



## Research Article

# HEALTH STATUS OF THE DAUGHTERS OF AGRICULTURAL WORKER'S FAMILIES OF THE COASTAL REGION OF SOUTH 24 PARGANAS: NARRATION BASED ON FIELD SURVEY

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**Abstract:** The central theme of the present research is to report on the study of health and nutritional status of the educated women (under University studies) marked as the daughters of the low earning agro-based families of South 24 Parganas of the State of West Bengal. The women community acted as respondents are the first-generation learners and the onus for arranging their educational expenses also lied with them. Instead, their concentration towards higher education has compelled the researcher to look into their effort in maintaining good health strategy through an analysis of their health and nutritional status. The field survey of the research is conducted within their University campus with the prior permission of the authority. Since the occupational pattern of the families are closely associated with their caste culture, the present survey tried to pick up the respondents based on the caste character prevalent in Indian culture. Since the health evaluation and the need for the effective health policies are tied up with the family income as well as the status of women in the patriarchal family structure, the present study also aimed to focus on the overall situation of the women community located in the rural areas of the coastal as well as of the Delta region of South 24 Parganas of West Bengal state in India.

**Keywords:** Health Nutrition, Reserved Category, Student Respondent, Universities Studies, Women from Agro based families

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## Introduction

The article is based on the field survey conducted by the researcher on the health and nutritional status of the University Women Students hail from the families involved in agricultural occupation in South 24 Parganas District of West Bengal, India. The term Agricultural occupation has been used in the article in a broader sense. The terminology indicates all those families who are identified either as land holders involved in agricultural production from their field or those who have adopted agriculture as a means of occupation. Also, the third category of the occupation group include those who have taken up agriculture as business. Formally, speaking, three categories of income groups included from among the agriculture occupation may be mentioned hereunder.

1. Those involved in the production of rice, vegetables and fruit from their own lands. (Falling under the category Agricultural land holders identified as 'The Principal Work Group'.)
2. Those involved in agricultural activities as hired worker (Subsidiary Agricultural work group)
3. Those involved in Agri-Business (Compilation and Distribution group).

Though agricultural and fishing sectors have been the main occupational sectors of the people of the coastal and Delta region of South 24 Parganas, no remarkable difference in the income status among the groups are observed it is because the agricultural land holder groups indicate those who are the owners of fragmented lands as a result their income status is not that high as is expected to be observed among the big land owners and agricultural producer groups. However, for the purpose of the present study two priority policies have been adopted under the research and the respondent groups are expected to fall under that. 1. Selection of the respondents are made from the reserved category students and 2. Low income families. Automatically, owners of the fragmented land fall under the second category income group i.e. the families. Falling under low-income category earners.

Though the agro-business group fall under first category because they belonged to reserved category families (only minute differences observed in they survival pattern because land holding group survive on the production of rice for consumption purposes but for the agro occupation group that facilities are not present). As a result the first and the second category income status of the families remained almost the same while among the third category some differences in income structure have been observed (the information gathered from the interview sheets of the respondents and also from University record), As per the respondents' declaration, both the groups fall under the income category (Rs3000-Rs5000/-). Though the difference observed in the nutritional status of the their daughters are important and needed clarification by the researcher while making random survey and discovered the significant difference in nutritional status of both the group. 1 Land holding group survive on their own food produced in their own field. The group thrive on rice produced in their own field (rice is the main diet of the rural families and the respondents carry rice to the University as their mid-day meal because to the family's rice is consumed three times a day). However, the most encouraging part of the study is that the respondent women community (though marked as the first-generation learners) have achieved success in the field of education and have been attending the post graduate studies with the upcoming of the first Women University at their door step. The nutritional survey was organized by the researcher within the University campus during the period following 2018-2020 under the ICSSR Senior Research Fellowship Project. Hence, the survey included only those women community who have been commuting to the University as they have enrolled in the University for the purpose of post graduate study. Hence the aim of the project is to study the health and nutritional status of those reserved category women students who have proved their tenacity to cross the hurdle of higher education and are enrolled in Post Graduate Study.

The idea behind the present research is to observe, whether the education of the respondents have helped them to develop awareness among them on the need for good health strategy essential for their academic success.

### Need of the Health and Nutritional Study

The decision for the health and nutritional survey among the women students of Diamond Harbor Women University was initiated, based on the result of a pilot survey conducted by the researcher involving the students the Women Studies and Education Department of Diamond Harbor Women University studying under 2014-2016 batch. The assignment was a part of the ancillary academic work performed by the Fourth Semester Students of the Department of Women Studies as well as of the Department of Education as a part of their academic syllabus paper 'Women and Health'. (WS OC 404 WH). While helping out the students in their assignment, the researcher's involvement in exploring the documental evidence in favour of the study included 2011 Census Report, NFHS (4) Report (2015-16) and also the District Human Development Report –South 24 Parganas (2009). Hence the research findings indicated the dismal condition of the health of the women of the District of South 24 Parganas. As per 2011 Census Report the pressing needs of the district is the health and the nutritional status of the women. As per NFHS 4 Report 67% women are anemic in the District and as per District Human Development Report, the Coastal and the Delta Region of the district are the worst affected areas in the District.

The Sundarban Delta region of the District has been the worst affected area of the District (Planning and Development Department Government of West Bengal 2009). A survey conducted on the health status of the pregnant women by an NGO named Centre for Strategic Studies in 2013 also confirmed the dismal state of the health status of the pregnant women of the District [1-3]. Considering the long-standing effect of the women's health as a matter of social responsibility, the researcher took up the proposed survey to focus on the result of her research studies conducted during 2018-20 period under ICSSR sponsored Senior Research Fellowship Program.

Since the present study aims to inform on the health and nutritional status of the daughters of agricultural families, it is essential at this stage to look into the overall scenario of the agro based families. The author of the article covers a wider variety of family occupation connected to agriculture. Since the purpose of the study is to report on the health and nutritional status of the women students commuting from the agro based reserved category families, the study aims to look into their health and nutritional status. The level of their nutritional awareness in them along with their awareness towards academic degree.

### Agro scenario in the District of South 24 Parganas

West Bengal (located between 23°N Latitude and 87°E longitude) an eastern state of India in Indo-Gangetic flood plains, the state has a rural population density of 676 people /km<sup>2</sup> as against India's 255. The average land holding is 0.82 hectare and fragmented.

West Bengal is leading rice growing state of India grows rice in three seasons in 6.2 million ha.

The average productivity of rough rice is 3430kg/ha and the state contributes 14.6% of the countries rice production. Being involved in agro based economic activities, the families are located in the rural areas of the coastal region of the District. Since the objective of the study is to identify the level of nutritional and health status in the rural households, it is essential to know their food consumption habit, their income status and their survival pattern. Hence the present research while exploring the nutritional status of the women students of the families, made an effort to observe their overall family history. Hence information on the overall status of women are collected through the questionnaire survey followed by interview and interaction. The resent research aims to explore the same and to analyze them for the convenience of the research.

### Demographic Profile of South 24 Parganas

South 24 Parganas (22°N and 88°E), is the largest District in West Bengal (Census 2011). The district comprises of 9960 sq.km area with 819 population per sq.km. The overall population of the age group of 23-27 years are 953,657

constituting 12.9% of the total population of West Bengal, while female population per 1000 men is 945. West Bengal, as one of the eastern states of India, constitutes 2.89% percent of India's geographical area with 8% of India's population residing in the State. The state has a rural population density of 676 people per sq km that constitute 70% of the total population. The NFHS-2 report revealed (44%) Chronic Energy Deficiency (CED) index in West Bengal as compared to Punjab, Haryana and few other states. The state also registered in its record that 76% of the rural population fail to get 2400 kcal energy requirement and 63.3% are deficit of the 2200 kcal/day as the safety level of energy. Rattan Chand (2004) also reported the existence of 10.4% hunger in West Bengal compared to 3.3 %for the whole of India. Rice is the major source of calorie supply in rural and urban areas of West Bengal. A rational survey on pregnant women's anemia status in 2013 by agricultural scientist [1-3] has indicated that the majority of them are anemic. Though the coastal region of South 24 Parganas is ranked as one of the most backward districts under 2006 Panchayat record, it has proved its enormous success in women's literacy. The District records the Gross Enrolment Ratio of women in higher education at the range of 17%in 2018-19, while for men it is less than 15% in 2018-19.

Observing the intent tenacity of women in the field of higher studies, the researcher aimed to observe, health awareness and improved nutritional needs by involving the educated women community of the agro based families under the health assessment and nutritional awareness program. The overall aim of the project is to enable them to develop health consciousness and to inculcate increased energy in them to fight back all adversaries in their life in the same fashion as done in the arena of higher education of women. Though the daughters of the agro based families faced with common principle of patriarchal domination in deciding their future, compelled them to give up the hope for higher education after their graduation. The family members are eager to prepare their daughters' marriage after graduation following the prevalence of the traditional male dominated culture in the district. The establishment of 'Women's University' in 2012 (full-fledged academic activities started from 2014-16) at their door-steps has revamped the situation of women.

This opened the gate-way to the post graduate studies for them, since the respondents come from the reserved category families, socio-economically the families are not prosperous enough to run the education of their daughters after graduation. However, the financial crunch in the families did not work as a hurdle in their further studies because the provision for extension of Kanyashree Prakalpa to Phase III has enabled them the hope to involve in higher studies the at their own expenses. The analysis of their nutritional status is expected to be carried out with twofold motto. 1. To observe their nutritional status and 2. Imbibing awareness in them about the need for their healthy living as a part of their ambition for higher education. The researcher being hopeful towards the success of the project initiated the field survey in the University campus with the aim to help the women students to determine their good living strategy through the good health awareness program. The project along with nutritional analysis is expected to enable the women community to guzzle in them the impact of low cost but healthy diet as a means of their healthy survival in the society.

### Overall Health Scenario in India

WHO (1999) reported that 40% of the world population suffer from Micronutrient deficiencies such as Iron (Fe), Iodine (I), Zinc (Zn) and Vitamin-A. (Table I) It has also estimated that, over three billion people in developing countries are Iron deficient and nearly 124 million children are deficient in Vit-A. This group of population are 2-4 times susceptible to respiratory diseases and diarrhoea like diseases (World Bank,2002). The iron deficiency anemia increases death and associated with low birth weight, impaired growth and retarded children in the family that is impaired in cognitive development, work capacity and productivity. Thus based on the recommendations of the Expert Consultation Report of WHO /FAO in terms of dietary factors, limited to those relevant to the food supply chain, are important at this stage. WHO /FAO recommended nutrient intake goal include total fat 15-30% Polyunsaturated fatty acids 6-10%, saturated fatty acid <10% trans fatty acid <1 %,while total Carbohydrate 55-75% free sugar <10% Protein 10-15% fruits and vegetables >400g per person per day.

Interestingly the food chart of the respondent's girls' students from the agricultural families do not include any such dietary factors other than carbohydrate and that too the consumption is more than the measured amount mentioned in the WHO/FAO report. Though South 24 Parganas is famous for the fruit production, none of the respondents' diet chart included the fruit as a part of their diet.

It is difficult to measure the nutritional food intake of the women based on the above attributes. From the lower middle-class family's concept, the nutritional evaluation under the present study is carried out based on height weight measurement (BMI status determination) haemoglobin status and the evaluation of food chart by the respondents are taken into consideration for the evaluation of the health status of the women community. Under the present research also the nutritional status of the women as the daughters of the agro based families are evaluated based on the minimum strategic support that helps the health evaluation of a person based on the basic ingredient available. As a result, the health survey of the women in the present research is done based on the above-mentioned principles.

In India 26.5% of the population lives below poverty line (BPL), who are unable to meet the minimum per capita daily requirement of 2400Kcal to sustain their lives.

The National Family and Health Survey (NFHS-3) reported 75% of children aged between 06-35 months are anemic and two out of every five children are underweight. The cause points towards pervasive malnutrition which starts from the mother's womb, since 54% of the pregnant women are anemic. The West Bengal recorded 72% of the children in the age group of 06-35 months are anemic, 47% of these children are under weight and 35% are stunted.

As per NFHS 4 report, among the adults, 47% of the pregnant and married women in the age group of 15-49 years are anemic in the rural areas. Similarly, 68% of the non-pregnant women in this category are anemic. Overall anemia deficiency among the women of South 24 parganas is 67.7% considering the overall position of women in the nutritional and health awareness, a field project for the analysis of the health and nutritional status of the women students identified and brought for evaluation under the project

### Strategic Position of Diamond Harbor Women University

The field survey of the present project is carried out in the Diamond Harbor Women's University, the first ever Women's University set up by the Government of West Bengal under the State Legislative Assembly Act XXXVII of 2012. The University was established to cater to the higher educational needs of the Women Students of the District. The Government of West Bengal to encourage the women in their academic pursuit extended the Kanyashree Prakalpa to Phase III for the unwedded women students at the PG level (Honoured Daughters of the state). Hence, the overall aim is to extend financial support to the women to continue PG program at their door step. (Daughters of the agricultural families of the University run their academic expenses from different Scholarship Schemes and the expenses of communication is accrued by offering private tuition to the locality school children. A separate order for financial support to the women students pursuing MPhil and PhD studies is issued by the Government of West Bengal to extend financial support to those pursuing MPhil and PhD degree. The health assessment project of the researcher is adopted as an increment to those students though born to a socio-economically agro-based families having the first generation educated group (especially those belonging to the 1<sup>st</sup> and the 2<sup>nd</sup> category families i.e. land holding and agro-occupation group) their enormous tenacity for higher studies and through them spreading the information to their community is the main motto of present study. The overall aim of the health assessment project is to pin point the gap areas of the community health programs of South 24 Parganas District under the Government of West Bengal.

### Health and Nutritional Evaluation of the Daughters of Agricultural Families

The objective of the study is to identify the present level of nutritional as well as the health status in those educated women communities hailed from the low income and reserved category agro based families and enrolled in the Diamond Harbour Women University for post graduate Studies. The field study of the present research has been adopted involving 400 students respondents whose nutritional status have been evaluated under the present project. However out of those 400

respondents, 331 students selected for the purpose of the study not only belonged to the low-income families out of them 255 students' respondents are either belonging to the agricultural land holding families possessing fragmented lands or to the agricultural workers families (Rs3000/- -Rs5000/-). Again, from the comparatively higher income group i.e. from the agro business to the big land holding families, another 69 women respondents have been selected for the nutritional study. They are comparatively higher income families but out of them 33 respondents are from the agro business families (earning Group Rs6000/- -Rs20,000/- income per month). Thus altogether 288 students' respondents are detected from the agricultural families, either land holder or involved in Agro-based business 30 families and the rest 3 families are agricultural land holding families. The nutritional status of the women has been evaluated through their food chart, weight and height measurement and blood haemoglobin test. The family socio-economic history has put the women community under the reserved category low income group. The caste category included SC, ST, OBC A and B category women students. (Scheduled caste women literacy 33.44%, while only 7% of the ST women are involved in higher education in the district). Majority families in coastal as well as delta region are absorbed in agricultural occupation either as land holder or as agro based workers with limited number of families involved in agro business). The data collection on the health status of the educated daughters of the agricultural families are carried out from the Diamond Harbour Women University and the evaluation of the data is done with the help of the medical practitioner, Nutritionist and Psycho Analyst, with both personal as well as impersonal survey of the respondents are done through questionnaire. However the direct interaction with the students was done through the random survey being carried out among them. As already mentioned, that the respondents are from the reserved category women falling under SC and ST (Scheduled Caste Scheduled Tribe) category and the Other Backwards Classes A and B (OBC A) indicate Muslim respondents and (OBC B) the second group included Hindu respondents. Other than these categories, Handicapped students are not involved in the survey. The arrangement for field survey demanded occasional and need based involvement of medical practitioner to investigate significant cases of special nature. The overall aim of the research is to set up a cue to the family socio-economic condition and its correlation with women nutritional position. The data collection method was innovative because it was conducted following students to student's interaction in the class room situation.

The delta also supports a diversity of ecosystem services that attract and support a large local population. One key area is the Sundarbans. While the researcher, for the purpose of the study concentrated mainly on the families absorbed in agriculture as an occupation. Hence due to the non-participation of the women in the agricultural work, the families have to hire casual workers of both men and women. But these who are absorbed in higher studies refuse to go to the field provided the management of the field is possible controlled by the male members and the paid agro workers (both men and women) However, the restriction for the families to allow women to participate in the agro activities also discourage the educated women of the University to take interest in the field. As result economically the land holding families are not different from the landless families because the income structure almost remain the same with the only difference is the occupational pattern (the families with fragmented land is based on the direct involvement of the land holder in field production and the agricultural workers are also involved in production but as a hired labour.

The overall aim of the study is to look to the health status of the new generation family members (daughters of agricultural families) under the intent socio-economic structure. The question become evident for the families who have been cooperating with their new generation progeny opting for higher studies ignoring the patriarchal family taboos meant for the women.

### Nutritional Evaluation

Since the article aims to showcase the nutritional status of the University Women Students of South 24 Parganas, and belonging to the Agro – based families their food chart, weight and height measurement, their family socio-economic condition and female nutritional condition are reflected through the study of health and nutritional status of their educated daughters in their mid-twenties.

Table-1 BMI of the first 40 Students Respondents Selected from Weight and Height Measurement

Mean				BMI of top 40 students			
Class Boundary	Mid Value(X)	Frequency(f)	f*X	Sample Number	Weight(KGs)	Height(Mtr)	BMI
30-40	35	4	140	1	48	1.548	31
40-50	45	15	675	2	55	1.523	36.11
50-60	55	12	660	3	42	1.48	28.37
60-70	65	7	455	4	62	1.574	39.39
70-80	75	2	150	5	44	1.6	27.5
	total frequency	40	2080	6	45	1.445	31.14
				7	54	1.599	33.77
				8	70	1.65	42.42
Formula of mean= $\sum fX/n=52.09$				9	50	1.502	33.28
Average weight is 52 KGs approx.				10	61	1.574	38.75
				11	49	1.48	33.01
				12	52	1.502	34.62
				13	64	1.65	38.78
				14	39	1.599	24.39
				15	48	1.5	32
				16	40	1.523	26.26
				17	30	1.523	19.69
				18	55	1.574	34.94
				19	59	1.599	36.89
				20	49	1.5	32.66
				21	50	1.48	33.78
				22	63	1.523	41.36
				23	65	1.523	42.67
				24	54	1.65	32.72
				25	50	1.574	31.76
				26	55	1.523	36.11
				27	50	1.574	31.76
				28	48	1.599	30.01
				29	61	1.599	38.14
				30	50	1.5	33.33
				31	36	1.523	23.63
				32	35	1.5	22.33
				33	50	1.5	33.33
				34	50	1.49	33.55
				35	65	1.65	39.39
				36	42	1.523	27.57
				37	75	1.548	48.44
				38	60	1.548	38.75
				39	50	1.548	32.29
				40	72	1.574	45.74

The study of the nutritional status of the Women Students of South 24 Parganas received special prominence to the researcher as the author of the article to look to their health status in comparison instead of their poor socio-economic condition and high tenacity to stand in the fore front through their education and empowerment. The respondents whose nutritional status has been evaluated are not only marked as the daughters of agricultural workers families, there enrolment to the University studies have become a matter of appreciation because majority of them are the first-generation learner, but have gone up to the University for higher education. The guideline for the filed survey of the present study is based on 2011 census report, because this has been considered as the landmark to the health and nutritional survey of the decade. However, the researcher while focusing on the academic pursuit of the young students in relation to their family background or family occupational pattern the association of their health condition with their academic pursuit placed an important role because overall survey under the present research aims to focus on the health and educational correlation.

The data collection method adopted at this level include three step motivational drive. 1 Interaction with the students, at least for three consecutive sessions for their orientation about the issues. 2 Distribution of tow section of the questionnaire, a) Questionnaire for personal Survey b). Questionnaire on impersonal survey (based on the data on health analysis) 3 The impersonal survey became the main source for the determination of the health status of the respondents. At this phase, the medical reports are conducted, analyzed and evaluated by the medical Practitioner, followed by the intervention of the nutritionist and the psychoanalyst involved in the team with the researcher on the residual issues demanding the direction of the study. The height weight measurement of the respondents is done with the help of the interested students

respondent volunteered to involve in the research. The overall aim of the research is considered as the quality research that include rigorous analysis of the quantitative data collection. The stage-wise analysis of the result demands the constant involvement of the researcher. The field survey, data collection and data analysis associated with the study. Since the respondents are the students of Diamond Harbour Women University. Hence, initiating such a program demanded the prior permission of the University authority, the field survey has been carried out within the University campus. Also, the project activities are conducted within the University campus. The health assessment of the student's respondents is considered important for some important analysis based on; 1. the students' behavioral transcendent; 2 their health perception through height and weight measurement for body mass analysis. 3. their Haemoglobin test report. All these steps are considered important for their standard health analysis. However, the history of their health problems as according to their own perception is considered important in determining their behavioural transcendent outwardly. The plan of work included a two way health assessment and analysis 1. Haemoglobin test and evaluation of the report by the medical professional and based on the report remedial measures (if at all required) have been proposed. 2. Nutritional status evaluated through the body mass Index based on the height and weight measurement 3. Other ancillary health analysis measures include 1. Thalassemia Test and Blood Sugar test among the willing respondents under the health studies drive. Among the respondents from agro based families 100 students participated in thalassemia test and 3 respondents are detected HbE thalassemia career with, 6 respondents are detected as meta thalassemia career. It is astonishing that the respondents at an average age of 25 years are ignorant about the presence of the genetically impounded diseases in them.

However, Blood Sugar Test indicated a negligible number of cases. Blood group detection was carried out consecutively with the haemoglobin test. The health survey is not concentrated on health assessment only. Specialized professional group is involved to create a new generation of socio-culturally educated women group (the first generation educated) who can claim themselves both educated and empowered women involved in 'good health drive'. They are expected to carry with them the knowledge on good health essential for good living (The motto of the respondent's groups as decided by them is 'Good Health, Good Life').

A two phased program on the health assessment and health awareness aimed to imbibe in them the need for low-cost nutritional diet. Expert intervention of the nutritionist in the health awareness program aims to help the respondents to gather knowledge on low cost but healthy diet chart easily available at their door steps. Hence the overall aim of the health awareness project also aims to enable the respondent group to reach out to their own locality with good health awareness program 'so that the long-standing effect of the health awareness program spreads up through them at the community level too. Thus the project on the one hand is expected to enlighten the user, the knowledge of good health on the one hand and on the other hand aims to act as information source at the locality level. Thus the present research aims to evolve an organized health awareness strategy for the women community of the coastal as well as at the Delta region of South 24 Parganas over and above the health analysis of the educated reserved category women aim to reach out their own community with the low cost good health package. for their own welfare and also for the welfare of the community as a whole. The income structure of the people of the Coastal and the Delta region is based on informal economy and both men and women earners are present both at the non-formal economic sectors, like fishing, agricultural activities, Bidi biding etc. Occupation at the delta region rests exclusively on women because, continuous natural calamity in the region compelled the male members to migrate to the urban centers for earning. The women community left back to their villages are mainly under agricultural occupation. Constraint in family earning made the living tough. As a result, 65% families are living below poverty line. Out of same 65% earner group 86% are Hindu population and rest 33.24% are Muslim population, out of the total Hindu Population, 33% are scheduled caste and Female literacy rate is 78.57% (Census 2011).

Majority students of the University commute from the nearby villages and are from the reserved category first generation educated families of the agricultural occupation group. Hence, a special attention is attached to their nutritional status, because majority students are from the farmers' family, while women headed agricultural families are from the families of small farmers or from the daily wage earners families. However, incorrigible interest of women students towards higher education has also been enhanced mainly because of the enormous facilities involved in the Government policies for financial support to the women students through diversified scholarship schemes like Merit cum means scholarship, scholarship for scheduled caste, OBC and the minority community students. Added to this the Kanyashree Project III (Respected Women) of the Chief Minister of West Bengal has enhanced the tenacity of the girls' students for higher studies (from 2017 the Kanyashree Project is expected to cover the post graduate unwedded women students. This marked the initiation of overwhelming support of our chief Minister for women's education. This became the outcome of award-winning effort of the State from UNICEF in 2017, the financial support to the unwedded women came as an added incentive to the women group and enabled them to go for higher studies. Government of India Casus Report 2011 contains an information on the overview of the medical facilities available in the coastal and the delta region of the district. As per 2011 census report an average of 73508 persons seek hospital support as the indoor patients while the patient seeking Doctor's advice covers an average of 2700000 population (Data includes the information of only Canning, Kakdwip and Diamond Harbour region only) [4-14].

#### Report of Health Assessment

The health assessment included; A) Determination of Body Mass Index through height weight measurement, B) Haemoglobin test, carried out to determine the general health status of the respondents. C) Medical analysis of the cases and detecting special arrangements for the treatment of special cases (by the Medical

Practitioner). D) Interaction of medical practitioner regarding thalassemia and Blood sugar test report. E) Health awareness and low cost healthy food chart by the nutritionist. Hence the successful implementation of the program demanded the concerted effort of both the learner and the learned.

Health evaluation of the women students of the agricultural families are carried out as a three-stage analysis. 1. The respondents reported their persistent diseases. Like Gastro Intestinal disease. Almost all students complained of the same symptoms prevalent in them. According to them the problem is so persistent that it demanded regular medical intervention. 2. Presentation of diet Chart and BMI analysis based on their food chart.(Absence of family awareness regarding their daughter's diet and their health indicated low BMI status of the respondents. (it is taken for granted that the women should not be given too much attention because after marriage they have to go to a different family so they should grow up the habit of adjusting with the new family situation. While the cases are different with the male, male member of the family are offered special care in their food and diet. they are considered as the future care taker of the family. 3 Haemoglobin test report of the respondents. While some respondents showed interest to go for Blood Sugar test and thalassemia test is arranged for the willing respondents. Blood group of the respondents are done along with haemoglobin test as an awareness drive.

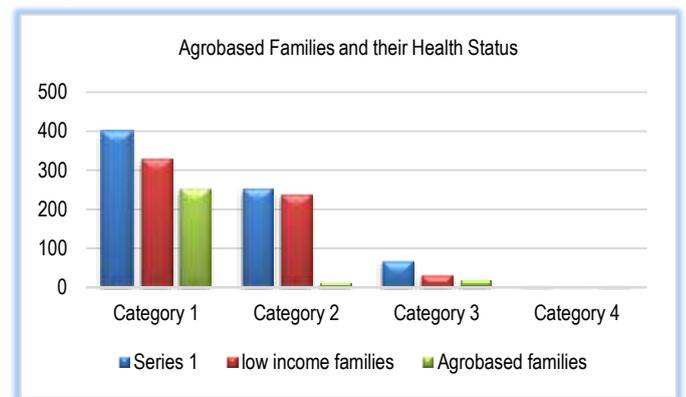


Fig- Agrobased families and their health status

Out of the total of 288 respondents, 255 respondents are detected from the lower income agro based families (include both land holders and land less categories) the percentage of student's respondents suffering from haemoglobin deficiency (<13) are 78% 198 respondents suffer from haemoglobin deficiency while rest 22% are normal (57 respondents) (>13). Hence, there is a close similarity in between the BMI status and haemoglobin deficiency and interestingly, the first category fall under low income category i.e. income within Rs3000/-Rs5000/- per month while rest 9.75 % fall under the income category in between Rs6000/-Rs20,000/- i.e., comparatively better income structure. However, the low-income families may be divided into two parts. Land owning Families and Lendless families. Land holder families having fragmented land can manage to procure their rice partly from the field but for the landless families, cash income is their only source. As a result, among the lower income group also there are two categories of health status of women.

The above data conforms the NFHS report (4) of 2015-16. The report that displays the Haemoglobin status of the women of the District. As per the official record 47.0% of the pregnant and married women in the age group of 15-49 are anemic (<11.0g/dl)%. While 68 % of the non-pregnant women of the same age group are anemic (<12.0 g/dl %). The overall anemia deficiency among the women from the rural areas of South 24 Parganas is 67.7%. The recent assessment therefore is an indication that nothing much changed within the time span. On the contrary, the health evaluation under the present research indicates that the education of the women community has failed to change their strategies in life regarding the importance of their health and nutritional status. Thus, the tenacity of women for higher education has encouraged the researcher to involve in their health and nutritional studies and hence proposed for nutritional awareness program for them so that their education and health need corroborate together and help them to change their vision in reality.

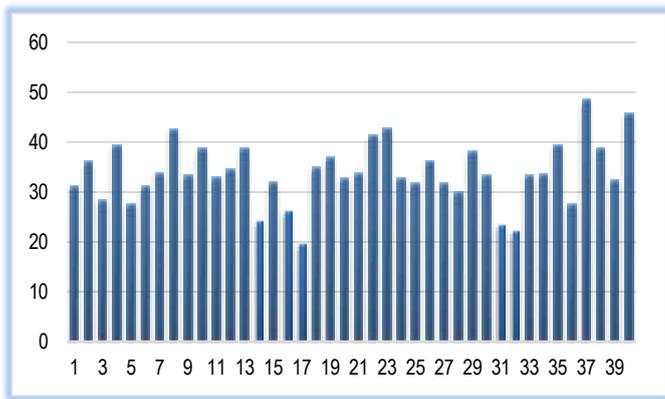


Fig-2 BMI of first 40 students

Over and above the 288 respondents 2 married and pregnant women expressed their willingness to join in the health evaluation team. Though they fall under the low-income reserved category women students, they are excluded from the list of respondents, because due to the detection of pregnancy they are kept directly under the supervision of Government Health Care Centre where regular supervision of the pregnant ladies, home care of the women by the Anganwaris and Asha Workers (Health workers of the Government health Care Centre) are done. Since this has opened a way to maintain constant watch on the health of the pregnant women, they are excluded from the health assessment program. Based on the Survey on Health analysis, the researcher made an effort to gather information on the general health status of the respondents. However, health assessment report indicated that out of 154 respondents 100 women respondents volunteered to undergo thalassaemia test and out of them 4% are detected as Beta Thalassaemia Carrier and 8% as HbE carrier. Unfortunately, till their mid-twenties they did not have any concept about the genetically impounded diseases prevalent in them. Regarding monthly visit to the Health Centre or to the Super Specialty Hospital, out of 400 respondents 60% reported that they visit the Hospital for health Check-up once in a month. In their opinion Gastro-intestinal discomfort a menstruation related discomfort in them compel them to visit the Medical Practitioner, 20% complained of regular occurrence of fever compel them to visit health Centre, rest 20% visit the Primary Health Centre occasionally and in case of emergency. However, no respondents are aware of their blood group. Health vulnerability of the region is one of the important issues. Involvement of women in Pisciculture results in the development of gynaecological problems among the women, while nutritional deficiency of the respondents from the land less families are in a severe state. Under the circumstance, the researcher became inquisitive to focus on the health and nutritional status of educated women in the district to find out the state of health of the educated women commuting the University from reserved category community. Purpose behind concentrating on this category is to find out the contribution of higher education on their health and nutritional status. The Government's Reservation policy on the one hand has offered them the scope to assimilate them in the mainstream society through special educational opportunities, under the condition that the academic exposure to realize the need for their overall development for their successful living. Hence, the question that remained unanswered at this stage is the level of their achievement in health awareness field. Since their overall development in the field is obstructed mainly by the culture of patriarchy, any positive stances in the field demanded awareness drive to develop the health awareness in them. Thus at the last stage of data collection a door to door ethnographic studies are done to evaluate the level of awareness achieved by the women community as a whole through the information dissemination expected to arrive from the educated women group within their community and how far the health and nutritional status of the women have enabled them to change their vision of life.

### Study Tools

The tools used in this survey mainly constituted interview-based questionnaire survey. The enquiry is mainly concentrated to the social and demographic conditions condition of the families, type of food consumed, general health issues,

sources of drinking water, quality of drinking water and water. Reproductive health was also a part of the survey while questionnaire consisted of the detailed information about the income and the number of members in the families to observe family members and food distribution correlation. Other than the information on general health status of the women. Health analysis part is analyzed by the Medical practitioner, based on bio-chemistry report of Haemoglobin test Thalassaemia test and blood sugar test, while the height weight measurement is done by the researcher with the help of student respondents through group formation helped the researcher in ancillary activities associated with the survey.

### Women Suffer Under Unequal Social Stigma: Agrarian Economy in India

The patriarchal socio-economic structure in Indian society observe class inequality between men and women. The women though inextricably absorbed in agro-based economy, inequality in agrarian society has affected adversely on her. The scenario is same in West Bengal. Though marked as one an agriculturally enriched state, women's inequality in agro-earning pattern has indirectly impacted the Government policies too. Instead of women's participation in the policy implementation field, the inequality in labour value has affected their participation in agriculture too. The present research while indicating the impact of inequality in agricultural labour value in India-West Bengal tries to display the effect of the men women discrepancies in labour value, that has disoriented the women community in reality. The paper while concentrating on the socio-economic position of women in agriculture tries to mention the changing trend of women's employment pattern in the village economy. Considering the shifting trend in the agro-economic situation, present research while highlighting the reality scenario emphasizes the rising trend in alternative family earning.

### Methodology

The research methodology adopted for the purpose of the present study involves historical, empirical, evaluative and analytical survey to explore the reality scenario in Indian agrarian society.

### Research Findings

Poverty in the women dominated agro-based families are due to the unequal labour values in between men and women hence the existence of the differences in income structure effects the women students to the utmost because the harsh economic situation deprives them from their share of nutrition to the utmost (even in the female dominated families). The present research through analytical survey, tries to explore the reality scenario, whose roots are ingrained in agro-horticultural policies determined by the farmers community in India.

Taking into consideration the health status of an average Indian educated woman from that background, the present research aims to imbibe in them the level of awareness in them on the need for healthy living, their daily diet, their awareness regarding the effect of their good health on the future generation and also how far they have contributed towards creating a healthy society by carrying the message of Good Health awareness to them and within their locality. To nurture all these issues sincerely and in collecting authentic data in this regard, the present survey is proposed to be taken up by the researcher through two-way method arranged chronologically; 1. Discussion and interaction. 2. Chalk out the plan (already initiated). 3. Selection of the mode of health evaluation 3. Collect information about the prevalent diseases in them on the past history of their diseases (Report collected from the student is attached. 3. Use of questionnaire for collecting dietary and other information (attached questionnaire) 4. Height weight measurement of the respondents (will be done within the University campus) 5. Haemoglobin test and consultation with the medical practitioner, nutritionist as a mode of direct support (already selected and discussion initiated), ancillary support like Blood test (responsibility taken by Government Super Specialty Hospital Medical Superintendent) 6. Information dissemination through student to student interaction. This will be done through student's involvement for necessary support (like Height weight measurement and filling up questionnaire) 6. Random selection of respondent for cross verification of the information given by them in the questionnaire (especially about the dietary chart).

Table-2 Categorization of the Agro-based families based on nutritional status

Cat.	Respondents from agro based families	Haemoglobin level	Height	Weight	BMI Status	Food Habit
1	170	<13 78% >13 22%	4.9 -5.00 63%	40-48 kg 63%	<18.5 63%	Rice, Lentil, prawn/Meat *
2	50	<13 42% >13 58%	4.9-5.00 47% 5.1-5.5 63%	40-48kg 47% 50-55kg 63%	<18.5 47% 18.6-24 63%	Rice, fish vegetable **
3	35	<13 48% >13 62%	4.9-5.00 52 % 5.1-5.5 48%	40-48 kg 50% 50-55kg 37% 56-67kg 13%	<18.5 50% 18.6-24 37% >25 13 %	Rice Dal and Meat ***
4.	33	<13 46%	4.9-5.00 48% 5.1-5.5 42% 5.5 10%	40-48 kg 48% 5,1-5.5 42% 56-61kg 10%	<18.5 58% 18.6-24 32% <25 10%	Rice Dal Meat /fish****

Land less families include both Hindu & Muslim families. \*\* landed Hindu families. \*\*\*Landed Muslim families. \*\*\*\*Agro Business families both Hindu and Muslim (Meat is the staple food of the Muslim families. They take meat three times a day as said by the Muslim respondents. Among the first three categories no significant difference is observed but 4<sup>th</sup> category falls under comparatively higher income group but no significant difference is observed among them in their style of living, respondents mentioned of larger number of family members.

University students will be involved during their free time with the permission of the University authority. Already preliminary permission of the University authority is acquired verbally and the stage-wise development in the field is expected to be done within the University campus with the time to time development of the research. Involvement of the students in data collection like, interaction with the students, helping them to fill up questionnaire by the students through student to student interaction as an important means of information dissemination through the students at the grass root level.

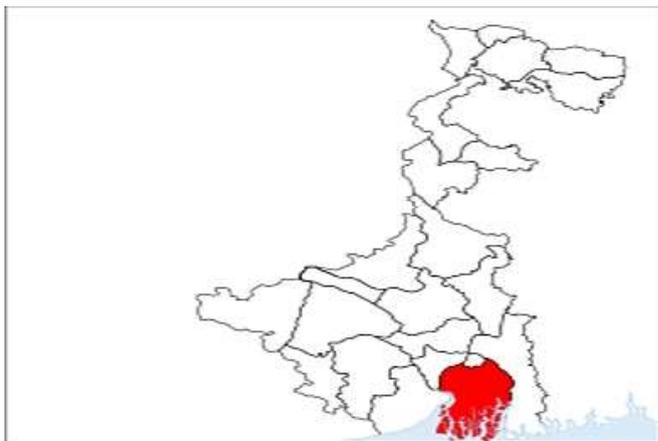


Fig-3 Map of South 24 Parganas indicating Delta Region that include Sunderland Delta where Majority residents are based on agro-occupation

**Conclusion**

While evaluating the health status of the women students of South 24 Parganas one has to accept the level of vulnerability the residents face in their everyday living, the locality is not only responsible for the development of severe health constraints in them. Their socio-economic status is also responsible for the development of health and nutritional vulnerability in women. The factors responsible for that are many. 1. Financial constraint of the families, 2. System of Patriarchy prevalent in the families result in the neglect of women's health and nutritional needs. 3. Early marriage. 4. Girl child constraint their academic pursuit. 5. Early child birth constraints her health. 6. Birth of girl child constraint the family members to treat her as an insider because women are treated as an outsider and meant for marriage, hence spending money on them is never considered viable. 7. Environmental vulnerability among the respondents of Delta Region is one of the major hurdles for their survival. However, Kanyashree Prokalpa (Support to the education of Girls) of the Government of West Bengal became an important gateway for the education of the women. As per 2018-19 data women's enrolment in the higher educational field has significantly increased. The reflection of such a

positive trend as observed among the women of South 24 Parganas District may create a positive impact if an overall health and nutritional program is adopted for the women of the District on a regular basis.

**Application of research:** The article may be treated as an authentic document containing information of the health and nutritional status of the Women of the agricultural families. Hence based on the information steps may be taken by the Government of West Bengal to extend help to the family women (marked as Students) for their health support so that their academic pursuit is fulfilled by the ancillary health support to them so that deficiencies in them may be overcome.

**Research Category:** Social Sciences

**Abbreviations:** ICSSR: Indian Council of Social Sciences Research. WHO: World Health Organization, NFHS: National Family Health Survey BMI: Body Mass Index, NGO: Non-Government Organization SC: Schedule Caste, ST Schedule Tribe, OBC: Other Backward Classes OBC A: Other Backward Classes Muslim OBC B: Other Backward Classes Hindu

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University: Institute of Development Studies Kolkata (IDSK), Kolkata, 700064, West Bengal, India  
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**Author Contributions:** Sole Author

**Author statement:** Author read, reviewed, agreed and approved the final manuscript. Note-Author agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

**Study area / Sample Collection:** Diamond Harbour Women's University, Sarisha, 743368, West Bengal

**Cultivar / Variety / Breed name:** Nil

**Conflict of Interest:** None declared

**Ethical approval:** This article does not contain any studies with human participants or animals performed by any of the authors.

Ethical Committee Approval Number: Nil

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