

# REFLECTIONS

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- A Compilation of  
Post-Graduate Research Studies



2008 - 2009

Department of Home Science  
J. D. Birla Institute

# Reflections

Compilation of Postgraduate Research Studies  
2008-2009



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# A Consumer Study of the Conflict of Big Versus Small in the Green Grocery Retail Sector

Ruchika Kharkia and Soma Dasgupta

## ABSTRACT

*This study was carried out to investigate the preferences of consumers in Kolkata towards the different green grocery outlet formats. An attempt was made to model the predictors for "regular buying of green grocery from big retailers". Four variables that entered the model were age, price offered, quality of packaging and ethnicity. It was interpreted from the data that as 'age' increases, the chances of visiting Big Retail Outlets (BRO) regularly decreases. On the other hand 'price offered' and 'quality of packaging' were found to be predictors for regular buying of green grocery from BRO. While the fourth variable that was 'ethnicity' was negatively related to frequenting the BRO i.e. if the consumer desires for ethnic vegetables he will not visit BROs regularly. Freshness, availability of ethnic food, location, scope for bargains and friendliness of the staff of the products, bargaining were favorable factor for the small retailers. The convenience of getting a large variety of vegetables under one roof, food safety, quality of packaging prices without middlemen, cleanliness, discounts and promotional offers were important factoring that provided big retailers an edge over the small retailers. Self help facilities offered by big retailers were not considered a factor that would enable them to have an edge over small retailers. The consumers surveyed felt that they would be in a win-win situation due to the price competitiveness when both the Small Retail Outlets (SROs) and BROs operated simultaneously.*

**Key Words:** Big Retail Outlet (BRO), Green Grocery Shopping, Small Retail Outlet (SRO)

## Introduction

In spite of India being one of the largest producers of fruits and vegetables, organized retail business in food was until quite recently quite underdeveloped. There are traditional grocery stores and vegetable and fruit vendors at every street corner that offer utmost convenience of availability of essentials within a stone's throw. This has acted as a deterrent to the growth of big and organized retailing. In order to be successful a big retailer or a retail chain has to offer attractive prices to the consumers, which can be easily achieved through efficient sourcing and economies of scale. A large amount of fruits and vegetables is lost due to improper post-harvest handling and storage. Middlemen eat up substantial portions of the earnings and also cause delays, a situation that is detrimental to the business of perishable goods. These inadequacies need to be overcome and cost trimmed in order to make big and organized retail of food successful.

Food and grocery segment comprises 62 per cent of the \$ 270 billion (Rs. 1,20,0000) Indian retail market.<sup>1</sup> Only 0.8 per cent of this segment was in the big retail sector and witnessed a year-on-year growth of 30.8 per cent in 2005-6 as against 2.2 per cent growth of the total food and grocery retail market.<sup>1</sup> This indicates huge opportunities in big and organized retail sector. This situation of the emergence of big retail formats in the presence of the smaller ones, is

being faced by many of the cities in India, and Kolkata is no exception.

Lately, Kolkata has emerged as a strong prospective destination in the expansion plans of retailers and is now perceived as a latent but highly potential market.

## Aims & Objectives

In this study an attempt has been made to understand whether consumers in the city of Kolkata are likely to move from traditional stores to large organized retail shops while shopping for green groceries. The aim of the study is to investigate consumer reaction to the new big retail outlets in the vegetable market and predict the likelihood of customers frequenting BROs. This study is also expected to explore the numerous reasons that consumers in Kolkata give regarding shopping and buying green grocery. Thus, the paper is concerned with the future of the BROs and SROs in Kolkata particularly with respect to green grocery.

## Methodology

### • Survey of the Market:

Before starting the study, the market was surveyed in order to find out about the awareness of the current issues among the consumers and the small retailers. For this purpose an interview was carried out among some of the South and North

Kolkata small retailers and also among the consumers.

- **Tool Selection:**

Structured questionnaire was used as the main tool to carry out the survey. The interview method of collecting information was also used but not as a main tool; it was only used to support the construction of the questionnaire.

- **Sample:**

From the consumer population under study, (from the city of Kolkata), a sample was selected by the purposive method. The unit of study in this paper is individual household and the size of the sample is 100.

- **Data Interpretation:**

The data collected was processed and interpreted by using computer software like Microsoft excel and SPSS, and statistical tests were undertaken.

## **Results & Discussions**

Various demographic and socioeconomic factors were analyzed to find out their association with the place of purchase of green grocery. It was found that 41.67% of the respondents in the age group of 20-30 years and the same percentage of respondents in the age group of 30-40 years prefer to visit BRO for meeting their green grocery needs. On the other hand only 16.66% of the respondents in the age group of 40-50 years go to the big retailers and no person 50 years and above visit a big retail outlet for buying green grocery. It was further seen that respondents in the age group of 50-60 years and 60 years and above prefer to shop for green grocery from small retailers. The chi-square test (with 4 df at 5% level of significance, the value obtained was 9.49) also revealed that age and the place of purchase are related. Therefore, as the young adults prefer a more sophisticated environment and consider food safety to be important; they derive value for their money in these stores.

Education, income as well as the amount of money spent per month on green grocery did not play any role in store choice; the choice made depended entirely upon the attitude of the consumer and other situational factors. No relationship between the place of purchase for green grocery and the education level of the consumer, per capita income of the family or the average per capita spending per month was observed from the data collected. Chi-square test

(with 6 df at 5% level of significance, the value obtained was 12.59) also confirmed these observations. The relationship between the average spending per capita per month (ASPCPM) and the per capita income per month (PCIM) has been expressed by line diagram for the two sets of buyers from BRO and SRO respectively, and generated by SPSS (Fig. 1).

It has been observed that people frequenting the BRO and those frequenting the SRO with their per capita income range of Rs. 0-30,000 followed a more or less regular trend, i.e., the average spending per month on green grocery did not vary too much. However, as the income per capita increased beyond Rs. 30,000, the average spending per capita per month for the big retail shoppers increased substantially; while for the small retail shoppers it did not. This shows that as the income increases, people tend to spend more on green grocery in big retail shops.

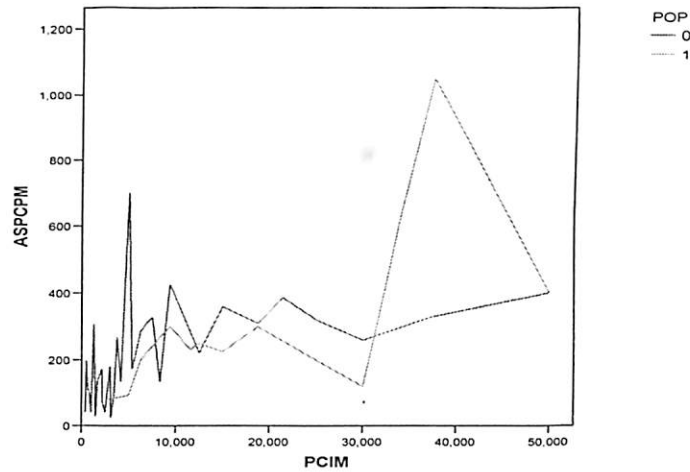
The respondents were asked to rate the importance of each of the attributes associated with green grocery buying ('freshness', 'price offered', 'food safety', 'variety', 'quality of packaging' and 'availability of ethnic items'), while selecting the store from where they purchase green grocery. It was observed that 'freshness' is of prime importance to the consumers and thus the store, which offers fresh food, is preferred. The second most important characteristic desired by the respondent was 'food safety', with an average rating of 3.97. Thus, it can be surmised that the stores which are more hygienic and guarantees safety of food quality are more favored compared to stores that are messy and dirty. Closely following 'food safety' was the 'price factor' with an average of 3.67. The consumers prefer to go to stores that offer value for their money and are reasonably priced. 'Variety in food products offered' occupies the fourth most desired characteristic among the respondents with its average coming to 3.35. This shows that people want different kinds of food products in their diet and they are willing to experiment with food products of different regions. They choose a store that will offer them large variety food products under one roof. The characteristics, 'quality of packaging' and 'availability of ethnic items' are the least desired by the respondents as their average was 2.64 and 2.52 respectively. Among these two, quality of

packaging is comparatively of greater importance than the availability of ethnic items in the store.

The respondents were asked to rate the convenience characteristics ('proximity of the store', 'friendliness of the staff', 'convenience of buying small quantities', 'cleanliness', 'home delivery facilities', provision for 'delivery up to car park' and 'environment of the place') that play an important role in the selection of the store on a 5 point scale. 'Proximity of the store' influenced the consumers in selecting a store (this factor was rated the highest at 4.41). In fact 75% of the respondents who regularly purchase from the big retail shops considered proximity of the store for their preference. Thus, small retailers on the other hand have an advantage over the big retailers as the latter are found at every corner of the street and sometimes even are mobile. As reported by Mishra S. Mridula<sup>2</sup>, 'cleanliness' was also found to be the second important characteristic desired by the respondent with an average rating of 4.19. Third most important factor that was considered was 'friendliness of the seller or staff' thereby indicating that the consumers prefer to go to stores where the staff is friendly and trustworthy. Thus, the attitude of the seller towards the consumer is very important in order to make him loyal towards his store. 'Environment of the store' occupied the fourth position with an average of 3.14. This shows that people want to visit a store that has a pleasant environment. Next important characteristic is the 'provision to buy small quantities' of food having an average of 2.97. The least desired characteristics were 'home delivery facilities' and 'delivery up to car park' having an average of 2.48 and 1.99 respectively. Sample respondents preferred SROs when they wanted to make 'purchases in small quantities' and also when they wanted to buy 'ethnic items' which gave a taste of their own culture. But the big retailer had an upper hand in the 'quality of packaging' that they provided. Due to the lack of time, people prefer home delivery facilities. This facility was earlier a characteristic of the small retailers only but now, in order to draw the consumers towards themselves the big retailers are also trying to include this facility.

The product characteristics offered by the BROs and SROs were rated on a scale of 5. The

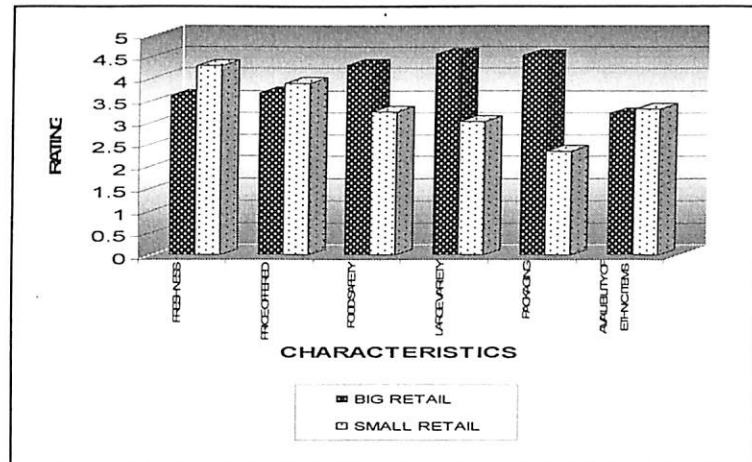
BROs excelled over the SROs in attributes like 'food safety', 'large variety' and 'quality of packaging'. Consumers preferred BROs when they rated 'food safety' high in importance. This could be because the BROs take special care in handling the food. This finding reinforces the observations made by Loader et al.<sup>3</sup> 'Price' was the next important criteria and many consumer analysts, in earlier studies<sup>4, 5</sup> have confirmed this. An interesting observation of the present study was the divergent views elicited from the sample respondents about the BROs position with respect to price. Some consumers felt that the big retailers would charge higher prices in order to recover their huge investments; while others thought that big retailers would offer cheaper rates since prices without middlemen would be less. Large 'variety' of vegetables offered by the BROs was an attribute attracting consumers desiring for all kinds of vegetables that can be obtained under one roof; this was a disadvantage for the small retailers who do not have the resources to keep a large variety of food. Such finding was also made by Fox et.al.<sup>7</sup> The SROs excelled over the BROs in attributes like 'freshness' 'price offered' and 'availability of ethnic items'. From amongst these attributes freshness was considered most important when choosing a place of purchase for green grocery. 'Price' was the next important criteria and many consumer analysts, in earlier studies<sup>4, 5</sup> have confirmed this. An interesting observation of the present study was the divergent views elicited from the sample respondents about the BROs position with respect to price. Some consumers felt that the big retailers would charge higher prices in order to recover their huge investments while others thought that big retailers would offer cheaper rates since prices without middlemen would be less. This comparison has been demonstrated through Fig. 2.



**Figure 1:** Relationship between the Average Spending Per Capita Per Month (ASPCPM) and the Per Capita Income Per Month (PCIM) of the People Frequenting the BROs (POP=1) and SROs (POP=0)

**TABLE 1:** Consumers Preference (on 5-point rating scale) for BROs and SROs

Factors	For BROs	Factors	For SROs
Food safety	4.31	Freshness	4.29
Large variety	4.56	Price offered	3.89
Quality of packaging	4.53	Availability of ethnic items	3.32
Cleanliness	4.68	Friendliness of Staff	3.99
Delivery upto car park	3.73	Provision to buy small quantities	3.93
Environment	4.52	Home delivery facility	3.19



**Figure 2:** Comparison of the Small and the Big Retail on the Basis of Product Characteristics

The convenience characteristics were rated on a 5 point scale. The BROs excelled over the SROs in attributes like 'cleanliness', 'delivery upto car park' and 'environment'. In the above-mentioned attributes 'cleanliness' was the most important attribute, which the respondents considered while choosing a place for the purchase of green grocery. On the other hand the SROs excelled over the BROs in attributes like 'friendliness of

the staff', 'provision to buy small quantities' and 'home delivery facilities'. From amongst these attributes friendliness of the seller was considered second most important by the respondents when choosing a place of purchase for green grocery. People are most comfortable in an informal environment and love to be advised and helped when making their purchases. These findings

confirm similar observations made by Sinha et.

al.<sup>6</sup>

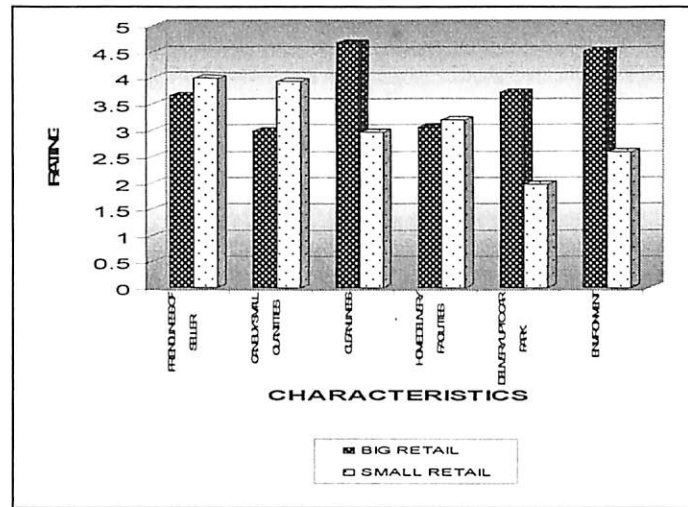


Figure 3: Showing the Comparison of the Small and the Big Retail on the Basis of Convenience Characteristics

Bargaining, which is a common trait among green grocery shoppers was found to bring pleasure to 85% of the respondents; while 15% of the respondents said that they do not bargain when shopping for green grocery from the small retailers. Bargaining which is a very unique trait of Indians is only possible when shopping from an SRO, however with the growth in the number of people falling in the young age group this factor may not be a very big problem for the big retailers since majority of them do not have the time or inclination to bargain and would prefer reasonable and fixed prices. Further, as bargaining in the big retail shops is not possible; people who want to avoid arguing with the seller or staffs prefer to go to such outlets.

Store loyalty was found to be another issue that may be a threat to the big retailers. Indians prefer to go to the same shop for years together. However it was seen that age and income had no relationship with store loyalty. The present study showed that a majority of the consumers are loyal to the stores from where they purchase. This result is contradictory to the results of a survey carried out by Progressive Grocer<sup>8</sup>, which found that majority of the consumers tended to visit more than one store format in a week. However, no relationship has been found between age of the consumer and per capita income of the family to the store loyalty as revealed by chi-square test.

75% of the respondents felt that people who shopped from big retail stores did not have any

kind of indifferent attitude in them, while only 25% of them felt that people who shop from big retailers have an attitude.

It was also discovered that 51% of the people disapproved of the small retailer's right in demanding the non-involvement of big retailers in this trade, while 49% felt that if otherwise the small retailer would face a risk of losing their livelihood in the presence of big retailers. They believed 'since the market for green grocery is huge, there is no fear of the small retailers losing their business', 'the big retailers also have the right to operate in any business they wish to' and 'the consumers will get the best price at competitive rates'.

From the study it was seen that 66% of the consumers predicted that the middlemen would lose their business if the big retailers come into the picture. The remaining felt that inspite of the presence of the big retailers, middlemen would exist and continue to supply the existing small retailers. In fact the former would hire middlemen to supply green grocery to their markets as well. Maximum number of consumers feels that in the next five years the big and the small retailers though existing together will not exist in equal numbers; the small retailers will still be present in greater numbers. From this observation it may be concluded that inspite of the fact that Kolkatans will accept the big retail outlets, they still feel that small retailers will not lose their business and will be able to out do the big retailers in number in the



near future. However, from the study it may be concluded that 49% of the respondents believe that consumers are the ones benefiting the most from the BROs. Next, according to 46.46% of the respondents, the BROs will be the ones benefiting the most, while the poorer section- small retailers, farmers and middlemen, will be at a loss.

100% of the big retail shoppers were confident about their long-term existence in the green grocery sector. Also, 83.33%, 69.23% and 78.57% of the people who shop from official small retail, unofficial retail or mobile vendor respectively were also certain about the big retailers being long term players in this business. The study also revealed that 40% of the consumers felt that the big and the small retailers would operate in equal numbers in the next five years. While 60% of the consumers felt that the small retailers would outnumber the big retailers. 49% of the consumers felt that they would benefit because of the competition between the big and the small sectors, a situation that would provide them with the best bargains. 46.46% of them felt that the big retailers would benefit because they will be able to draw more consumers towards themselves by attracting them with the facilities and promotional offers. Consumers felt that 3.45%, 2.06% and 1.54% small retailers, farmers and middlemen respectively would benefit.

### Conclusion

SROs as well as BROs have certain positive as well as negative aspects that draw or repulse a consumer from buying from them. The major aspects that have come out in this study is that BROs are preferred for their cleanliness, store environment, variety, quality of packaging and special facilities while SROs are preferred because of their location, freshness, price offered and friendliness of the staff.

Even though many of the consumers have concern about the future of the small retailers, they feel that the market for green grocery is a huge one and it has place for both- the small as well as the big retailers- to exist side by side.

Similarly 49% of the consumers feel that the middlemen may loose their business if the big retailers come into the picture. A significant number of the consumers (81%) held the view that the big retailers will be long-term players in this business.

Data analysis showed that the big retailers excel in some of the desired attributes, while in the others they do not lag far behind the small retailers. This means that the SROs are facing the threat from the big retailers in terms of providing the matching service attributes and shopping experience. Thus the big retailers are here to stay in Kolkata and the people are welcoming it with open hands; however this does not mean that the small retailers will lose their livelihood. The market for green grocery is a huge one and both the sectors will have their own group of buyers.

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# Probing Entrepreneurial Qualities of Students in Professional and Non Professional Courses Studying Fashion and Textiles

Shailee Mehra and Manushi Tewari

## ABSTRACT

*A survey was carried out to compare entrepreneurial skills of students from professional and non-professional courses related to fashion and textiles. It was found that the students from professional course were significantly different from students of non-professional course in self perception of entrepreneurship skills, organizational ability & managerial skills, personality maturity, executive reaction pattern and human engineering. On the whole students pursuing professional courses showed better overall entrepreneurial skills than the students studying textile and fashion in non-professional courses.*

**Keywords:** Human Engineering, Human Relation, Managerial Skills, Organization Ability, Personality Maturity and Self Perception of Entrepreneurship traits.

## Introduction

H. Cole, defined entrepreneurship as *'the purposeful activity of an individual or a group of associated individuals, undertaken to initiate, maintain or aggrandize profit by production or distribution of economic goods and services'*.<sup>1</sup> The concept of women entrepreneurship has gained considerable popularity around the globe in recent years. Women entrepreneurs may be defined as a woman or group of women who initiate, organize and run a business enterprise<sup>2</sup>. Women entrepreneurs are the key players in any developing economy, particularly in terms of their contribution to economic development.<sup>2</sup> Today, women own more than 25% of all the business in advanced market economies. Women are becoming entrepreneurs at a faster rate as compared to men. The emergence of women entrepreneurs and their significant contribution to the economy is now visible in India and the benefits are becoming prominent. Shahnaz Hussain (beauty products), Kiran Mazumdar Shaw (biotechnology), Hence Ranichander (H.R. consultant) and Sumali Morarji (Shipping Corporation) are some exemplary women among the successful and accomplished entrepreneurs in our country.<sup>3</sup>

According to Holt<sup>4</sup> as an entrepreneur, women have to perform all the functions involved in establishing an enterprise. These include exploring the prospects of starting a new business, undertaking of risks and the handling of economic uncertainties involved in business, introduction of innovative or initiation of innovations, coordination, administration and control and lastly supervision and leadership.

## Aims & Objectives

The main objective of the study was to find out the difference in entrepreneurship skills of female students undergoing professional and non-professional courses.

## Methodology

The collection of data for the research was done by questionnaire method and the subjects were approached individually with a short orientation on entrepreneurial skills. A Comprehensive Battery of Scales of Entrepreneurship by Dr. V. P. Sharma<sup>5</sup> was used for this purpose.

## Results and Discussion

Some of the entrepreneurs' characteristics given by Cole are desire for high achievement, high optimism, independence, foresight, good organizing capability and innovativeness.<sup>1</sup> The present study aimed to focus on somewhat related but different aspects of entrepreneurship qualities of female students in professional and non-professional courses related to fashion and textiles. The obtained results are cited below.

The mean and standard deviation for each variable was computed for the 66 students from professional and non-professional courses. It can be observed that the students undergoing professional courses scored significantly high in the areas of Self Perception of Entrepreneurship Traits and Organization Ability and Managerial Skills. These students probably might be well aware of the characteristics that constitute self-knowledge of entrepreneurship traits or skills (SPET). They are probably able to use resources effectively to achieve organizational goals (OMAS). Their significantly above average scores in the area of Human Engineering,

Personality Maturity and in the area of Executive Reaction Pattern reveal that they might be having high inclination for designing, building or equipping mechanical devices to the anthropometrics or psychological requirement of people who use them. Although not presently expressed they might have full realization of the potentials that are latent within them (PM). However, no significant difference was found regarding human relations between the two groups, i.e. both the groups might be aware of some of the human problems arising out of organizational set-up.

On the other hand, the students of the non-professional course scored above average only in the areas of Self Perception of Entrepreneurship Traits and Organization Ability and Managerial Skills, average in the areas of Human Relation and Human Engineering, below average in the area of Personality Maturity Scale and extremely poor in the area of Executive Reaction Pattern.

Thus, the students from a professional course scored higher in all the areas of entrepreneurship as compared to the students of the non-professional course (Table-2).

### Conclusion

The result of the present study revealed that students pursuing professional courses in textile and fashion possess significantly higher skills in the areas such as self perception of entrepreneurship traits, organization ability and managerial skills, personality maturity, human engineering and executive reaction pattern. However, students of textile and fashion in non-professional courses are not totally devoid of these qualities although they scored slightly low in these areas. Regarding the issues of human problems arising from organization and interpersonal relations the groups did not differ significantly.

**TABLE 1:** Sample characteristics of the students from professional and non-professional courses

	Professionals	Non – professionals
Total sample size	66	66
Educational Qualification	Non-graduates	Non-graduates
Marital status	Unmarried	Unmarried
No. of Family members	4-5	4-5
No. of siblings	1-2	1-2
Monthly salary of Father (in rupees)	35000 - 45000	45000 - 55000

*In case of the single income families' the father is the main earning member*

**TABLE 2:** Mean, standard deviation & t-value of the students from professional & non-professional courses

Areas	Professionals		Non Professionals		t- Value
	Mean	SD	Mean	SD	
Self Perception of Entrepreneurship Traits (SPET)	227.1515	18.012	199.121	16.2545	6.04**
Organization Ability and Managerial Skills (OAMS)	254.469	14.410	242.848	13.447	2.62**
Personality Maturity scale (PM)	38.636	18.716	31.954	9.239	2.49**
Executive Reaction pattern (ERP)	29.484	11.356	16.439	8.328	7.52**
Human Relations (HR)	78.227	7.214	75.136	11.852	1.809
Human Engineering (HE)	62.972	9.819	57.925	7.308	3.35**

\*\*P≤0.01

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# **A Review of Attitude towards Modernization among Mizo Adolescent Girls Studying in Mizoram and Kolkata (16-18 Years)**

Rosaline Lalmuanzuali and Smita Parekh\*

## **ABSTRACT**

*A survey was carried out on adolescent (16-18 years) Mizo girls studying in Mizoram and those studying in Kolkata with an objective to understand if there was any difference between the conventional Mizo girls and those who leave the security of their state in pursuit of higher education. The study indicated that there was no significant difference in attitude of both the groups towards education, parent-child relations, politics, status of woman, religion and socio-cultural factors. However, significant difference was found between the two groups regarding their outlook towards marriage.*

**Key Words:** Adolescence, Attitude, Marriage, Modernization and Status of Woman.

## **Introduction**

Modernization is used to denote complex process of social change from traditional way of living and thinking. To be precise, it refers to the deeper change in man's way of thinking and feeling, a change in his whole attitude of life's problems and the society. The vehicles of modernization as identified by R. Ahuja<sup>3</sup> are education, communication, ideology based on nationalism, leadership, and coercive governmental authority.

An important period of the life span, 'adolescence' has certain characteristics that distinguish it from the periods that preceded it and the periods that will follow it. Some of these are search for identity, time of unrealism, and threshold of adulthood.

The habitats of the state of Mizoram popularly known as 'Mizos' form a close-knit society with no class distinction. The entire village exists like a big family. However, under the influence of the Christian Missionary changes have penetrated the Mizo society which in turn has surfaced in the changed lifestyle of the Mizo women particularly the adolescent girls.

## **Aims & Objectives**

The present study was undertaken to find out if there is any difference in the attitude regarding various issues of modernization among adolescent Mizo girls pursuing studies within Mizoram and those coming to the city of Kolkata in pursuit of higher education.

## **Methodology**

The tool used in the study was English version Ahluwalia and Kalia's Comprehensive Modernization Inventory (AKCMI).<sup>4</sup> The data

was collected from 99 girls (57 studying in Mizoram and 42 studying in Kolkata) in the age group of 16-18 yrs and belonging to a nuclear family having a monthly income of Rs. 15,000 to 20,000.

## **Results and Discussions**

From the result obtained in the present study (Table 1) it has been found that the two groups of adolescent Mizo girls did not differ significantly regarding their views of modernization of education, parent-child relations, politics, status of women, religion and socio-cultural factors. However, the groups differed significantly regarding their attitudes towards marriage. This may be because the Group-II i.e. the Mizo girls studying in Kolkata may be more exposed to urban culture are more keen towards the modernization of the institute of marriage.

## **Conclusion**

Thus it may be concluded that the adolescent Mizo girls have similar attitude regarding various aspects of daily life situations in India. Their analogous views have been reflected in various spheres like education, parent-child relation, politics, status of women and religion except marriage.

**TABLE 1: Mean, Standard Deviation, and t-value for the dimensions of Ahluwalia and Kalia's Comprehensive Modernization Inventory (AKCMI)**

Dimensions	Group	Mean	Standard Deviation	t- Value
Education	I	27.38	2.55	1.83
	II	26.5	2.21	
Parent-child Relations	I	23.19	1.76	1.77
	II	22.57	1.75	
Politics	I	26.28	2.38	1.92
	II	25.28	2.91	
Status of Woman	I	21.51	2.31	0.02
	II	21.5	2.04	
Marriage	I	26.4	2.66	3.57**
	II	24.54	2.48	
Religion	I	26.66	1.42	0.12
	II	26.61	2.71	
Socio-cultural Factors	I	22.26	2.11	1.11
	II	22.07	1.94	

Group I: Mizo girls studying in Mizoram, Group II: Mizo girls studying in Kolkata

\*\*P<0.01= 2.626

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# A Study on Usage of Mobile Phone amongst College Students in Kolkata

Phorum Shah and Komal Sharma\*

## ABSTRACT

*The study was undertaken to find out the dependence on mobile phone among college-going female students in the age group 18-21 and 21-24 years in the city of Kolkata. The various aspects studied included 'usage pattern' and 'home', 'health', 'social and emotional adjustment'. Students in a habit of using cell phone for more than 2 hours and sending >10 messages daily were referred to as overly dependent. The use of mobile phone was found to be higher among the younger age group (18-21 years). Students with unsatisfactory home, health, social and emotional adjustments showed higher incidence of mobile usage (more than 2 hours per day). The number of messages sent per day also increased in case of students with unsatisfactory home adjustment.*

**Key Words:** Adjustment, College Students, Dependence, Mobile Phone, Parental Reaction and Usage Pattern

## Introduction

Mobile phones are becoming an indispensable part of modern life. People consider their phones to be a technology extension of their personality. A large population, low telephonic penetration levels, and rise in consumer income and expenditure owing to strong economic growth have contributed to make India the fastest-growing telecom market in the world. India is currently the world's second most attractive telecommunication products and services market after China.<sup>1</sup> The total wireless subscriber base stood at 242.40 million at the end of January 2008.<sup>4</sup> Consequently, mobile handset has become the fastest selling consumer durable in India.<sup>3</sup>

As Indian population is getting younger, the consumption patterns are also changing fast.<sup>3, 4</sup> The consumers are graduating to a better living standard at a faster pace. Expenditure on food as a percentage of total consumption is decreasing and that on nonfood items and leisure is growing.<sup>5</sup>

Mobile phones today go beyond just voice telephoning; they also provide a multitude of other features. Young people use handsets for calling; messaging and several other activities such as downloading, games and music, news updating, sports scores etc. Interestingly young people differ in underlining the importance of functional utility of handsets from one another.<sup>3</sup> A popularly occurring terminology associated with mobile phone usage is 'addiction' and/or 'over dependency'. The most common and easily diagnosed sign of mobile phone addiction or over dependency is when the user cannot withstand the temptation to use the phone for thirty minutes. Without their cell phones, the youngsters get distracted easily and it becomes difficult for them to focus on their work. If their mobile phone is silent even for some time, they get worried and

frequently check to make sure they have not set it wrong. They often mistake the ringing of other people's phone as that of their own and tend to be bad tempered. These symptoms according to psychologist Yang Ling, are all typical of a kind of newly – emerged mental disease called "Mobile Phone Over Dependence". A disease that is plaguing a growing number of mobile phone users, especially the youth.<sup>2</sup> Another study carried out by Australian researchers<sup>7</sup> forecasted that mobile phone addiction would surpass internet addiction. The study also found that students become agitated and anxious when they have to switch their mobile phones off. Some people also suffer from sleep deprivation because they stay awake at night texting.

Bharti Telecom Chief Operating Officer (East) and Tata Teleservices Circle Operating Officer (Kolkata) reported in 2008 that, on an average, all mobile phone in the city put together talk for fifty million minutes a day, and, whopping 8,40,000 hours of chatter in a span of 24 hours. The daily count of messaging is flying around in incredible numbers being pegged at 6.5 million. These figures are a conservative estimate of mobile usage by customer extrapolated from relevant industry data. An average customer talks on the cell phone for 350 minutes a month and sends 40 sms. That translates to less than 12 minutes of talk time and just one sms over a day.<sup>5</sup>

## Aims & Objectives

The present study aims to find out the, usage pattern and dependence of college students (18 years) on mobile phone with an objective to create awareness regarding the adverse affects of over usage of cell phones.

## Methodology

The study was conducted in the city of Kolkata and the sample consisted of 100 college girls between the age groups 18-24 years. Bell's Adjustment Inventory was used to find out modes of adjustment in home, health social and emotional spheres.

## Results and Discussion

### • Usage Pattern:

About 63% of the total respondents agreed that they cannot stay without their cell phones for a day and rather claimed it to be their 'life'. Of the total respondents, 77% kept their cell phone 'on' during night whereas 53% of total respondents used their cell phones only during social gatherings. 56% of the respondents of age group 18-21 years and 62% of the respondents of 21-24 years answered all the calls received. 20.5% respondents in the age group 18-21 years and 16% in the age group 21-24 years were habituated to check their cell phones at interval spacing over less than 10 minutes. The younger age group mainly used the cell phone for 'making outgoing calls' whereas the older age group used it primarily for receiving incoming calls and sending messages. Irrespective of the monthly family income, less than Rs. 500 every month was spent on the use of cell phones by 56% of

respondents. The majority of the respondents of both the age groups prefer pre-paid connection. Of the total respondents in both the age groups, 48% and 54% felt 'happy' and 'relieved' when their cell phones did not ring for more than 30 minutes and 52% and 46% got 'depressed'/'irritated'/'anxious'/'annoyed'.

### • Usage of Short Message Service (SMS):

SMS provides a very convenient method of exchanging information as it not only saves time but costs less. In many situations one is relatively much more comfortable sending a message via SMS rather than talking over phone.<sup>9</sup> Majority of the respondents (52% and 72% belonging to age groups 18-21 years and 21-24 years respectively) send < 10 messages per day; whereas 34% (belonging to 18-21 years) and 20% (belonging to 21-24 years) send 10 -20 messages each day and 14% (belonging to 18-21 years) and 8% (belonging to 21-24 years) sent more than 20 messages per day. This indicated that the older group used the mobile phone to send messages less than the younger group. The study also revealed that nearly 51% of both the age groups opted for schemes offering free message service. 25.71% (belonging to 18-21 years) and 5.40% (belonging to 21-24 years) opted for schemes offering low messaging rates.

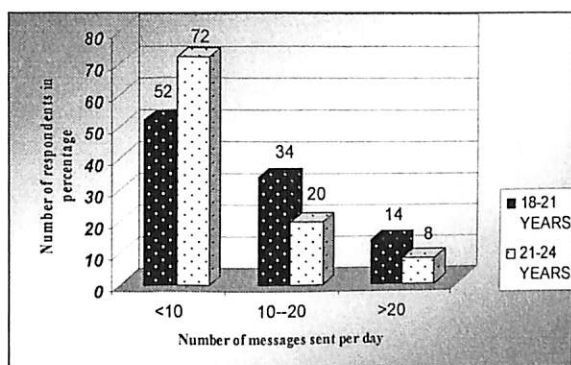


Figure 1: Usage of Short Message Service (SMS)

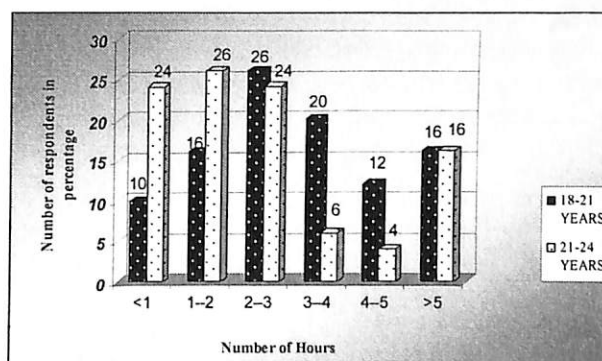


Figure No.2: Percentage hours of cell phone usage by respondents



**Table No. 1:** Estimated hours of cell phone usage by the students of age group 18-24 years in a year

Hours of cell phone usage per day	Number of Students		Total time consumed per Year	
	18-21 Years	21-24 Years	In hours	In number of days
Upto 1 hour	5	12	365	15
Upto 2 hours	8	13	740	30
Upto 3 hours	13	12	1095	43
Upto 4 hours	10	3	1460	60
Upto 5 hours	6	2	1825	76
> 5 hours	8	8	2190	91

- **Parental Reaction:**

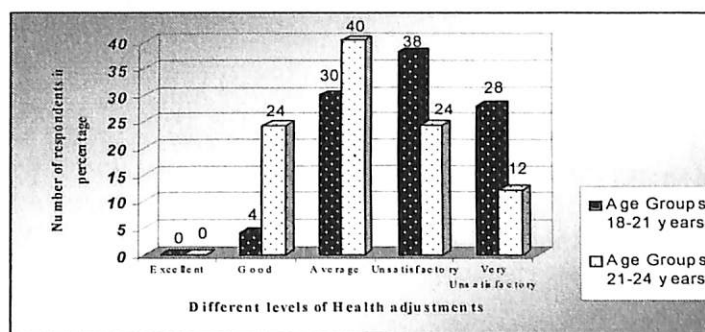
44% parents (having daughters belonging to 18 -21years) and 28% (having daughters belonging to 21-24 years) were dissatisfied by the way their daughters used their phones and scolded their children, which led to unpleasantness at home.

- **Home, Health, Social and Emotional Adjustment of Respondents:**

**Home Adjustments:** 73.21% respondents having average level of home adjustment sent <10 messages per day; while 57.88% and 64.28% of the respondents who had unsatisfactory and very unsatisfactory home adjustments respectively sent >10 messages in a day. Each of the 51%, 78%, and 87% respondents having average, unsatisfactory and very unsatisfactory levels of home adjustment respectively use their cell phones for more than 2 hours in a day. This result has also been found by Dr. Y. Machiswala, a senior psychiatrist at Mumbai's Masina hospital who has reported the effect of high level addiction

of mobile phone that makes people call each other even when they are in present in the same house.<sup>9</sup>

**Health Adjustments:** 51% of the total respondents were not satisfactorily adjusted to their health out of which nearly 45% send more than 10 messages in a day. Approximately 70%, 61%, 56% and 60% of the respondents who are from 'good', 'average', 'unsatisfactory' and 'very unsatisfactory' level of health adjustment respectively use their cell phones for more than 2 hours in a day. Dr. Bharat Shah, a consulting psychiatrist at Leelavati Hospital in Mumbai, said that the isolating nature of cell phone dependence is not very different from narcotic addiction. Many patients felt upset, anxious, or rejected if they did not receive text messages in every five minutes. He also added that teenagers get violent with parents after being denied the cell phone. The unnerving aspect of this phenomenon is not known but most of the mobile phone users are consumed by this addiction.<sup>10</sup>



**Figure No. 3:** Percentage of respondents from both the age groups having different levels of Health Adjustment

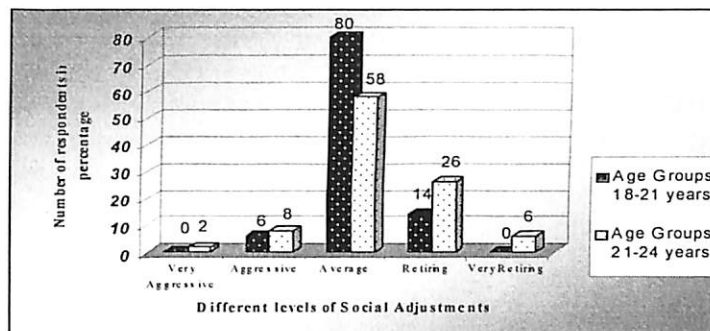


Figure No. 4: Percentage of respondents from both the age groups having different levels of Social Adjustment

**Social Adjustments:** 'Retiring' or 'very retiring' respondents tend to send lesser messages as compared to those who had 'average' social adjustment. 100% of 'very aggressive' nature sent 10-20 messages and majority of 'aggressive' sent less than 10 messages in a day. Psychiatrists in Spain (2003) said that the majority of the mobile phone addicts are teenagers, whose shyness and low self-esteem make them succumb to aggressive publicity marketing a means to get in touch with people without having to meet them.

Mobile phone addiction can totally isolate its victim, ruin them economically and even turn them into criminals. It is said to become biggest non- drug addiction in the 21<sup>st</sup> century.<sup>8</sup> While 55% and 33.33% of 'retiring' and 'very retiring' level of social adjustment uses their cell phones for more than 2 hours daily whereas 100% and 42.85% who are 'very aggressive' and 'aggressive' use their cell phones for 2 hours and above daily.

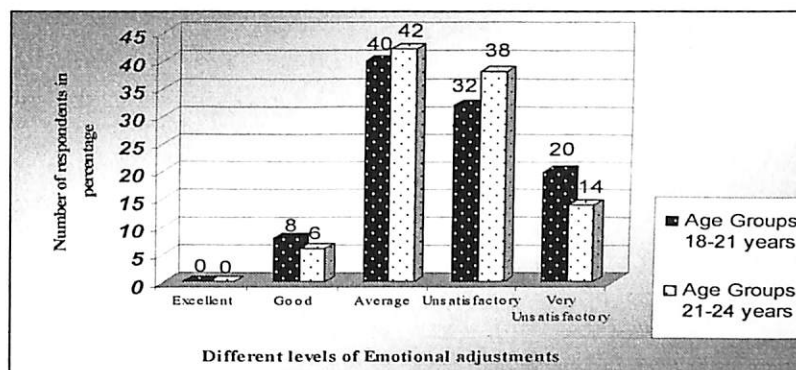


Figure No.5: Percentage number of respondents from both the age groups having different levels of Emotional Adjustment

**Emotional Adjustments:** Among the respondents with unsatisfactory and very unsatisfactory level of emotional adjustment, 43% and 22% respectively sent > 10 messages per day. 55% Respondents with 'average' emotional adjustment use their cell phones for > 2 hours daily a total of 1033 hours or 45 days in a year. 47.05% of the respondents with 'unsatisfactory' emotional adjustment use their cell phones for nearly 2- 4 hours a day and 20.58% of these respondents use their cell phones for more than 5 hours a day i.e. 2190 hours or 91 days in a year. Out of the respondents of both the age group who have 'very unsatisfactory' emotional adjustment 56% have more than 2 hours per day of cell phone usage.

This indicates over dependency on phone either that provides psychological or emotional solace.

On comparison, it was found that the younger group belonging to 18-21years of age was more overly dependent on the use of cell phone; 48% of the younger age group sent > 10 messages a day and 74% use the phone for > two hours a day. On the other hand, 28% and 50% of the respondents belonging to the age group of 21 -24 years respectively sent > 10 messages a day and used the phone for > two hours a day.

### Conclusion

The study reveals that the mobile phone has penetrated the lives of the students in the age

group of 18-21 years to such a great extent that youngsters find it difficult to concentrate in any field of activity without their cell phones ringing and beeping around them at regular intervals. This younger age group is spending their valuable time over the cell phone in order to stay connected with friends and others, a time that could have been utilized for creative pursuits.

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# Analytical Study of the Occurrence of Carpal Tunnel Syndrome among Men and Women Using Computers

Agrata Wahi and Nandita Das\*

## ABSTRACT

*A study to determine the incidence of carpal tunnel syndrome was conducted on 78 computer users both men and women in the age group of 25-60 years from 6-7 companies. The study indicated that 55% of men and 77% of women showed symptoms of carpal tunnel syndrome. Men in the age group of 46-60 years and women in the age group of 36-45 years were most affected. The study also revealed that men and women working for more than 10-15 years on the computer had signs of carpal tunnel syndrome. It was seen that only 15% of computer users maintained the correct posture and 85% used incorrect postures while working. 83% of the respondents took rest in-between work just once and still showed symptoms; whereas, 62% of respondents who took rest thrice did not reveal any symptoms.*

**Keywords:** Carpal Tunnel Syndrome, Computer users, Posture, Rest Pause

## Introduction

The Carpal Tunnel Syndrome (CST) is the most common peripheral compression neuropathy today.<sup>4</sup>

The carpal tunnel is a passageway that runs from the forearm through the wrist.<sup>1</sup> The tunnel is formed from a U-shaped cluster of eight bones at the base of the palm. Bones form three walls of the tunnel and a strong, broad ligament bridges over these bones, providing a roof for the tunnel. The median nerve, which travels all the way from the spinal cord and controls sensations of the palm side of the thumb and the fingers, passes through this tunnel.<sup>2</sup> The most common mononeuropathy (disorder of a single nerve) is the carpal tunnel syndrome or median nerve entrapment in the hand.<sup>3</sup> It is considered an inflammatory disorder caused by repetitive stress, physical injury, or other conditions that cause the tissues around the median nerve to become swollen. It occurs either when the protective lining of the tendons within the carpal tunnel become inflamed and swell or when the ligament that forms the roof becomes thicker and broader.<sup>1</sup> When the tunnel narrows, it can create pressure that decreases blood supply to the nerve.<sup>2</sup> This decreased blood supply results in pain, numbness, and tingling in the wrist, hand, and fingers (except the little finger, which is not affected by the median nerve).<sup>1</sup> The pain may be felt all the way from the hand up to the shoulder. There may be tingling or numbness in the hand and fingers at night, which disturbs sleep. Sleeping with one's wrists bent, a common habit, can add to the misery. After awakening, one may need to shake one's hand to restore normal feeling. As things get worse, one may feel tingling during the day and pain radiating up the arm. It may become difficult to make a tight fist, grasp small objects,

or do things with the hands that one could do before. In severe cases, muscles at the thumb base weaken. One could even lose the ability to distinguish between hot and cold by touch.<sup>2</sup> Its onset can be slow or sudden.

Also certain injuries and medical conditions like bone dislocations and fractures can narrow the carpal tunnel, thereby exerting pressure on the median nerve. This syndrome is also associated with obesity. Conditions like rheumatoid arthritis, diabetes, and hypothyroidism, can also cause the inflammation in the carpal tunnel that result in median nerve entrapment. Moreover fluid retention during pregnancy or hormonal changes associated with menopause can cause swelling and symptoms of carpal tunnel syndrome. Also some people may be born with abnormalities of the carpal bones<sup>1</sup>.

With so many factors it is difficult to determine whether the primary cause of Carpal tunnel syndrome is due to work conditions or an underlying medical problem. It seems that carpal tunnel syndrome is more common in 'hand-intensive jobs', like fish processing, supermarket (checkout workers), etc.. Some experts believe that incorrect posture may play a large role in the development of carpal tunnel syndrome, particularly in people who work at computer and other types of keyboards. The tendency to roll the shoulders forward, round the lower back and thrust the chin forward can shorten the neck and shoulder muscles, compressing the nerves in the neck. This, in turn, can affect the wrist, fingers and hand.<sup>1</sup>

The symptoms for this ailment are three times more common in women than in men since women have smaller carpal tunnels than men. Carpal tunnel syndrome almost always occurs in



adults and most adults work. It is not seen in children even though their wrists are small as the structures are more pliable.<sup>5</sup>

In case of disorders related to work that require repetitive motion, researchers have defined six key risk factors in the workplace for the development of these disorders, including carpal tunnel syndrome: repetition, high force, awkward joint posture, direct pressure, vibration, and prolonged constrained posture.

### **Aims & Objectives**

The study was carried out with an objective to assess the age group of male as well as female computer users who suffer from carpal tunnel syndrome and to find out if there is any relationship between the duration of computer

### **Results and Discussions**

The results have shown that in all the three age groups, majority of men and women suffered from carpal tunnel syndrome symptoms. Among the respondents studied, 45% of men and 67% of women in the age group of 25-35 years suffered from carpal tunnel syndrome symptoms. On the other hand 67% of men and 100% of women in the age group 36-45 years revealed carpal tunnel syndrome symptoms. 100% of men and 86% of women belonging to the age group of 46-60 years

It was also revealed that as the years of computer usage increases, the chances of having carpal tunnel syndrome also increases. 50% of men and 67% of women from the group under study using computer for less than 5 years were found suffering from carpal tunnel syndrome symptoms. 30% of men and 75% of women from the group using computers for 5-10 years showed symptoms of carpal tunnel syndrome. 100% of both men and women from the group using computers for 10-15 years revealed carpal tunnel syndrome symptoms. 60% of men and 100% women from the group who have used computers for 15-20 years, developed carpal tunnel syndrome symptoms. 100% of men and 80% of women from the group using computers for more than 20 years were found suffering from carpal tunnel syndrome symptoms.

It was seen that 50% of respondents who worked on computer for less than 5 hours per day developed carpal tunnel syndrome symptoms; whereas, 72% of respondents who worked on

usage and appearance of the symptoms. The studying was also undertaken to find ways to minimize the effect the syndrome.

### **Methodology**

#### **• Construction of the Questionnaire**

A questionnaire was constructed, worded in simple and easy to understand terminologies, with possible answers given, to be ticked singly or in multiples as was suitable to the respondents.

#### **• Sample**

The sample comprised of 78 respondents both males and females in the age group of 25-60 years working in different companies in Kolkata. The sample was selected by random sampling procedure.

had carpal tunnel syndrome symptoms. The data revealed that the chances of contacting carpal tunnel syndrome increases with age, showing a relation between carpal syndrome and age. As per the study 46-60 years among men and 36-45 years among women age were identified as the most affected age group. 55% of men and 77% of women suffered from carpal tunnel syndrome symptoms, indicating that CTS was more common in women than in men. This has also been reported in an earlier study.<sup>5</sup>

computer for 5-10 hours per day were found suffering from carpal tunnel syndrome symptoms.

The study also revealed that only 80% of respondents who used keyboard suffered from carpal tunnel syndrome symptoms; while 85% of respondents who used the mouse showed carpal tunnel syndrome symptoms. This indicated that people using the mouse more frequently are at a higher risk of developing carpal tunnel syndrome as it involves a lot of wrist movement rather than those who use the keyboard as the latter involves more finger movement rather than the movement of the wrist. 56% of respondents who used both these computer components equally, suffered from carpal tunnel syndrome symptoms.

64% of respondents who used the computer's monitor screen at eye level were found to suffer from carpal tunnel syndrome symptoms. 61% of respondents who used the computer's monitor screen slightly below eye level revealed carpal tunnel syndrome symptoms. 50% of respondents who used the computer's monitor screen below eye level had carpal tunnel syndrome symptoms.

86% of respondents who used the computer's monitor screen above eye level were found to suffer from carpal tunnel syndrome symptoms. The data shows that the percentage of respondents using the incorrect level of monitor screen (above eye level) has a comparatively higher chance of developing carpal tunnel syndrome than the percentage of respondents using the standard level of monitor screen. This is due to the fact that using incorrect levels at one's workstation may distort the seating posture which may require one to bend or lean forward which in turn may put massive strain on the spinal cord leading to discomfort to the computer user.

The type of posture used has a relation with the incidence of carpal tunnel syndrome as the findings revealed that 70% of respondents who used incorrect posture were found to suffer from carpal tunnel syndrome symptoms.

83% of respondents who took rest just once in-between their work suffered from carpal tunnel syndrome symptoms. While 72% of respondents showing symptoms of carpal tunnel syndrome, took rest twice in-between their work. 38% of respondents who developed carpal tunnel syndrome symptoms took rest three times in between their work. Hence, it can be concluded that as the frequency of rest in between work increases, the development of carpal tunnel syndrome decreases. Thus taking breaks in between work can relax the much-stressed muscles and reduce the building up of fatigue in the body.

**Table 1:** Showing the relation between age of the respondents and presence of carpal tunnel syndrome symptoms

Age of the Respondents (in Years)	Sample Size (N)	Presence of Carpal Tunnel Syndrome Symptoms			
		Male		Female	
		Yes	No	Yes	No
25-35	51	45.45% (15)	54.54% (18)	66.67% (12)	33.33% (06)
36-45	15	66.67% (06)	33.33% (03)	100% (06)	0
46-60	12	100% (05)	0	85.71% (06)	14.28% (01)
<b>Total</b>	<b>78</b>	<b>26</b>	<b>21</b>	<b>24</b>	<b>07</b>

**Table 2:** Showing the relation between gender of the respondents and presence of carpal tunnel syndrome symptoms

Gender of the Respondents	Sample Size (N)	Presence of Carpal Tunnel Syndrome Symptoms	
		Yes	No
Male	47	55.32% (26)	44.68% (21)
Female	31	77.42% (24)	22.58% (07)
<b>Total</b>	<b>78</b>	<b>50</b>	<b>28</b>

It was reported that 30% of the respondents were found suffering from carpal tunnel syndrome symptoms during daytime; 40% of respondents developed carpal tunnel syndrome symptoms during night-time and 30% of respondents experienced the syndrome symptoms during anytime of the day. Thus, the time of occurrence of symptoms does not have a well-defined relation with the incidence of carpal tunnel syndrome.

With no medical conditions reported, 62% of respondents were found suffering from carpal tunnel syndrome symptoms; whereas, 100% of respondents who were victims of medical condition, were found suffering from carpal tunnel syndrome symptoms.

## Conclusion

Respondents who use the mouse component, use incorrect posture and who take rest just once in-between their work suffer from carpal tunnel syndrome compared to respondents who use keyboard, correct posture and take rest twice in between their work. As a professional computer-user advances through the years of his life, the probability of occurrence of carpal tunnel syndrome also increases with his age.

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