Occupational Health Hazards of Farm Women: the Nature and Ecology

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Abstract—*The role of agriculture in Indian economy is predominant. But farm women involve much more burden as they are homemakers as well .It affects their health badly. As we know, maximum of the farm activities are done under the open sky .So, they face scorching sun and torrential rains, involving longer working hours without significant resting period. This causes drudgery to their health. And the harmful agro-chemicals are also pernicious equally to their health and ecology. Lots of mental stress are also there causing psycho-social hazards, .A study on this topic, was carried out at Pandua Block in Hooghly district as they are also suffering the same, with objectives to assess the extent of hazards and their health parameters and way of living as indication to this harm. In order to collect the reliable experimental data, the selected parameters were taken, like: Height, Weight, B.M.I., Blood report, Main health problems, working hours, prevalent mental stresses, agro-chemicals used etc. They are suffering fever, stomach problems, skin abnormalities, weakness, kidney problems, gynaecological problems, respiratory hazards etc. So, the farm women should be enlightened about their health issues, if not, it will destroy a major workforce of agriculture.*

Keywords: *Ecology, farm women, health.*

1. INTRODUCTION

A hazard is something that can cause harm if not controlled. It is an unplanned, unforeseen or uncontrolled event- generally one which has unhappy consequences. It also refers to the potential risks to health and safety for those who work outside and inside the home (Nag PK, Sebastian NC, Malvankar MG;1980) . As farm women are involve both in household and farm activities, they are more prone to this. They are exposed both outdoor and indoor environment. Majority of the rural women are exposed to occupational hazards. UNFPA in its recommendation had advocated the need for more research to be carried out on hazards posed to health by occupational activities in rural settings with the synergistic effects of heavy household work, malnutrition, multiple pregnancies as they affect poor women in developing countries. In spite of this advocacy, few research works have been documented. Over the years, it was observed that modern technology has done little to improve the welfare of women **(Annan-Yao et al. 2004). Sims (1994)** also listed health problems of women in pesticide exposure with adverse effect on pregnancy outcomes. Pesticides are absorbed into the body through three routes: inhalation (lungs), ingestion (stomach), dermal absorption (through the skin, eyes and mucous membrane of the respiratory tracts). The symptoms vary from headaches to cancer. Other notable symptoms of pesticide poisoning are abdominal pain, vomiting, headache, dizziness, mucous spasm, delirium, watery or bloody diarrhoea and sometimes convulsions that reflect direct injury to the central nervous system plus extra cellular electrolyte disturbances and shock showing chemical poisoning. Because of heavy reliance on chemical pesticides, large quantities of toxic materials remaining in the environment cause irreparable human health hazards.

2. OBJECTIVES

1. To elucidate the burning issues and challenges related to occupational health of farm women,

2. To study the inter-relationship between the health hazards and the operating agro-ecosystem.

3. MATERIALS AND METHODS

Total of 90 farm women were selected as respondents from three segments of village Boinchigram at Pandua block of Hooghly district under West Bengal, were selected purposively for the study.

3.1. Sampling Technique and Sampling Design

Step	Items	Level	Approach
1	State	West Bengal	Purposive
2	District	Hooghly	Purposive
3	Block	Pandua	Purposive
4	Gram -Panchayat	Bantika- Boinchi	Purposive
5	Village	Boinchigram	Purposive
6	Respondents	90	Random
Total number of respondents : 90			

Criteria for measuring the harm:

Independent variables:-Age (x1),No of children(x2),Number of farm work (x3),working hour per day (x4),Incidence level of miscarriage (x5), Number of animals reared (x6),Height (ft) (x7),Weight (kg) (x8),BMI(x9),Cereals consumed per day (g) (x10), Protein consumed per day (g) (x11),Fruits consumed per day(g) (x12), Vegetables consumed per day (g) (x13), Total carbohydrate consumed per day (g) (x14), Fat taken per day (g)(x15), Breakfast time in a.m. (x16), Lunch time in p.m. (x17), Dinner time in p.m. (x18),Calorie in carbohydrate per day(x19), Calorie in protein per day(x20), Calorie in fat per day (x21),Total calorie per day (x22), Size of holding

in katta (x23), Family income per annum(x24),Per capita income per annum (x25),Family expenditure per annum (x26), Per capita expenditure (Rs.) per annum (x27),Functional literacy (x28).

Dependent variables:-Perceived physical problems (y1), Psycho-social hazards (y2) and Frequency of Visit to doctor (y3).

4.   RESULTS

4.1. Descriptive statistics of independent and dependent variables with respect to Mean, Standard Deviation of values and Coefficient of variance:

Sl. No.	Variables	Range	Mean	SD	CV
1	Age (x1)	18-72	41.91	14.45	34.47864
2	No of children (x2)	0-5	1.83	1.11	60.65574
3	Number of farm work (x3)	1 -- 6	3.62	1.52	41.98895
4	working hour per day (x4)	3.5-7	5.41	0.92	17.00555
5	Incidence level of miscarriage (x5)	0 - 1	0.16	0.36	225
6	Number of animals reared (x6)	0 - 11	2.19	2.27	103.653
7	Height (ft) (x7)	4.5 - 5.6	4.98	0.28	5.62249
8	Weight (kg) (x8)	41 - 57	46.39	3.87	8.342315
9	BMI (x9)	14.4 - 29.25	20.26	2.62	12.93189
10	Cereals consumed per day (g) (x10)	300 - 450	363.34	38.54	10.60714
11	Protein consumed per day (g) (x11)	30 - 62	42.06	8.24	19.59106
12	Fruits consumed per day(g) (x12)	12.5 - 40	20.18	6.69	33.15164
13	Vegetables consumed per day (g) (x13)	123 - 201	159.47	19.75	12.38477
14	Total carbohydrate consumed per day (g) (x14)	320 - 480	383.52	39.87	10.39581
15	Fat taken per day (g) (x15)	15.5 - 34	24.5	3.97	16.20408
16	Breakfast time in a.m. (x16)	4 - 6.3	4.95	0.65	13.13131
17	Lunch time in p.m. (x17)	2 - 4.45	3.08	0.75	24.35065
18	Dinner time in p.m. (x18)	8 - 10. 45	9.3	0.65	6.989247
19	Calorie in carbohydrate per day (x19)	1280 - 1920	1534.09	159.49	10.39639
20	Calorie in protein per day(x20)	120 - 248	168.22	32.94	19.5815
21	Calorie in fat per day (x21)	139.5 - 306	220.51	35.74	16.20788
22	Total calorie per day (x22)	1598 - 2308	1922.82	163.15	8.484934
23	Size of holding in katta (x23)	1 - 55	13.93	14.52	104.2355
24	Family income per annum (x24)	20000 - 75000	49033.3	11819	24.1046
25	Per capita income per annum (x25)	8000 - 27500	14368.2	5309.9	36.95591

26	Family expenditure per annum (x26)	15000 - 65000	43255.6	9456.7	21.8623
27	Per capita expenditure (Rs.) per annum (x27)	7500 - 25000	13500.5	6620.1	49.03611
28	Functional literacy (x28)	1 -- 5	206.13	1364.2	661.7911
1	Perceived physical problems (y1)	6 -- 10	8.1	1.91	23.58025
2	Psycho-social hazards(y2)	0 -- 13	4.76	2.73	57.35294
3	Frequency of Visit to doctor (y3)	2 -- 12	4.33	2.6	60.04619

5. DISCUSSION

The table presents the distribution of variables in terms of mean, SD and CV. It has been found from the study that the mean **age(X1)** is 41.91 years and it ranges from 18 to 72 with standard deviation, 14.45 for the total distribution is taken for the study. Coefficient of variation of age is 34.48 per cent which show a moderate level of consistency in its distribution nature.

The independent variable, **number of children (X2)** of farm women has been found from the study that it lies within the range 0 to 5 with a mean value 1.83 and standard deviation (SD), 1.11 for the total distribution is taken for the study. Coefficient of variation of **number of children (X2)** is 60.65 per cent which shows a moderate level of consistency in its distribution .

The independent variable, **number of farm work (X3)** has been found from the study that it ranges from 1 to 6 with the mean 3.62 and standard deviation (SD), 1.52 for the total distribution has taken for the study. Coefficient of variation of **number of farm work (X3)** is 41.99 per cent which show a moderate level of consistency in its distribution.

The independent variable, **working hour per day (X4)** of farm women has been found from the study that the mean 5.41 and range is 3.5-7 with standard deviation(SD), 0.92 for the total distribution has taken for the study. Coefficient of variation of **working hour per day (X4)** is 17 per cent which shows a high level of consistency in its distribution.

The independent variable, **incidence level of miscarriage(X5)** has been found from the study that the range is 0 to 1 and mean 0.16 with standard deviation(SD), 0.36 for the total distribution has taken for the study. Coefficient of variation of

incidence level of miscarriage (X5) is 225 per cent which shows a low level of consistency in its distribution.

The independent variable, **Number of animals reared (X6)** by the farm women has been found from the study that the mean 2.19 and it ranges from 0 to 11 with standard deviation(SD), 2.27 for the total distribution has taken for the study. Coefficient of variation of **Number of animals reared (X6)** is 103.653 per cent which shows a moderate level of consistency in its distribution.

The independent variable, **Height (X7)** of farm women has been found from the study that the mean 4.98 and range of 4.5 to 5.6 with standard deviation(SD), 0.28 for the total distribution has taken for the study. Coefficient of variation of **Height (X7)** is 5.62 per cent which shows a high level of consistency in its distribution.

The independent variable, **Weight (X8)** of farm women has been found from the study that the mean 46.39 and ranges from 41 to 57 with standard deviation(SD), 3.87 for the total distribution has taken for the study. Coefficient of variation **Weight (X8)** of is 8.34 per cent which shows high level of consistency in its distribution.

The independent variable, **BMI (X9)** of farm women has been found from the study that the mean 20.26 with standard deviation (SD), 2.62 for the total distribution is taken for the study. Coefficient of variation of **BMI(X9)** is 12.93 per cent which shows a high level of consistency in its distribution.

The independent variable, **cereals consumed (X10)** by the farm women has been found from the study that the range is 300 to 450 mean 363.34 with standard deviation(SD),

38.54 for the total distribution is taken for the study. Coefficient of variation of **cereals consumed (X10)** is 10.60 per cent which shows a high level of consistency in its distribution.

The independent variable, **protein consumed (X11)** by the farm women has been found from the study that the mean 42.06 and range 30 to 62 with standard deviation(SD), 8.24 for the total distribution is taken for the study. Coefficient of variation of **protein consumed (X11)** is 19.59 per cent which shows a high level of consistency in its distribution.

The independent variable, **fruits consumed (X12)** by the farm women has been found from the study that the mean 20.18 and range 12.5 to 40 with standard deviation(SD), 6.69 for the total distribution is taken for the study. Coefficient of variation of **fruits consumed (X12)** is 33.15 per cent which shows a moderate level of consistency in its distribution.

The independent variable, **vegetables consumed (X13)** by the farm women has been found from the study that it ranges from 123 to 201 and mean 159.47 with standard deviation(SD), 19.75 for the total distribution is taken for the study. Coefficient of variation of **vegetables consumed (X13)** is

12.38 per cent which shows a high level of consistency in its distribution.

The independent variable, **total carbohydrate consumed (X14)** by the farm women has been found from the study that it lies within the range 320 to 480 and mean 383.52 with standard deviation(SD), 39.87 for the total distribution is taken for the study. Coefficient of variation of **total carbohydrate consumed(X14)is** 10.39 per cent which shows a good level of consistency in its distribution.

The independent variable, **fat consumed(X15)** by the farm women has been found from the study that the range is 15.5 to 34 and mean 24.5 with standard deviation (SD), 3.97 for the total distribution has taken for the study. Coefficient of variation of **fat consumed (X15) is** 16.20 per cent which shows a high level of consistency in its distribution.

The independent variable, **breakfast time (X16)** of the farm women has been found from the study that the range is 4 to 6.3 and mean 4.95 with standard deviation(SD), 0.65 for the total distribution has taken for the study. Coefficient of variation of **breakfast time (X16)** is 13.13 per cent which shows a good level of consistency in its distribution.

The independent variable, **lunch time (X17)** of farm women has been found from the study that the mean 3.08 and ranges from 2 to 4.45 with standard deviation(SD), 0.75 for the total distribution has taken for the study. Coefficient of variation of **lunch time (X17)** is 24.35 per cent which shows a high level of consistency in its distribution.

The independent variable, **dinner time(X18)** of farm women has been found from the study that the mean 9.3 and range is from 8 to 10.45 with standard deviation(SD), 0.65 for the total distribution is taken for the study. Coefficient of variation of **dinner time(X18)** is 6.98 per cent which shows a high level of consistency in its distribution.

The independent variable, **calorie in carbohydrate consumed per day (X19)** by the farm women has been found from the study that the range is 1280-1920 and mean 1534.09 with standard deviation(SD),159.49 for the total distribution has taken for the study.Coefficient of variation of **calorie in carbohydrate consumed per day (X19)** is 10.39 per cent which shows a high level of consistency in its distribution.

The independent variable, **calorie in protein consumed per day (X20)** by the farm women has been found from the study that the mean 168.22 and it ranges from 120 to 248 with standard deviation(SD), 32.94 for the total distribution has taken for the study.

Coefficient of variation of **calorie in protein consumed per day (X20)** is 19.58 per cent which shows a high level of consistency in its distribution.

The independent variable, **calorie in fat consumed per day (X21)** by the farm women has been found from the study that the range is 139.5 to 306 and mean 220.51 with standard deviation(SD), 35.74 for the total distribution has taken for the study. Coefficient of variation of **calorie in fat consumed per day (X21)** is 16.20 per cent which shows a high level of consistency in its distribution.

The independent variable, **total calorie consumed per day (X22)** of farmers has been found from the study that the range is 1598 to 2308 and mean is 1922.82 with standard deviation (SD), 163.15 for the total distribution has taken for the study. Coefficient of variation of **total calorie consumed per day (X22)** is 8.48 per cent which shows a high level of consistency in its distribution.

The independent variable, **size of holding(X23)** of the family of farm women has been found from the study that it ranges from 1 to 55 and mean 13.93 with standard deviation(SD), 14.52 for the total distribution has taken for the study. Coefficient of variation of **size of holding(X23)** is 104.23 per cent which shows a low level of consistency in its distribution.

The independent variable **family income (X24)** of the farm women has been found from the study that, the mean value is 49033.33 and the range is from 20000 to 75000 with standard deviation(SD), 11819.29 for the total distribution is taken for the study. Coefficient of variation of **family income (X24)** is 24.10 per cent which shows a high level of consistency in its distribution.

The independent variable, **per capita income per annum (X25)** of the farm women has been found from the study that the mean 14368.23 and ranges from 8000 to 27500 with standard deviation(SD), 6620.12 for the total distribution is taken for the study. Coefficient of variation of **per capita income per annum (X25)** is 49.03 per cent which shows a moderate level of consistency in its distribution.

The independent variable, **family expenditure (X26)** of the farm women has been found from the study that the range is 15000 to 65000 and mean 43255.55 with standard deviation(SD), 9456.66 for the total distribution is taken for

the study. Coefficient of variation of **family expenditure (X26)** is 21.86 per cent which shows a good level of consistency in its distribution.

The independent variable, **per capita expenditure per annum (X27)** of the farm family has been found from the study that the range lies in between 7500 to 25000 and mean is 13500.5 with standard deviation(SD),6620.12 for the total distribution has taken for the study. Coefficient of variation of **per capita expenditure per annum (X27)** is 49.03 per cent which shows a moderate level of consistency in its distribution.

The independent variable, **functional literacy(x28)** of farm women has been found from the study that the mean 206.13 and ranges from 1 to 5 with standard deviation (SD), 1364.15 for the total distribution has taken for the study. Coefficient of variation of **functional literacy(x28) is** 661.79 per cent which is extremely inconsistent in its distribution.

The dependent variable, **perceived physical problems (y1)** of the farm women has been found from the study that it ranges from 6 to 10 and the mean 8.1 with standard deviation(SD),1.91 for the total distribution has taken for the study. Coefficient of variation of **perceived physical problems (y1)** is 23.58 per cent which shows a high level of consistency in its distribution.

The dependent variable, **psycho-social hazards (y2)** of farm women has been found from the study that the mean 4.76 and ranges from 0 to 13 with standard deviation(SD), 2.73 for the total distribution has taken for the study. Coefficient of variation of **psycho-social hazards (y2)** is 57.35 per cent which shows a moderate level of consistency in its distribution.

The dependent variable, **frequency of visit to doctor (y3)** of farm women has been found from the study that the mean 4.33 with the range 2 to 12 with standard deviation(SD), 2.6 for the total distribution has taken for the study. Coefficient of variation of **frequency of visit to doctor (y3)** is 60.04 per cent which shows a moderate level of consistency in its distribution.

6. CONCLUSION

Any kind of productive function is basically a pre-supposition of ecological health, deliverables and resilience. The unabated entry of pernicious molecules into the ecological functions can add only a bizarre in the system behaviour of any agro-ecology. An restricted exposure to poisoned 'ecological components' is so damaging and may lead to a consequence of lethality at the worst. With a broken heart and motivation eroded, how could a farm woman sustain the family, the community and of course to her own life as well .If this is not controlled earlier, our future workforce will suffer.

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