DISSERTATION TITLE

CONSUMER AWARENESS REGARDING THE ADVERSE EFFECT OF SOFT DRINKS ON HEALTH AT PALWAL (HARYANA)

A Dissertation Proposal for

Post-Graduate Diploma in Health and Hospital Management

By

Dr Mandeep S. Mandloi

Roll No. PG/10/017

International Institute of Health Management Research

New Delhi

May, 2012

CONSUMER AWARENESS REGARDING THE ADEVERSE EFFECT OF SOFT DRINKS ON HEALTH AT PALWAL (HARYANA)

A Dissertation Submitted in Partial Fulfilment of the Requirements for the Award of

Post-Graduate Diploma in Health and Hospital Management

By

Dr Mandeep S.Mandloi

International Institute of Health Management Research

New Delhi

May, 2012

ABSTRACT

Indian market has huge potential for soft drinks. According to Product Insights: Soft Drinks in India' report, Data Monitor US- Globally, India ranked 25th in terms of retail sales and 13th in terms of the number of new product launches in the soft drinks market. In spite of India's huge population and the fact that around 47% of the population is composed of persons below 30 years of age, the per-capita consumption of soft drinks in India remains very low, at approximately at 5.2 liters against the world average of nearly 85.22 liters. Most of the Indian population doesn't know regarding the adverse effect of soft drinks on health. Changing lifestyles and availability of soft drinks on shopping mall to small streets of villages moving towards increasing consumption pattern in India especially among teenagers and youth. The aim of the study was to find out the consumer awareness regarding the adverse effect of soft drinks on health in Palwal. In Palwal in some cases hygienic conditions of respondent's home also favor the increasing consumption of soft drinks.

The method of research design was Descriptive research design. The Systematic sampling method was Sam Random Sampling and sample size were 200 respondents of age 15 to 60. Primary data has to be collected and Quantitative data analyzed with the help of SPSS and MS excel.

The result of the study were 58 % respondent said soft drinks is not beneficial for health as well 19% said it was good for health and 23% were not aware about it 98 out of 200 (49.5%) respondent said unhygienic condition in their home make them more prefer outside drinks rather than homemade drinks. Majority of respondent said it did not give any financial burden on family.

20% of respondent age category 26-35 years said due to consumption of soft drinks the chances of obesity increased. Only 16.5 % respondent it has adverse effect on dental portion. Majority of respondent said it did not increased blood sugar level in the body. Awareness program should be initiated to make people aware about the harmful effects of soft drinks.

ACKNOWLEDGEMENT

Any attempt at any level cannot be satisfactorily completed without the support and guidance of learned people. I owe a great debt to all the professionals at The INCLEN Trust International and IIHMR for sharing generously their knowledge and time, which inspired me to do my best during my dissertation.

I would like to express my immense gratitude to Dr. Manoj K Das, Managing Director, The INCLEN Trust International, for providing support and guidance for my learning as well as project. It has been a privilege to work under his dynamic supervision.

I am glad to acknowledge Dr. Preetha G.S. (Mentor), IIHMR, New Delhi for her constant guidance during the project with time, support and the much needed enthusiasm and inspiration.

And final thanks to my family, friends for their great moral support at all times during the project. I am also grateful to all those involved in the project, directly or indirectly.

Dr. MANDEEP SINGH MANDLOI

TABLE OF CONTENTS

TOPIC	PAGE NO.
Abstract	3
Acknowledgement	4
List of Figures	5
List of Tables	6
Acronyms	7
Internship Report • Introduction to Organization • Managerial Duties & Tasks Performed • Reflective Learning	8
Dissertation Report • Introduction • Review of Literature • Data, Methods & Analysis • Results & Findings • Conclusion • Recommendations • References	17
Annexure – Questionnaire on Consumer awareness regarding the adverse effect of soft drinks on Health at palwal.	42

LIST OF FIGURES

TABLE NO	TITLE	PAGE NO.
1	GEOGRAPHICAL LOCATION OF DISTRICT PALWAL (HARYANA)	15
2	ORGANIZATIONAL HIERARCHY	17
3	RESPONDENT RELIGION	27
4	AGE OF THE RESPONDENT	28
5	PREFERENCE OF THE SOFT DRINKS	29
6	BENEFICIAL FOR HEALTH	30
7	INFLUENCE OF SOFT DRINKS –MENTALLY RELAXATION	31
8	CASTE OF THE RESPONDENT	34
9	OBESITY AND CONSUMPTION	35
10	CONSUMPTION AND DENTAL PROBLEMS	36
11	SOFT DRINKS AWARENESS AND HYGIENIC CONDITIONS	37

LIST OF TABLES

TABLE NO	TITLE	PAGE NO.
1	Occupation of the respondent	
2	Blood glucose level frequency	
3	Dental problems and consumption	

ACRONYMS

- SIIL-Serum institute Limited
- FW-Field Worker
- FS-Field Supervisor
- INCLEN-International Clinical Epidemiological Network
- ANM - Auxiliary Nurse Midwife
- ASHA - Accredited Social Health Activist
- AWW-Aanganwadi worker
- CHC-Community Health Center
- PHC-Primary Health center
- SD-Soft Drink
- SOMAARTH- Synergizing EcOnomic DevelopMent And CompRehensive HealTH
- CEUS: Clinical Epidemiological Units

INTERNSHIP REPORT

INTRODUCTION TO ORGANIZATION

THE INCLEN TRUST INTERNATIONAL

INCLEN Created in 1980 as a project of The Rockefeller Foundation registered in USA, INCLEN Inc is an independent non-profit organization since 1988. Since 1980, INCLEN has helped clinicians and other scientists obtain the knowledge and tools to improve the health of people in the developing world. Through carefully designed training and other support, INCLEN helps them critically assess the factors that determine the most effective prevention and treatment strategies.

Today their membership includes 89 clinical epidemiology units (CEUs) with a membership of 1843 members in 34 countries throughout the world. The multi-disciplinary faculty includes clinical epidemiologists, epidemiologists, health social scientists, biostatisticians, and clinical economists, each of whom believes that fighting disease in an age of limited financial resources depends on integrating the principles of clinical epidemiology into his or her practice.

INCLEN provides a forum for researchers to discuss critical health issues through educational projects, global meetings, and an international communications network impact on health. The INCLEN Trust International envisions having global presence.

The creation of INCLEN trust: "INCLEN is undertaking major changes… Central to these changes is the principle that an organization that is dedicated to the improvement of the health in the developing world is appropriately guided by leaders from the developing world."

- D.W. Fraser".

The "Original Founders" of The Trust consisted of three representatives from the Board of Directors of INCLEN Inc. (The current Chair-Dr. Claire Bombardier, Dr. Nelson Sewankambo and Dr. Marcel Tanner) and the 6 regional CLEN presidents/coordinators.

In addition to the Original Founders, it was decided to have "Associate Founders", which may be NGOs, governments or other agencies that contributed substantially to the pursuit of the Trust's goals and objectives. This participation was deemed as important in the context of the renewed spirit of partnership and collaboration in the new Trust.

The Board of Governors, was to be the highest policy-making body of the Trust, and consisted of the CEU and CERTC directors, the regional CLEN presidents or coordinators, 3 members of the Board of Directors of INCLEN Inc., and a representative from each Associate Founder.

Mission: "We are a unique global network of clinical epidemiologists, biostatisticians, health social scientists, health economists and other health professionals affiliated with key academic healthcare institutions."

"We are dedicated to improving the health of disadvantaged populations, particularly in low- and middle-income countries, by promoting equitable healthcare based on the best evidence of effectiveness and the efficient use of resources."

"We achieve this by using the network to conduct collaborative, inter-disciplinary research on high-priority health problems, and to train future generations of leaders in healthcare research. "

Vision:"To attain equity in health for development through essential research and training in global health and related disciplines."

Our slogan:

"Research and training for improving equity, efficiency and quality in health care."

Goal:

Improve the health of the populations of developing countries by promoting healthcare based on the best evidence of effectiveness and the efficient use of resources.

Objectives:

1.To build and sustain research and training centres in clinical epidemiology, biostatistics, health and social sciences and related disciplines at local, national and regional levels with a view to contribute to health research programs that are responsive to local and national priorities and are linked to evidence-based health policy and action.

2. To carry out multidisciplinary collaborative research relevant to the health needs of developing countries and regions.

3. To foster networking and partnerships among national, regional, and international organisations and agencies with common goals ad activities i research and training, including development of indigenous leaders for health research policy and management.

Values

- **Overarching Goal**: Improved Health of People.
- **Beneficiaries**: Individuals, Communities, Disadvantaged populations, Developing Countries.
- **Underlying Value:** Equity.
- **Network Characteristics:** Collegiality, Sharing Knowledge, Mutual Support, Collaboration, Partnership," Friends-Helping-Friends", Bridge-building.

- **Desirable Outputs:** Commitment to quality, Efficiency, Effectiveness, "World Class outputs, Multidisciplinary in content and process, Capacity for teaching / training, Multicenter clinical trials.
- **Desirable Impact:** Significant contribution as a network, Policy relevant, Advice to government, Research to Policy, Implementation and action.

INCLEN Inc. initially created seven semi-autonomous regional networks in Africa, India, China, Southeast Asia, Latin America, Europe-Mediterranean and Canada USA.

How INCLEN works:

At the local level, INCLEN members at CEUs are trained in various disciplines through postgraduate and continuing education.

At regional level, INCLEN regional networks apply strategic approaches to health problems and training needs while linking with governments and other agencies to promote change.

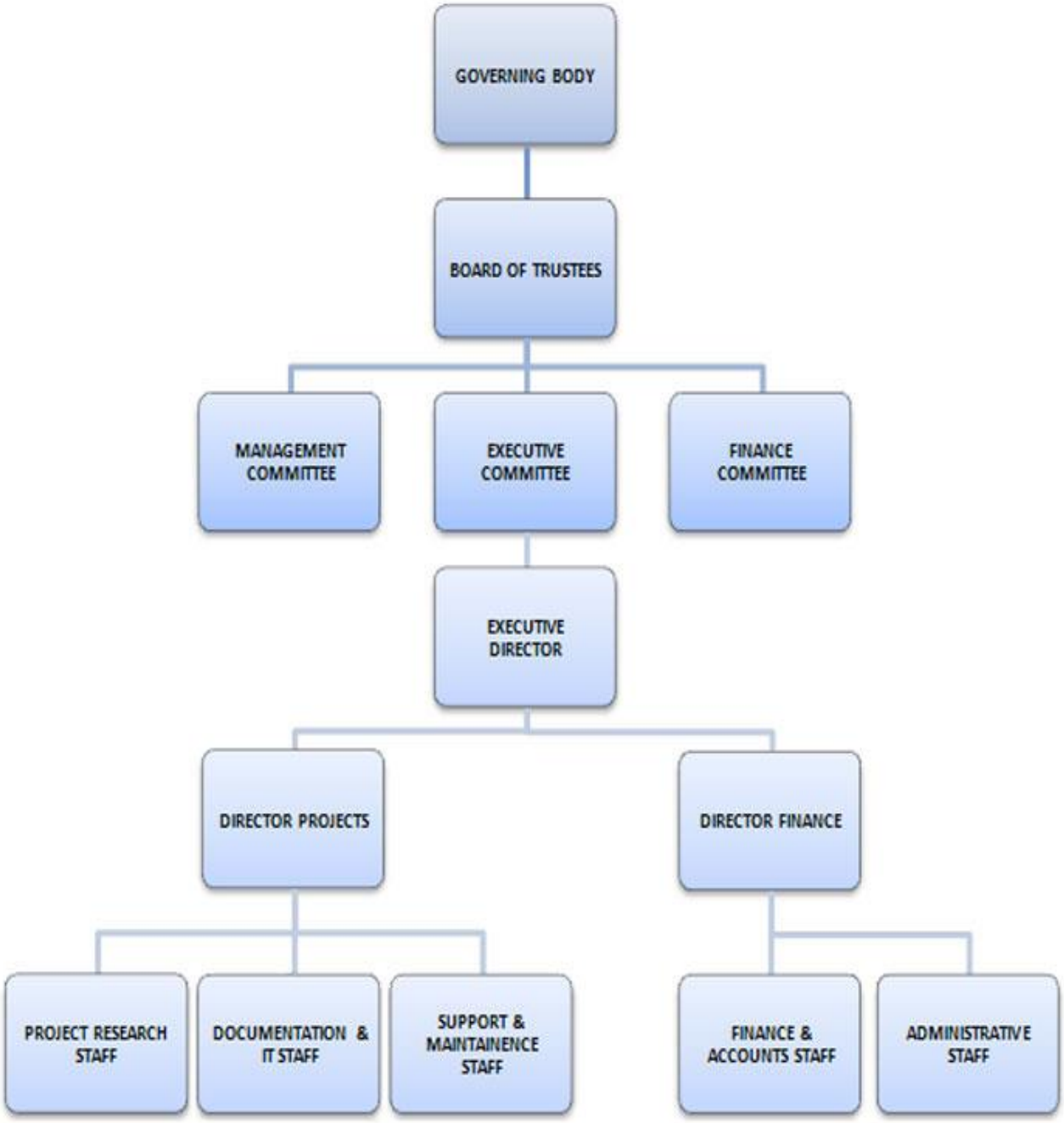
At the global level, INCLEN facilitates communication; ensure access to technology, knowledge and global expertise; encourage multidisciplinary collaborative research among regions; and promotes translation of research results into active policy.

The INCLEN Trust is an international NGO registered in India and is also registered as a 501 (C) 3 not-for-profit organization in the USA. The INCLEN Executive offices in New Delhi and Philadelphia provide full service operational management for multi -centric global projects. INCLEN incorporates adherence in policies, guidelines, and regulations designed to maximize project performance while ensuring the proper local and regional networks functioning by brokering relationship between the network and international donors and by providing a channel for financial support for network sites from other agencies.

Organizational Goal:

The Organization Structure below displays the formal and informal framework of policies and rules, within which INCLEN Trust has arranged its lines of authority and communications, and has allocated various rights and duties. This Organizational structure determines the manner and extent to which roles and responsibilities are delegated, controlled, and coordinated, and how information flows between the various levels of management. This structure has originated from INCLEN's objectives and the strategy chosen to achieve them.

ORGANIZATIONAL HIERARCHY-



Governance: For transparent and smooth administration of the organization, the Trust has the following administrative bodies :

i. The Governing Body

ii. The Board of Trustees

iii.The Management Committee

MANAGERIAL DUTIES AND TASKS PERFORMED

During my internship period I was appointed as the Assistant Research officer (Study Coordinator) for Rota Prep Study in Palwal District (Haryana) .I worked for Project "Prospective Observational Study of Rota virus infection in infants in Palwal District (Haryana) and Consumer awareness regarding the adverse effect of soft drinks on health at Palwal District (Haryana) .Rota Prep study initiated by INCLEN and SIIL, SIRO and PATH, funded by Bill and Melinda gate Foundation. Following were the duties assigned to me:

- Technical and managerial support to the study for capacity building in terms of FW, FS training.
- Developing and reviewing the micro plans
- Community engagement.
- Manage team of 8 FW, 3 FS, & 1 Team leader, 3 physician,3 ANM task assignment to them.
- Advance Planning for Next week work assignment to team mates
- Problem and Issue, queries solution of team mates.
- Community Mobilization of 10 villages.
- Meeting with ASHA, ANM, and AWW for the orientation regarding the Rota Prep Study and collected data of pregnant women, new born, and Infants of individual villages.
- To check immunization schedule of villages
- Prepare Training Modules for Parents, & health workers.
- Tool development e.g. Infant screening form, New Born Record Form, Identification of Pregnant women & Infant Form, Repeat Clinical Record Form, Socio Economic Status Scale (SES),Weekly Home visit Record Form, Training Modules for Parents, Training Modules for Health Workers, Log sheet for Pregnant Women, New born and Infant. Questionnaire on Consumer Awareness regarding the adverse effect of soft drinks on health at Palwal.
- Complete SOMAARTH reporting sheet and Manpower activity sheet on weekly basis and submitted to Admin department, Field Office.
- Monitoring and supervision of Study
- Daily reporting to INCLEN Delhi Office.
- Prepare Supervisor's daily planning log, Technical Managers daily work report
- Strengthen the micro planning at the ground level.
- Identifying key factors and strategies that are instrumental in effective functioning of project.
- Data Quality Check-Daily Field visit for check of Quality data with 100 % accuracy.
- Conducting the training of FW, FS and Team Leader including arranging the venues and the required logistics, and act as a resource person for training of the study personnels.

- Increase the awareness at community level towards the various communication drives..
- 1% validation of Data cross checked by FS.
- Evaluation of Data on weekly basis and target plan according to that.

SOMAARTH surveillance site at Palwal (Harayana)

The INCLEN trust Int. has surveillance Site Which known As SOMAARTH (Synergizing EcOnomic DevelopMent And CompRehensive HealTH) .I have Chosen 2-3 Villages from each Block Palwal –kalsada and Rajpura. ,Block-Hathin –Kot & Bahin, Nangal jat. Hodal Block-Aurangabad, Khatela, & Mitraul.

SOMAARTH site included 51 villages (approximately, 2,00,000 populations) from three blocks of Palwal (Hathin, Hodal and Palwal) and are circumscribed by three major roads i.e. – Mathura national highway (NH¬2) that forms eastern boundary of surveillance site; Palwal–Hathin state highway, forming western boundary; and connecting roads between these two roads that forms southern boundary.

This site has a demographic advantage of having a mix of populations from different religions, socio¬economic and overall development status. This site has been selected based on assumptions of rapid economic transition and emergence of business and educational activities that will lead to changes in behavior and health of the individuals and the population at large. Several key "Whole of Society" transformations are taking place in the area under study.

I have Chosen 2-3 Villages from each Block Palwal –kalsada and Rajpura, Jodhpur, Block-Hathin –Kot & Bahin, Nangal jat. Hodal Block-Aurangabad, Khatela, & Mitraul.

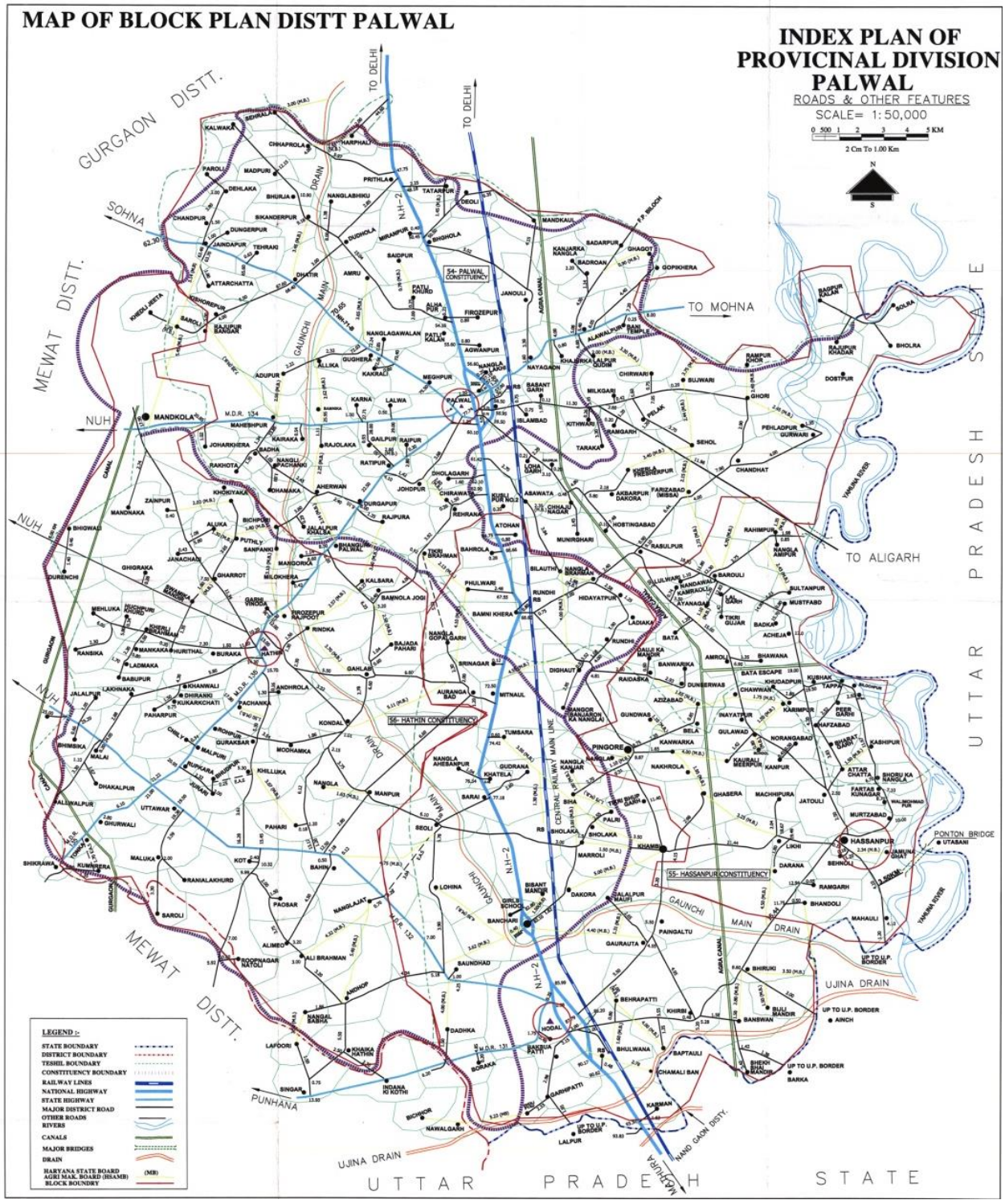


FIGURE 1: GEOGRAPHICAL LOCATION OF DISTRICT PALWAL (HARYANA)

REFLECTIVE LEARNING

The internship period was definitely a great learning experience for me. It gave me hands-on experience in the field of public health. I got to know the various aspects of Rota prep study and dissertation topic assigned to me Consumer awareness regarding the adverse effect of soft drinks on health in Palwal (Haryana)

- Basic understanding of Field activity including identification of pregnant women, new born and Infant in 3 clusters of SOMAARTH surveillance site.
- I have involved in field activity.
- To coordinate the project –(Rota Prep study in the field) implementation in field.
- To develop and coordinate development of field implementation plan in collaboration with the research team.
- To manage, monitor, and supervise project implementation activities as per work plan.
- To participate and supervise in data collection, quality assurance and analysis.
- To assess the training needs and develop locally adapted training materials for field staff and conduct training.
- To developed and established networking with key stakeholders, collaborate with institutions and community.
- Documentation: Understanding of various records such as manpower sheet, Technical manager daily report sheet, SOMAARTH field Report sheet.
- Community Liaison, rapport building,
- How to use channel of ASHA workers, AWW, and ANM .
- Clinic establishment and logistics management.
- Procurement Management
- Team building and Leadership

2. **Team management**: To strengthen capacity building of study team. Build reporting system – FW→ FS → Team Leader→ Study Coordinator → Co/Principle Investigator → Sponsor of the study.

3. **Field team meetings**: For effective management of field work meeting of the entire FS, FW and study physician was conducted at the field office Shree Nager. Progress of work and target completion was also discussed.

My role as a Study coordinator:

The main purpose of has to ensure that study have to continue on Protocol basis decided by sponsors SIIL, SIRO and PATH.

1. Provide fieldworker with support in their day to day activities.
2. Solve any queries from the FW, FS on to the Principal investigator and to feedback any decision taken.
4. Prepare Protocol deviation log if something reported in not accurately.
5. Obtaining & Documenting Informed Consent Form.
6. To determine the feasibility of recruiting infants & enrolling them into study.

7.Provide support for the field worker so that any issues which have not been dealt with in training or during field work meeting, are resolved thus allowing fieldworker to respond new situations.
8 To give training to the subject's parent on Axillary Temperature, PIDC, DDC, Stool Sample Collection.
9.to assist our physician team during emergency medical system
4. Provide field worker with support so that they can improve on their existing practice and maintain high standard of data collection.
5. Act as a channel through which field site can be through to the Main corporate office Delhi.
6. Observe staff at work in order to monitor their performance

DESSERTATION ON" CONSUMER AWARENESS REGARDING THE ADVERSE EFFECT OF SOFT DRINKS ON HEALTH AT PALWAL (HARYANA)

INTRODUCTION

A **soft drink** (also called **soda**, **pop**, **coke**, **soda pop**, **fizzy drink**, **tonic**, or **carbonated beverage**) is a non-alcoholic beverage that typically contains carbonated water, a sweetener, and a flavoring agent. The sweetener may be sugar, high-fructose corn syrup, or a sugar substitute (in the case of diet drinks). A soft drink may also contain caffeine.

Products such as energy drinks, Kool-Aid, and pure juice are not considered to be soft drinks. Other beverages not considered to be soft drinks are hot chocolate, hot tea, coffee, milk, milkshakes.

Soft drinks are called "soft" in contrast to "hard drinks" (alcoholic beverages). Small amounts of alcohol may be present in a soft drink, but the alcohol content must be less than 0.5% of the total volume if the drink is to be considered non-alcoholic. .

The consumption of sugar-sweetened soft drinks is associated with obesity (19), type 2 diabetes, dental cavities, and low nutrient levels. Experimental studies tend to support a causal role for sugar-sweetened soft drinks in these ailments, though this is challenged by other researchers. "Sugar-sweetened" includes drinks that use high-fructose corn syrup, as well as those using sucrose.

Many soft drinks contain ingredients that are themselves sources of concern: caffeine is linked to anxiety and sleep disruption when consumed in excess; some critics question the health effects of added sugars and artificial sweeteners. Sodium benzoate has been investigated by researchers at University of Sheffield as a possible cause of DNA damage and hyperactivity. Other substances have negative health effects, but are present in such small quantities that they are unlikely to pose any substantial health risk.

In 1998, the Center for Science in the Public Interest published a report titled *Liquid Candy: How Soft Drinks are Harming Americans' Health*. The report examined statistics relating to the increase in soft drink consumption and claimed that consumption is "likely contributing to health problems." It also criticized marketing efforts by soft drink companies.

According to the 'Product Insights: Soft Drinks in India' report, Data Monitor US (2)- Globally, India ranked 25th in terms of retail sales and 13th in terms of the number of new product launches in the soft drinks market. In spite of India's huge population and the fact that around 47% of the population is composed of persons below 30 years of age, the per-capita consumption of soft drinks in India remains very low, at approximately at 5.2 liters against the world average of nearly 85.22 liters. Developed countries such as the US, Germany, Italy and Spain all have per-capita consumption in the range of 280-400 liters, showcasing the huge potential for market growth in India.

Coca-Cola remains the market leader in the carbonates category with a market share of more than 60%in the Indian market, followed by Pepsi with around 35%. With improving literacy rates, consumers have become increasingly aware of health and fitness-

Related issues. Additionally, due to greater disposable incomes, particularly in urban areas, consumers are seeking healthier beverages even if they are relatively more expensive, due to their positioning. "Today's consumers are concerned with overall health and wellness. As a result, there is significant impact on food and beverage purchases. Many studies have shown that consumers are as concerned with good health as they are about maintaining a high quality of life. Raising awareness levels with regard to obesity and other weight related health issues in the last decade, especially amongst teenagers and young adults, Now Soft drinks are become part and parcel of the Indian lifestyle. Be it children, the college kid or the middle aged Indian soft drinks are enjoyed by one and all in the country..

Gone are the days when a soft drink was enjoyed to the combat a sunny day. Today soft drinks are enjoyed with almost every meal that one has outside his/her home. Despite several issues that crept up regarding the ingredients used behind the manufacturing of soft drinks the market remained stable.

The soft drink industry in India is categorized on the basis of carbonated and non carbonated drinks. The carbonated drinks include flavors like cola, lemon and orange and the non carbonated drinks segment includes mostly mango flavors. The non carbonated segment includes fruit juices and squashes. The Top Soft Drink Brands in India are Coca-Cola, Pepsi and Thumps Up. The other popular soft drink brands in India include Fanta, Mirinda,7Up, Sprite Limca etc. In order to cater to all the segments of the society these top soft drink brands are available in numerous sizes.

Starting from the age old 300 ml glass bottles to the 200 ml ones to the recently launched 500 ml and 1liter plastic bottles soft drinks are available in almost every size desired by the consumer. The carbonated drinks account for almost 80% of the total sales of the soft drinks market in India.

Soft drinks do not only rule the urban markets they have successfully managed to penetrate the rural areas as well. Rural areas account for almost 75% sales of Pet bottles whereas the sales of 300 ml and 200ml bottles are higher in the rural areas.

Based on consumption patterns the soft drink market in India is classified into two segments. The first is On premise which means the place where the soft drink was bought and consumed. This includes places like railway stations, stand alone shops, restaurants and cinemas. The other one

being In-House consumption which means soft drinks purchased and consumed at home. However in India the former beats the latter hollow. Outdoor consumption accounts for almost 80% of the total sales of soft drinks and indoor consumption accounts for the remaining 20% of the sales of the soft drinks market. However the soft drinks market in India is still in its nascent stage as compared to countries like the USA. According to a report published in 2000 the per capita consumption of soft drinks in Indi was 5 bottles annually as compared to USA whose per capita consumption per annum stood at 800 bottles. Delhi happens to be the highest soft drink consuming region in India.

PROBLEM STATEMENT

Increasing consumption trends among Indians for the soft drinks without knowing its adverse effect it concern as serious public health issue. Excess consumption of soft drinks increases the chances of Obesity, Calcium deficiency, metabolic disorders, change in behavior patterns cause a serious damage to our community(16)(1). So awareness should matters. Soft drinks market has huge potential growth in Indian market. it reached at gross root level where availability of pure water would not be happened but you can a find a grocery shop who sells soft drinks there. The consumption capacity of Indian increasing due to change in lifestyles easily availability of soft drinks .During my summer training last year April 2011 to May 2011. I was working on research topic on "The demographic and environmental surveillance site with special reference to public health". For the data collection I have to be in field with my team mates so when we reached at Muslim dominant Village Uttawar which is situated in Palwal district and many more. Every 3 to 4^{th} one respondent offered us Soft drinks if you denied them they fill ashamed .It was so difficult to tell them "No". they think that unhygienic condition in our home force them to purchase outside drinks rather than homemade drink, even the small occasions happened there or general meeting soft drinks serve to 5 year child to 80 year elderly person. So I want to know the awareness regarding the consumption of soft drinks on health issues. Consumption among Muslims and compare to other community .That's why I have chosen this topic for dissertation report.

HEALTH ISSUES CAUSED BY SOFT DRINKS

1) CERTAIN SOFT DRINKS AND CANCER MAY BE RELATED

Francisco Contraries, M.D. of the Contraries Cancer Clinic in Kiajuana, Mexico said,"Cancer is like a plant cell; it can't live in an oxygen-rich environment. cola drinks make our bodies poor in oxygen. cancer is the second cause of death in America. The averageAmerican is consuming 800 Or more soft drinks annually. Be more responsible for your ownlife; doctors have no responsibility for another's health."

2) SOFT DRINKS OFFEND THE KIDNEYS

A three year study of over 1,000 men with a history of kidney stones showed: "There was aclear-cut difference in the group's experiences, with much less renal colic in the men who had avoided soft drinks. Of those who continued to use soft drinks, there was also a big difference in outcome

depending upon the nature of the soft drink consumed. Soft drinks acidified with phosphoric acid were the worst offenders. Colas of all kinds, of course, are well known for their high phosphoric acid content."

3) COLA DRINKS PROVIDE ZERO NUTRIENTS

As pointed out by Beatrice Hunter in her book, CONSUMER BEWARE (published in 1971),"Nutritionally, soft drinks are low in value. Their food energy comes solely from refined sugar. Every element of nutritional importance, except calories, is zero. Soft drinks have much in common with hard liquor, claimed the co-discoverer of insulin, Dr. Charles Best. Cirrhosis of the liver has been found among teenagers who drink large quantities of soft drinks, as well as among chronic alcoholics." Can we live without a functioning liver? No. And do doctors have a cure for cirrhosis of the liver? Not really!

4) CAFFEINE IS ADDICTIVE; COLAS PROVIDE IT

Soft drinks, including the cola and pepper-type drinks that have caffeine in them, are the number one beverage of Americans today, with coffee second. Caffeine is a drug and it acts as a stimulant to the central nervous system. "In the amounts presently being consumed, it can cause insomnia, nervousness, irritability, anxiety and disturbances in the heart rate and rhythm. Cola and pepper-type drinks account for 80-90 percent of the caffeine added to foods today. Its long term effects on people are not clearly known."

5) BIRTH DEFECTS AREA POSSIBILITY

Here is advice on caffeine from the FDA. "In making the public announcement in September of caffeine's possible dangers to unborn children, FDA commissioner Dr. Jere E. Goyanurged prudence by pregnant women in the use of caffeine products. Goyan's words to mothers-to-be: "So while further evidence is being gathered on the possible relationship between caffeine and birth defects, a prudent and protective mother-to-be will want to put caffeine on her list of unnecessary substances which she should avoid." The old saying that a pregnant woman is "eating for two" has a special meaning in regard to caffeine. The Commissioner also noted that studies to date support the wisdom passed down from generation to generation that caffeine is not for pregnant women or children. "We hope someday to have better scientific assessments," Goyan said, "but for now adhering to the guidance of our parents seems to be the most prudent course."

6) ANOTHER PROBLEM: CARAMEL COLORING

"Cola drinks contain caramel coloring which, according to some researchers, has genetic effects and is a cancer-causing suspect. Polyethylene glycol is used as an ingredient sometimes. Glycol is used in anti-freeze in automobiles and as an oil solvent." Perhaps you have noticed that pouring cola drinks on your windshield in a snow or ice storm will keep the windshield from freezing over with ice.

7) BUBBLES AND FIZZ - NOT INNOCENT

"The bubbles and fizz in soft drinks can potently burn human insides; this is caused by the phosphoric acid and carbon dioxide. The phosphorus in the acid upsets the body's calcium-phosphorus ratio and dissolves calcium out of the bones. This can eventually result in osteoporosis, a weakening of the skeletal structure, which can make one susceptible to broken bones. Also, the phosphorus fights with the hydrochloric acid in human stomachs and renders it ineffective. This promotes indigestion, bloating and gassiness in many individuals. Carbondioxide is a waste product exhaled by humans, but they ingest it when they drink coladrinks."

8) METABOLISM CAN BE ALTERED: THAT SPELLS TROUBLE

Heavy soft drink consumption can interfere with your body's metabolization of iron and diminish nerve-impulse transmission. Sodas may contain - but are not required to disclose -such ingredients as ethyl alcohol, sodium alginate (possibly hazardous for pregnant women), brominated vegetable oil (found harmful to vital organs of animals and considered a health risk to heavy consumers of beverages containing it) and caffeine.

9) BLOOD PRESSURE ALTERATION: ON THE HIGH SIDE

Diet sodas that are low in calories are high in sodium. Six ounces of regular Pepsi cola has 5mg of sodium; Diet Pepsi has 31 mg (But who only drinks 6 oz at a time now? - classic Coke Cola has 19 mg sodium. High blood pressure is very common ailment in our society, I wonder why! And who shouldn't have high sodium in their diets. certain tumors, kidney disease, adrenal or thyroid or pituitary gland malfunction, even diabetes and arteriosclerosis or hardening of the arteries. Soft drinks should be off limits to persons with these conditions

.

10) HEALTH DANGERS OF REUSING PLASTIC

Many are unaware of poisoning caused by re-using plastic bottles. Some of you may be in the habit of using and re-using your disposable SOFT DRINK BOTTLES (e.g. Pepsi. Coke, Sprite etc), keeping them in your car or at work. Not a good idea. In a nutshell, the plastic(called polyethylene terephthalate or PET) used in these bottles contains a potentially carcinogenic element (something called diethylhydroxylamine or DEHA).The bottles are safe for one-time use only; if you must keep them longer, it should be or no more than a few days, a week max, and keep them away from heat as well. Repeated washing and rinsing can cause the plastic to break down and the carcinogens (cancer- causing chemical agents) can leach into the water that YOU are drinking. Better to invest in water bottles that are really meant for multiple uses. This is not something we should be scrimping on.

OBJECTIVES OF THE DISSERTATION

To assess the consumer awareness regarding the adverse effects of soft drinks on health

Specific Objectives:

To assess consumption preferences of Soft drinks in Palwal

To determine the factor(s) that influences the consumer’s consumption of soft drink

To assess awareness regarding possible adverse effects of soft drinks such as Obesity, Cardiac diseases, and dental problem**.**

Review of Literature

1. A larger, cross sectional retrospective study of 460 high school girls was published in Pediatrics & Adolescent Medicine in June 2000. The study indicated that cola beverages were "highly associated with bone fractures." In their conclusion the authors warned that, ". . . national concern and alarm about the health impact of carbonated beverage consumption on teenaged girls is supported by the findings of this study".

2. In 20 years, soft drink consumption has increased 300% (Cavadini, Siega-Riz, & Popkin, 2000) and serving sizes have grown from approximately 6.5 oz in 1950 to 12 oz in the 60s and 20 oz by the end of the 90s (Murray et al., 2004).

3. As overweight children become overweight adults, the diseases associated with obesity and health care costs are expected to increase (Wang & Dietz, 2002).

4. Soft drinks are a major source of added sugars and they constitute the primary beverage leading to increase in carbohydrate intake among 2 to 17-year-old children (Nicklas & Hayes, 2008).

5. A soft drink is a soda made from carbonated water, added sugar, and flavors (Nestle, 2000).

6.Diet sodas contain artificial sweeteners instead of sugar and are consumed to a lesser extent by children as compared to regular soda (French, Lin, & Guthrie, 2003; Grimm, Harnack, & Story, 2004).

7.Each 12-oz serving of carbonated sweetened soft drink contains the equivalent of 10 teaspoons of sugar (Murray et al., 2004),

8.Trends in children's and adolescents' beverage consumption indicate the possibility of soft drinks replacing more nutritious drinks such as fruit juices and milk (Ballew, Kuester, & Gillespie, 2000; Bowman, 2002; Rampersaud, Bailey, & Kauwell, 2003).

9.Data from national dietary surveys indicate that within the latest decades there has been a dramatic increase in soft drink consumption among children in the U.S. (Nielsen & Popkin, 2004; Nielsen & Popkin, 2003; Nielsen, Siega-Riz, & Popkin, 2002; Rampersaud et al., 2003; Smiciklas-Wright, Mitchell, Mickle, Goldman, & Cook, 2003).

11.Carbonated soft drink consumption has been found to increase with age, with a striking increase beginning around age 8 years. Between 1977 and 1998, soft drink consumption increased 48% among 6 to 17-year-olds (French et al., 2003).

12.Soft drinks account for 8.5% of children's daily energy intake in the U.S. (Adair & Popkin, 2005).

13. Among school-age children, 56% to 85% drink at least one soft drink daily (Rampersaud et al., 2003).

14. As milk intake decreased, soft drinks have become children's preferred choice of beverage, with their consumption more than tripling as children move from third to eighth grades (Lytle, Seifert, Greenstein, & McGovern, 2000).

15.Effects of milk and soft drink intake on children's health . Besides growth and intellectual development, unhealthy eating behavior can increase a child's risk for a number of immediate health problems (Nicklas & Hayes, 2008).

16.Soft drinks. In addition to being associated with multiple health problems such as obesity (Ludwig et al., 2001), damage of the gastric mucosa (Kapicioglu et al., 1998), decrease in esophageal pH (Rubinstein, Hauge, Sommer, & Mortensen, 1993), duodenal acidification and ulceration (McCloy, Greenberg, & Baron, 1984), frequent intake of carbonated soft drinks has been associated with dental caries in children (Mariri et al., 2003) due to their high sugar content and acidity causing enamel erosion (Heller, Burt, & Eklund, 2001). Despite considerable progress made in the U.S., the 2000 United States Surgeon General's report indicates that 45% of children ages 5 to 17 still have dental caries (Allukian, 2000).

17. Besides calories, carbonated soft drinks offer minimal or no nutritional value. There have been negative associations between intakes of carbonated soft drinks and intakes of essential micronutrients such as calcium, riboflavin, vitamins A, C, and D, phosphorus, folate, and magnesium in preschool and school-age children and adolescents (Bowman, 2002). Furthermore, soft drinks are the greatest source of caffeine in children's diets, which is of concern due to the potential for addiction (Keast & Riddell, 2007).

18. In addition to contributing to a reduction in the quality of children's diets and their chances of achieving nutritional adequacy, soft drink consumption is a significant contributor to total caloric intake (French et al., 2003; Ludwig et al., 2001). After adjusting for anthropometric, demographic, dietary, and lifestyle variables in a longitudinal study, each 12-oz daily serving of sugared soft drink was associated with a 0.18-point increase in children's BMI and 60% increase in risk of obesity (Ludwig et al., 2001).

19. In a more controlled clinical study in Denmark, similar results were found for an association between sweetened beverage intake and considerable weight gain (Raben, Vasilaras, Moller, & Astrup, 2002). Compared to normal weight children, overweight children are more likely to become obese adults (Magarey, Daniels, Boulton, & Cockington, 2003), which increases long-term risk of CHD, hypertension, type 2 diabetes(Ferraro, Thorpe, & Wilkinson, 2003), gallbladder disease, osteoarthritis, and some forms of cancer (Bray, 2003).

20.In addition to other factors, high soft drink consumption is thought to be contributing to the increasing prevalence of overweight and obesity among children (Malik, Schulze, & Hu, 2006)

possibly due to excessive caloric content, as soft drinks have been found to contribute an additional intake of 188 Kcal/day in consumers compared to non consumers (St-Onge, Keller, & Heymsfield, 2003).

21. Furthermore, these beverages are ingested in addition to, and not as a replacement for, other dietary products, contributing to a higher caloric intake (Bellisle & Rolland-Cachera, 2001). Several other mechanisms have been suggested to explain the link between soft drink intake as a high-glycemic-index carbohydrate and obesity: (1) decreased milk intake concurrent with the rise in soft drink consumption; (2) high-glycemic index carbohydrates lead to postprandial hyperinsulinemia, which may result in excessive weight gain; (3) decreased resting energy expenditure with beverages of high-glycemic (4) beverages with high-glycemic-index promote increased food intake due to decreased satiety and fullness sensation (Slyper, 2004; StOnge et al., 2003).

22. There is consistent evidence that among American school-age children, between 1970s and 1990s, there has been an alarming increase in the amount of soft drink consumption, thus adding to higher caloric intakes and affecting dietary quality, and a concomitant decline in milk intake, adversely affecting calcium intake (Demory-Luce et al., 2004; French et al., 2003; Harnack et al., 1999; Nielsen & Popkin, 2004; Rajeshwari et al., 2005; Rampersaud et al., 2003; Storey et al., 2004).

23. Over the past three decades, major changes have taken place in the beverage consumption patterns of American children (Nicklas & Hayes, 2008). Specifically, insufficient intake of calcium-containing foods such as milk, and excess carbohydrate consumption, mainly of soft drinks, are critical concerns related to childhood obesity (1)

24.Television viewing and advertisements have been found to influence children's and adolescents' higher soft drink intake (Grimm et al., 2004; Kassem & Lee, 2004).

25. Marketing of soft drinks. The dramatic increase in soft drink consumption mainly among children and adolescents has been associated with extensive unprecedented marketing of soft drinks, using pop culture and sports icons to target specifically children (Austin & Rich, 2001; Nestle, 2000).

26. A 14-year study of 60,000 people in Singapore found that those who consume two or more sweetened soft drinks per week have an 87 percent higher risk of pancreatic cancer. Published in the journal*Cancer Epidemiology, Biomarkers & Prevention*, the study was led by Mark Pereira of the University of Minnesota who said, "The high levels of sugar in soft drinks may be increasing the level of insulin in the body, which we think contributes to pancreatic cancer cell growth."

27.Drewnowski[1] et al in 1988-1994 said that overweight youths consumed a significantly greater proportion of energy from beverages. Soft drinks have become the leading source of sugar in the adolescent diet, contributing 36.2 g sugar/d for girls and 57.7 g sugar/d for boys.

28.James et al [2]in 2004 said that a school based educational programme was effective in reducing the consumption of carbonated drinks to prevent excessive weight gain in children aged 7-11 year old. They also concluded that Schools can have an important role in obesity prevention in children.

29.Muckelbauer [3]et al in 2009 said that a combined educational and environmental intervention, with a single focus on the promotion and provision of drinking water, could reduce effectively the risk of overweight for children in elementary school.

30.Johnson[4] et al in 2009 said that higher intake of soft drinks is associated with greater energy intake, higher body weight, and lower intake of essential nutrients. A prudent upper limit of intake is half of the discretionary calorie allowance that can be accommodated within the appropriate energy intake level needed for a person to achieve or maintain a healthy weight based on the US Department of Agriculture food intake patterns. Depending on the calorie level, recommendations for added sugars vary from 5 teaspoons per day (or 80 calories) for a daily energy expenditure of 1800 calories for an average adult woman and 9 teaspoons per day (or 144 calories) for a daily energy expenditure of 2200 calories for an average adult man.

31.Liwei chen[5] (2010) in a prospective study said that one third of participants reduced SSB consumption on average of 1.3 servings/day over the 18 months and had an average of 1.5 mmHg more reduction in SBP compared with participants who did not change their SSB consumption, suggesting such reduction in SSB consumption should be achievable and could be beneficial.

32.Vasanti s. malik[6] in 2010 said that individuals in the highest quantile of SSB intake (most often 1–2 servings/day) had a 26% greater risk of developing type 2 diabetes than those in the lowest quantile (none or 1 serving/month). In addition to weight gain, higher consumption of SSBs is associated with development of metabolic syndrome and type 2 diabetes. These data

provide empirical evidence that intake of SSBs should be limited to reduce obesity-related risk of chronic metabolic diseases. endings from our co- horts indicate that a high dietary glycemic load also increases risk of developing cho- lesterol gallstone disease, which is associ- ated with insulin resistance, metabolic syndrome, and type 2 diabetes (30). En- dogenous compounds in SSBs, such as advanced glycation end products, pro- duced during the process of caramelization in cola-type beverages may also affect pathophysiological pathways related to type 2 diabetes and metabolic syndrome.

33. Aaker (2000) regarded consumer awareness as a remarkably durable and sustainable asset. It provided a sense of familiarity products or commitment and substance and it was very important to recall at the time of purchasing process. Apart from the conventional mass media, there were other effective means to create awareness viz., event promotions, publicity, sampling and other attention-getting approaches.

34. Nandagopal and Chinnaiyan (2003) concluded that the level of awareness among the rural consumers about the brand of soft drinks was high which was indicated by the mode of purchase of the soft drinks by "Brand Name". The major source of brand awareness was word of mouth followed by advertisements, family members, relatives and friends. Ramasamy et al. (2005) indicated that, the buying behavior is vastly influenced by awareness and attitude towards the product. Commercial advertisements over television was said to be the most important source of information, followed by displays in retail outlets. Consumers do build opinion about a brand on the basis of which various product features play an important role in decision making process. A large number of respondents laid emphasis on quality and felt that price is an important factor while the others attached importance to image of manufacturer.

Nandagopal and Chinnaiyan (2003) conducted a study on brand preference of soft drinks in rural Tamil Nadu, using Garrets ranking technique, to rank factors influencing the soft drinks preferred by rural consumer. They found that, the product quality was ranked as first, followed by retail price. Good quality and availability were the main factors, which influenced the rural consumers of a particular brand of a product.Shanmugasundaram (1990) studied about soft drink preference in Vellore town of north Arcot district in Tamil Nadu. The study revealed that, the most preferred soft drink among respondents as Gold Spot (26%), followed by Limca (24.80%). It was found that taste was the main factor for preference of particular brand and among the media; television played a vital role in influencing consumer to go for particular brand. Because of convenience in Carrying, tetra pack was most preferred one.

Taste or health: A study on consumer acceptance of cola drinks

This study examined the relative contributions of taste and health considerations on consumer liking and purchase intent of cola drinks. Eight types of commercial cola drinks were evaluated by 305 adult consumers who also completed a brief questionnaire on food habits. Data were

analyzed using factor analysis. Results revealed that purchase intent of cola drinks was strongly related to degree of liking and to several key sensory attributes including saltiness, drinks flavor and greasiness. These variables emerged as the first factor in the analysis, suggesting that consumers perceive these characteristics as being most important in their choice of cola drinks. Factor 2 described a health dimension and was related to respondents' attitudes toward fat in the diet. Factor 3 comprised two remaining sensory attributes (color and crunchiness), which apparently were of minor importance to the respondents. These data suggest that in spite of current concern about reducing dietary fat, health remains secondary to taste in the selection of cola drinks for consumers in this population.

Source-Beverly J. Tepper and Amy C. Trail Journal of Food Science and Technology, 15 September

Noe (2000) says that the purpose of this paper is the study of factors responsiblefor brand preference in FMCG products, increasing competition, more due to globalization, is motivating many companies to base their strategies almost entirely on building brands. Brand preference means to compare the different brands and opt for the most preferred brand. This brand preference is influenced by various factors. In theidentification of factors affecting the brand preference, it was concluded that brand persona is the most effective factor that affects the brand preference. This brand person deals with the personality aspects or the external attributes of brand, thus it can be said that consumer prefer any brand by looking at the external attributes of a brand. Stephen (2008) the intensity of color and the flavor are the key drivers behind consumer acceptance of beverages says a new study involving DANONE. But packaging and labeling are not as important for winning over consumers, according to findings published in the journal Food Quality and Preference, The study involved consumers at different stages of development and highlights the importance of adopting a "sensory marketing approach," said the researchers from French research organization Adriant 1998.

RESEARCH METHODOLOGY

RESEARCH Design-Descriptive study design

Sampling Techniques

This research has used Systematic Random Sampling.

Selection of Sample

For the study a sample size of size 200 has been taken consideration aged 15-60 years. This study is confined to The Palwal district of Haryana.

Sampling Frame- Listing and Mapping of SOMAARTH surveillance site.

Sources of Data Collection-

This Research has used tool Primary Data collected by conducting Interview.

Statistical tool Used-

The main Statistical tool used for the collection and analysis of the data in this project was SPSS 16.0 Version and MS Excel.

Limitation of the Study

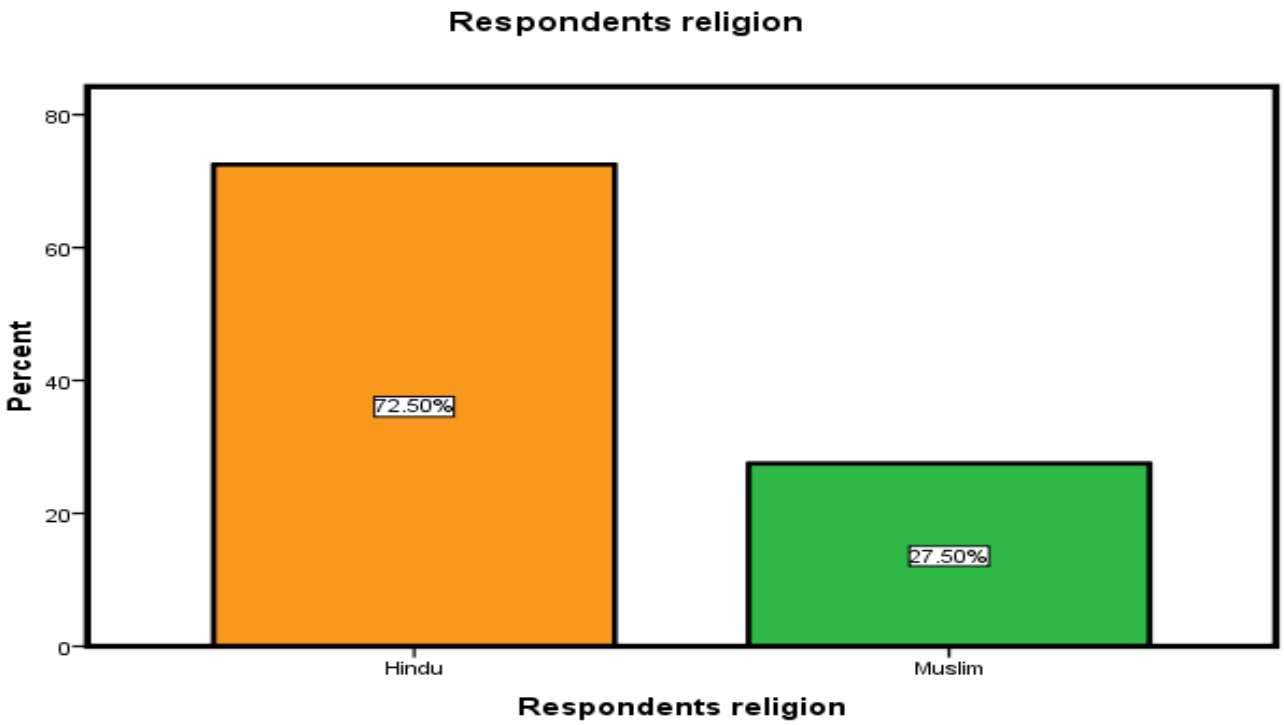
1. Time constraints

2. Limited sample size for such a vast topic.

3 There was a chance that respondent will make assumptions while filling the questionnaire.

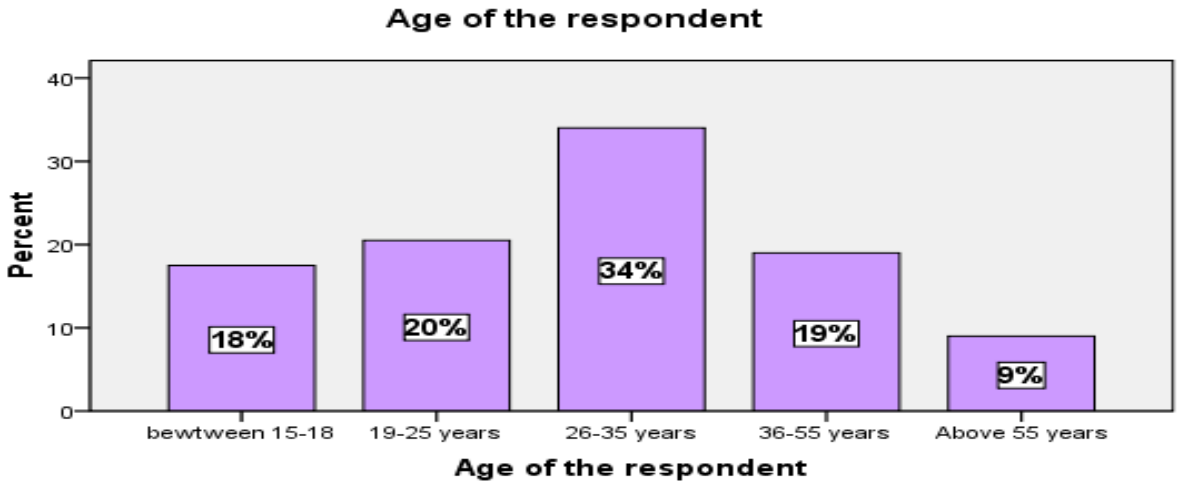
RESULTS AND FINDINGS

1. Profile of Respondent's



Respondent under the study were 72.5% Hindu and 27.5% were Muslim's.

2. **Age of the respondent** -



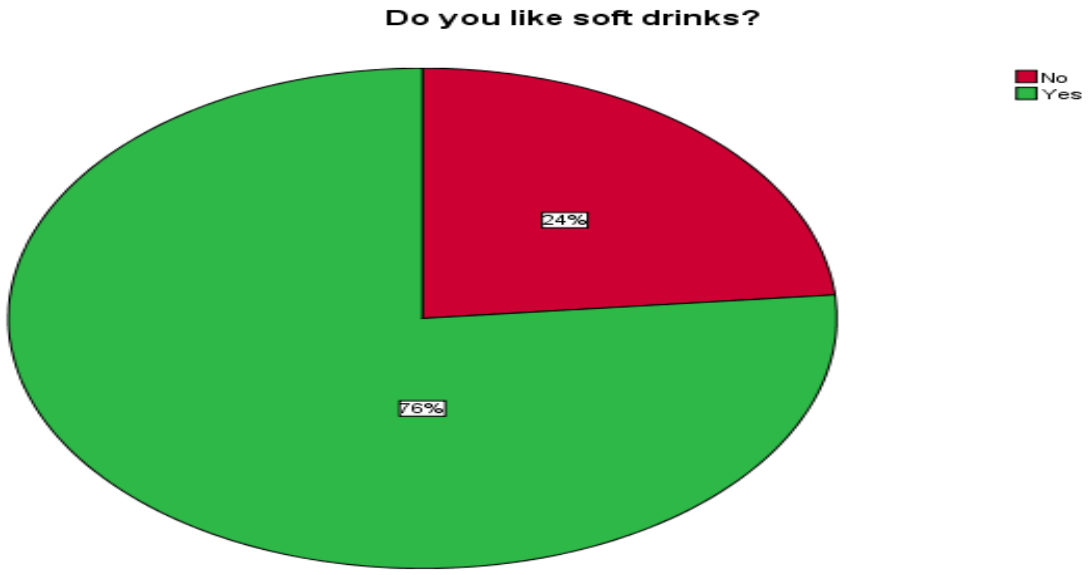
Among age wise 68 out of 200 respondent were between age category 26-35 years which was the highest. and lowest would be 18 out 200 respondents belongs to above 55 years category

3. OCCUPATION OF THE RESPONDENT

	Occupation	Frequency	Percent
Valid	Student	43	21.5
	Business	32	16.0
	Govt. Job	14	7.0
	Private Sector	66	33.0
	Retired	1	.5
	Housewives	44	22.0
	Total	200	100.0

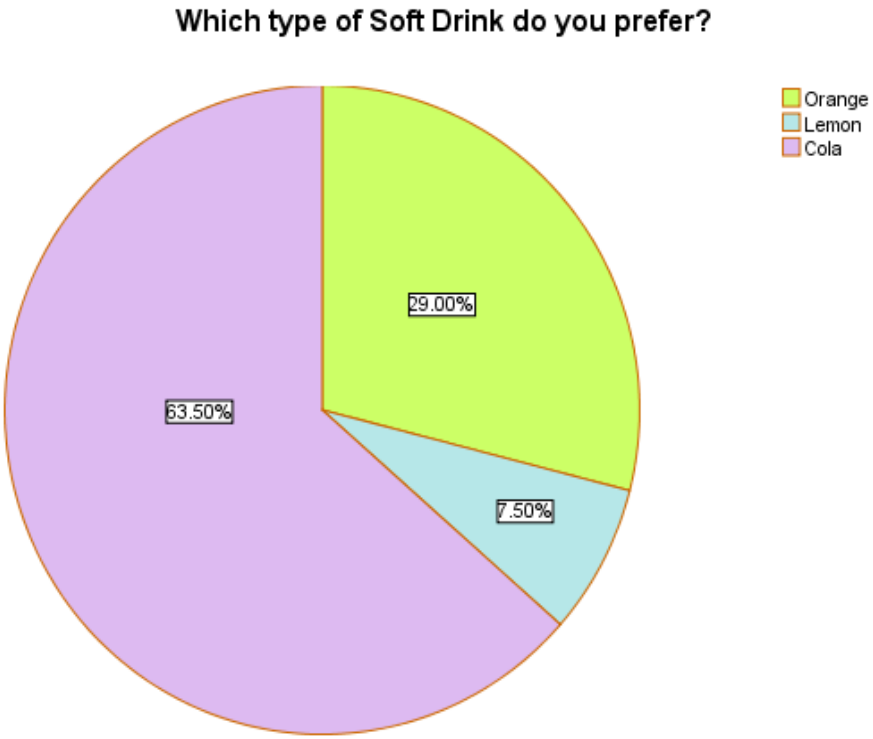
Among Respondents occupation 66 were related to Private sector, 44 were house wives .lowest was retired personnel.

4. Preference of soft drinks-



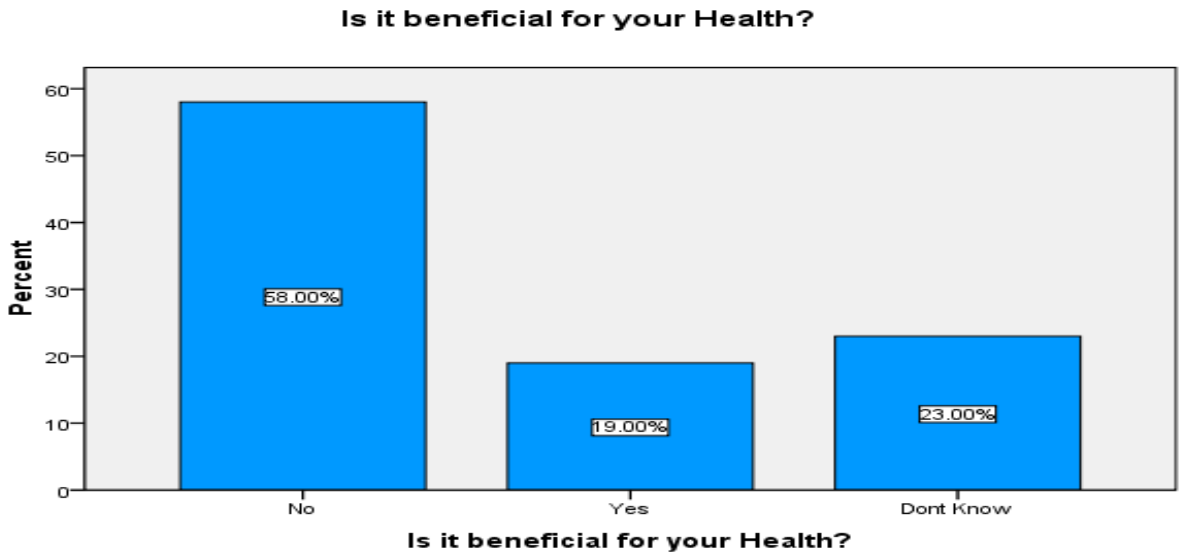
Among 200 respondent 153 said they liked soft drinks and 46 were dislike soft drinks.

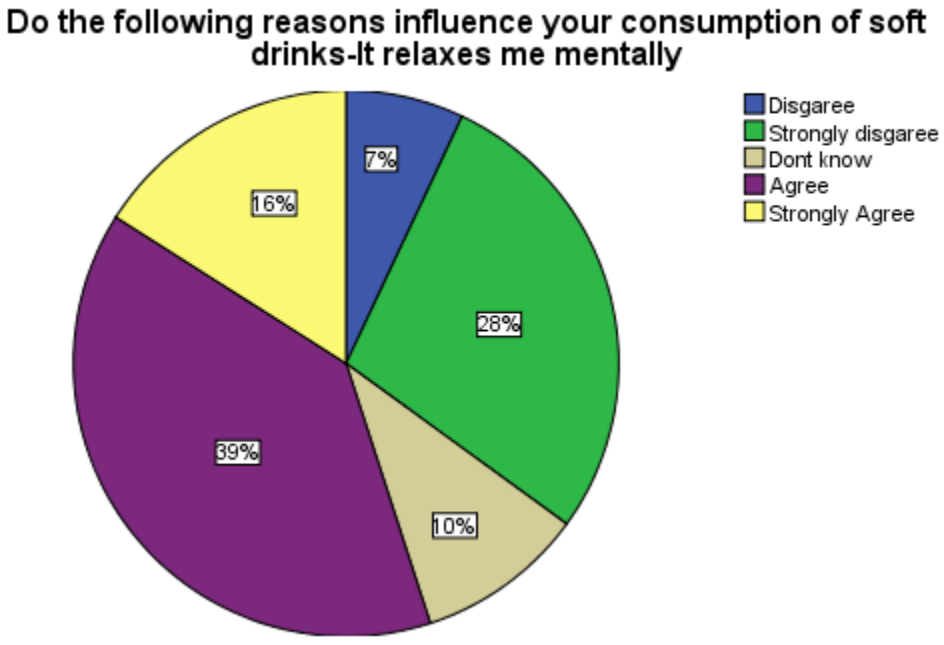
5.



Soft drink Majority of respondent replied as Cola first preference and then orange and Lemon flavor. **6. Consumption of Soft drinks-**

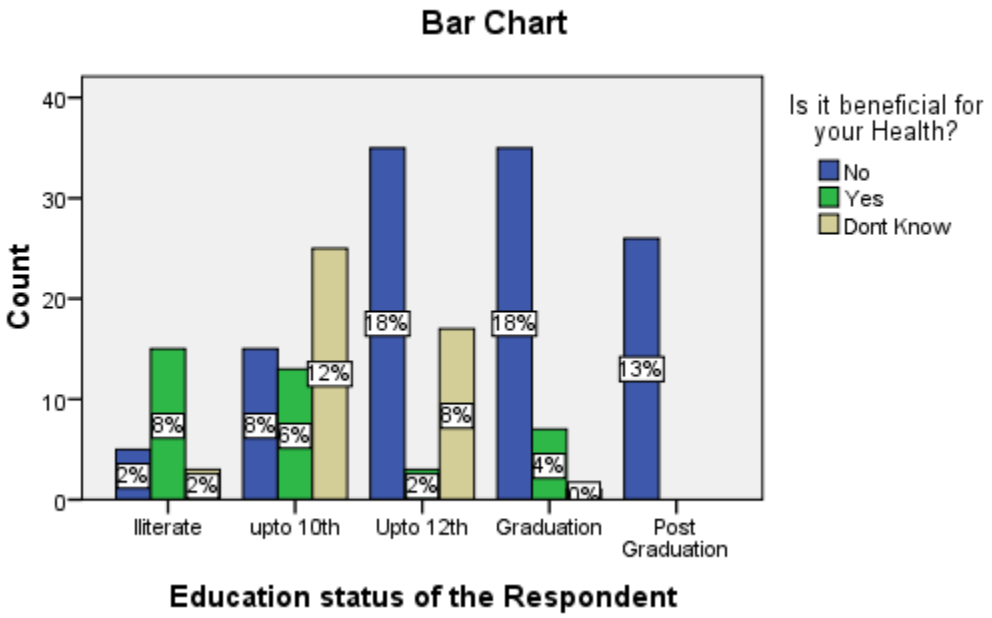
7. Beneficial for health-Out of 200 respondents 116 said it does not beneficial for Health.38 said it is beneficial for Health. Remaining 46 said they don't know.



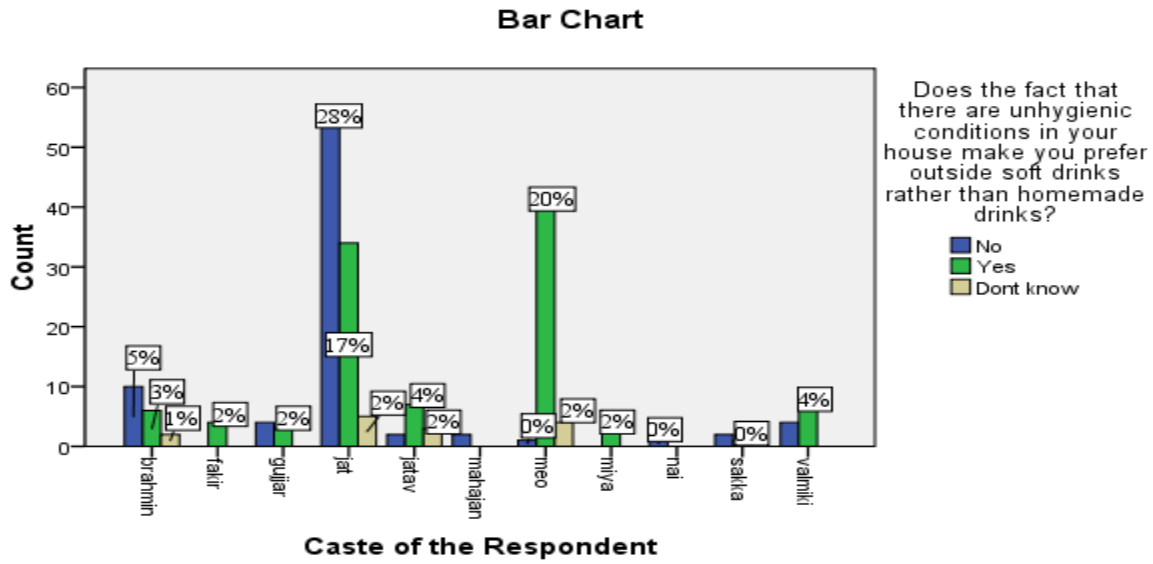


8. To find out 78 out of 200 respondents Agree that it relaxes mentally while 32 out of 200 were strongly agree.20 respondent did not knew it relaxes mentally or not. 56 were disagree that it relaxed them mentally.

10. Education and beneficial for Health-

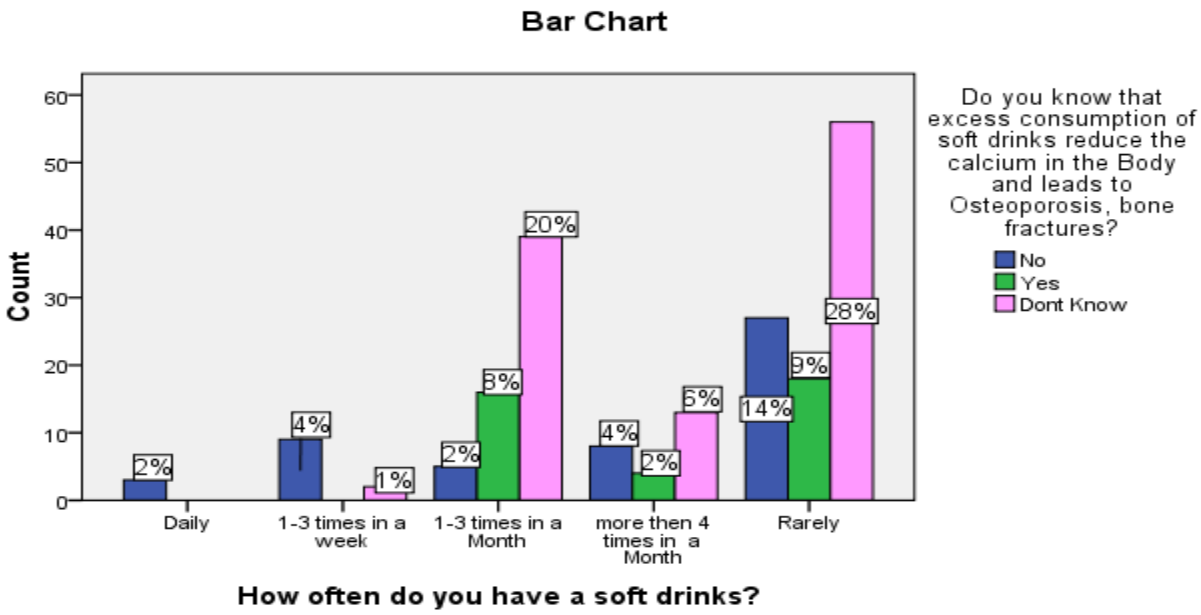


Education status was also reason behind the health awareness those who having qualification from 12th standard to Post graduation were more aware about its effect. while Illiterate section were replied as it was beneficial for health .it shown that they had low awareness regarding the health issue related to soft drink. **11. Unhygienic condition and Caste**



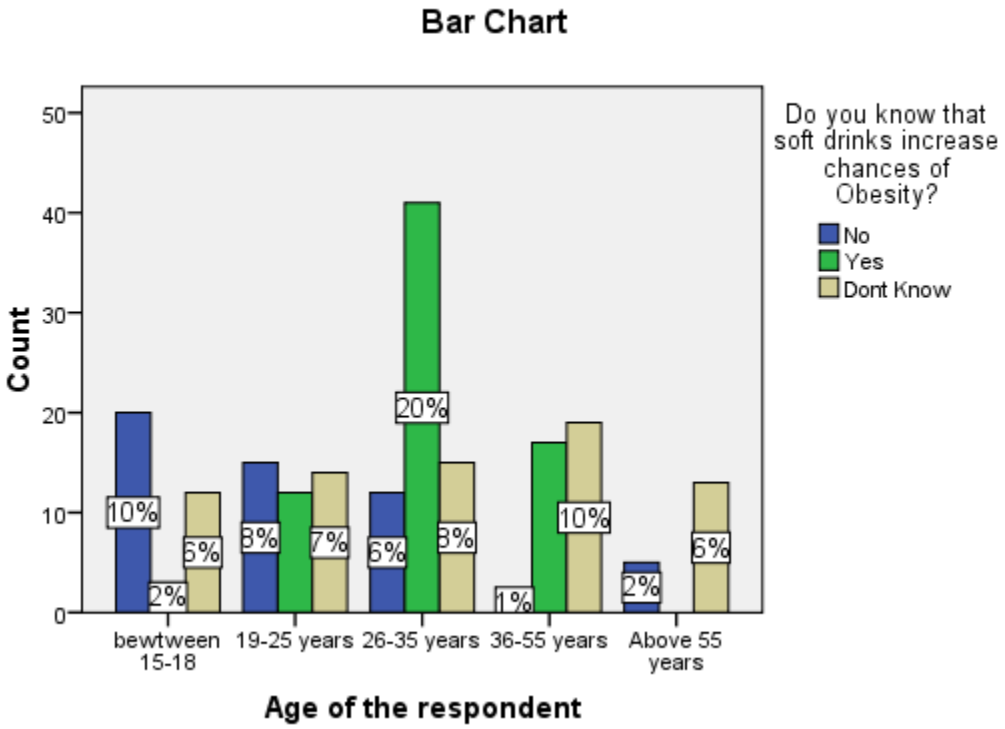
56 out of 200 respondent in of Jat community replied as unhygienic condition was not responsible for soft drinks purchase while 40 out of 200 respondent of Meo community replied as unhygienic condition in their home responsible for made them prefer soft drink rather than homemade drink. In Hindu subgroup Valmiki and Jatav which categorized in SC category respond as unhygienic condition in their house preferred them to outside soft drinks rather than home made drinks.

12. **Consumption and Calcium Reduction**



12. Calcium reduction and consumption of soft drink-Those who consume soft drink rarely has given answer highest as soft drink consumption increase the chances of osteoporosis and bone fractures.

12. Obesity and age-



In this section age group 26-35 year 40 out of 200 respondents answered as yes .so awareness level among this group is highest and lowest between above 55 years of age group. While age group 15-18 years counted highest number of no so awareness among them also low.

In rarely segment 28% highest don't know about it .it has also highest 8% of who said Yes and Highest 14 percentage those who don't know about it.

13. Blood Sugar level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	84	42.0	42.0	42.0
	yes	64	32.0	32.0	74.0
	Dont know	52	26.0	26.0	100.0
	Total	200	100.0	100.0	

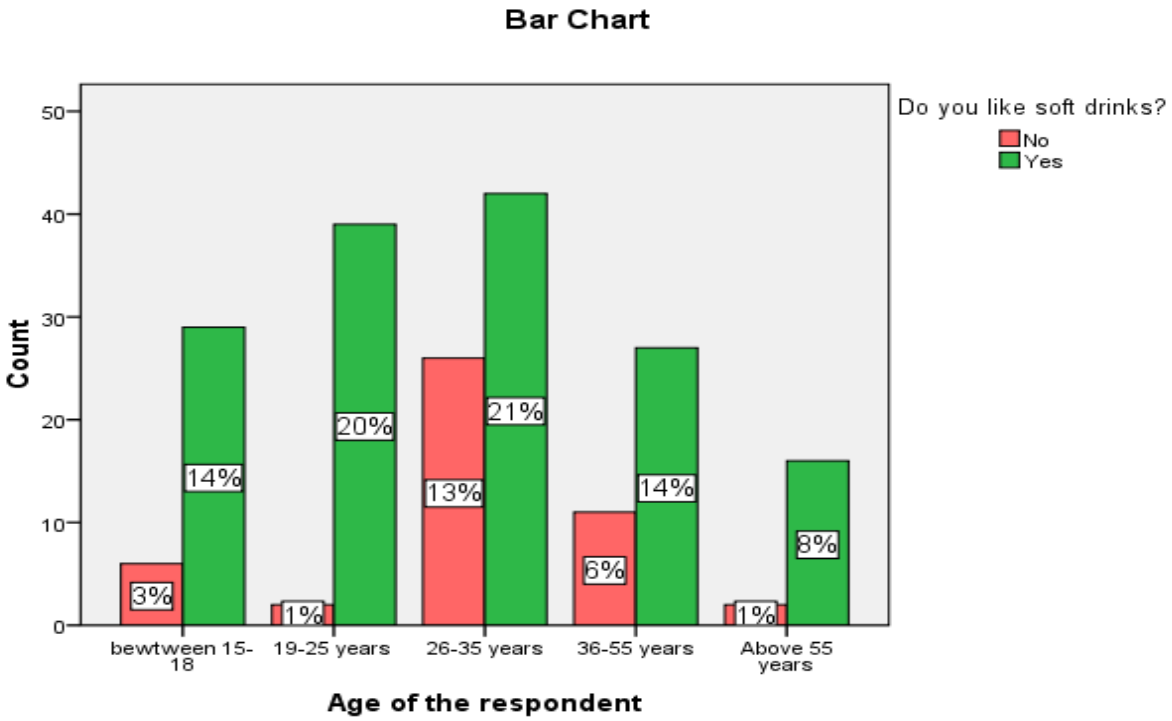
14.Soft drinks consumption aslo adverse effect on to weaken tooth enamel,denture-Dental problem

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	113	56.5	56.5	56.5
	Yes	33	16.5	16.5	73.0
	Dont Know	54	27.0	27.0	100.0
	Total	200	100.0	100.0	

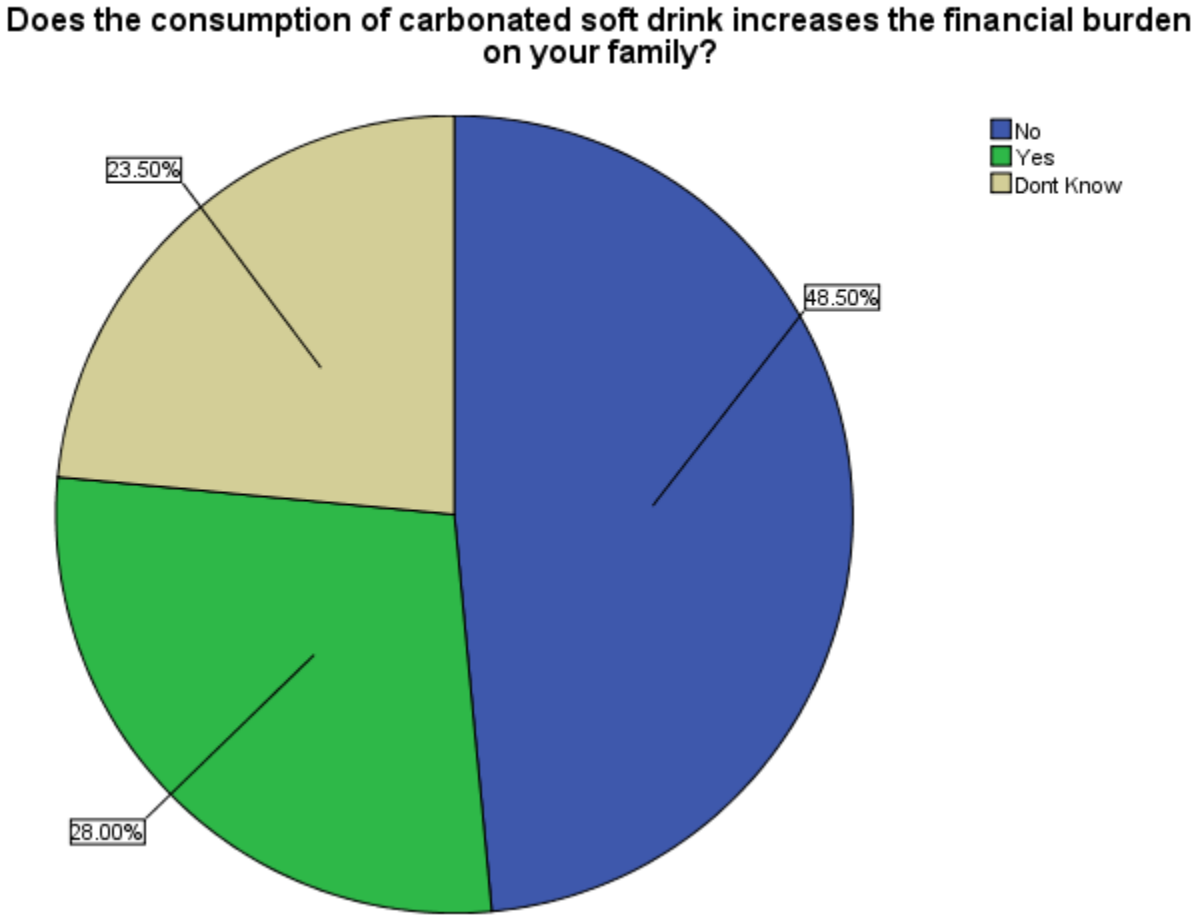
In this section only 33 out 200 respondents said it has answered as adverse effect on dental portion, while 113 respondents said No and 54 said they don't know.

15. Age and Soft drinks like or Not.-Age group 26-35 years like to drunk soft drinks but only 1% respondent of age group 19-25 dislike soft drinks.

it shown increasing trends of soft drinks among age group 19-25 years as compare to age group 15-18 years.

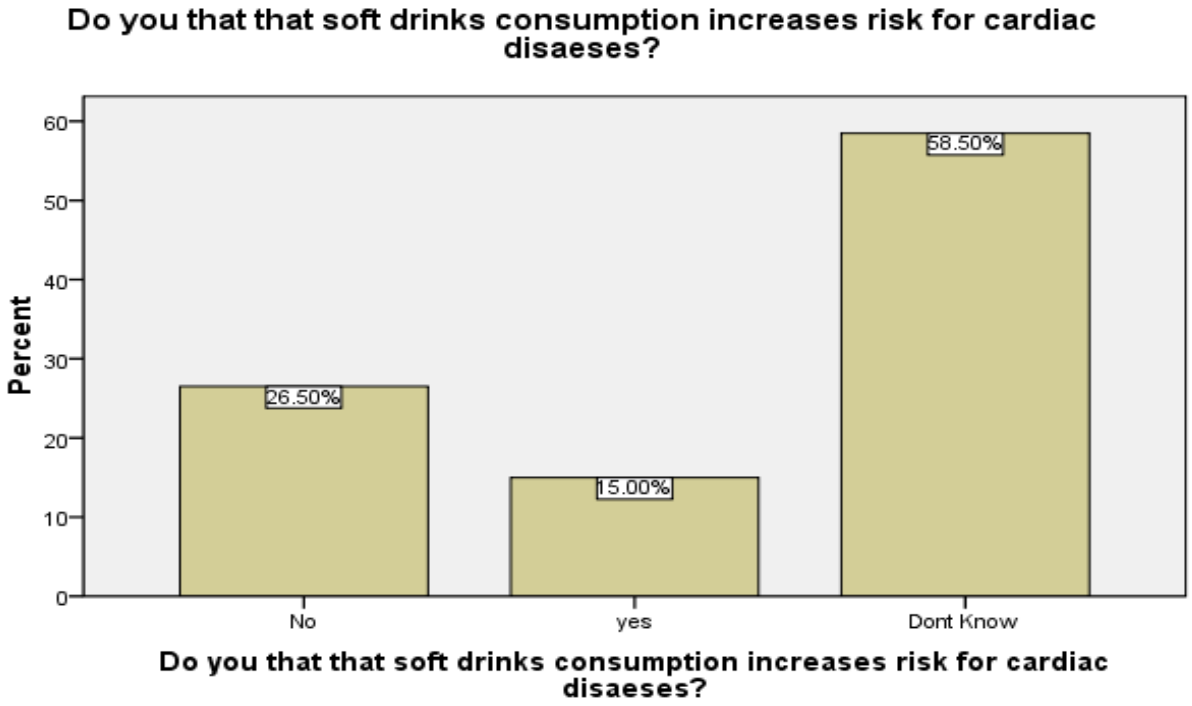


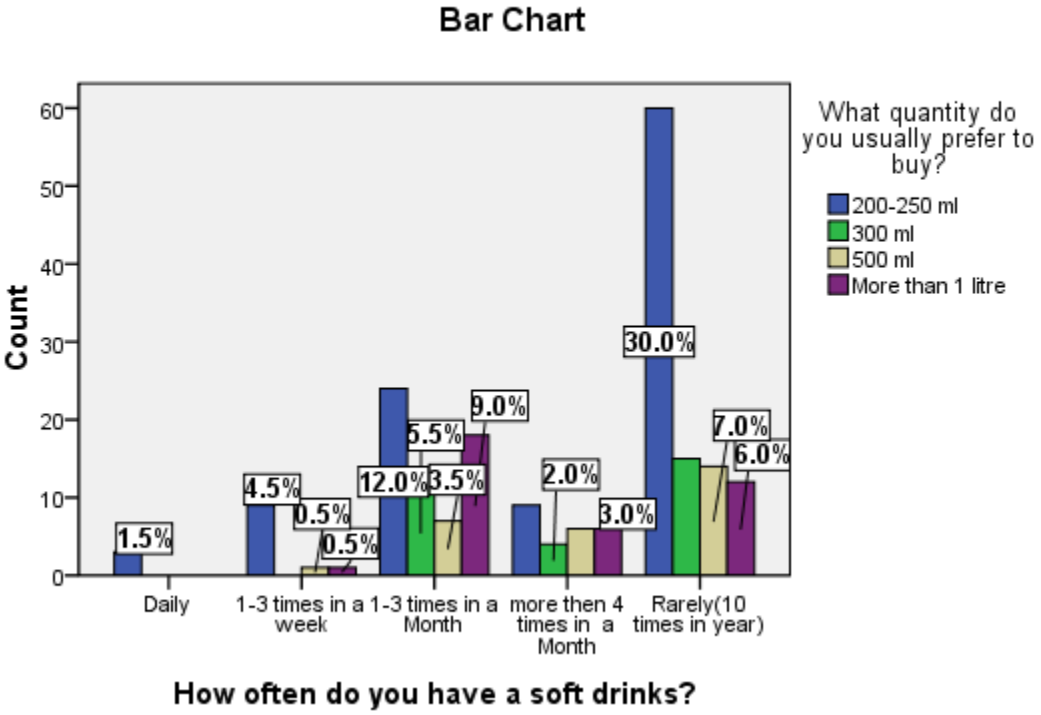
18. Consumption and Financial Burden.



Financial burden on Families- Majority of respondent said it did not give any financial burden to families. While 28 % respondent replied as yes, and 23.5% replies as they did not know.

19. Increase risk of cardiac disease and soft drinks –Majority of respondent did not know about it. Only 30 out of 200 respondents replied as Yes.


Do you that that soft drinks consumption increases risk for cardiac disaeses?
Percent
60
50
40
30
20
10
0
26.50%
15.00%
58.50%
No
yes
Dont Know
Do you that that soft drinks consumption increases risk for cardiac disaeses?


Bar Chart
Count
60
50
40
30
20
10
0
What quantity do you usually prefer to buy?
200-250 ml
300 ml
500 ml
More than 1 litre
1.5%
4.5%
0.5%
0.5%
12.0%
5.5%
3.5%
9.0%
2.0%
3.0%
30.0%
7.0%
6.0%
Daily
1-3 times in a week
1-3 times in a Month
more then 4 times in a Month
Rarely(10 times in year)
How often do you have a soft drinks?

Majority of respondent preferred 200-250 ml soft drink in rarely section. While 1-3 times category 9% of respondent used 1 liter or more than that.

Approx consumption on every individual by yearly was…….litre.

RECOMMENDATIONS-

- Health awareness related camps should be organized to promote healthy lifestyles and to circulate information and adverse effect of soft drinks.
- Content details should be written on bottles in local language.
- Individuals and families should consider how much soda pop they are drinking and reduce consumption accordingly.
- Organizations concerned about women's and children's health, dental and bone health, and heart disease should collaborate on campaigns to reduce soft-drink consumption.
- State and local governments should considering taxing soft drinks. Those revenues could fund campaigns to improve diets, and support physical-education programs in schools.
- Local governments could require calorie listings on menu boards at fast-food outlets to sensitize consumers to the nutritional "cost" of sugared soft drinks and other foods.
- School systems and other organizations catering to children should stop selling soft drinks and similar foods in hallways, shops, and cafeterias.
- Soft-drinks ads targeting children and adolescents should be banned.
- Health Awareness related hoardings and Banner should be posted at circle or main point of village or cities.

CONCLUSION-

Consumer awareness regarding the adverse effect of soft drinks on health was low at Palwal. Majority of respondent ¾ th like to drink soft drinks and ¼ does not like. Education status was also reason behind the health awareness those who having qualification from 12^{th} standard to Post graduation were more aware about its effect. While Illiterate section were replied as it was beneficial for health .it shown that they had low awareness regarding the health issue related to soft drink.

Respondent of Meo community replied as in highest numbers that unhygienic conditions among their house hold responsible for purchase of soft drinks rather than prepare homemade drinks at home. Maximum respondent said it did not give any financial burden to a family.

Many researchers suggest that the association between obesity and soft drinks occurs at all ages. The mechanism may not be fully understood, but there is evidence to suggest that preventing consumption of sugar-sweetened drinks has a major role to play in obesity prevention.

Changing lifestyles and easily availability of soft drinks also influence the consumption of soft drinks. Education level also impact on trends of increasing consumption of soft drinks. Those who have qualification beyond 12th standard were more aware regarding the soft drinks effects.

REFERENCES-

1. Liquid calories, sugar, and body weight: Adam Drewnowski and France Bellisle(1988).
2. www.**datamonitor**.com/.../**Product/product_insights_soft_drinks_in_i**...
3. Preventing childhood obesity by reducing consumption of carbonated drinks: cluster randomised controlled trial: janet James, Peter Thomas, David Cavan, David Kerr (2004).
4. Promotion and Provision of Drinking Water in Schools for Overweight Prevention: Randomized, Controlled Cluster Trial: Rebecca Muckelbauer, MSca, Lars Libuda, MSca, Kerstin Clausen, PhDa, Andre´ Michael Toschke, MD, MSc, MPHb, Thomas Reinehr, MDc, Mathilde Kersting, PhD (2009).
5. Hypothesis: Could Excessive Fructose Intake and Uric Acid Cause Type 2 Diabetes: Richard J. Johnson,Santos E. Perez-Pozo, Yuri Y. Sautin, Jacek Manitius, Laura Gabriela Sanchez-Lozada, Daniel I. Feig, Mohamed Shafiu, Mark Segal, Richard J. Glassock, Michiko Shimada, Carlos Roncal, and Takahiko Nakagawa.(2009).
6. Reducing Consumption of Sugar-Sweetened Beverages Is Associated with Reduced Blood Pressure: A Prospective Study among U.S. Adults: Liwei Chen, MD, PhD(2010).
7. Sugar Sweetened Beverages, Obesity, Type 2 Diabetes and Cardiovascular Disease risk: Vasanti S. Malik, MSc(2010)
8. 4. Allukian, M., Jr. (2000). *The neglected epidemic and the surgeon general's report: A call*
9. *to action for better oral health*. American Journal of Public Health, 90(6), 843-845.
10. Ariza, A. J., Chen, E. H., Binns, H. J., & Christoffel, K. K. (2004). *Risk factors for overweight in five- to six-year-old Hispanic-American children: A pilot study.*
11. Journal of Urban Health, 81(1), 150-161.
12. 6. Austin, S. B., & Rich, M. (2001). *Consumerism: Its impact on the health of adolescents.*
13. Adolescent Medicine, 12(3), 389-409
14. 7. Baker, C. W., Whisman, M. A., & Brownell, K. D. (2000). *Studying intergenerational*
15. *transmission of eating attitudes and behaviors: methodological and conceptual questions*. Health Psychology, 19(4), 376-381.163
16. Ballew, C., Kuester, S., & Gillespie, C. (2000). *Beverage choices affect adequacy of children's nutrient intakes*. Archives of Pediatric and Adolescent Medicine, 154(11), 1148-1152.
17. Bellisle, F., & Rolland-Cachera, M. (2001). *How sugar-containing drinks might increase adiposity in children*. The Lancet, 357(9255), 490-491.

18. 9. Birch, L. L., & Fisher, J. O. (1998*). Development of eating behaviors among children and adolescents.* Pediatrics, 101, 539-549.
19. Dietz, W. H. (1998). Health *consequences of obesity in youth: Childhood predictors of adult disease.* Pediatrics, 101(3 Pt 2), 518-525.
20. *Children talking about healthy eating: Data from focus groups with 300 9-11 -year-olds*. British Nutrition Foundation, 26, 71-79.
21. *The effect of soft drink availability in elementary schools on consumption*. Journal of the American Dietetic Association, 108(9), 1445-1452.169 Ferraro, K. F., Thorpe, R. J., Jr., & Wilkinson, J. A. (2003).
22. *The life course of severe obesity: Does childhood overweight matter?* The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 58(2), S110-119.Finkelstein, E. A., Fiebelkorn, I. C., & Wang, G. (2003).
23. .*National medical spending attributable to overweight and obesity: how much, and who's paying? Health Affairs* (Millwood), Suppl Web Exclusives, W3-219-226.
24. Maternal milk consumption predicts the tradeoff between milk and soft drinks in young girls'
25. *diets*. The Journal of Nutrition, 131(2), 246-250.
26. Freedman, D., Khan, L., Dietz, W., Srinivasan, S., & Berenson, G. (2001). *Relationship of childhood obesity to coronary heart disease risk factors in adulthoo*d: the Bogalusa Heart Study. Pediatrics, 108(3), 712.
27. *Influence of intervention on beverage choices: trends in the dietary intervention study in children* (DISC). Journal of the American Dietetic Association, 107(4), 586-594.
28. French, S., Lin, B., & Guthrie, J. (2003). *National trends in soft drink consumption among children and adolescents age 6 to 17 years*: Prevalence, amounts, and 171sources, 1977/1978 to 1994/1998. Journal of the American Dietetic Association, 103(10), 1326-1331.
29. Harnack, L., Stang, J., & Story, M. (1999). *Soft drink consumption among US children and adolescents:* Nutritional consequences. Journal of the American Dietetic Association, 99(4), 436-441.173
30. Heller, K., Burt, B., & Eklund, S. (2001). *Sugared soda consumption and dental caries in the United States.* Journal of Dental Research, 80(10), 1949-1953.
31. Kassem, N., & Lee, J. (2004). *Understanding soft drink consumption among male adolescents using the theory of planned behavior*. Journal of Behavioral Medicine, 27(3), 273-296.
32. Keast, R. S., & Riddell, L. J. (2007). *Caffeine as a flavor additive in soft-drinks*. Appetite, 49(1), 255-259.
33. . LaRowe, T. L., Moeller, S. M., & Adams, A. K. (2007). *Beverage patterns, diet quality, and body mass index of US preschool and school-aged children*. Journal of the American Dietetic Association, 107(7), 1124-1133.

34. Ludwig, D., Peterson, K., & Gortmaker, S. (2001). *Relation between consumption of sugar-sweetened drinks and childhood obesity: A prospective, observational analysis.* The Lancet, 357(9255), 505-508.
35. Malik, V. S., Schulze, M. B., & Hu, F. B. (2006*). Intake of sugar-sweetened beverages and weight gain: a systematic review*. The American journal of clinical nutrition, 84(2), 274-288.
36. Nestle, M. (2000). *Soft drink "pouring rights": Marketing empty calories to children*. Public Health Reports, 115(4), 308-319.
37. Novotny, R., Daida, Y. G., Acharya, S., Grove, J. S., & Vogt, T. M. (2004). *Dairy intake is associated with lower body fat and soda intake with greater weight in adolescent girls*. The Journal of nutrition, 134(8), 1905-1909.
38. Rajeshwari, R., Yang, S. J., Nicklas, T. A., & Berenson, G. S. (2005). *Secular trends in children's sweetened-beverage consumption* (1973 to 1994): The Bogalusa Heart Study. Journal of the American Dietetic Association, 105(2), 208-214.
39. Resnick, L., Oparil, S., Chait, A., Haynes, R., Kris-Etherton, P., Stern, J., Clark, S., Holcomb, S., Hatton, D., Metz, J., McMahon, M., Pi-Sunyer, F., & McCarron, D.(2000). *Factors affecting blood pressure responses to die*t: The Vanguard study. American Journal of Hypertension, 13(9), 956-965.
40. Wyshak, G. (2000). *Teenaged girls, carbonated beverage consumption, and bone fractures.* Archives of Pediatrics & Adolescent Medicine, 154(6), 610-613.
41. :http://www.naturalnews.com/019921_sugary_drinks_soft.html#ixzz1seYRKKP6
42. :http://www.naturalnews.com/034223_teen_violence_soft_drink_consumption.html#ixzz1selya66v
43. *Intake of artificially sweetened soft drinks and risk of preterm delivery: a prospective cohort study in 59,334 Danish pregnant women*by Thorhallur I Halldorsson, et al, American Journal of Clinical Nutrition, September 2010

ANNEXURE-

CONSUMER AWARENESS REGARDING THE ADVERSE

EFFECT OF SOFT DRINKS ON HEALTH AT PALWAL (HARYANA)

QUESTIONNAIRE

Q1.Name of the Respondent

Q2 Name of the House hold of Family

Q3. Name of the Village

Q4. Religion (1-Hindu,2-Islam,3-Jain,4-Sikh,5-Christian,)

Q5. Caste

Q6. Age of Respondent

1. Between15- 18yrs 2. 19-25yrs 3. 26-35yrs 4. 36-55yrs 5. Above 55yrs

Q7. Sex of Respondent 1.Male 2. Female

Q 8. Occupation of Respondent

1. Student 2.Business 3. Govt. job 4.Private Sector

5. Retired 6. Housewife 7. Other (specify)……..

Q9. Income of the respondent

1. Below Rs.10000 2. 10001-50000 3. 50001-100000 4. More then 100001

Q 10. Education\

1. Illiterate 2. Primary Schooling(High school Upto 10^{th})

3.Secondary Schooling (Higher secondary Upto 12^{th}) 4. Graduation 5. Post Graduation

Q11.Do you like cold drinks? (Please Mark 0=No,1=Yes,9=Don't know)

1. Yes 0.No 9.Dont Know

Q12.How often do you have a Soft drink?

1.Daily 2. 1-3 times a week 3. 1-3 times in a month

4.More than 4 times in a month 5.Rarely (fortnightly)

Q13.What quantity do you usually prefer to buy?

1.200-250 ml 2. 300 ml

3.500 ml bottle 4. 1 liter or more

Q14. Where do you mostly drink Soft Drinks?

1. Home 2. Workplace 3. outside home
4. Other

Q 15. Which type of Soft Drink do you prefer?

1. Orange 2. Lemon 3. Cola

Q16.Do the following reasons influence your consumption of soft drinks?

REASONS	Disagree 1.	Strongly disagree 2.	Don't Know 3.	Agree 4	Strongly agree 5
(a) For social occasions /entertainment					
(b)It tastes very good					
(c)It satisfies my basic Thirst					
(d)I feel a sense of wellbeing after consuming it					
(e)It gives me vitality and energy					
(f) It relaxes me mentally					
(g) It acts as refreshment					

Q17. Rank the following soft drinks flavor from 1 to 5, with 1 being least preferred and 5 being most.preferred:

(a) Coca cola 1 2 3 4 5

(b) Pepsi 1 2 3 4 5

(c) Thumps up 1 2 3 4 5

(d) Limca 1 2 3 4 5

(e) Mirinda 1 2 3 4 5

(f) Sprite 1 2 3 4 5

(g) Fanta 1 2 3 4 5

(h) Mountain Dew 1 2 3 4 5

Q18. How important are the following factors for purchasing a soft drink?

Factor	less Important 1	Very Less important 2	No influence 3	Important 4	Very important 5
(a) Flavor					
(b)Availability and Convenience					
(c) Price					
(d)Brand value /brand name					
(e) content					
(f) Brand ambassador					
(g) Nutritional value/ calorie					

Q19. Is it beneficial for your Health?

0. No 1. Yes 9. Don't Know ☐

Q20 Do you know that soft drinks increase chances of Obesity?

0. No 1. Yes 9. Don't Know ☐

Q21. Do you know that excess consumption of soft drinks reduce the calcium in the Body and leads to Osteoporosis, bone fractures? ☐

0. No 1. Yes 9. Don't Know

Q22.Does the consumption of carbonated soft drink increases the financial burden on your family?

0.No 1. Yes 9. Don't Know ☐

Q23.Does the fact that there are unhygienic conditions in your house make you prefer outside soft drinks rather than homemade drinks?

0.No 1. Yes 9.Dont know ☐

Q24 Do you know that soft drinks increase blood glucose level ?

0.No 1. Yes 9.Dont know ☐

Q25.Do you know that soft drinks weakens tooth.(Denture, Dental erosion,)

0.No 1. Yes 9.Dont know ☐

Q26.Do you know that soft drinks increase cardiac diseases? ☐

No 1. Yes 9.Dont know