora in Latin means ''Goddess of the Flower''. Flora is a collective term from a group of plant life found in a particular region the whole plant kingdom its represented by this name.

Flora are very important for human existence. The flora liberates oxygen that is consumed by the fauna for respiratory flora hugely benefit mankind through its medicinal and food offerings. Animals maintain the equilibrium by predating on different plants and animals to balance their population on earth. The flora spread across the earth contribute to the aesthetic value of the earth people visit several forests, botanical garden etc to enjoy the beauty on landmarks. This explains significance of flora in our day to day lives. Each plant an animal in the world brings something to the environment that another plant will rely on. This create a balance of life that enables the life circle to survive. The flora is imperative because its from the find net of life. The plants of the earth produce the oxygen that is breathed by the fauna an intern, the fauna exhales the caron di oxide that the flora need to live one can not live out the others, and humans can not live without either. The existence of one species depend upon the existence of the other. The importance of flora and fauna is linked with the very air with breathe and the food we eat. The flora produces medicines and the water absolutely necessary for live to exists. We are all connected through a food chain of which the fauna occupies a significant part. Our ecosystem, the flora and fauna are all inter dependent through food chains. Its starts from the primary the plants and ends with the highest consumer – man.

Plant diversity is invaluable because it balances the ecosystems, protects watersheds, mitigates erosion, moderates climate and provide shelter for animals. Threats to plant diversity include the increasing human population, pollution , deforestation, and species extinction.

DISCUSION

The flora indicates a significant diversity of plants which indicates the overall richness of the place. Overall flora has been classified in eleven groups. The most diverse group is the tree consisting of 70 species, whereas there is only one species of bamboo showing the list diversity. A total pf 256 floral species have been identified. In general the survival of the species is carried out by the process of reproduction. They can reproduce following different methods. From the above survey report it was shown that out of 97 species, only 66 species reproduces by the agent of seed; 9 species through seeds and root-stocks; 9 species by seeds and steam cuttings; two species each by the process of steam cutting, rhizomes, root-stocks; steam and other 1 species each through steams and leaf-cuttings; seeds and rhizome. The reproductive process of 3 pteridophytes is yet to be ascertained.

The finding of the present study reveal the diversity of the area, which possesses habitats with rich natural resources. The study confirm the existence of diversity plant species within the campuses and proper maintenance of the land.

Conclusion:
The diversity in floral morphology is likely to have been facilitated by the existence of multiple parallel genetic pathways that can evolve independently of one another. These modular systems include the genetic programs controlling floral organ identity, floral symmetry, organ polarity, phyllotaxy, and merocity.

The medicinal plants are very important for socioeconomic point of view. But indiscriminate collection cause serious damage to the natural population of these plant species. Beside this, due to loss of habitats caused by top layer soil erosion, grazing of cattle, plant disease, deforestation, construction and extension of motorable roads, monoculture, herbicide and pesticide residues in soil, illegal collection, landslides and floods adversely affect the diversity resources of medicinal plant species of West Bengal. Therefore, an immediate attention is required to conserve these useful species from devastation in their habitat.

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PROJECT REPORT

(SUBMITTED FOR THE DEGREE OF B.COM HONOURS IN ACCOUNTING & FINANCE UNDER THE UNIVERSITY OF CALCUTTA)

TITLE OF THE PROJECT

CONSUMERS' BEHAVIOUR TOWARDS ONLINE VS OFFLINE SHOPPING NEAR SHREEMANI BAZAR

SUBMITTED BY

NAME OF THE CANDIDATE: PIYALI SANA

REGISTRATION NO. :   137-1211-0192-19

NAME OF THE COLLEGE: VIDYASAGAR METROPOLITAN COLLEGE

COLLEGE ROLL NO. :   1130

SUPERVISED BY

NAME OF THE SUPERVISOR: Dr. SARAJIT SARDAR

NAME OF THE COLLEGE: VIDYASAGAR METROPOLITAN COLLEGE

MONTH & YEAR OF SUBMISSION

June, 2022

<u>SUPERVISOR CERTIFICATE</u>

This is certify that Ms. Piyali Sana a student of B.Com. Honours in accounting & finance in business of vidyasagar metropolitan college under the university of Calcutta has worked under my supervision and guidance for her project work and prepared a project report with the title, "Consumers' behaviour towards online vs offline shopping near Shreemani bazar" is submitting, is her genuine and original work to the best of my knowledge.

Signature:

Place: Kolkata

Name: Dr. Sarajit Sardar

Date:

Designation: Associate professor

Name of college: Vidyasagar Metropolitan college

Student's Declaration

I hereby declare that the Project Work with the title "Consumers' behaviour towards online vs offline shopping near shreemani bazar" , submitted by me for the partial fulfillment of the degree of B.Com. Honours in Accounting & Finance under the University of Calcutta is my original work and has not been submitted earlier to any other University /Institution for the fulfillment of the requirement for any course of study.

I also declare that no chapter of this manuscript in whole or in part has been incorporated in this report from any earlier work done by others or by me. However, extracts of any literature which has been used for this report has been duly acknowledged providing details of such literature in the references.

Signature:

Place: Kolkata

Name: Piyali Sana

Date:

Address: 15, Narayan Roy Sarani, Kolkata 6

Registration No. : 137-1211-0192-19

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Thanking You,

Piyali Sana

6th Semester

CONTENTS

CONSUMERS' BEHAVIOUR TOWARDS ONLINE VS OFFLINE SHOPPING NEAR SHREEMANI BAZAR

CHAPTER I

➢ Introduction

The increase in technology provides good opportunities to the seller to reach the customer in much faster, easier and in economic way. Online shopping is emerging very fast in recent years. Now a day the internet holds the attention of retail market. Millions and millions of people shop online. On the other hand the purchasing of product from traditional market is continuing since years. Many customers go for purchasing offline so as to examine the product and hold the possession of the product just after the payment for the product. In this contemporary world customer's loyalty depends upon the consistent ability to deliver quality, value and satisfaction. Some go for offline shopping, some for online and many go for both kind of shopping. The focus of the study is on the consumer's choice to shop on internet and at the traditional stores at the information gaining period. However online shopping is easier for the people and less price than the offline shopping. While making any purchase decision consumer should know the medium to purchase whether online shopping or the offline shopping. Consumer should decide the channel for them which can best suit to their need and wants and which can satisfy them. In this competitive world how consumer can decide the particular medium for their purchase of goods is very important to understand in a managerial point of view. (Laing and Lai, 2000) said that the internet shopping is the third best and most popular activity over internet after online shopping next comes the email using, messaging and web browsing. These are even more important than watching or getting entertain by the internet or getting any information or news, this are the two very common thought which comes to the people's mind when considering the internet users do when they are online. The behaviour of online shopping is also known as online buying behaviour and internet shopping. Buying behaviour means the purchase of good over internet using web browser. Online shopping also consist the same five steps which is related to traditional shopping behaviour. (Chiang and Dholskia , 2003; Lynch, Kent, and Srinivasan 2001) they said that in the typical way of online shopping when the consumer need some product or service they go through the internet and browse or search the things they need and their information. But rather than searching actively, many a times potential consumers are attracted by the information about the product they want. They see many products online and choose the best one which suits him/her. Then they purchase that product and finally the transaction takes place and post sales service provided by the online sites. Online shopping attitude and behaviour are related to the consumer. Previous studied have focused on why the products of the online shopping is different from other products. Many studies have focused that the high touch products that the consumer feels when they need to touch, smell or try the product. It requires the offline shopping at the purchasing stage because it cannot be done in the online shopping. Even with the increase in the online shopping and the recognition that online shopping is more likely to impose the pressure on offline shopping or traditional shopping. The research is very limited in this area or field. Online or e-shopping is a kind of electronic shopping which allow the consumer to purchase goods over the internet directly from the seller using a web browser. There are some alternative names of online

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shopping those are as follow- e-web store, e-shop, e-store, internet shop, web-shop, web store, online store, online store front and virtual store. Mobile commerce or m-commerce is described as purchasing from the online retailer by the mobile optimized online sites or application (app).(Aldrich Archive, 1982) online shopping is invented by a English entrepreneur Michel Aldrich in 1979. (Palmer& Kimberly,2007) Tim Berners Lee is the one who created the first World Wide Web server in 1990. It was opened for a commercial purpose. There after many technological innovation emerged in 1994 like the online banking, the opening of online pizza shop by Pizza Hut, Netscape SSL v2 encryption standard for secure data transfer, and Intershop's first online shopping system. In 1994 the first secure transaction was over the web either by Net market or Internet shopping. Amazon was launched in 1995, it Is the first online shopping site of the world and after that eBay was introduced in 1995.Today many countries are doing online shopping but still some countries are at the starting point of the experiment of online shopping. In 1987, the merchant account was launched that helped the software developers to sell their software online easily. Swreg was the name of first software and the oldest software that is still available. Future shop is a book for how new technology will change the way of shopping and what the customer buy. It was published in the year 1992. The book consists of the topic like what will happen in the future date of e-commerce and how the internet will take place in the society. 1994 is the mouth of year of online commerce and Yahoo is launched in this year. In 1995 approx. 12000 domain names were registered in the internet. In 1998 Google entered the world of e-commerce and yahoo launched yahoo store online. The customer of online shopping should have internet and a valid method of payment in order to purchase the products from the internet. Amazon, Myntra, flipkart are some of the examples of the successful online shopping sites that use less price of the items and large stocks to attract the consumer. In general the population from high level of income and high level of learning are more favorable to do online shopping. The population who are more knowledgeable and more explored to the internet are more into online shopping. The increase in technology increases the online shopping by the consumer. The increase in technology creates a favorable attitude towards the consumer for online shopping.

➢ Factors Affecting Online Shopping

Online shopping becomes relevant in the last decade. The kind of business online retailer are doing is proof enough that they are providing some benefits to customer which offline shopping does not give to the customer.

 These are the factors affecting online shopping:

Risk : When customer buy products from online shopping they do not touch or feel the product in a physical sense .Hence we understand that lot of risk is involve while buying an online product whether it will reach us on proper time or not is also a concern and also there may arise a risk of product size and colour as it may differ in real view or sense. Sometimes the product ordered is kind of damaged.

Convenience : Online shopping is much more convenient than offline shopping. Instead of taking out your vehicle and visit shop to shop you can just sit at your home and do the shopping. It is convenient to sit at one place and shop the product of our choice without moving from place to place. Once you have decided on what you want to buy the payment process is seamless and the order is delivered to your place. Online shopping makes things more convenient. We can have a lot of choice over there in any kind of material we want to deal with that too without any fear of dealing with any dealer or distributers. Online shopping is convenient in its real sense   as it do not carry any dealing with issues of asking for wanted items or issues of asking for desired kind of items which helps in avoiding the part of waiting, asking, questioning about the product.

Anxiety : People's anxiety of exploring the sites and experimenting over them is also a matter of concern. Sometimes people those who are not very known to any sites like flipkart Myntra or any sites they just feel like it's a tough kind of activity over net and its complicated in there sense as they are not very fond of doing online shopping as it takes a time to even understand the product about its details. This particular activity makes them irritated and anxiesious over any kind of fatal online dealing.

3

Previous online experience : How has been a person's experience in past as far as online shopping is concerned is a major story of concern. Previous experience is what matters actually as its hamper or sometime it keep good view or mood of people. There are two experiences one is about good and another is about bad. Both has its own and different affect in the mind of buyers. So these factors also influence online shopping or e shopping.

Pricing Policy : Online retailers gets an inherent advantage in pricing as they don't have to bear expenses like store rent, bills etc. They can pass their price directly to customer and generally offer a lower price to customer than offline market. Even when shipping charges are included than also it is better than the offline shopping. Hence, determines the level of online shopping. Lower the price- higher the mood to demand, higher the price–lower the demand. Price of any commodity also influences the purchasing power of any specific buyer. Consumer generally prefer mild or normal price with good quality and do not want to spend or expense lot for any kind of stuff. So buying and selling both are simultaneously affected by the price of product.

Quality : The quality of product at online sites and offline stores vary a lot and then this determines the frequency of online shopping. Quality also carries good affecting nature over any kind of shopping. As consumer or buyer want to have a good quality of product as they spent their huge sum of money. In general, qualities is a primary need over any kind of purchasing as it somewhat secure or give a good sense of buying or kind of guarantee about the product preferred.

Online trust : It depends on customer perception whether they trust a particular site and its product and services. Hence the frequency of online shopping also depends upon whether they trust a particular site or not. People are different in there nature and thoughts, some kind of people trust online dealing some kind of people are in fear of online dealing. Trust carry a lot of points examples- trust about the same product size quantity weight and security etc.

Tangibility of the product : At the store the customer gets to touch and feel the product they purchase before buying which help the customer to take the decision to buy the product or not whether the product will suit the customer need or not. Whether, we can and see feel a product is also a reason which determines whether a person's wants to go for shopping or not. Tangibility of any product also determines the online shopping. Without touching the preferred or desired substance nobody can get its security about the worthiness or quality or sense of any preferred product.

Delivery time : The product ordered by the customer in online shopping takes a minimum of six to seven days to deliver the product to the customer. But in offline shopping the possession of the goods is immediately transferred to the buyer. So this is a major factor which affects the online shopping. People want a good delivery time; they prefer to get a product in a desired time or in short time of duration. Duration is the second major factor affecting the demand of product.

Income : The person whose income is more, do more online shopping as compared to the person whose income is less. Income plays a major role to purchase online products. Higher income people prefers to purchase online more than offline as it gives them reliability and convenient. Higher the income higher wills the purchasing of online product and vise-versa.

Taste and preference : The taste and preference of the customer vary from customer to customer and time to time, taste and preference also a factor which influences online shopping. Taste and preference of age group also matters in online shopping. Old people buy or purchase product for their kind of use. Young generation or teenagers use to purchase their taste of product. Taste and preference move in tend of ages and choices. Every customer or buyer choices are different in nature as per their ages.

Information : The information given in the site may not be correct or may not be appropriate information. The full information about the quality of the product may not reach to the customer. Hence it will affect the online buying of the customer. Information provided by the preferred sites may be not the same about the detail of the product. May be with the provided information and details customers are not very satisfied. Sometimes it happens that even many customers use to buy the product after their full knowledge of details as they prefers the detail are accurate and good in sense. Information related to product may vary in its real sense when it arrives or delivered to relevant customer.

Variety : The kind of variety that a customer gets online is hard to match any product purchased offline. The online retailer's stock products from the entire major brand and a customer can find any product in their listing no matter how hard to find it is in the offline store. Online and offline both shopping provide variety of range from various brands. Variety in it itself is the foremost dealing factor which influence the market. Larger the variety of product in shop higher the selling and vice-versa. People generally prefer to move where they get more variety of products.

Offers : Apart from offering products at lower price most online shopping regularly come up with discount offers in association with bank, brand etc. Offline stores only give offer or discount during stock clearance or when the manufactures gives the discount on the products. Online shopping always provides offers at all the time and day. In every purchase we get some offers even if there is no festival or carnivals. Offers are a great factor which attract customer to purchase online. Offer carry a great influence in shopping.

Instant gratification: Customer buying offline gets their products as soon as they pay for it but in online shopping customer have to wait for their product to get their product. Under normal circumstances waiting a day or two does not matter much but when a customer want to get the product instantly than offline shopping become necessary.

Available product and services: Online shopping offer customers more benefit by providing more variety of goods and services that they can choose from. There are some goods which a customer can only find online.

➤ Factors Affecting Offline Shopping

Offline shopping has existence since the existence of mankind. Offline shopping gives different types of benefits to the customer.

There are some factors which affect the shopping offline those are as follow:

Less number of choices : There are limited numbers of choices when it comes to offline shopping. The numbers of varieties are limited. The ranges of products available in the shops are limited. Sometimes, the stocks are old and are up for discount and sale. Basically in offline or any shop we get less numbers of choices as it consists of manual work. We have to choice in that less number of materials due to manual factor.

Time consuming : It takes a lot of time to go shopping to a store. Distance from home or workplace to the store is time consuming. It is also time consuming while trying out the outfits in a store or even going through other products. In off-line shopping customer move one place to another and one shop to another in search of their desired product.

Information : What generally happens is that the information provided by a shopkeeper isn't correct. Also this information doesn't always suit our needs. And we buy products according to what they say when we ourselves don't have adequate knowledge about the products. Such purchases are based on goodwill when we happen to know the shopkeepers.

Taste and preference : The taste and preferences of the customer change from time to time. While buying any product from a store we have the flexibility and the choice to try out outfits. But while buying any product from a website we don't have this facility. Therefore, buying offline caters more to the changing taste and preferences of the customers.

Bargaining : In offline store a customer can do physical bargaining to the seller unlike shopping online. In online shopping a customer cannot do bargaining as the price of the product is fixed. Some of the customer purchased products depending upon bargaining so they do not go for online shopping as they feel shopping online is more costly than the market.

➢ Comparison between online Shopping vs offline shopping

Characteristics	Online shopping	Offline shopping
Definition	Online shopping is the activity of purchasing goods and services over the internet.	Traditional shopping is the activity of visiting a shop and making purchases
Convenient	Tends to be more convenient as you can shop anywhere, anytime.	less convenient
Shopping process	Customers don't have the chance to physically see or touch the items they order.	Consumers are actually able to see what they are buying before they make the payment.
Risk	There is risk of online frauds and online security issues.	Comparatively safer.
Market competition	Faces global competition .	Faces local competition.
Initial cost	The cost of starting an online business is low.	The costs of starting a retail business are high due to additional costs such as store rent.
Pricing comparison	Makes it easier to compare pricing with different vendor.	Makes it hard to compare pricing with a different vendor.
Goods ownership	Goods are not obtained immediately after purchase.	Goods are obtained immediately after a purchase.
Return policy	There may be some complications in returning the products.	It's relatively easy to return products.

➢ IN PANDEMIC SITUATION (2019-2022)

Consumers determine how they shop, depending on their desire (Sarkar & Das, 2017). Before pandemics, the majority of consumers still preferred to shop in traditional land-based retail stores in order to have an authentic experience (Sarkar & Das, 2017). Consumers differ from each other in their personal preference of shopping online or offline. Some consumers highly value time-efficient shopping combined with a broad variety of products and alternatives, whereas other consumers favor the personal interaction with sales assistants and the ability to be able to have physical contact with the product (Levin, Levin & Wellner, 2005). The COVID-19 pandemic has taken a sharp economic toll on the retail industry worldwide as many retailers and shopping centers were forced to shut down for months due to mandated stay-at-home orders. As a result of these closures, online retailers received a major boost in sales as customers looked for alternative ways to shop and the effects of the retail apocalypse were exacerbated. A number of notable retailers filed for bankruptcy including Ascena Retail Group, Debenhams, Arcadia Group, Brooks Brothers, GNC, J. C. Penney, Lord & Taylor and Neiman Marcus Major. Retailers that did not survive the pandemic include Century 21 (department store) , Lord & Taylor , and Fry's Electronics.

➢ Literature Review

Consumer behavior has changed greatly over the past decades, but it has been evolutionary and the seeds of change have been apparent for generations (Kar, 2010). Piyush K. Sinha, Arindam Banerjee, and Dwarika Prasad Uniyal,(2002), identified major drivers behind choice of stores for various shopping needs as exhibited by a typical Indian consumer, by conducting study on 293 participates recruited by e-mail.

Tony Ahn, Seewon Ryu and Ingoo Han,(2004), explored online and offline features of Internet shopping malls and their relationships with the acceptance behaviors of customers. Web survey with 932 users was conducted in 6 shopping malls of korea. The study validate technology acceptance model (TAM) in predicting the acceptance of the Internet shopping malls. Online and offline features have positive effects on the user acceptance, usefulness, attitude and intention to use.

Aron M. Levin, Irwin P. Levin and Joshua A. Weller,(2005), For the study two samples of size 199 were used from a large Midwestern American university and an online survey panel. The study found that the preferences for shopping online or offline were shown to vary across products, consumers, and stages of the shopping experience. When attributes such as large selection and shopping quickly were predominant, online shopping was preferred. When attributes such as personal service and ability to see-touch-handle the product were predominant, offline shopping was preferred.

Junhong Chuet.al. (2010), explored the moderating effects of household (e.g., shopping frequency) and product (e.g., sensory nature) characteristics on brand loyalty, size loyalty and price sensitivity across online and offline channels for grocery products. Data was collected from one of the five leading grocery chains in Spain. The study of found that the households were more brand loyal and size loyal but less price sensitive in the online channel than in the offline channel.

Rick L.Andrews Ourso and Imran S. Currim,(2004), examined behavioral differences between consumers attracted to online shopping and traditional supermarket shopping using actual choice data from an online supermarket and traditional scanner panel data. The study found that as Compared to traditional supermarket consumers, online consumers prefer larger sizes to smaller sizes, do more screening on the basis of brand names, do less screening on the basis of sizes, have stronger choice set effects.

Koen Pauwels et.al., (2011), found that the offline revenue impact of the informational website critically depends on the product category and customer segment. The lower online search costs were especially beneficial for sensory products and for customers distant from the store. In contrast, customers in a particular segment reduce their shopping trips, suggesting their online actions partially substitute for experiential shopping in the physical store.

Dong-Mo Koo, Ji-Hoon Lee (2011), proposed an interrelationship among dominance, energetic and tense arousal, pleasure and their impact on intention. Results from a survey of 406 consumers (217 from offline store customers and 189 online store users) demonstrated that dominance had a significant positive and/or negative effect on both energetic and tense arousal, it has no impact on pleasure and intention under both offline and online environment; Effect of dominance on tense arousal was not statistically significant in an online shopping environment; both energetic and tense arousal had a positive and/or negative impact on pleasure.

Yaobin Lu (2011), focused on factors that influence users' intention to transfer their usage from the offline to the online channel that offer similar services. The study revealed that innovativeness in new technology and relative benefit had positive effects on users' intention to transfer usage. Moreover, the findings of the study also indicated that internet experience moderates the relationship between relative benefit and consumers' intention to transfer usage from offline to online services.

Isabel P. Riquelme and Sergio Roman,(2014), examined the role of several consumers' cognitive and psychographic traits in their perceptions of retailers' deceptive practices(perceived deception) and the different effects on perceived deception associated with online vis-à-vis in-store shopping.

➢ OBJECTIVES

a) To understand the difference in the consumer behaviour for the online vs offline shopping.
b) To analyse the preference of consumers. (Online vs offline)
c) To determine the factors affecting online buying.
d) Study the impact of traditional retailer over the online retailer.

➢ METHODOLOGY

This part of study defines all the process of data collection. When it comes to data collection. There are two methods in general used by researcher to collect data, primary and secondary method. Primary method includes observation method, interview/questionnaire method, and case study method. Secondary method is the method in which already collected data. The present study is based on combination of both qualitative and quantitative data. The qualitative data is collected through the sampling from the consumer. Random consumer is selected for the sampling purpose. The sample individual is selected from different age group, different sex and from different location of shreemani bazar. The different group of people including employee and unemployed, housewives, etc are considered as sample for the study.

a) **Sampling**: The customers have been selected from shreemani bazar area. The customers belong to different gender, age educational qualification and income category.
b) **Sample size**: 50 customers have been selected at random for this project.
c) **Questionnaire**: An open-ended questionnaire have been prepared and responses taken. The responses were then analysed graphically.

➢ LIMITATIONS OF THE STUDY

- Due to the time, the number of questionnaires is only 50, Which is not enough to represent the views and Experiences of the majority of consumers.
- There is a clear bias in age and gender distribution, which Is not quite fair.
- More data is needed to reach a fair conclusion and some single-blind and Double-blind experiments is also needed for obtaining real Data and suggestions for improvement.

CHAPTER II

➢ Conceptual framework

• National scenario:

Online shopping had a rather slow and disorderly journey in India, it has not picked up as much as it should have primarily due to the fact that internet penetration itself was quite low and secondly the customers were not aware about it as well. Moreover the customers are not ready to Take the risk of buying a product without seeing it physically. Traditionally, Indians are conservative in their approach to shopping. They want to touch and feel the products and test its features before buying anything. Online shopping started early in 1995 by the introduction of internet in India. Online shopping became popular during the Internet boom in 1999-2000 with the well know auction site know as bazee.com. Soon amazon.com, the online bookstore founded by Jeff Bezos, created history by becoming the first bookstore with a presence only on the Internet. Later on following the success of Amazon, many other bookstores with a physical presence also created an online presence on the Internet. Bazee.com was taken up by ebay. The trend of online shopping took a good pace and many new Portals started like amazon, flipkart, snapdeal, myntra, and so on. Many home portals such as Yahoo.com, Indiatimes.com and Rediff.com came up with online shopping options for the Indian consumer. It is convenient, faster and sometimes also cheaper than the traditional buying. Online shopping has increased in India after pandemic Now a day's buying Train ticket, bus ticket, air ticket all of them have gone through online option as well.

• International scenario:

Online shopping has become a trend not only in India but globally. No matter what age group, occupation, gender or education background, people are more inclined to online shopping. Because online shopping can bring more convenience to people, both in terms of the brands provided and the diversity of products, consumers can buy the most desirable products in the shortest time. The convenience brought by Internet technology makes the cost of merchants lower, so the Discount of online shopping is also greater than that offline shopping. During the pandemic, online consumption habits in Brazil have changed significantly, with a greater proportion of internet users buying essential products, such as food and beverages, cosmetics and medicines," said Alexandre Barbosa, manager of the Regional Center of Studies on the Development of Information Society (Cetic.br) at the Brazilian Network Information Center (NIC.br).Increases in online shopping during COVID-19 differ between countries, with the strongest rise noted in China and Turkey and the weakest in Switzerland and Germany, where more people were already engaging in e-commerce.

CHAPTER III

➢ DATA COLLECTION AND ANALYSIS

1. **Age**

SL No	Age limit	No. of individual	Percentage
1	18-30	40	80
2	31-49	8	16
3	50-65	2	4
4	Above 65	0	0
Total		50	100
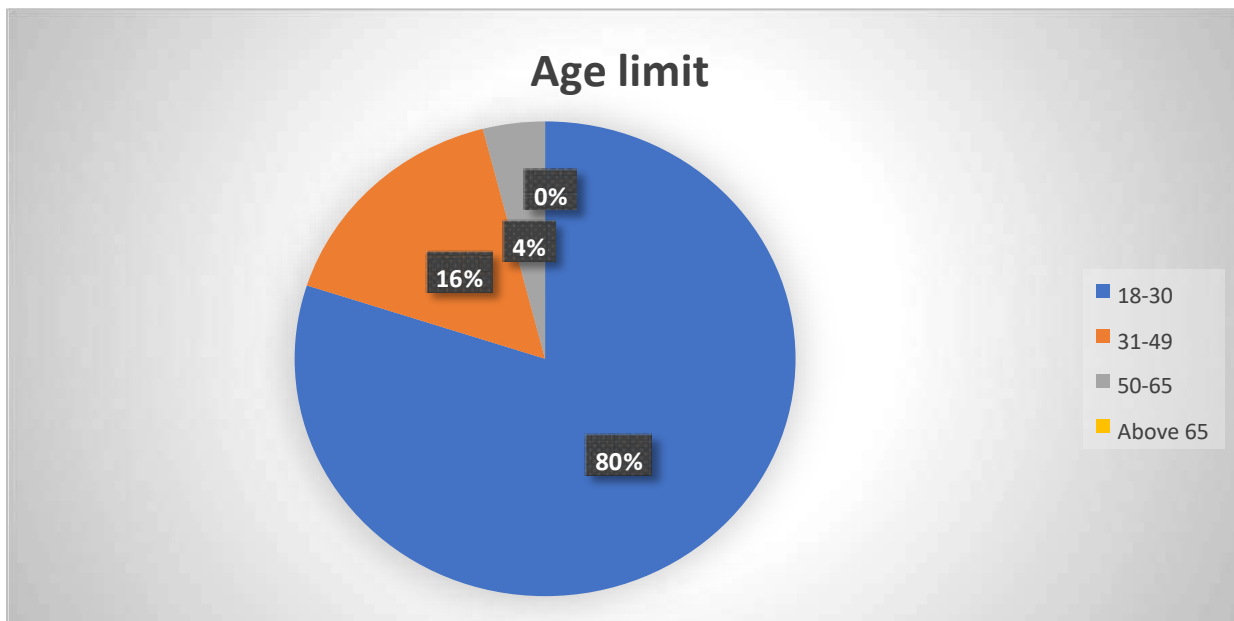
INTERPRETATION : the survey showed, 80% of consumers are 18-30 years , 16% consumers Are 31-49 years , 4% consumers are 50-65 years.

2. **Preference of shopping according to Age**

Age	Online shopping		Offline shopping		Total
	Before pandemic	After pandemic	Before pandemic	After pandemic	
18-30	5	10	15	10	40
31-49	1	2	3	2	8
50-65	0	2	0	0	2
Above 65	0	0	0	0	0
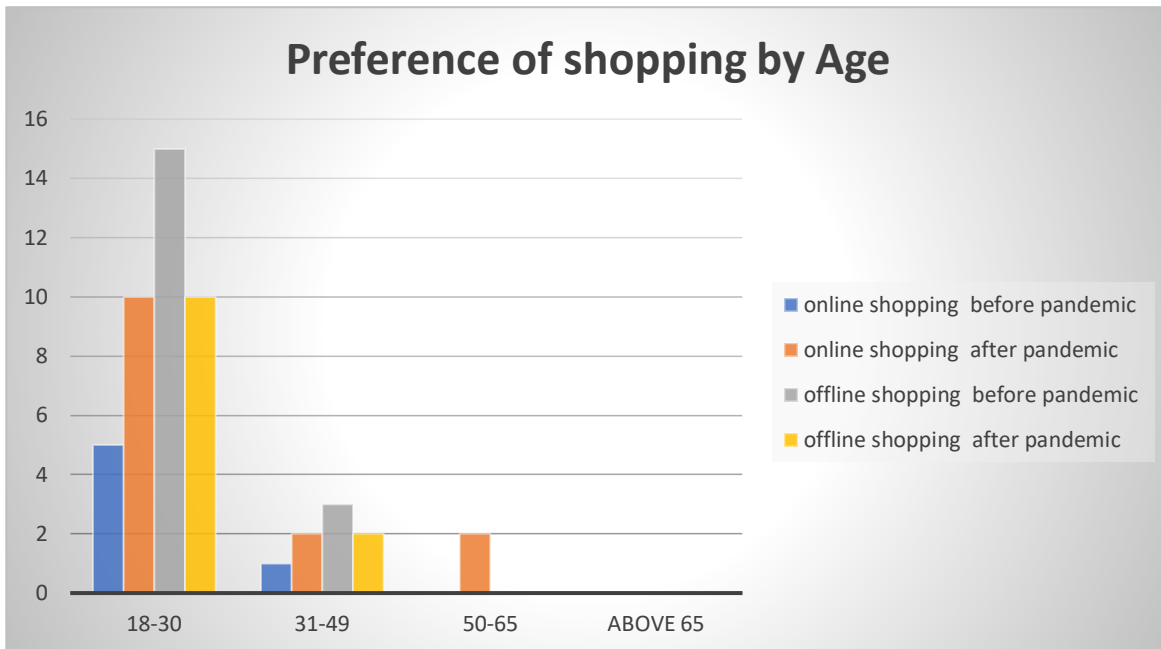
INTERPRETATION : The survey showed , 5 people between the ages of 18-30 are going to shop online before the pandemic and 10 people are going to shop online after the pandemic, 15 people are going to shop offline before the pandemic and 10people are going to shop offline after the pandemic. 1 person between the ages of 31-49 are going to shop online before the pandemic and 2 people are going to shop online after the pandemic, 3 people are going to shop offline before the pandemic and 2 people are going to shop offline after the pandemic. 2 people between the ages of 50-65 are going to shop online after pandemic.

13

3. **Gender**

Respondents	Male	Female	Others	Total
No. Of individual	30	20	0	50
Percentage	60	40	0	100
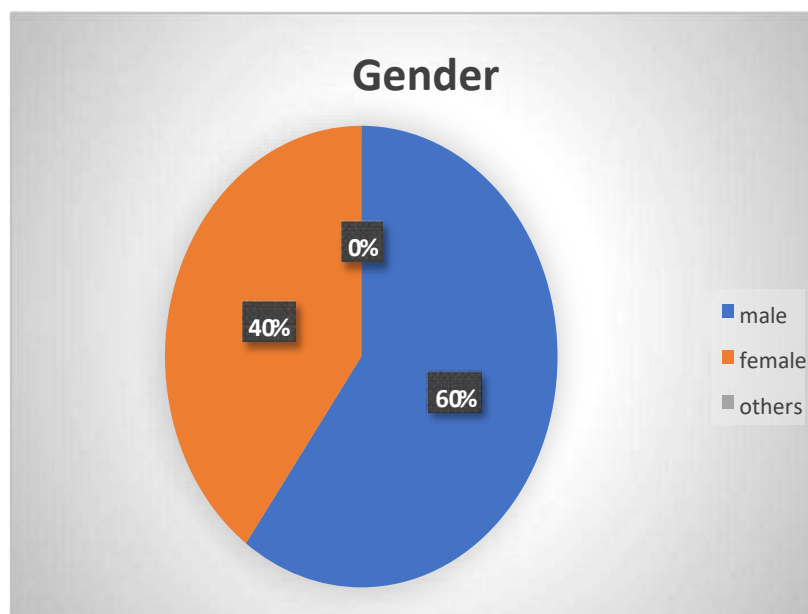
INTERPRETATION : The survey showed, 60% of consumers are male and 40% of Consumers are Female.

4. Preference of shopping according to Gender

Gender	Online shopping		Offline shopping		Total
	Before pandemic	After pandemic	Before pandemic	After pandemic	
Male	3	5	13	9	30
Female	3	9	5	3	20

Preference of shopping by Gender
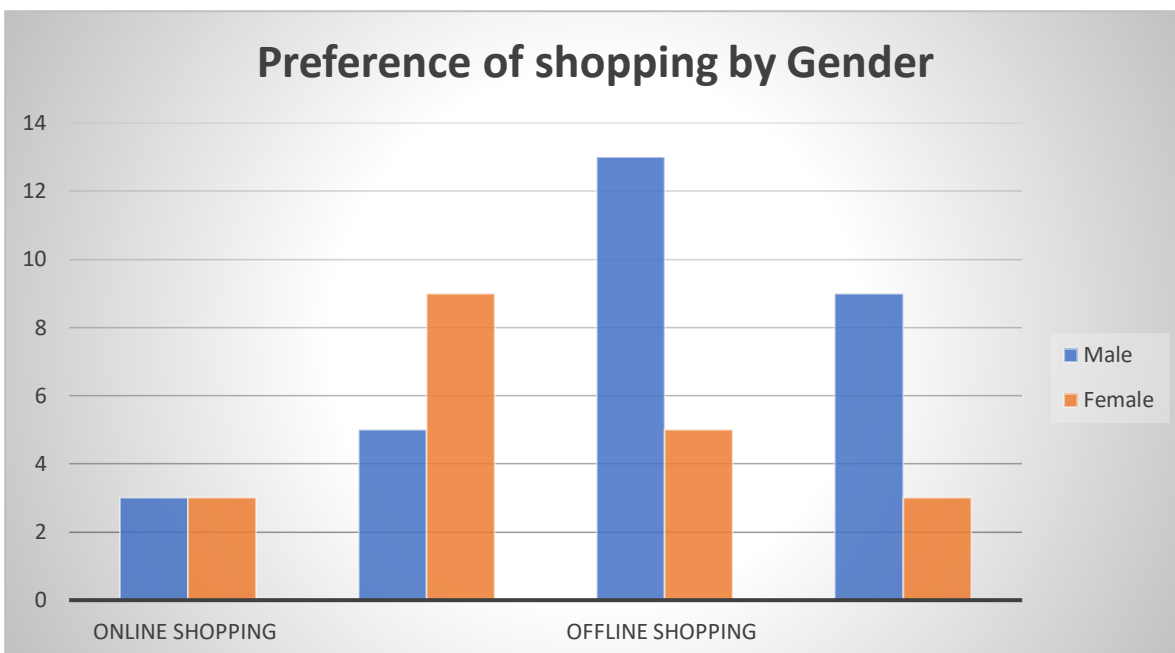
INTERPRETATION : 3 men are Shop online before pandemic and 5 are Shop online after pandemic. 13 men are Shop offline before pandemic and 9 are Shop offline after pandemic.3 women are Shop online before pandemic and 9 are Shop online after pandemic. 5 women are shop offline before pandemic and 3 are shop offline after pandemic.

5. **Annual income**

Respondents	Less than 2.5L	2.5L to 5 L	5L to 10L	More than 10 L	Total
No. of individual	47	3	0	0	50
Percentage	94	6	0	0	100

Monthly income
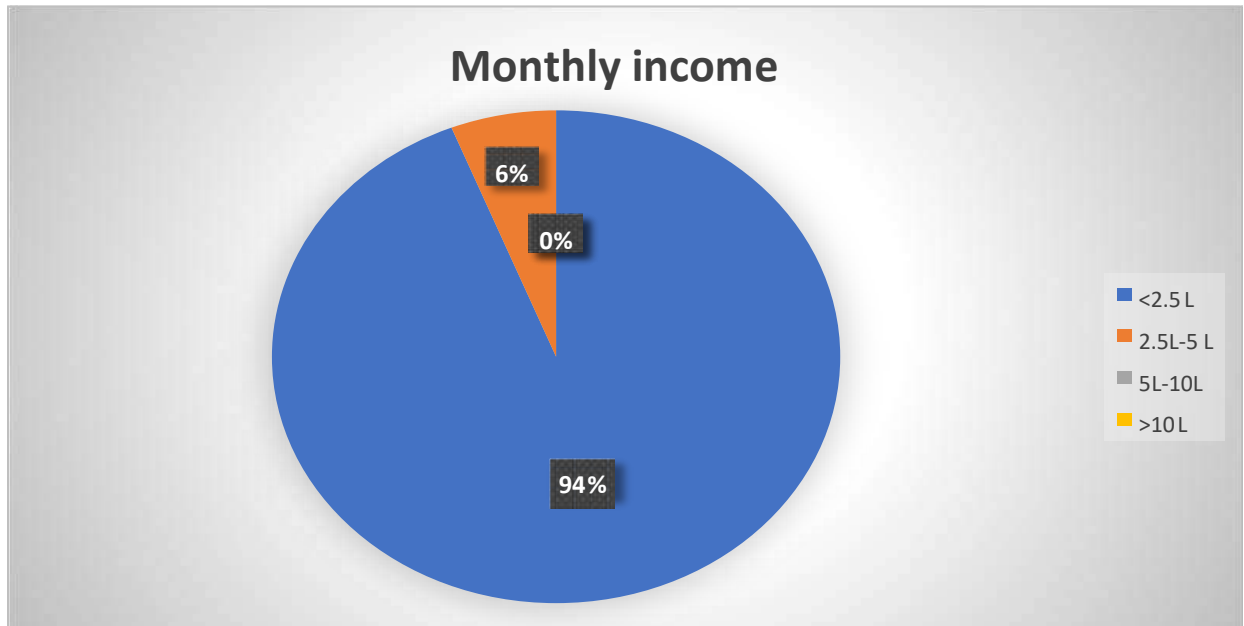
INTERPRETATION : The survey showed, 94% of consumers have a annual income of less than 2.5L , 6% of consumers have a annual income of 2.5L to 5L.

6. Preference of shopping according to Annual income

Annual income	Online shopping		Offline shopping		Total
	Before pandemic	After pandemic	Before pandemic	After pandemic	
Less than 2.5 L	8	10	20	9	47
2.5L to 5L	0	2	1	0	3
5L to 10L	0	0	0	0	0
More than 10L	0	0	0	0	0

INTERPRETATION : The survey found that 8 people whose annual income less than 2.5L , shop online before pandemic and 10 are shop online after Pandemic, 20 people shop offline before pandemic and 9 are Shop offline after pandemic. 2 people whose annual income under 2.5L to 5L are shop online after pandemic and 1 is shop offline before pandemic.

7. **Educational qualification:**

Respondents	SSC	HS	Graduate	Post graduate	Total
No. of individual	3	11	30	6	50
Percentage	6	22	60	12	100
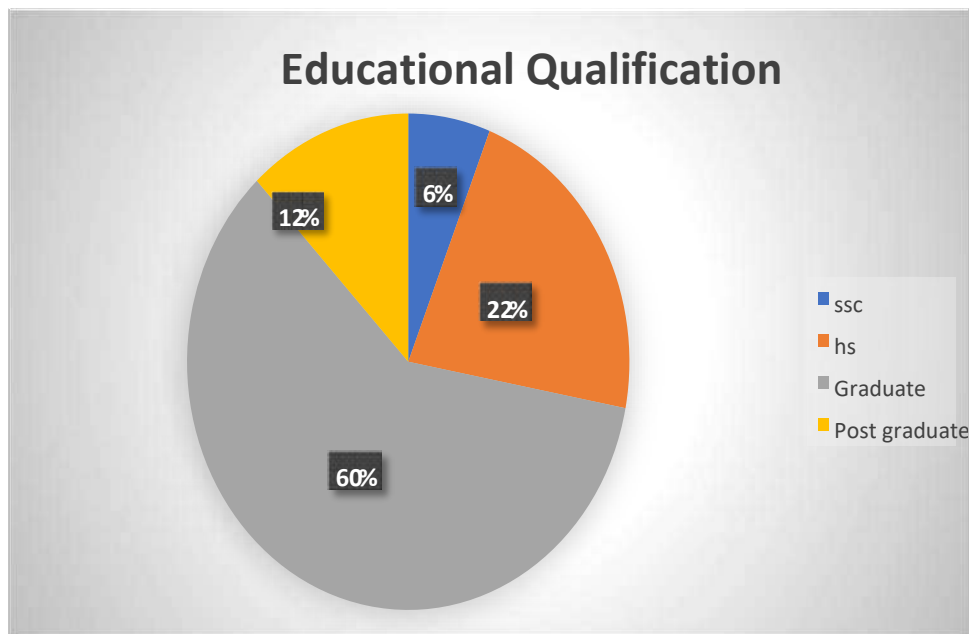
INTERPRETATION : The survey showed, 60% of consumers are graduate, 22% of consumers are passed HS, 12% of consumers are post graduate and 6% of consumers are SSC.

8. **Preference of shopping according to Education qualification.**

Education qualification	Online shopping		Offline shopping		Total
	Before pandemic	After pandemic	Before pandemic	After pandemic	
SSC	0	2	1	0	3
HS	2	3	4	2	11
Graduate	5	7	10	8	30
Post graduate	0	1	3	2	6
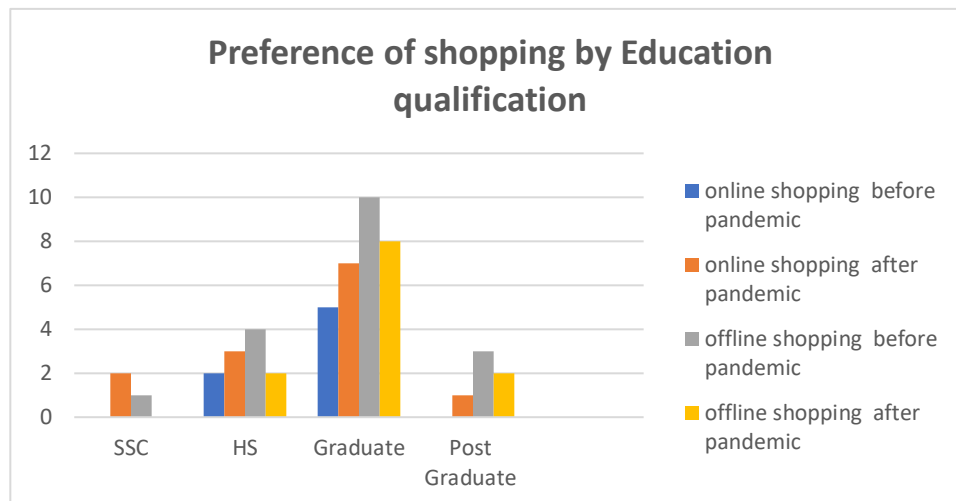
INTERPRETATION : The survey showed, 2 people who passed SSC shop online after pandemic, 1 , who shop offline before pandemic. 2 people who passed HS shop online before pandemic and 3 are shop online after pandemic. 4 people are shop offline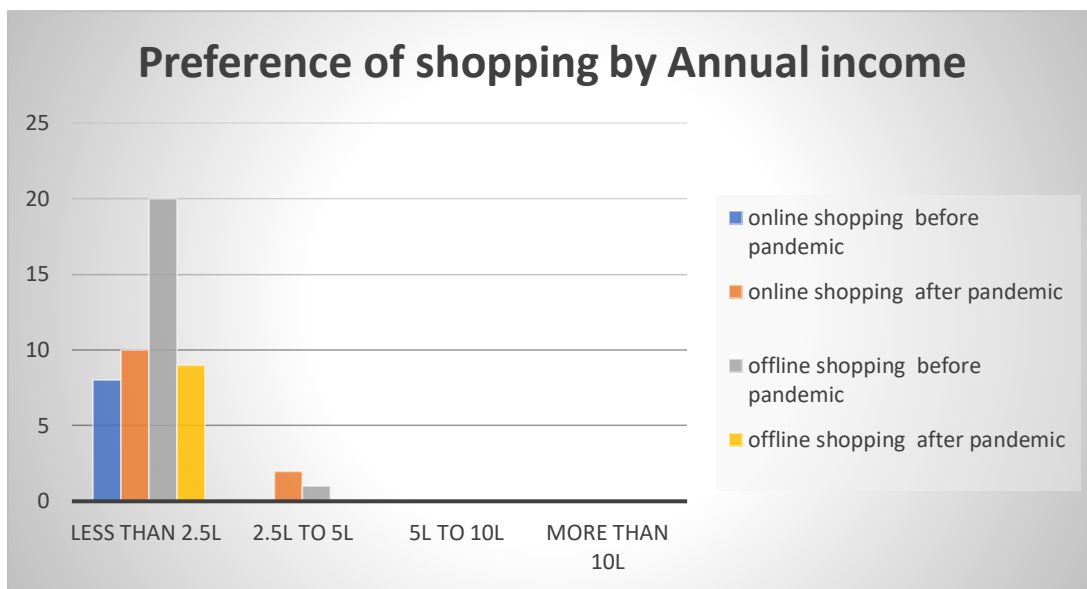 before pandemic and 2 are Shop offline after pandemic. 5 people who are graduate shop online before pandemic and 7 are Shop online after pandemic, 10 people are shop offline before pandemic and 8 are shop offline after pandemic. 1 person who is post graduate shop online after pandemic and 3 people are shop offline before pandemic and 2 are shop offline after pandemic.

9. **How frequently you shopped online before the outbreak of the pandemic? (Before March 2020)**

Respondents	Everyday	Two/Three times per week	Once a week	Once a month	Occasionally	Total
No. of individual	0	6	12	20	12	50
Percentage	0	12	24	40	24	100
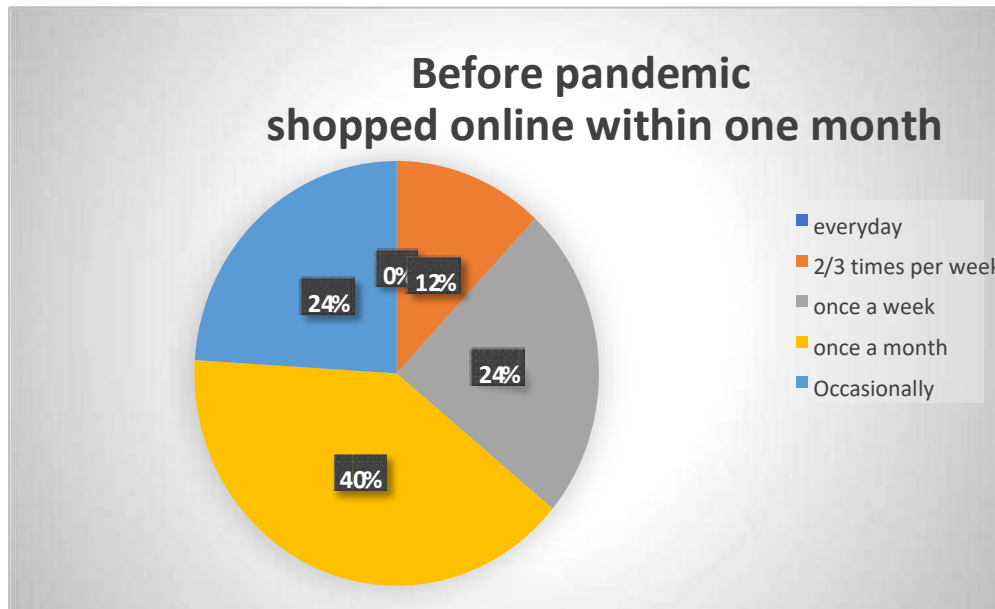
INTERPRETATION : The survey found that 40% of consumers shop once a month, 24% of consumers shop once a week , 24% of consumers occasionally and 12% of consumers shop two/three times a week.

10. **How frequently you shopped offline before the outbreak of the pandemic? (Before March 2020)**

Respondents	Everyday	Two/three times per week	Once a week	Once a month	Occasionally	Total
No. of individual	15	6	6	17	6	50
Percentage	30	12	12	34	12	100
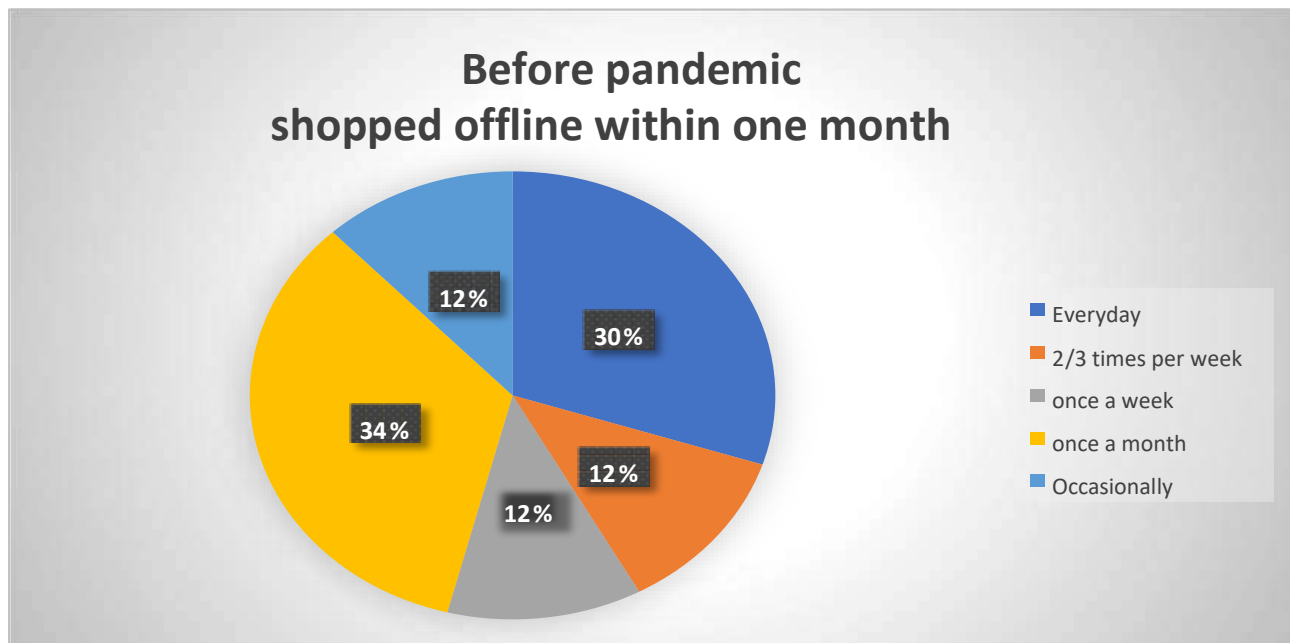
INTERPRETATION : The survey found that 34% of consumers shop once a month, 30% of consumers shop everyday, 12% of consumers shop two/three times per week, 12% of consumers shop once a week and another 12% of consumers occasionally.

11. **How frequently you shopped online after the outbreak of the pandemic? (After March 2020)**

Respondents	Everyday	Two/three times per week	Once a week	Once a month	Occasionally	Total
No. of individual	4	10	3	23	10	50
Percentage	8	20	6	46	20	100
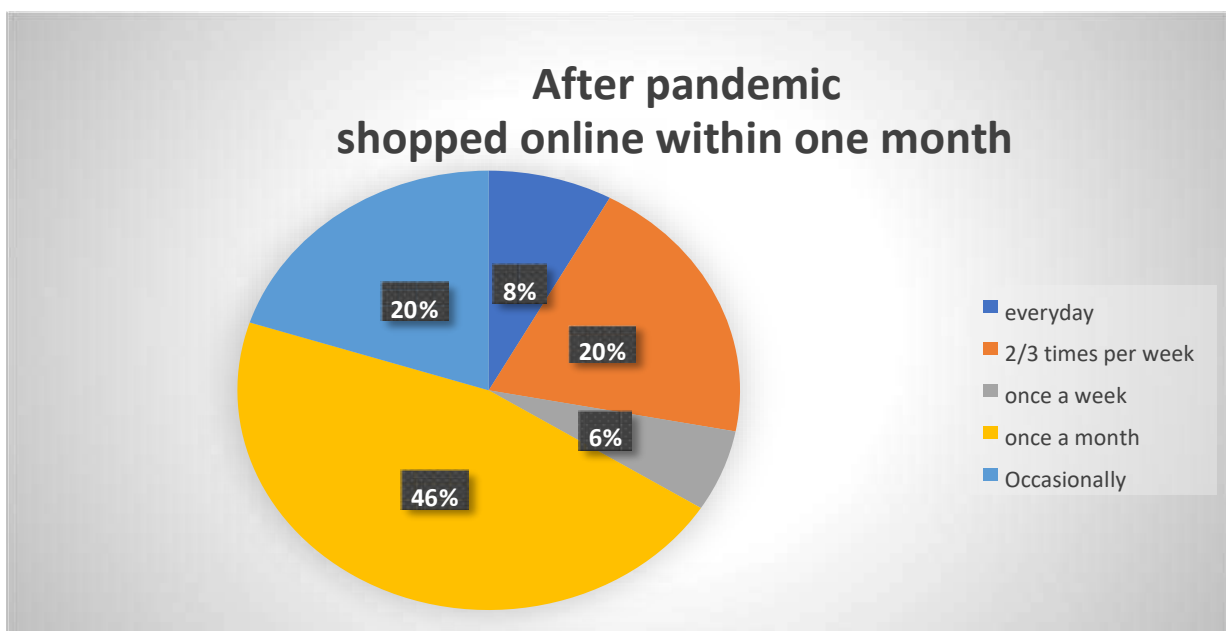
INTERPRETATION : The survey found that 46% of consumers shop once a month, 20% of consumers shop two/three times per week , 20% of consumers occasionally, 8% of consumers shop everyday, and another 6% of consumers shop once a week .

12. **How frequently you shopped offline after the outbreak of the pandemic? (After March 2020)**

Respondents	Everyday	Two/three times per week	Once a week	Once a month	Occasionally	Total
No. of individual	10	8	6	20	6	50
Percentage	20	16	12	40	12	100
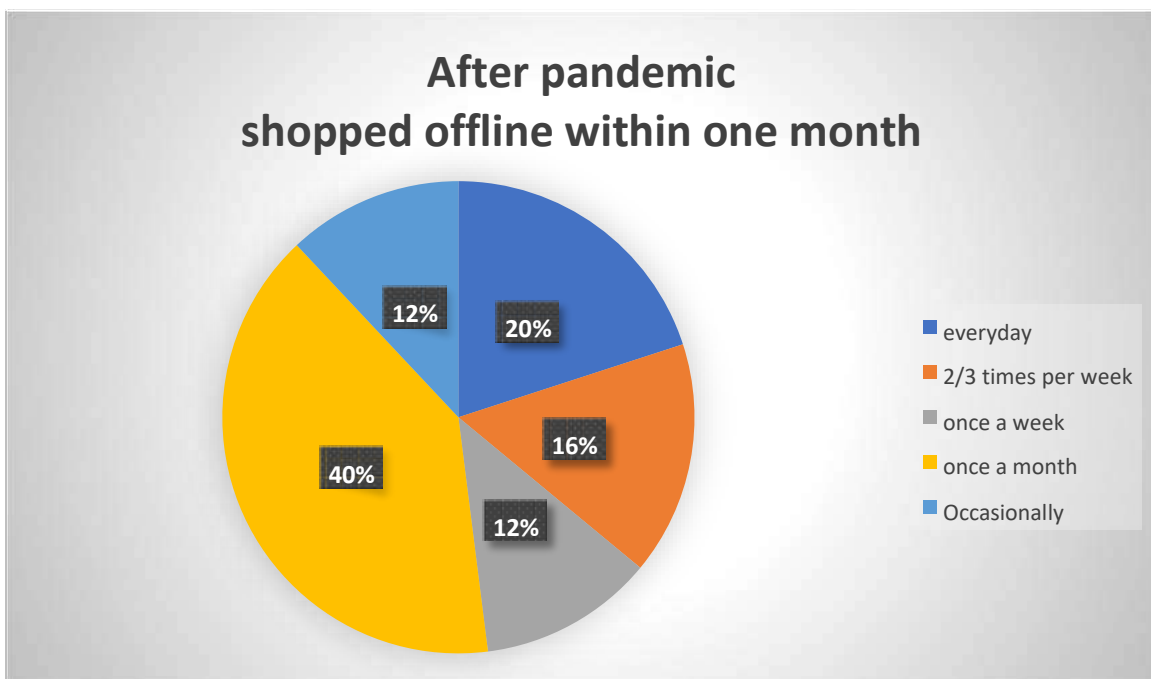
INTERPRETATION : The survey found that 40% of consumers shop once a month , 20% of consumers shop everyday, 16% of consumers shop two/three times per week, 12% of consumers shop once a week and another 12% of consumers occasionally.

13. **What kind of products would you buy online before a pandemic (before March 2020)?**

Type of products	No. of individual	Percentage
Groceries	10	20
Gifts	6	12
Household supplies	0	0
Skin care products	6	12
Fashion	26	52
Fitness/wellness products	2	4
Total	50	100

Before pandemic online buying of products

- groceries
- gifts
- household supplies
- skincare products
- fashion
- fitness products
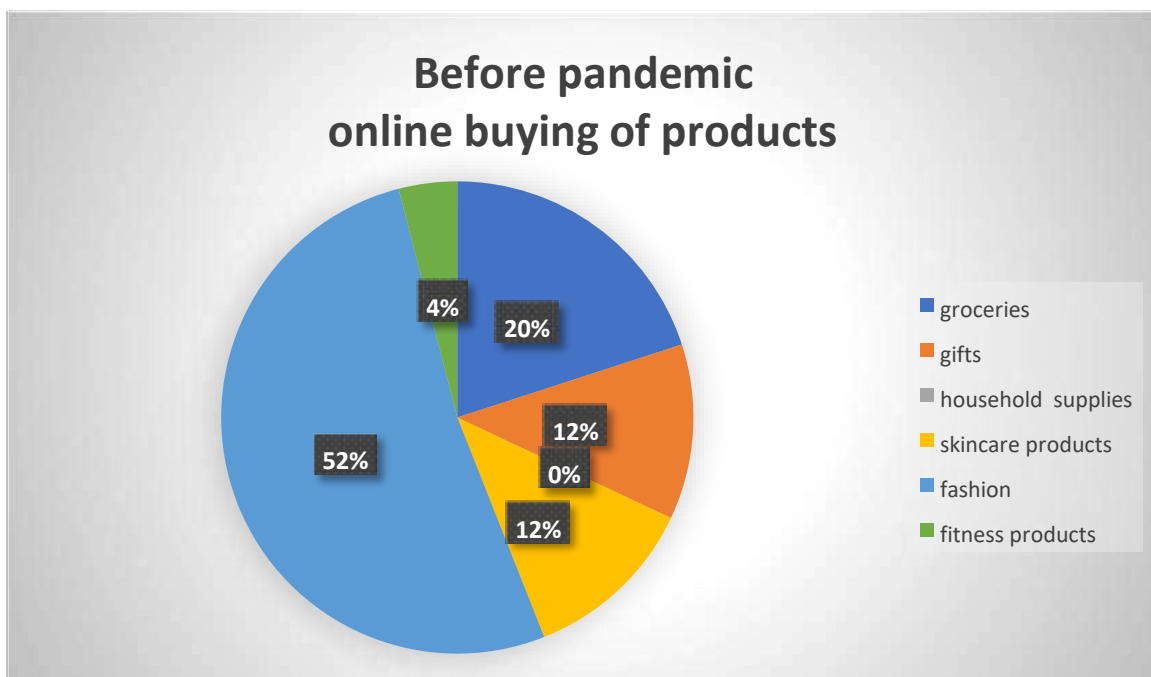
INTERPRETATION : The survey found that 52% of consumers buy fashion products, 20% of consumers buy groceries, 12% of consumers buy gifts, 12% of consumers buy skin care products and 4% of consumers buy fitness/wellness products.

14. **What kind of products would you buy offline before an pandemic? (before March 2020)**

Type of products	No. of individual	Percentage
Groceries	18	36
Gifts	0	0
Household supplies	6	12
Skin care products	5	10
Fitness/wellness products	6	12
Fashion	15	30
Total	50	100

Before pandemic offline buying of products

- groceries
- gifts
- household supplies
- skincare products
- fashion
- fitness products
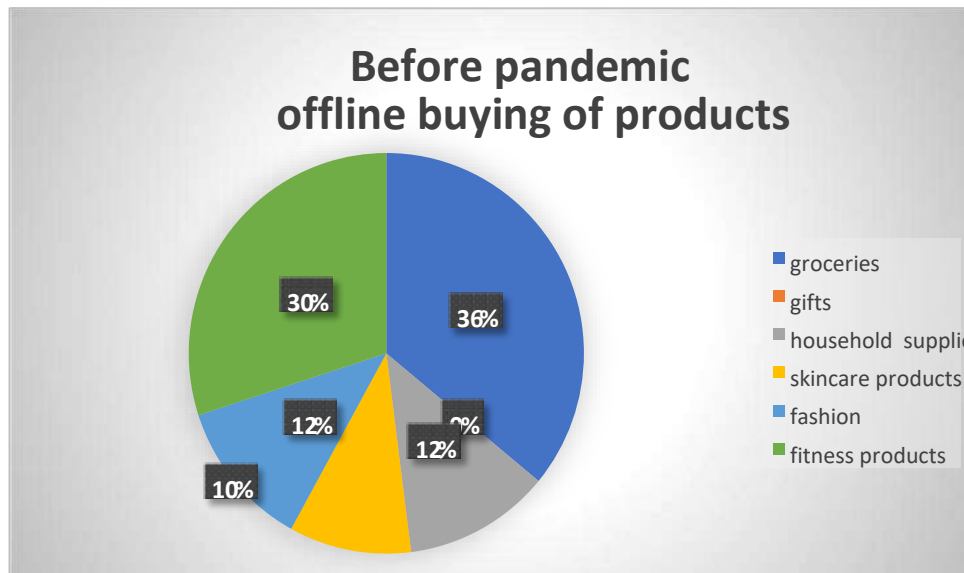
INTERPRETATION : the survey found that 36% of consumers buy groceries, 30% of consumers buy fashion products, 12% of consumers buy household supplies, 12% of consumers buy fitness/wellness products and 10% of consumers buy skin care products.

15. **What kind of products would you buy online after pandemic? (after March 2020)**

Type of products	No. of individual	Percentage
Groceries	10	20
Gifts	3	6
Household supplies	9	18
Skin care products	0	0
Fitness/wellness products	1	2
Fashion	27	54
Total	50	100
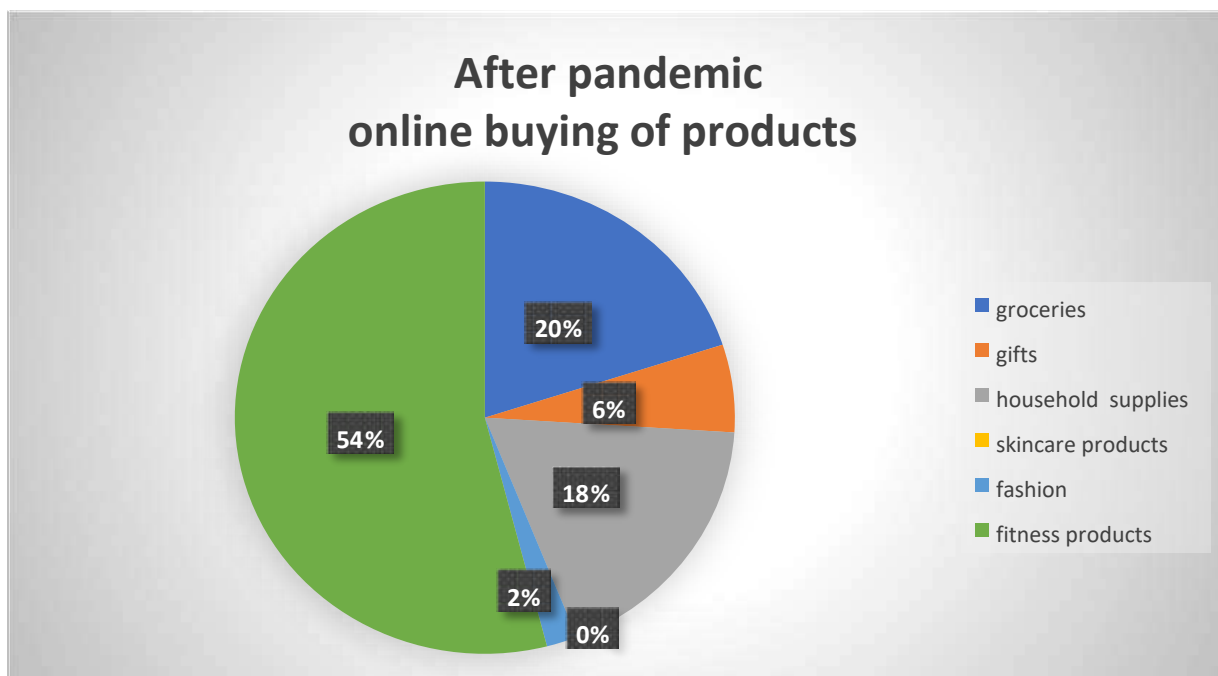
INTERPRETATION : The survey found that 54% of consumers buy fashion products, 20% of consumers buy groceries, 18% of consumers buy household supplies, 6% of consumers shop gifts, and another 2% of consumers buy fitness/wellness products.

16. **What kind of products would you buy offline after pandemic? (after March 2020)**

Type of products	No. of individual	Percentage
Groceries	12	24
Gifts	5	10
Household supplies	9	18
Skin care products	6	12
Fitness/wellness products	9	18
Fashion	9	18
Total	50	100
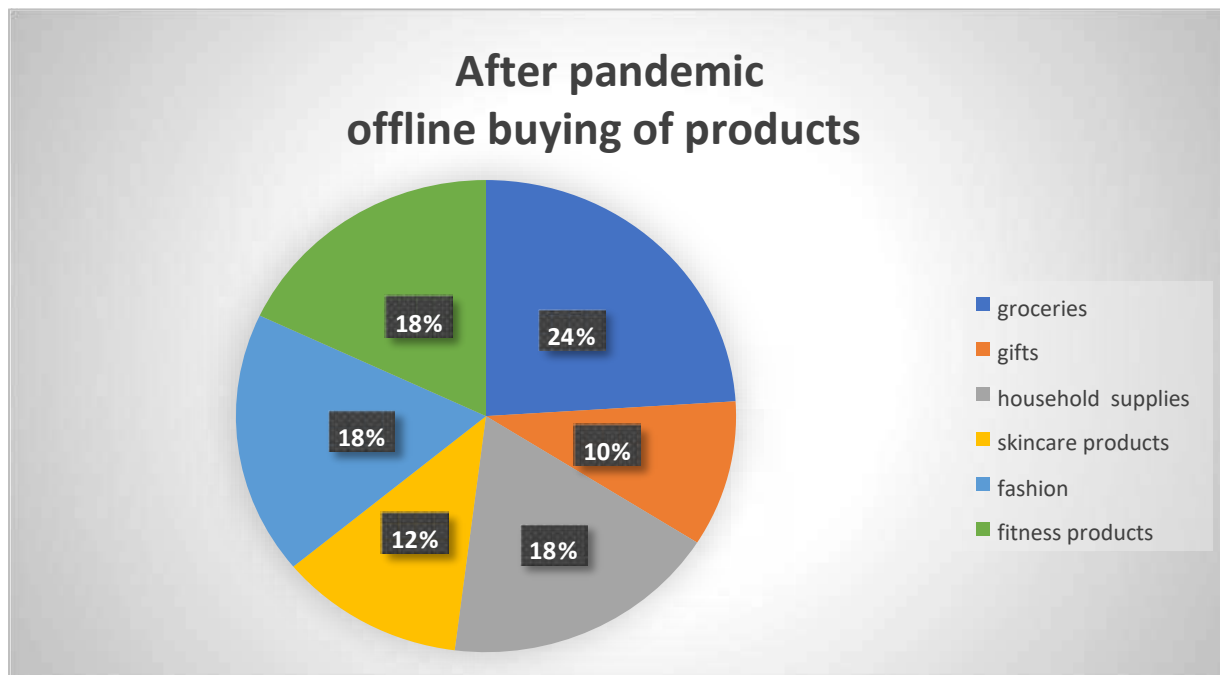
INTERPRETATION : The survey found that 24% of consumers buy groceries, 18% of consumers buy household supplies, 18% of consumers buy fitness/wellness products, 18% of consumers buy fashion products, 12% of consumers buy skin care products and 10% of consumers buy gifts.

17. **Which method of payment do you prefer while shopping online?**

Respondents	Cash on delivery	Debit card	Credit card	Others	Total
No. of individual	40	6	0	4	50
Percentage	80	12	0	8	100
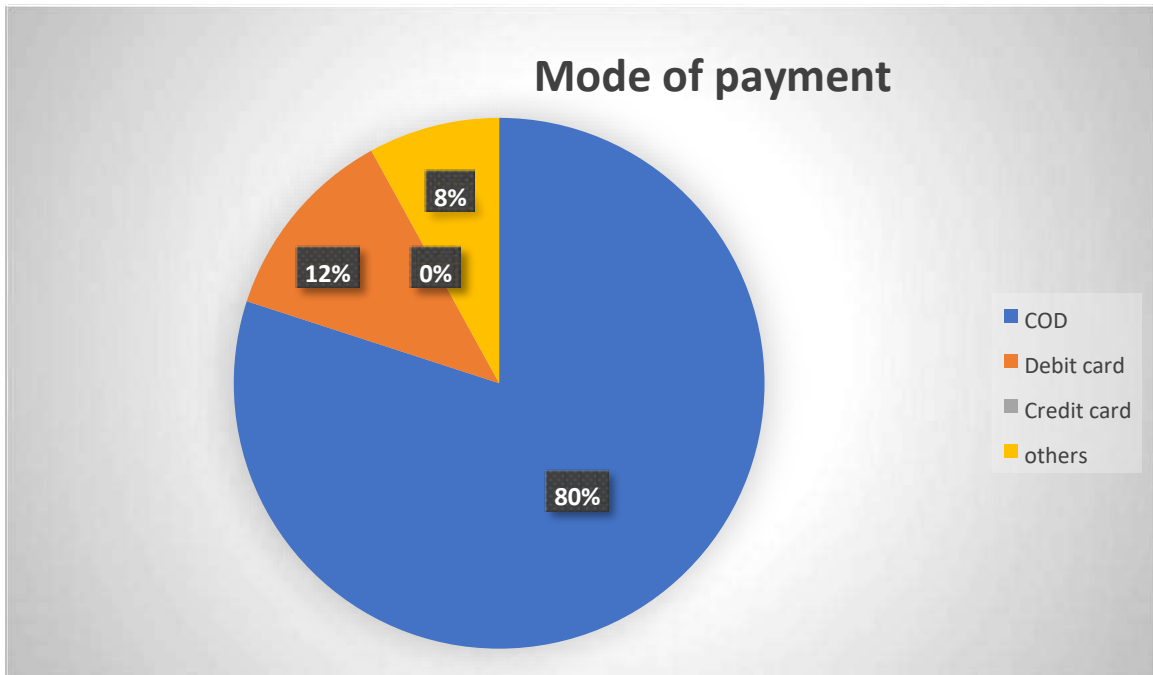
INTERPRETATION : The survey found that 80% of consumers prefer cash on delivery, 12% of consumers prefer debit card and another 8% of consumers prefer other in the form of payment for online shopping.

18. **Are you happy with the features and design provided in online shopping site?**

Respondents	Very happy	Satisfied	Need improvement	Poor	Total
No. of individual	3	27	20	0	50
Percentage	6	54	40	0	100

INTERPRETATION : the survey found that 54% of consumers are satisfied, 40% of consumers need improvement and 6% are very happy.

19. **Which do you prefer offline shopping or online shopping?**

Respondents	Offline shopping	Online shopping	Total
No. of individual	30	20	50
Percentage	60	40	100

Preference of shopping method

40%

60%

- offline shopping
- online shopping

INTERPRETATION : The survey showed, 60% of consumers prefer offline shopping and 40% of consumers prefer online shopping.

20. **Why do you prefer online shopping?**

Respondents	Easy & safe	Lower price	Convenience	More products option	Total
No. of individual	5	11	2	2	20
Percentage	25	55	10	10	100

Reasons of preference of online shopping

- easy &s safe
- lower price
- convenience
- more products option

INTERPRETATION : The survey found that 55% of consumers said it was lower price, 10% said they had more product options, 25% said it was easy and safer, and another 10% said it was convenient.

21. **Why do you prefer offline shopping?**

Respondents	Easy & safe	Choose by experience	Quick return	Purchase immediate products	Total
No. of individual	4	10	8	8	30
Percentage	13	33	27	27	100

Reasons of preference of offline shopping
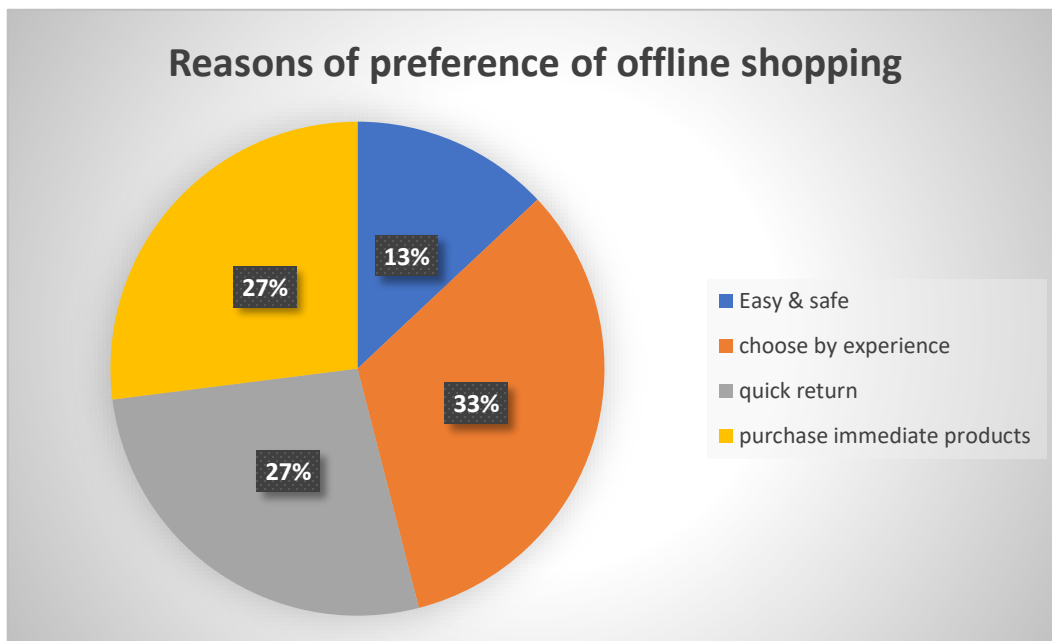
INTERPRETATION : Surveys show that 33% of consumers can choose products by experience there, 27% of consumers say they can buy products immediately, 13% of consumers say it's easy and safe and another 27% say it gives a quick return.

22. **Why don't you like online shopping?**

Respondents	Spending too much time	Returns can be complicated	You don't know what you're getting	Total
No. of individual	8	7	15	30
Percentage	27	23	50	100

Reasons of not liking online shopping

27% Spending too much time
23% return can be complicated
50% you don't know what you're getting
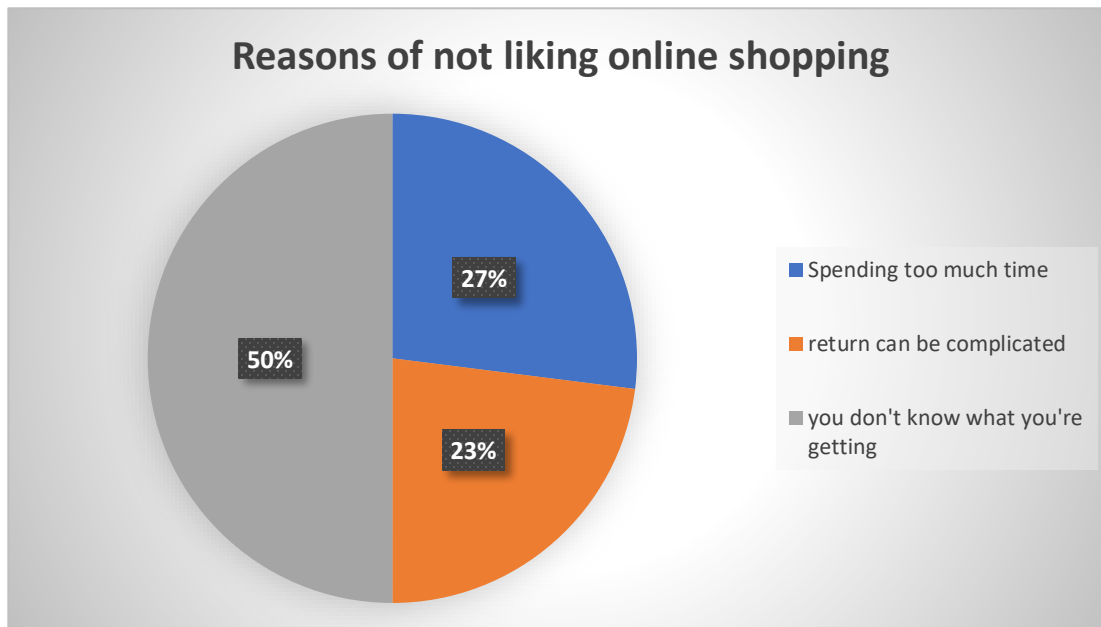
INTERPRETATION : The survey found that 46% of consumers said the return could be complicated, 34% of consumers said they did not know what they would get, another 20% said it was taking too much time.

23. **Would you suggest other to opt online shopping?**

Respondents	YES	NO	Total
No of individual	35	15	50
Percentage	70	30	100

suggestion to opt online shopping

30%

70%

yes
no

INTERPRETATION : The survey found that 70% of consumers say yes and 30% of consumers say no to opt online .

24. **Is offline shopping better than online shopping?**

Respondents	YES	NO	Total
No. of individual	32	18	50
Percentage	64	36	100

Is offline shopping better than online shopping

36%

64%

yes
no
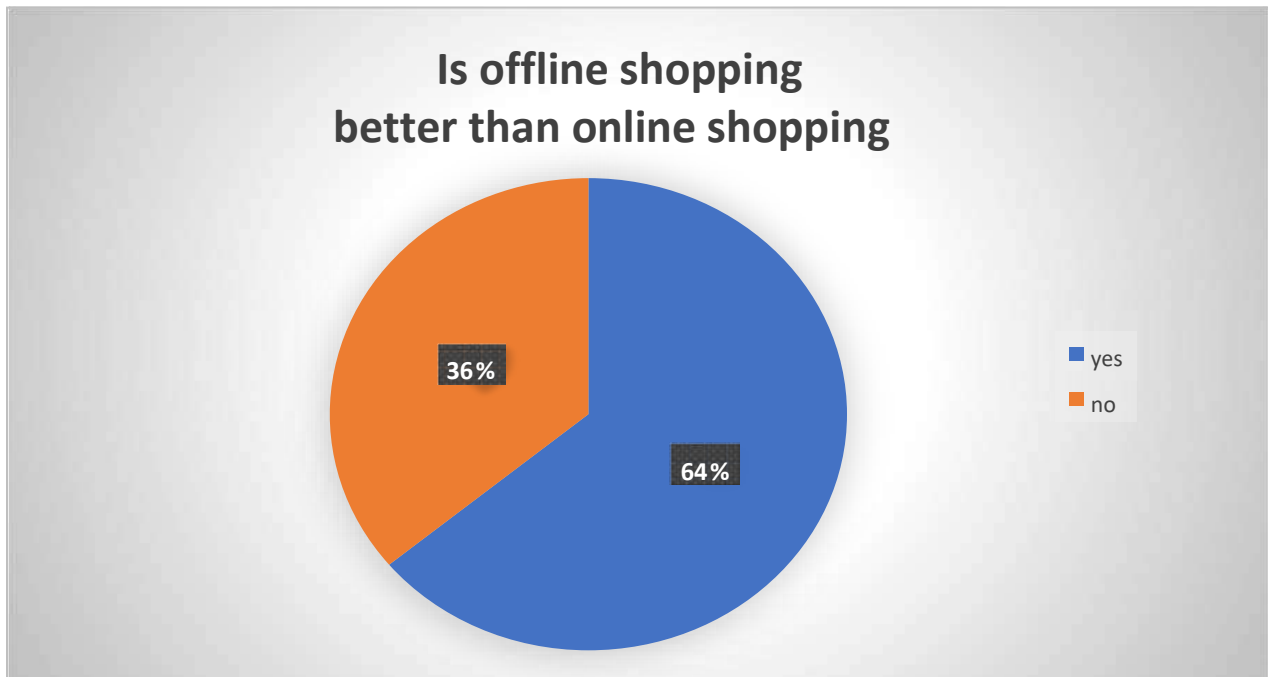
INTERPRETATION : **The survey found that 64% of consumers say offline is better and 36% of consumers say no it is not better.**

CHAPTER IV

➢ CONCLUSION

- Online shopping has become a trend. No matter what age group, occupation, gender or education background, People are more inclined to online shopping. Because Online shopping can bring more convenience to people, Both in terms of the brands provided and the diversity of Products, consumers can buy the most desirable products In the shortest time.

- The convenience brought by Internet technology makes the cost of merchants lower, so the Discount of online shopping is also greater than that of offline shopping. The advantages of convenience and low price brought to online merchants undoubtedly make online shopping an inevitable trend.

- There is still a demand for offline shopping among consumers aged 31-40 years old and whose shopping frequency Remains once a quarter. Offline merchants will conform to the consumption frequency of This type of consumers according to the different new Styles in each quarter, and they pay more attention to the offline shopping experience and experience.

- In addition, in the results, the advantage of offline shopping is that consumers can save the waiting time by taking the products right after buying. You can also try on clothes in physical stores to find the most suitable clothes to reduce the possibility of returning, changing, waste time and energy.

- In addition, in order to seek for consumers' opinions on offline shopping improvement, consumers also mentioned some problems related to consumption experience, such as the service attitude of shopping guides and parking services around them. Therefore, there is still a need for offline shopping.

➢ RECOMMENDATIONS

- The young generation are more often purchasing from online sites because of the revolution in the technology among the youth population and they are able to use this technology for their well-being more than other age group category.

- There are increasing demand of online shopping because the variety of options for the consumers to choose and that to at a reasonable price and sometime even less price than the market. Hence other online websites take necessary steps to increase their customers. Groceries and fashion products are much more demanded by the consumers.

- There are several products which are not delivered by the shopping sites in the preferable area, it is seen that with the advancement of the technology the preference of the online shopping increases.

- Earlier people more uses the traditional shopping. Now also people who are not aware of the several shopping sites and not that technically advanced are less into internet for shopping. But after the pandemic situation, online shopping has increased a lot compared to offline.

CHAPTER V

➢ REFERENCE

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University of Calcutta

A FIELD SURVEY REPORT ON THE BASIS OF EPIDEMIOLOGICAL STUDIES ON HUMAN

- ❖ University Roll Number: **193137-21-0072**
- ❖ University Registration Number: **137-1111-0098-18**
- ❖ Semester: **VI** *(Under CBCS)*
- ❖ Subject: **Physiology** *(Honours)*
- ❖ Paper: **DSE-A-4***(Community and Public Health)*
- ❖ Year: **2022**

Date of Report Submission: 11.05.2022

EXAMINED 03/08/2022

Title

A FIELD STUDY FOR THE ASSESSMENT OF THE MUSCULOSKELETAL DISORDERS AMONG THE TRIBAL VILLAGERS ENGAGED IN AGRICULTURE ACTIVITIES AT GHATSHILA, JHARKHAND

Survey Tenure: 1st - 3rd April 2022

◇ Introduction

Occupational health is defined as — "The scientific and technological approach to recognition, evaluation, and control of work enviorment factors which may adversely affect health safety, comfort and efficieny of persons exposed their in". (Levy and Wegman, 2000)

Thus any departure from normal health condition at the workplace often lead to the onset of a host of occupational disorders — the most significant of them being **musculoskeletal disorders (MSDs)**

MSDs are the most common self-reported, work-related, illness and can be defined as injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartiledge and spinal disk. They are the manifestations of ergonomic hazards and are the leading causes of disability among the people during their working years.

MSDs are caused primarily due to heavy physical work, static work postures, frequent bending and twisting, lifting, pushing and pulling, repetitive work, vibrations, localised mechanical pressure and psychological and psychological stress (Gangopadhyay, et. all, 2003); (Gangopadhyay and Das, 2012)

The present study has been conducted among the tribal villagers of Ghatshila, Jharkhand. These people perform agricultural activities to earn their livlihood. Since, the field for cultivation are not that fertile, so they have to enormous physical labours with active involvement of all the body parts. Moreover to sustain their family. They have to indulge in some part time job. Consequently, they suffer from discomfort feeling which has a livelihood culminating into MSDs.

Thus in the presence study, an attempt has been made to highlight, the contributing risk factors that probably may lead to the onset of MSDs among the tribal villagers of Ghatshila, Jharkhand.

◈ **Aims and Objectives**

1. To assess the likelihood the onset of MSDs among the tribal villagers.

2. To specify the probable risk factors, responsible for the occurence of MSDs.

3. To provide remedial measures to alleviate such problems.

◈ Materials and Methods

1. Selection of subjects :- The study was conducted among 15 male randomly selected tribal population in a village at Ghatshila, Jharkhand.

Although, there was a pre-determined age group of the subjects, yet only those having a minimum experience of atleast 3 years, were selected for this study.

2. Assessment of physical parameters :- The anthropometer, weighing machine and measuring tape were use respectively to measure stature, weight, head-chest and waist-hip circumferences of the subjects.

3. Assessment of body composition :- From the collected data on physical parameters, the following measurements were done——

i) Body Mass Index (BMI) = $\dfrac{\text{weight in kg}}{\text{Height in } m^2}$ (kg/m^2) [Poskitt, 2000]

ii) Body Surface Area (BSA), using modified Dubois and Dubois, formula (Banerjee and Sen, 1955)—

$$BSA\ (m^2) = \left[(\text{weight in kg})^{0.425} \times (\text{Height in cm})^{0.725} \times 0.007466 \right]$$

iii) Ponderal Index (PI) $[kg/m^3]$ = $\dfrac{\text{weight in kg}}{\text{Height in } m^3}$

iv) Head-Chest ratio = $\dfrac{\text{Head circumference (cm)}}{\text{Chest circumference (cm)}}$

v) Waist-Hip ratio = $\dfrac{\text{Waist circumference (cm)}}{\text{Hip circumference (cm)}}$

P.T.O.

4. **Questionnaire study** :- A questionnaire for the assessment of MSDs was developed on the basis of Modified Nordic Questionnaire (Kuorinka et. all, 1987) and applied in this study.

Each subject was approached individually for this purpose. The questionnaire comprised of a series of objective type questions involving general information information and special emphasis on the subjective symptoms pertaining to MSDs.

5. **Assessment of Physical Activity Level (PAL)** :- The primarily daily activities of the subjects were assessed interms of a questionnaire analysis where in the main activities performing in a day along with timespend for the same have been provided. (Rawstrop et. all, 2004)

According to the responses obtain from the subjects, the energy cost of a day have been calculated. The scores of PAL determines the pattern of activity of the subjects. The range $1.4 - 1.69$ suggests, sedentary PAL; $1.7 - 2$ suggests, moderate PAL; scores greater than 2, indicates heavy PAL.

6. **Evaluation of Physiological parameters** :- The evaluation of physiological parameters imperative to assess whether, there is generation of physiological stress during activity—

i) **Heart Rate** :- The heart rate was measured from radial pulse using stopwatch.

ii) **Blood Pressure** :- The systolic and diastolic blood pressure was measured by a Digital Sphygmomanometer. From these data the pulse pressure and mean arterial pressure were calculated.

7. **Assessment of grip strength:-** Crouch (1996), suggests that handgrip strength is a useful diagnostic tool, to determine work-related upper extremity MSDs. Reduced grip strength may make it difficult to form a fist, grasp, small objects. or perform other manual task.

A physical examination was performed by handgrip dynamometer to measure the handgrip strength of the subject. Two measurements at 90° elbow flextion and 180° elbow extension were taken as it has been found that, the highest and lowest values of grip strength vary in accordance with the elbow positions. (Su. et. alt, 1994)

◇ Results

The mean values of physical parameters are presented in Table-1

Table-1 :- Physical Parameters (n=15)

	Parameters	Mean values
1.	Stature (cm)	163.4
2.	Weight (kg)	57.7
3.	Head circumference (cm)	54.2
4.	Chest circumference (cm)	88.0
5.	Waist circumference (cm)	85.9
6.	Hip circumference (cm)	91.8

From the above data in Table-1, the following body composition parameters are calculated.

Table-2 :- Body Composition (n=15)

	Parameters	Mean values
1.	Body Mass Index (BMI) [kg/m^2]	20.5
2.	Body Surface Area (BSA) [m^2]	1.68
3.	Ponderal Index (PI) [kg/m^3]	13.3
4.	Waist-Hip Ratio	0.95
5.	Head-Chest Ratio	0.66

Table-3 :- General Information (n=15)

	Parameters	Mean values
1.	Age (Years)	35
2.	Years of Experience	13
3.	Duration of work per day (Hours)	8
4. ~~Duration of~~	Number of breaks during work in a day	1
5.	Duration of breaks during work in a day (Hours)	1
6.	Number of working days in a week	7

From the analysis of questionnaire, the obtained results are depicted in tabular forms. **Table-4** represents, the extent of discomfort feeling of the subjects while **Table-5** provides, the meticulus assessment of different body parts affected due to some sort of discomfort feeling.

Table-4 :- Assessment of discomfort feeling (n=15)

	Parameters	Number and percentage of subjects
1.	Positive response	10 (66.7%)
2.	Neagative response	5 (33.3%)

Table -5 :- Discomfort feeling in different parts of body

	Affected body parts	Number and percentage of subjects
1.	Neck	—
2.	Shoulder	2 (20%)
3.	Upper arm	1 (10%)
4.	Lower arm	1 (10%)
5.	Hand	1 (10%)
6.	Wrist	1 (10%)
7.	Fingers	—
8.	Upper back	—
9.	Lower back	5 (50%)
10.	Knees	5 (50%)
11	Leg	—
12	Feet	1 (10%)

Table-6, highlights the type of discomfort feeling affecting the body parts and Table-7, represents the tenure when such feeling is optimum as well as tenure of prevallance of such feeling.

Table-6 :- Type of discomfort feeling

	Types of discomfort	Number and percentage of subjects
1.	Pain	10 (100%)
2.	Numbness	2 (20%)
3.	Tingling	—
4.	Stiffness	3 (30%)
5.	Swelling	2 (20%)

Table-7A :- Duration of discomfort feeling

	Duration of (Years) discomfort feeling	Numbers and percentage of subjects
1.	<1	3 (30%)
2.	1-5	3 (30%)
3.	>5-10	- €
4.	>10	4 (40%)

Table-7B :- Time of discomfort feeling

	Time of discomfort	Number and percentage of subjects
1.	During work	-
2.	Just after work	2 (20%)
3.	During sleep at night	5 (50%)
4.	Just after rising from sleep	-
5.	All the time	3 (30%)

From the questionnaire analysis, are detailed record of any subject suffering from injury at work, have been obtained and tabulated.

Table - 8A :- Injuries sustained at work

	Responses	Number and percentage of subjects
1.	Positive response	2 (13·3%)
2.	Neagative response	13 (86·7%)

Table - 8 B :- Types of injury

	Types	Number and percentage of subjects
1.	Cut	1 (6·7%)
2.	Laceration	—
3.	Abulsion	1 (6·7%)
4.	Conpusion	—
5.	Sprain	—
6.	Fracture	—

The physiological parameters like the heartrate and blood pressure of the subjects are tabulated in Table -9.

Table-9 :- Mean values of physiological parameters

	Parameters	Mean values
1.	Heart rate (beats/min)	88·5
2.	Systolic pressure (mm Hg)	137
3.	Diastolic pressure (mm Hg)	89
4.	Pulse pressure (mm Hg)	48
5.	Mean pressure (mm Hg)	105

Table-10, represents the mean values of handgrip strength of the subjects

Table-10:- Mean values of handgrip strength

	Conditions	Handgrip strength (kg)
1.	90° elbow flexion	26.6
2.	180° elbow extension	29.8

From the questionnaire analysis, on the assessment of Physical Activity Level (PAL), were in the main daily activities time entelled for every such activity and energy used up for the same, have been shown in, Table-11

Table-11:- Range of PAL score

	PAL score	Number and percentage of subjects
1.	Sedentary (1.4-1.69)	8 (53.3%)
2.	Moderate (1.7-2)	4 (26.6%)
3.	Heavy (>2)	3 (20%)

◇ Discussion

The tribal villagers who participated in this study mostly perform rigorous agricultural work. They have to toil hard as the agricultural fields, are mostly arid and the yeilds are extremely meagor for sestenance. Consequently they are compell to under take other part time activities to maintain their family. Moreover as they help from a low socio-economie strata of the society, they indulge in straenuous activity for 8 hours a day throughout the week.

On analysing the physical charecteristics and body composition of the subjects, it is observed that the mean BMI value is normal. As discussed earlier, that they work 8 hours a day throughout a week and their average years of experience is around 13 years. Thus, so many years of hardship involving postural alterations, have definitely taken a huge toll on their physical health.

The questionnaire analysis (Table-4) depicts an alarming picture with 70% of subjects suffering from some of sort discomfort feeling. Their agricultural activity as well as the oddjobs that they perform involve enourmus mannual labour as well as awkward postures with frequent bending and twisting. Consequently all those suffering from discomfort complained of pain, mostly affecting the low back (50%) and knees (50%). The affected body parts indicate that they bear burden of body weight during postural alterations and extensive mannual labour.

Many of them complained of stiffness (30%), followed by numbness and swelling, at certain body parts apart from severe pain, that they experience. Crouch (1996), has already reported by examining pain, numbness, tingling, stiffness and swelling, the prevallance of MSD can be deteected. Thus, in this study a somewhat similar finding has unfolded suggesting that some of them have begin to suffer from MSD.

The severity of discomfort feeling can also be estimated from the time and duration of their prevallence. 40% of them were suffering from more than 10 years. Presently, such discomfort feeling prevail during sleep at night for 50% of subjects, followed by 30% reporting discomfort all the time. Thus, it is obvious that as they perform arduous work in the remote village areas of Ghatshila, were other job oppurtunities miniscule, so they are not in a position to alter their occupation.

On analysing the physiological parameters, another dimension of study has emerged, the mean heart rate of around 90 beats/min, suggests, that, their tasks require immense physical effort leading to generation of physiological stress. The average diastolic pressure of around 90 mm Hg, further approved the above fact.

The physical activity level (PAL), scores moderate to sedantary nature of work load of these workers.

For male subjects of 30-35 years age range, grip strength value of less than 35 kg, denote weak grip strength. In this study both the handgrip strength measurements at 90° elbow flextion and at 180° elbow extension, reveal weak grip strength. So, a decrement in handgrip strength is a likely indicator of the onset of MSD, among these subjects.

◇ Conclusion

The present study brings to the forefront. The partinant reasons, behind the gradual onset of MSDs among the tribal villagers. The tasks they performed on a regular basis extremely strengthunous. However scarcity of alternative jobs in such remote areas compell them to remain in their profession. Therefore, it is imparative to reduce the burden of positive factors of MSDs and provide appropriate recommendation for the overall improvements of these hopeless villagers.

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EXAMINER
Date.....
03/08/2022
30/5/22

EDUCATIONAL TOUR TO KOLKATA POLICE MUSEUM

Name of the Department: Department of History

Title of the activity: Educational Tour to Calcutta Police Museum

Date: 19th April 2022

No of participants- 45 students participated in the tour

Description: An educational tour was organized by Department of History, Vidyasagar Metropolitan College on 19th April 2022 to Calcutta Police Museum. The tour was organized for 4th semester and 6th Semester students. Forty five students participated in the educational tour to the Museum. The heritage building, where this museum is located, has its own history. It used to be the home of the great social reformer Raja Ram Mohan Roy who sold it to the government before leaving for England in 1829. Today, the museum houses several interesting artifacts. Many of these artifacts such as pistols, guns and rifles go back to the times of the Indian freedom struggle. Marvel at these artifacts as you deepdive into the history of Kolkata police and their operations. Apart from write-up and case stories, there are actual weapons from some of the most infamous crimes in history. These include the Alipore Bomb case following which Aurobindo Ghosh was arrested and fragments of bomb pertaining to the failed assassination of Lord Hardinge were recovered. Other artifacts include Naxalite manuals, drug samples, a range of tools confiscated from master burglars, police uniforms and badges and much more.
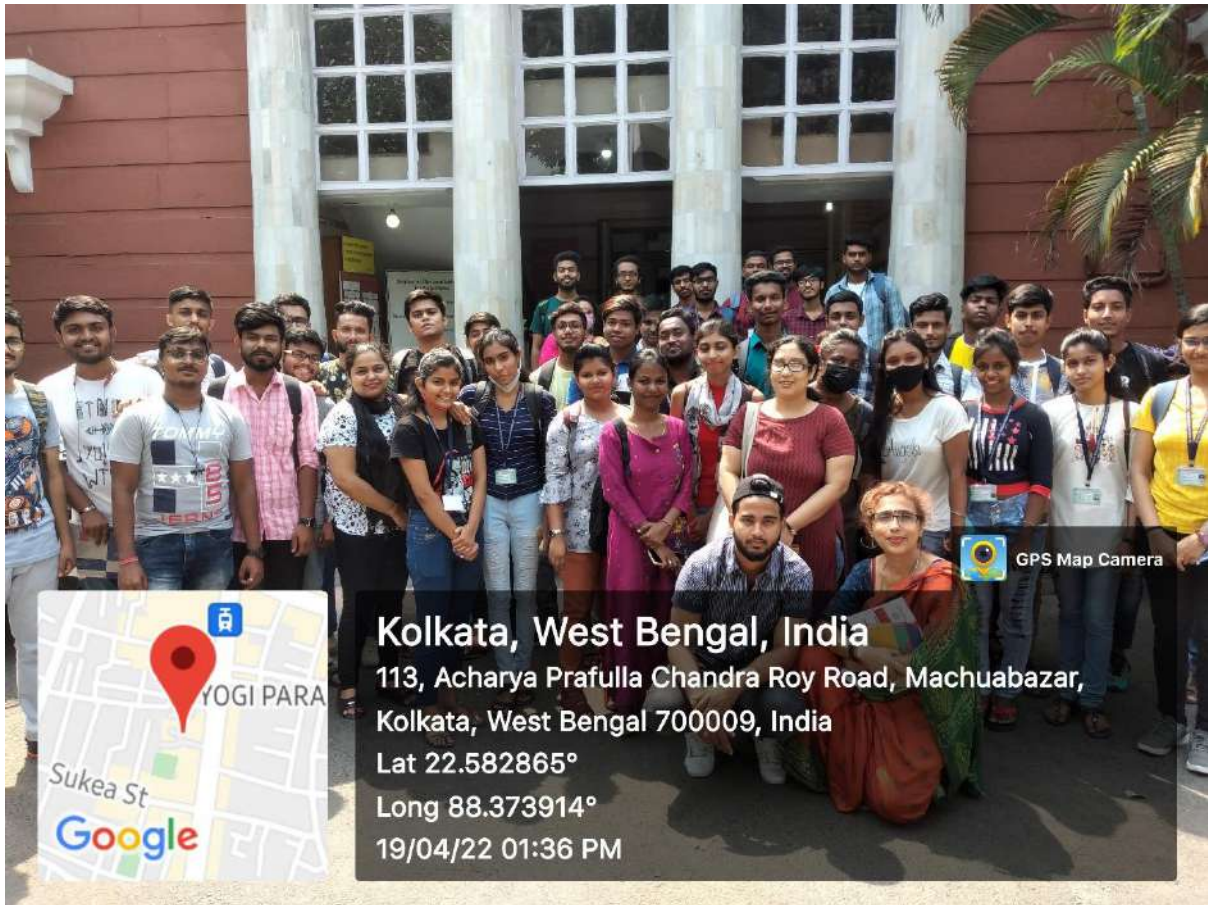
Kolkata, West Bengal, India
113, Acharya Prafulla Chandra Roy Road, Machuabazar,
Kolkata, West Bengal 700009, India
Lat 22.582865°
Long 88.373914°
19/04/22 01:36 PM
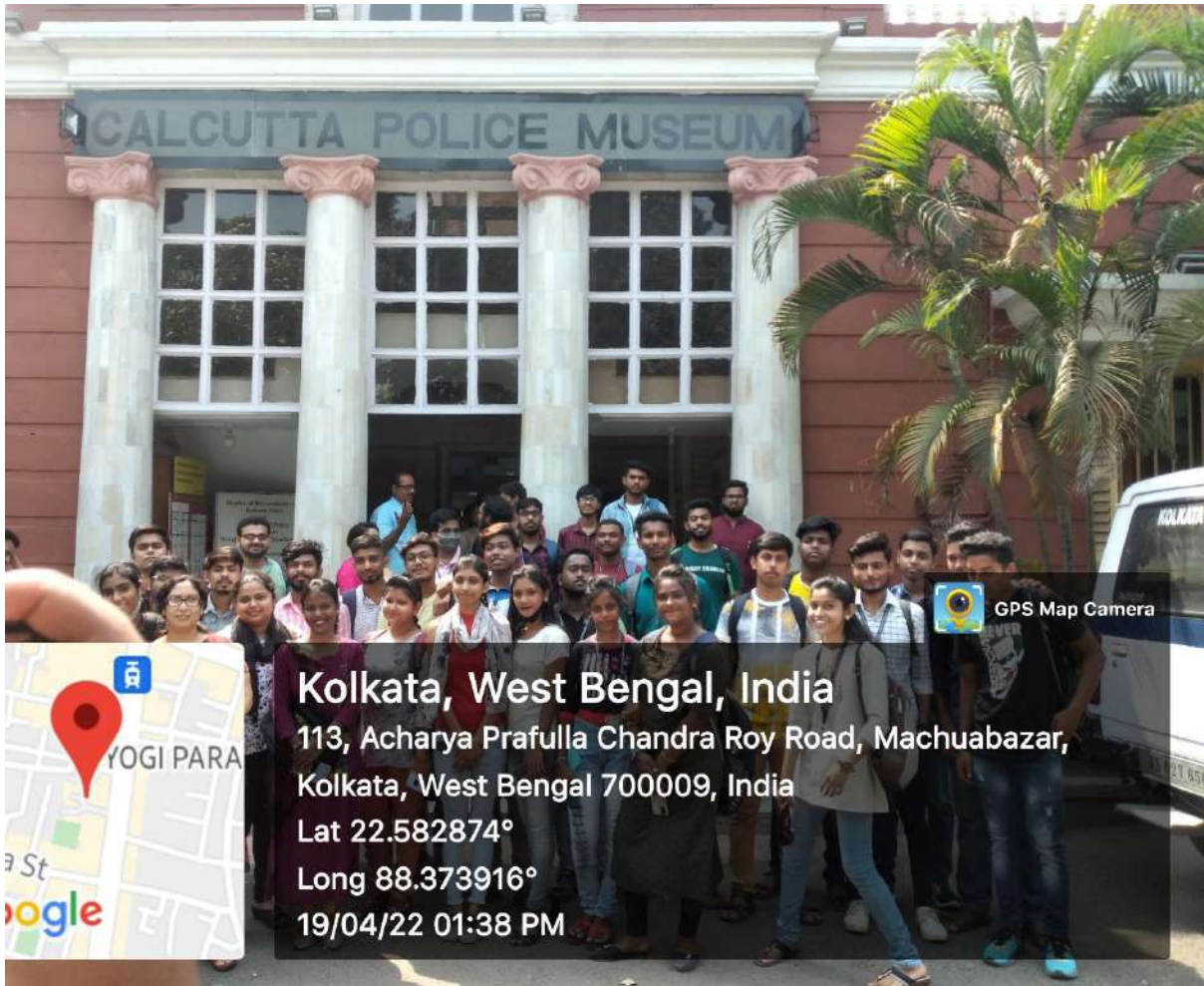
Kolkata, West Bengal, India
113, Acharya Prafulla Chandra Roy Road, Machuabazar, Kolkata, West Bengal 700009, India
Lat 22.582874°
Long 88.373916°
19/04/22 01:38 PM

ACTIVITY REPORT

1. **Name of the department**: Department of Bengali.
2. **Title of the activity**: Educational tour to Jorasanko Thakurbari.
3. **Date**: 19.05.2022.
4. **Time**: 12.00 pm
5. **No. of participants**: 28 students, 4 teachers
6. **Short description of the event**:

The contribution of the Thakurbari in the history of our country is undeniable. Every brick, wood, and stone of this house bears the imprint of many remarkable events. From cultural practices to social, political and human rights, members of Thakurbari were at the forefront. The most illustrious luminary of the Tagore family being Rabindranath Tagore, visiting the Thakurbari with the students and teachers, and paying obeisance to him is certainly an edifying experience.

7A, Raja Katra, Singhi Bagan, Jorasanko, Kolkata, West Bengal 700007, India

Latitude
22.58497597°

Longitude
88.3593591°

Local 03:06:02 PM
GMT 09:36:02 AM

Altitude -31.23 meters
Thursday, 19-05-2022

VIDYASAGAR METROPOLITAN COLLEGE
DEPARTMENT OF BENGALI
EDUCATIONAL TOUR – 2022

SEM— 4/B.A General   DATE— 19/5/22

Sl. No.	Name	Roll No.
1	Rahul Saha	B.A/20/0302
2	Riya kurmi	332
3	Samir oxemawica	349
4	Rohit Samanta	351
5	Debanga Paul	1810.
6	Ishita Bose	402
7	Soma Mondol	345
8	Rajdeep Hazra.	308
9.	AKM Asifurzaman	322
10.	Rajdeep Bhattacharya	309
11.	Sayan Khawra	·320
12	sonarigil	378
13.	Anifru Debnath	382
14,	Rakesh mondal	379
15.	Shraboni Chanda	329
16.	Rickta Sarkar	401
17.	Preyanka Das.	408
18.	Sahleb Datta	366
19.	Jyoti Saha	372

Madhu 19/05/22.   19/5/22   Sanjoy Pramanick 19.05.22   Susmita Sala

VIDYASAGAR METROPOLITAN COLLEGE
DEPARTMENT OF BENGALI
EDUCATIONAL TOUR – 2022

SEM— 2nd sem (G)   DATE – 19/05/22

Sl. No.	Name	Roll No.
1	Purnima Mahata	0017
2	Mirtunjay Kr. Shaw	0003
3	Chandrika Nayak	0011

Madhu 19/05/22.   19/5/22   Sanjoy Pramanick 19/05/22   Susmita Saha

VIDYASAGAR METROPOLITAN COLLEGE
DEPARTMENT OF BENGALI
EDUCATIONAL TOUR – 2022

SEM—   DATE –

Sl. No.	Name	Roll No.
1	Santanu Ghosh	0006
2	Sneha Adhikary	0008
3	Soma Ghosh.	0007
4	Arghan Bhanta	0018
5	Fardeen Sheikh	0005
6.	SUMANTA MAITY	0004
7.	SUBHADIP HANSDA	0002

Madh
19/05/22

19/5/22

Sanjoy Pramanick
19.05.22

Susmita Sala

VIDYASAGAR METROPOLITAN COLLEGE
DEPARTMENT OF BENGALI
EDUCATIONAL TOUR – 2022

SEM— 6th Sem   DATE – 19.05.22

Sl. No.	Name	Roll No.
1	Suparna Mazumder	1515
2	Puja Saha	1519
3	Disha Ghosh	1514
4	Priti Patra	1520
5	Somnath seal	1509
6	Abhisekh Mukherjee	1501
7	Joydip Saha Roy	1508
8	Priyanka Parikha	1506 Old
9	Mousumi Ghosh	1517 Old

Saonjoy Pramanick
Susmita Saha.
19/5/22
19/05/22.