

EDUHEAL - Healthcare In Bagiya

DIKSHA SEN CHAUDHURY

CLASS 11

THE SHRI RAM SCHOOL- ARAVALI





Objective of the Study:

- A qualitative analysis of the health status of children of the age group 6 – 12 years belonging to the low economic strata of the society.
- Choosing a target population of a sample size 25 – 30.
- Collecting demographic data about them through a questionnaire.
- Acquiring knowledge about their family, food habits, living conditions and their environment
- Measuring their basic health parameters and compare them to the National Standards
- Diving deep into their blood profile to identify the presence of any inherent deficiency/disease.

About Bagiya

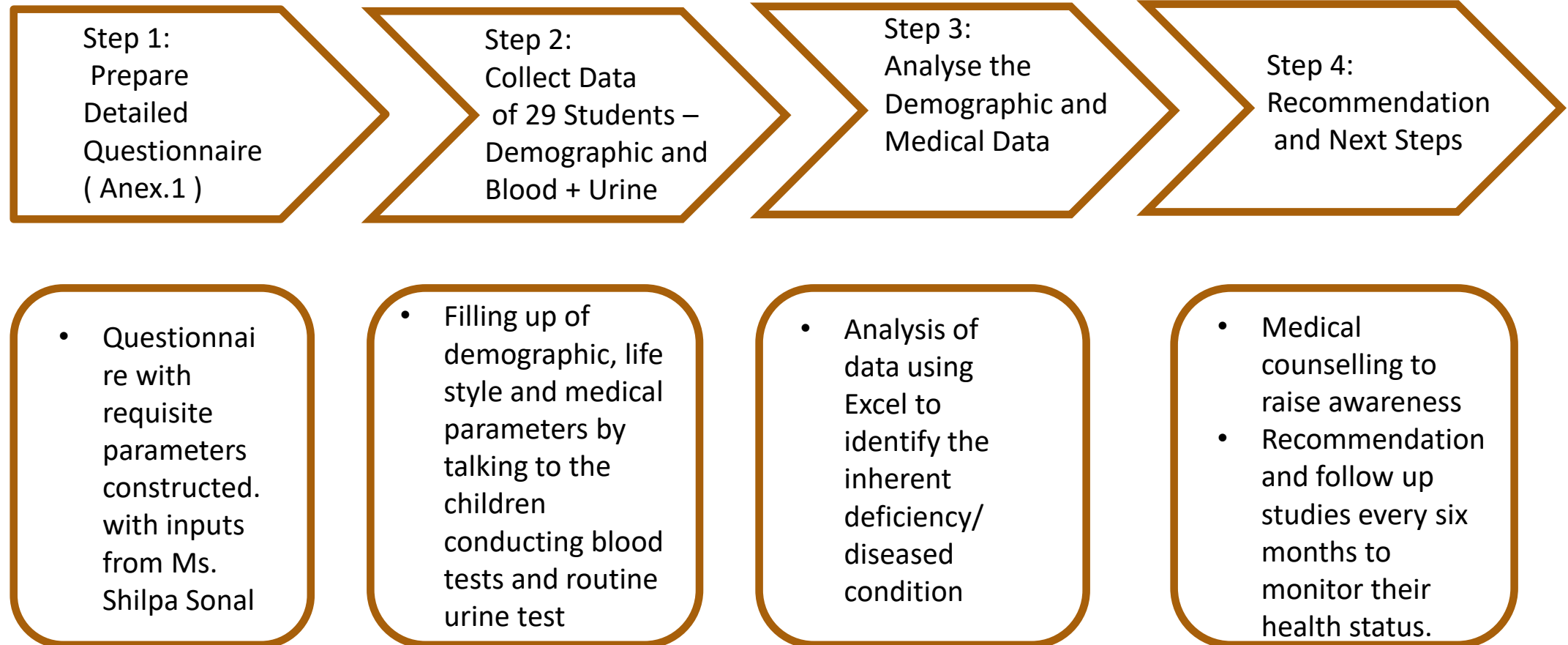


- NGO chosen for the project – **Bagiya; Sanshil Foundation**; BB – BB, Mayfield Garden Market; South City 2; Gurgaon. Bagiya caters to 230 children.
- Founder Director of Bagiya – **Ms Shilpa Sonal** is involved actively in social work aimed towards upliftment of the underprivileged children by schooling them. Her main focus is to create literacy programs for children in the weaker section of society.
- Hence Bagiya is an ideal platform to conduct our project EDUHEAL.

**Shilpa Sonal –
Founder Director**



Methodology – Four Steps



Consent form used in the study

Consent Form

We the parents/guardians of _____ studying in class _____ and school/ NGO _____ hereby authorize The Shri Ram School Aravali to conduct basic blood and demographic profiling of our children as a social initiative.

This is being done to understand the health status of our children and provide a comprehensive evaluation of their needs.

The copy of the reports will be shared with us and none of it will be used for any commercial enterprise initiative.

Father's Name- _____

Signature- _____

Mother's Name- _____

Signature- _____

Guardian's Name- _____

Signature- _____

Date- _____

Field work on 16th October 2017 in Bagiya



Registration



Checking
Malnutrition
by MUAC
tape



Pressure and Pulse



Weight



Temperature

Field work contd.



Height



Collecting demographic data by talking to the children on one on one basis



Blood Test



Giving fruit and juice to the beneficiaries

The Profile of Our Target Population

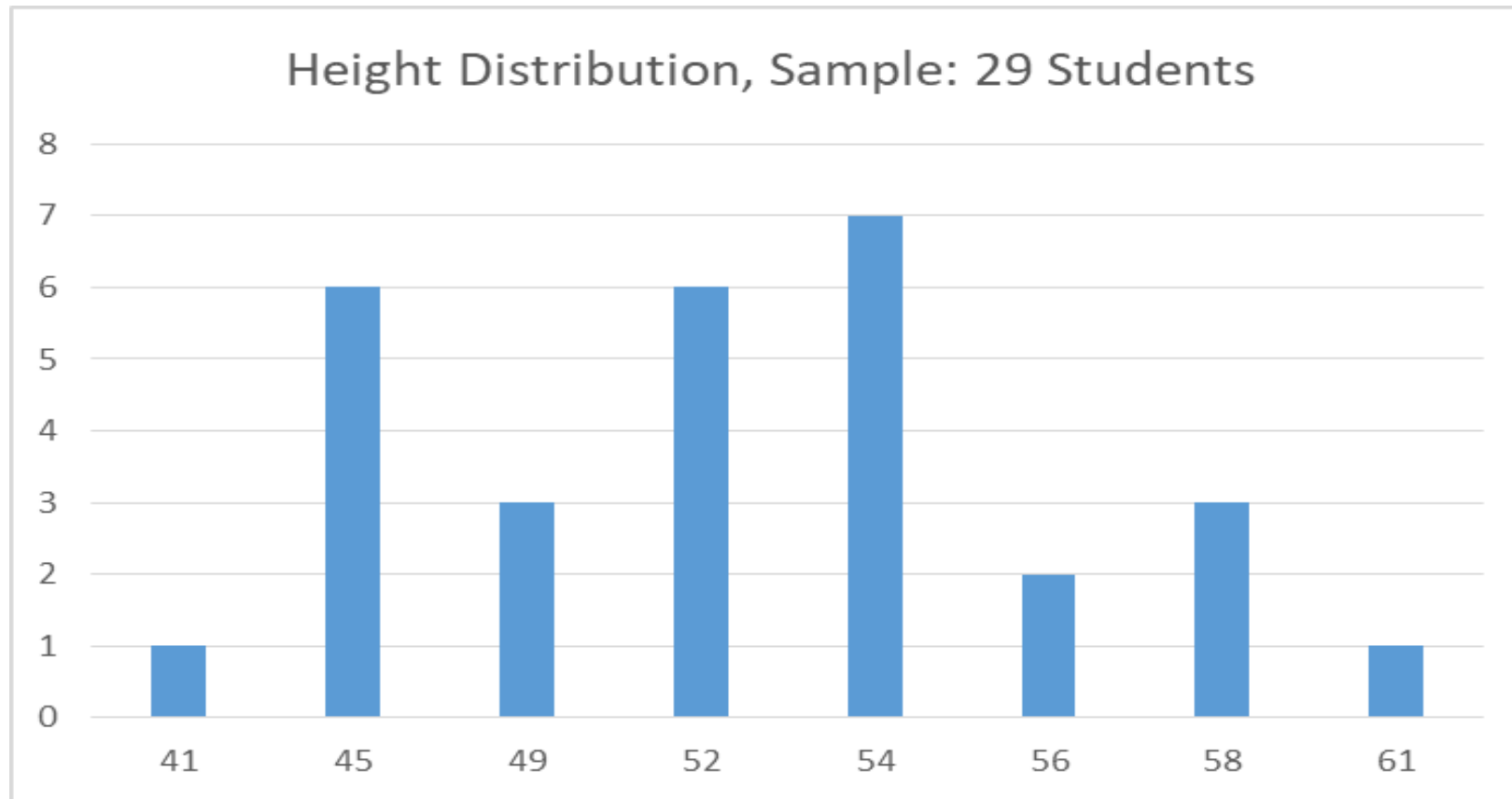
- ❖ The 29 students are in the age group 6 to 12.
- ❖ They represent the children of the labour/working class of the urban population.
- ❖ . They belong to both Hindu and Muslim Community.
- ❖ The parents of these children work as courier boys, sanitation workers, help in shops, cook, gardeners and maids at homes.
- ❖ Many parents are migrants from neighbouring states of West Bengal, Bihar and UP.
- ❖ The children help their parents in household chores – cleaning the home, taking care of siblings, fetching water for the family.
- ❖ The average family size is five members with the maximum going up as much as eight.
- ❖ The number of siblings range from one to three , even upto seven.
- ❖ About two-third of the sample are female children





ANALYSIS OF THE DATA

Height Distribution of the Sample



In the graph:
X axis: Height in inches
Y axis: No. of children

Salient Features Regarding Height

AVG	50.69
MEDIAN	52.00
Min	1.00
Max	3.00
Number	29

Total Population

AVG	53.13
MEDIAN	53.50
Min	48.00
Max	57.00
Number	8

Male Population

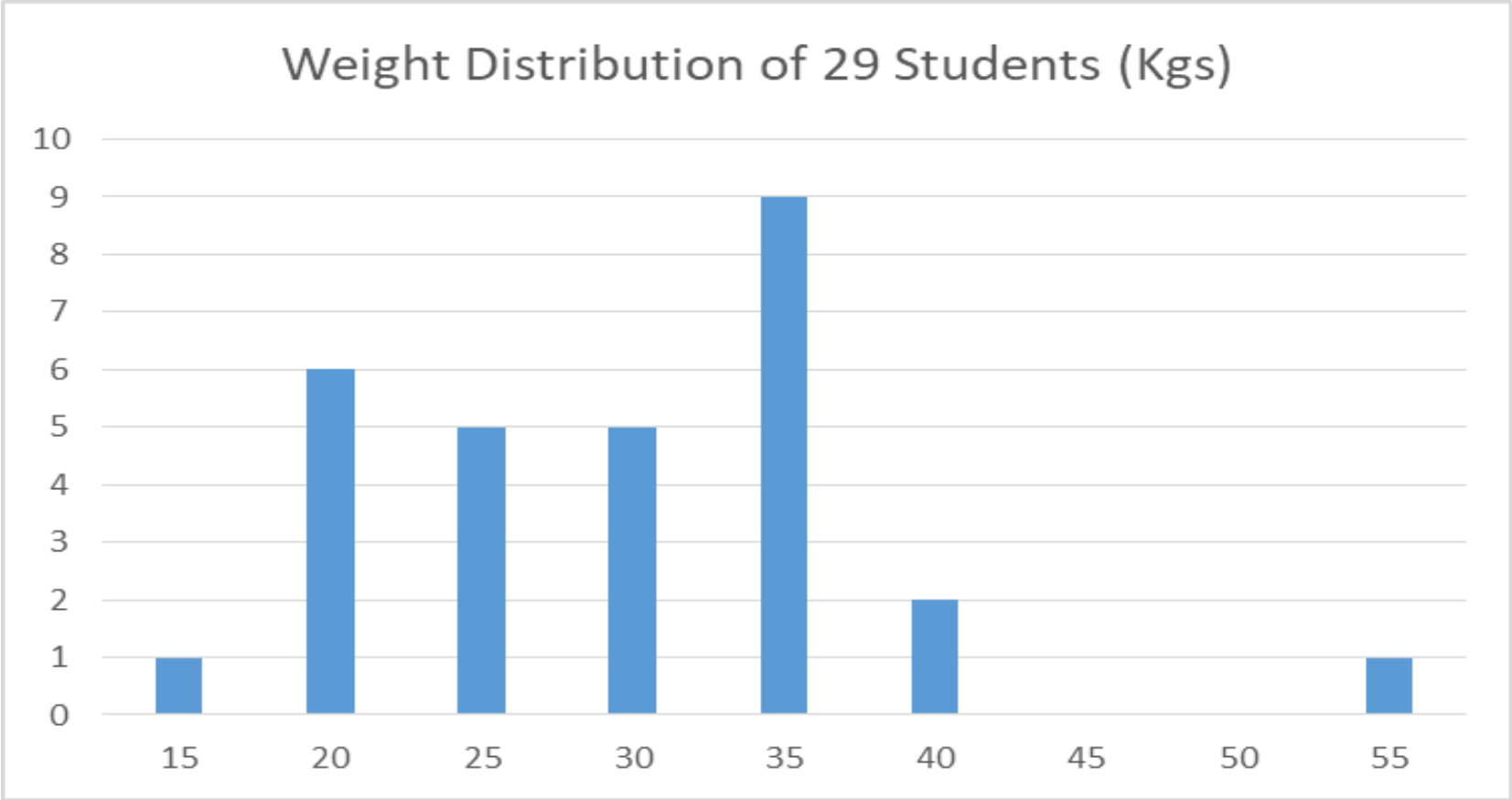
AVG	49.76
MEDIAN	51
Min	41
Max	60
Number	21

Female Population

Salient Features Regarding Height - contd.

- 22 of the 29 observations are in the range 45-54. Only seven observations are outliers.
- While the Average and Median are close to each other (50.69 and 52 respectively), the range of the data (Max Value – Min Value) is quite significant (19 Inches). This suggests extreme observations at either side of the height distribution in the entire population.
- The mean height of the Male Child is significantly higher than that of the Female Child.
- The Average and Median of the respective population (both male and female) are close to each other.
- The Range (Max – Min) values of the Female Children are higher than that of the Male counterparts. The Range is as high as 19 inches in female vs 9 for the Male Children.
- This indicates stunted growth for the Female Gender.

Weight Distribution of the Sample



In this graph:
X axis: Weight in Kgs
Y axis: No. of children

Salient Features Regarding Weight

AVG	26.77
MEDIAN	27.30
MIN	14.80
MAX	50.10
Number	29

Total Population

AVG	29.26
MEDIAN	29.75
Min	21.00
Max	34.90
Number	8

Male Population

AVG	25.82
MEDIAN	23.5
Min	14.8
Max	50.1
Number	21

Female Population

Salient Features Regarding Weight - contd.

- While the Average and Median are close to each other (26.7 and 27.3 respectively), the range of the data (Max Value – Min Value) is quite significant (35.3 kg) in the entire population.
- The above indicates extreme observations, which can be clearly seen in the graph. There are 4 students who are outliers and weigh more than 35 Kgs.
- The mean weight of the Male Child is higher than the Female Child, an observation which opposes National Standards.(1)
- The Mean and Median of the male population are close to each other, whereas the mean and the median are diverging (Mean = 25.82 vs Median 23.5) in females, suggesting presence of outlier values for the Female child.
- The Range (Max – Min) values of the Female Gender is higher than that of the Male Gender. The Range is as high as 35.3 kg (Females) vs 13.9 kg (Males). This indicates stunted growth for the Female Gender.

Food Habits



- The 29 children usually have three types of food:
 - a) Roti-Sabji/Bread/Poha
 - b) Dal-Chawal (Rice and Lentils)
 - c) Fruits
- Occasionally, the children are fortunate to get Maggi, an expensive snack.
- The interesting aspect is that the children consume the same kind of food for all the three meals – breakfast, lunch and dinner.
- In order to bring a difference in taste, they are prone to eating lot of junk food in the form of chips, nuts and candies.
- Fruits are primarily in the form of apples, bananas and other seasonal fruits. Milk is usually consumed in the morning hours prior to the school.
- Water consumption primarily happens from Tap water. Only 4 of them consume filter water.



ANALYSIS - BLOOD PROFILE

Note: 26 children are part of this analysis (3 children dropped out).

Detailed Description of Blood and Urine Tests Conducted

Test – Blood and Urine	Purpose for the Test
Blood Group / RH Factor	Information for Blood Transfusion (if needed)
CBC	To measure Haemoglobin, Total Leucocyte Count (TLC), Red Blood Cells (RBC)
Random Blood Sugar	Detect Diabetic Anomaly
Serum Iron	Iron Content
Liver Function Test	Liver Function Status
Kidney Function Test	Kidney Function Status
Calcium	Calcium Content
Vitamin B12	To Check Anaemia
Vitamin D3	Bones and overall health status
Routine Urine Examination	Checking for Overall Functioning of the Kidney – Bilirubin, Protein and Sugar content in urine

Analysis of Blood Haematology and Cytology – Part 1

- Haemoglobin and RBC count were normal for most children (24 of the 26). Of the two children, one is a patient (female) of Thalassemia (count of 4.5) and a male child is marginally anaemic [11.8 instead of 12.5-16 g/dl for males and 11.5-15 g/dl for females].
- 5 children have a borderline high TLC (Total Leucocyte Count), indicative of infection in their bodies [Normal: 4.5-13.5 th/cumm for males and 4-11 th/cumm for females].
- One child (the Thalassemia patient) has a low platelet count.
- 4 girls have a marginally high platelet count (450-475 th/microlitre) and one girl has a high platelet count of 599 [Normal: 150-450 for females]. All five girls complained of chronic stomach ache. These cases need to be monitored thoroughly as high platelet count can be an indicator of Primary Thrombocythemia. (2)

Analysis of Blood – Vitamins and Minerals – Part 2

- 20 out of 26 were detected of low Vitamin D (25-hydroxycholecalciferol). Fourteen were found to have insufficient level (20-30 ng/ml) whereas six were found to be deficient (>20 ng/ml) [Normal: 30-100]
- 8 out of 26 were found to have borderline low Calcium levels (8.22-8.3 mg/dl) [Normal: 8.6-10.3 mg/dl].
- Low Vitamin B12 was found in the thalassemia patient (162 ng/l). A borderline case (178 ng/l) was also noted in another girl. [Normal: 180-914 ng/l]
- 4 out of 26 children were found to have serum iron deficiency, out of which one is the thalassemia patient [Normal: 60-160 microgram/dl for males and 35-145 microgram/dl for females].
- 3 out of 26 children were found to have marginally low level of serum albumin [Normal: 3.5-5.2 g/dl]

Overall Summary Report

- No malnutrition observed in children, as measured by MUAC Tape [Mid Upper Arm Circumference Tape] (3)
- All children have normal levels of blood glucose and urine routine test
- Overall, the children are healthy with normal functioning of liver and kidney.
- Low Vitamin D levels were found in majority of the population. All of them complained of pain in their joints, knees and elbows.
- All anomaly in the blood related results were found mostly in girls.
- Eating habits are moderate; however, consumption of junk food to be controlled.
- Stunted growth in female, both in terms of weight and height, as compared to National standards. (1)

The Way Forward

- ❖ Vitamin D deficiency is an epidemic. Hence, it needs to be treated as soon as possible.
- ❖ Doctors and pharmaceutical companies will be consulted to raise the Vit D levels.
- ❖ Educating parents and children and making them aware of importance of a healthy and balanced diet that will positively impact their health status.
- ❖ Sessions will be conducted (waiting for the date to be given by Bagiya) on possible low cost nutritious diet over next few weeks in the form of Power point presentation (Anex.2) and role plays.
- ❖ Follow up study in the form of blood test will be conducted every 6 months for the children in whom abnormalities have been found.
- ❖ The thalassemia patient (who is already undergoing regular blood transfusion) will be closely monitored.
- ❖ This study will also be extended to a fresh batch of 20 – 30 students in the next 6 months.

Bibliography

1. <http://www.indiachildren.com/htwtc.htm>
2. <https://www.healthline.com/health/primary-thrombocytopenia>
3. <http://motherchildnutrition.org/early-malnutrition-detection/detection-referral-children-with-acute-malnutrition/interpretation-of-muac-indicators.html>

Annexure

[To open the following documents, please right click on the file name and select the option:

‘Open Hyperlink’]

1. [QUESTIONNAIRE FINAL.pdf](#)
2. [NUTRITION-AN AWARENESS--FINAL.pdf](#)

Acknowledgements

- Project Bagiya of Sanshil Foundation for giving us the platform to conduct the project.
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