

## **Farming Practices among the Slum Dwellers of Rajshahi City, Bangladesh**

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### **Abstract**

Bangladesh is a developing country and 80% of the people are involved directly or indirectly on farming and agriculture. Goat, cow, chicken & duck are the major sub-sectors of the country's farming sector and vegetable is one of the major sub sector of the country's backyard gardening. Some of the slum people in Bangladesh are closely involved in various farming and gardening activities. They participate in the production process and perform many distinct activities which have great bearing on the production process. Aim of the paper is to observe farming trends and associate determinants among the slum dwellers in Rajshahi City Corporation. Our data was from a pilot study of 250 respondents of a survey on "Health Status of Slum Dwellers in Rajshahi City". Study area for the pilot survey was ward number 28 and 30. Study population was adult slum dwellers. Data collection period was Nov 2010 to Jan 2011. Descriptive method (mean with standard deviation, frequency with percentage whichever applicable) was used to know characteristic of the study subjects. Comparison of various factors to farming was performed using chi-square (Pearson or LR whichever applicable) test. Mean age of the respondent was 30.88 yrs with standard deviation 10.68, female was 56%, some of their citable professions were daily labor (21.62%), pulling rickshaw (10.81%) small business (7.43%) etc, family income was tk 90493 per year with standard deviation 67068. We found that among the slum dwellers 23.65% respondents was involved in goat farming, 15.54% in cow farming, 16.22% in chicken farming, 7.43% in duck farming and 12.84% in backyard gardening. A major part (52.03%) of the slum dwellers were not involved in any farming and backyard gardening. It was also observed that family status, total number of earning members and family income were significantly associated with goat farming (p-value=0.001, 0.034 and <0.001 respectively). On the other hand, the families with larger number of family members were more involved in cow farming (p-value=0.034) and chicken farming (p-value=0.012). Combined families were also involved more than unique families in chicken farming. None of the variables was found to be significantly associated with duck farming. It was further found that those families whose number of earning members were lower were involved more in backyard gardening. It is quite evident that total farming condition of the slum dwellers of Rajshahi city is about half

(47.97%). Therefore, government and non-government organization should take more effective steps to increase farming practices among slums.

**Keywords:** Descriptive Statistics, Standard Deviation, Chi-squared Test, Farming, Backyard Gardening, Slums.

**AMS Classification:** 62H05.

## 1. Introduction

Bangladesh is one of the most populated countries of the world. Due to very high population, the nation has always been struggling against poverty and starvation. More than 80% of the population, living in rural areas, depends directly or indirectly on farming or gardening. Goat, cow, chicken & duck are the major sub-sectors of the country's farming sector and backyard gardening is one of the major sub sector of the country's gardening. Farming and gardening are important for both economic and nutritional reasons. Livestock and poultry is an integral part of the farming systems and perform a variety of roles. The species of animals are cattle, goats, chicken and ducks but seldom of all these animals are maintained together. The value of animals in this context is also related to their multi-purpose use. Large ruminants are used to provide draught power, meat and milk and the supply of manure for fuel and fertilizer. Small ruminant is valued for meat, milk, fiber and skin production. They are raised under the small farm holdings under traditional system (scavenging) of management. Animals are owned by individual households and mostly maintained a system with little or no inputs for housing, feeding or health care. Backyard gardening is one of the world's most ancient agricultural practices. People have planted vegetables and fruits in their own backyard. Backyard gardening is an important component of household food security, contributes to household income and savings, and moreover, improves the health and nutritional well-being of the family. In Bangladesh, 90% of the vitamin A in the diet comes from vegetable sources and backyard gardening has been cited as a key strategy for promoting production and consumption of vitamin A rich foods.

In our country, thousands of people are living below poverty level. A part of them are living in slums. Some of slum people in Bangladesh are closely involved in various farming and gardening activities which have great bearing on the food production process.

## **2. Materials and Methodology**

Our data was from a pilot study of 250 respondents of a survey on “Health Status of Slum Dwellers in Rajshahi City”. Original sampling method is two-stage PPS. First stage units are 35 wards of Rajshahi city and second units are the slum dwellers (per household basis) of the wards. Sample frame was done by the team of a project on “Disease-specific out-of-pocket expenditure on health care and coping strategies for health care costs in Rajshahi district, Bangladesh” jointly done by Tokyo University, Japan and Rajshahi University, Bangladesh. Study area for the pilot survey was ward number 28 and 30. Study population was adult slum dwellers. Data collection period was Nov 2010 to Jan 2011.

All recorded data were first coded in code sheets according to a comprehensive code plan. Data entry was performed using a spreadsheet application (Microsoft Excel-2007) and data analysis was performed by using SPSS (Statistical Package for Social Science) version 15.0. Data set was screened regarding our study and valid sample size was found to be 148. Descriptive statistics (mean with standard deviation, median with IQR or frequency with percentage where appropriate) were primarily observed. Chi-square test (Pearson or LR whichever applicable) was used for categorical variable to find association of various covariates to farming. Independent-sample t-test was used for comparing continuous variable to farming and Mann-Whitney U-test was used for discrete variable.

## **3. Result and Discussions**

Socio-demographic status along with farming status is studied to know the characteristic of the study subjects (Table 1). We found that mean age of the respondent was 30.88 yrs with standard deviation 10.68. Of the respondent female was 56%; maximum of the respondents were illiterate (56.08%) following with primary level 34.46% and with secondary level 9.46%; maximum of them were Muslim (97.30%). Some of their citable professions were daily labor (21.62%), pulling rickshaw (10.81%) small business (7.43%) etc. Mean family income was tk 90493 per year with standard deviation (sd) 67068; on an average family savings per year was tk 1182 with sd 1705. Maximum of them (52.03%) have family member 5 and more, but earning member is only one (47.29%) which is the general picture of Bangladesh. The study showed that among the slum dwellers 23.65% respondents was involved in goat farming, 15.54% in cow farming, 16.22% in chicken farming, 7.43% in duck farming and 12.84% in backyard gardening. A major part (52.03%) of the slum dwellers were not involved in any farming and backyard gardening.

Various factors were compared to farming status. It was observed that family status, total number of earning members and family income were significantly associated with goat farming (p-value=0.001, 0.034 and <0.001 respectively). It was also observed that unique families, the families with one earning member and the families with tk 61000 to 120000 income per year are more involved in goat farming. On the other hand, the families with larger number of family members were more involved in cow farming (p-value=0.034) and chicken farming (p-value=0.012). Combined families were also involved more than unique families in chicken farming. None of the variables was found to be significantly associated with duck farming. It was further found that those families whose number of earning members were lower were involved more in backyard gardening.

#### **4. Conclusion**

Bangladesh, both an agrarian and a very densely populated country, shows a chronicle food deficit and it is severe in slum areas. Most of the families in slum areas had protein intakes below estimated requirements [1]. Women suffers from it more than men and most of the females are of lower than standard BMI [2]. Therefore, micro-level home farming might be the proper choice to fulfill the lack of protein. On the other hand, of the micro-nutrients the severest deficiencies were in respect of riboflavin and vitamin A in slum areas [1]. Hence, backyard gardening might play vital role in vitamin A and mineral supplements.

The study shows that slum dwellers with above 4 family members were more involved in cow farming and chicken farming, but slum dwellers with one earning member were more involved in goat farming and backyard farming. Nutrient intakes are quiet related to income [3]. Therefore, profession is also an important factor for the study and was found to be significant to cow farming. It was also found that slums who were labor were less interested to cow farming and slums with small business were more interested to cow farming. Slum dwellers with family income per year taka 61000 to 120000 were more involved in goat farming. It was also found that unique families were more involved in goat farming, but combined families were more involved in chicken farming.

From the above discussions it is quite evident that total farming condition of the slum dwellers of Rajshahi city is about half (47.97%). As the slum dwellers belong to the poor group, they are not able to fulfill the nutrient intakes. One solution could be to lift up farming practice and backyard gardening within their abilities. Therefore, government and non-government organizations should take more effective steps to increase farming practices among slums of Rajshahi City Corporation. More insightful information can be got from complete survey.

## Reference

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**Table 1:** Characteristics of the 148 respondents in the study.

| Characteristics                     | (N = 148)        |
|-------------------------------------|------------------|
| Age                                 | 30.88(10.68)     |
| Female (%)                          | 83(56.08)        |
| Family status (Unique)              | 101(68.24)       |
| Education (%)                       |                  |
| Illiterate                          | 83(56.08)        |
| Primary                             | 51(34.46)        |
| Secondary                           | 14(9.46)         |
| Profession (%)                      |                  |
| Labor                               | 32(21.62)        |
| Business                            | 11(7.43)         |
| Rickshaw puller                     | 16(10.81)        |
| Other                               | 89(60.14)        |
| Religion (%)                        |                  |
| Islam                               | 144(97.30)       |
| Hindu                               | 4(2.70)          |
| Others                              | 0                |
| Saving per year, mean (S.D.)        | 1182.05(1705.07) |
| Family Member (%)                   |                  |
| 2                                   | 2(1.35)          |
| 3                                   | 37(25)           |
| 4                                   | 32(21.62)        |
| 5 and above                         | 77(52.03)        |
| Earning Member (%)                  |                  |
| 1                                   | 70(47.29)        |
| 2                                   | 40(27.03)        |
| 3                                   | 26(17.57)        |
| 4 and above                         | 12(8.11)         |
| Family Income (%)                   |                  |
| ≤60000                              | 51(34.46)        |
| 61000 to 120000                     | 72(48.65)        |
| 120000 and above                    | 25(16.89)        |
| Farming & gardening Information (%) |                  |
| Goat                                | 35(23.65)        |
| Cow                                 | 23(15.54)        |
| Chicken                             | 24(16.22)        |
| Duck                                | 11(7.43)         |
| Backyard Gardening                  | 19(12.84)        |
| Total farming (%)                   | 71(47.97)        |

Table 2: Comparing various factor to farming.

|  | Goat farming     |           | Cow farming |            | Chicken farming |           | Duck farming |           | Backyard gardening |           |
|--|------------------|-----------|-------------|------------|-----------------|-----------|--------------|-----------|--------------------|-----------|
|  | No(n=113)        | Yes(n=35) | No(n=125)   | Yes(n=23)  | No(n=124)       | Yes(n=24) | No(n=137)    | Yes(n=11) | No(n=129)          | Yes(n=19) |
| Total family<br>number                   | ≤3               | 26(23.0)  | 13(37.1)    | 37(29.6)   | 2(8.7)          | 35(28.2)  | 4(16.7)      | 36(26.3)  | 33(25.6)           | 4(21.1)   |
|  | 4                | 25(22.1)  | 7(20.0)     | 29(23.2)   | 3(13.0)         | 31(25.0)  | 1(4.2)       | 31(22.6)  | 1(9.1)             | 30(23.3)  |
|  | 5&above          | 62(54.9)  | 15(42.9)    | 59(47.2)   | 18(78.3)        | 58(46.8)  | 19(79.2)     | 70(51.1)  | 7(63.6)            | 64(49.6)  |
|  | P-value          | 0.223     |             | 0.034      |                 | 0.012     |              | 0.635     |                    | 0.338     |
| Total earning<br>number                  | 1                | 50(44.2)  | 20(57.1)    | 61(48.8)   | 9(39.1)         | 60(48.4)  | 10(41.7)     | 66(48.2)  | 4(36.4)            | 60(46.5)  |
|  | 2                | 28(24.8)  | 12(34.3)    | 31(24.8)   | 9(39.1)         | 36(29.0)  | 4(16.7)      | 38(27.7)  | 2(18.2)            | 32(24.8)  |
|  | 3&above          | 35(31.0)  | 3(8.6)      | 33(26.4)   | 5(21.7)         | 28(22.6)  | 11(41.7)     | 33(24.1)  | 5(45.4)            | 37(28.7)  |
|  | P-value          | 0.001     |             | 0.272      |                 | 0.221     |              | 0.240     |                    | 0.028     |
| Profession                               | Labor            | 29(25.7)  | 3(8.6)      | 30(24.0)   | 2(8.7)          | 28(22.6)  | 4(16.7)      | 31(22.6)  | 1(9.1)             | 30(23.3)  |
|  | Small business   | 7(6.2)    | 4(11.4)     | 6(4.8)     | 5(21.7)         | 8(6.5)    | 3(12.5)      | 10(7.3)   | 1(9.1)             | 9(7.0)    |
|  | Rickshaw pulling | 11(9.7)   | 5(14.3)     | 14(11.2)   | 2(8.7)          | 12(9.7)   | 4(16.7)      | 14(10.2)  | 2(18.2)            | 12(9.3)   |
|  | Other            | 66(58.4)  | 23(65.7)    | 75(60.0)   | 14(60.9)        | 76(61.3)  | 13(54.2)     | 82(59.9)  | 7(63.6)            | 78(60.5)  |
|  | P-value          | 0.112     |             | 0.042      |                 | 0.535     |              | 0.647     |                    | 0.322     |
| Family income<br>thousand \$<br>per year | ≤60              | 39(34.5)  | 12(34.3)    | 46.8(36.8) | 5(21.7)         | 42(33.9)  | 9(37.5)      | 45(32.8)  | 6(54.5)            | 47(36.4)  |
|  | 61-120           | 49(43.4)  | 23(65.7)    | 61(48.8)   | 11(47.8)        | 64(51.6)  | 8(33.3)      | 67(48.9)  | 5(45.5)            | 59(45.7)  |
|  | 120& above       | 25(22.1)  | 0(0)        | 18(14.4)   | 7(30.4)         | 18(14.5)  | 7(29.2)      | 25(18.2)  | 0(0.0)             | 23(17.8)  |
|  | P-value          | <0.001    |             | 0.120      |                 | 0.134     |              | 0.079     |                    | 0.176     |
| Family<br>status                         | Unique           | 72(63.7)  | 29(82.9)    | 87(69.6)   | 14(60.9)        | 89(71.8)  | 12(50.0)     | 94(68.6)  | 7(63.6)            | 85(65.9)  |
|  | Combined         | 41(36.3)  | 6(17.1)     | 38(30.4)   | 9(39.1)         | 35(28.2)  | 12(50.0)     | 43(31.4)  | 4(36.4)            | 44(34.1)  |
|  | P-value          | 0.034     |             | 0.408      |                 | 0.036     |              | 0.996     |                    | 0.109     |

Note: p-values were calculated from Chi-square test.