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FACTORS AFFECTING THE HOUSEHOLD DIETARY DIVERSITY PATTERN IN RURAL AREAS OF SOUTHERN PUNJAB, PAKISTAN

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ABSTRACT

This study has been designed to examine the household characteristics that affect the household dietary diversity pattern in rural areas of Southern Punjab, Pakistan. Household Dietary Diversity Pattern (HDDP) indicates the economic ability of a household to access a variety of foods. Apparently, HDDP is simple but affected by many collaborative factors. HDDP is multidimensional in nature. It depends on four important components: availability, stability, accessibility, and utilization. So, there are many socio-economic characteristics that can affect HDDP. Primary data was collected from 300 rural households. A detailed questionnaire was developed by following the guidelines of FAO for seeking information from the respondents. The ordered logistic regression was used for data analysis. The results of this study indicate that estimated coefficients of education, income, land size and livestock affect positively household dietary diversity score. The estimated coefficient of the age of household head, family size of household and time to reach the main market affect negatively household dietary diversity score. The study also suggested important policy recommendations to improve the dietary diversity score of rural households.

Disciplinary: Multidisciplinary (Economic and Management Science, Nutrition Science)

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1. INTRODUCTION

Household Dietary Diversity Pattern (HDDP) shows the summary of food that is utilized by people in case of comprising good nutrients or not (FAO, 2014). It is a qualitative degree of food

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intake that gives a household approach to a variety of foods (FAO, 2011). So, HDDP refers to how people decide on what to eat. That varies from person to person and affected by ability and tradition. Apparently, HDDP is simple but it is affected by many collaborative factors such as why and who eats what, when, and where. Household dietary diversity pattern is multidimensional in nature. It means reliable, straightforward access to get food for active and healthy living (Coleman-Jensen et al., 2012).

HDDP depends on four important components: availability, stability, accessibility, and utilization. Food availability indicates that food is easily available at home for every member of the household. Access to food security shows that each family member gets easy access to food. Accessibility of food means households have the ability to purchase food according to his or her will. The utilization of food means food having all the necessary nutrients in it (Doppler, 2002). Many studies showed that an increase in HDDP is associated with socioeconomic status and household food security (Hoddinot & Yohannes, 2002; Hatloy et al., 2000).

Pakistan is a developing country, where, food security is a problem so, is the household dietary diversity pattern. Pakistan's food security & household dietary diversity has been under threat during the last few decades due to limited food access. Consumption disparity is greater in rural areas of Pakistan than in urban areas (Hussain & Akram, 2008). So, in rural areas, dietary diversity is hardly available to all. Food is a basic necessity of human life that provides us the strength to move actively and develop new cells. Good diets protect the body from weakness, illness, and infection. Food is an important component for human survival that positively contributes to human resources development. Nutrition standards should be considered at both individual and national levels (Firdaus & Cahyono, 2017).

Better food security in a country indicates a higher level of diversified food intake items in the daily life of households supported by social, economic, culture and local resources (Parappurathu et al., 2015; Taruvinga et al., 2013; Thorne-Lyman et al., 2009).

HDDP is dynamically affected by circumstances & experience initiation in early life & continuing all over the life course. Household dietary diversity score is also affected by cultural principles & personal, constrained by resources. Household structure along with a single head of household versus marital heads of household, the existence of adolescence, the health of household component and the performance of each household component in food diversity all affect the household's capability to be food secure and have an approach to a healthy diet (Eertmans et al., 2001; Evans et al., 2015; Sobal et al., 2014; Tuorila, 2007).

In spite of the fact that liking for certain food does not completely determine household dietary diversity score. Household preferences toward a particular food are also affected by situation, social culture and vary from person to person. The question of what and why we make a choice of food is always more important than the nutritional value (Yasin, 2000; Koster, 2009; Mela, 2001; Skinner et al., 2002). So, this study is designed to explore the factors affecting the dietary diversity of people.

2. MATERIALS AND METHODS

The present study is based upon primary data collected from District Vehari of Southern Punjab. A well-structured questionnaire was prepared by following the guidelines of FAO for seeking information from the respondents. According to the recommendation of FAO (2011), the study used the last 24 hours recall data of the household's food intake. Household characteristics

like age, income, education, family size, and numbers of livestock, agriculture land holding, distance from main markets and distance from the main city were also collected.

2.1 SAMPLING TECHNIQUES AND SAMPLE SIZE

The study employed a multistage sampling technique. At the first stage, Tehsil Vehari was selected for data collection. In the second stage, ten villages were selected randomly from rural areas. In the third stage, 30 respondents were selected randomly from each village. So, the total sample size was 300 respondents.

2.2 DATA COLLECTION

Data on the household dietary diversity score was collected by the interviewer asking a series of questions. These questions were asked by those who were responsible for food preparation at home. Outside consumption of foods not prepared at home, were not included in this study.

2.3 AGGREGATION OF 12 FOOD GROUPS TO CREATE HDDP

To measure the HDDP, FAO has aggregated food items into twelve food groups. The value of this household dietary diversity pattern score (HDDS) ranges from 0-12, see Table 1.

Table 1: Aggregation of 12 food groups to create HDDS.

Question No.	Food Group	Yes=1, No=0
1	Cereals	if yes = one otherwise = zero
2	White tubers and roots	if yes = one otherwise = zero
3	Vegetables	if yes = one otherwise = zero
4	Fruits	if yes = one otherwise = zero
5	Meat	if yes = one otherwise = zero
6	Eggs	if yes = one otherwise = zero
7	Fish and other seafood	if yes = one otherwise = zero
8	Legumes, nuts, and seeds	if yes = one otherwise = zero
9	Milk and milk products	if yes = one otherwise = zero
10	Oils and fats	if yes = one otherwise = zero
11	Sweets	if yes = one otherwise = zero
12	Spices, condiments, and beverages	if yes = one otherwise = zero

2.4 HDDP

The formula of HDDP is

$$\text{HDDP} = \sum_{i=1}^{n} P_i \qquad (1),$$

where P_i = indicates the score of *i*th food item and n = 12 food groups. HDDP score ranges from 0-12.

2.5 HDDS CLASSIFICATION

According to the FAO (2010), there are three levels of dietary diversity score, see Table 2.

Table 2: HDDS classification.

HDDS	Classification
0-3	Lower range lies between (0 to 3)
4-5	Medium range lies between (4 to 5)
6-12	Higher range lies between (6 to 12)

So, ordered logistic regression will be appropriate for analysis.

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2.6 ECONOMETRIC MODEL

Household characteristics have been explained by descriptive statistics. This study used the ordered logistic regression method for data analysis because the nature of this data is most suitable to use the ordered logistic regression method (Arene & Anyaeji, 2010; Felker-kantor & Wood, 2012).

The general form of an ordered logit regression model

$$Y_i = B_1 X_{i1} + B_2 X_{i2} + B_3 X_{i3} + ...B_k X_{ik} + \mu$$

$$Y_i = \sum_{n=1}^{k} B_n X_{in} + \mu \qquad (2),$$

Where

Y_i = dependent variable
X_i = independent variable
μ= error term
i = observation 1,……k

Further, we assumed that our n regressors in j –ordered alternatives or in odd ratio form.

$$\begin{aligned} Y_i &= 1, if\ Y_i \le a_1 \\ Y_i &= 2, if\ a_1 \le Y_i \le a_2 \\ Y_i &= 3, if\ a_2 \le Y_i \le a_3 \\ &\vdots \\ Y_i &= J, if\ a_{j-1} \le Y_i \end{aligned} \qquad (3)$$

where $a_1 < a_2 < a_3 \ldots < a_{j-1}$.

$Y_i = j$ that is our categories and in this study, our categories are three. When we take observation i with j categories ($i = j$) ever category is greater than the previous category and show a better level. So, one is less than two and similarly, two is greater than one. These categories are separated by cutoff or threshold parameters. In Equation (3), the intercept term a_{j-1} is less or smaller than a_j. So, intercept a_j is larger than a_{j-1}.

In the ordered logistic model, only the intercept (cutoff) terms are different but the slope coefficients of independent variables are the same in each category. So, the ordered logit model is the same as the proportional odds model. Stata version 14.1 was used for the analysis of data.

3. RESULTS AND DISCUSSION

3.1 SOCIOECONOMIC CHARACTERISTICS OF HOUSEHOLDS

Table 3 describes the socioeconomic characteristics and the mean score of HDDP for rural households. It presents all the variables that are used in the estimation.

The mean value of the age of household head is 48.58, with the minimum value of household head age 35 and maximum value 65. The mean value of household size is 6.11, while the minimum value of household size is 2 and the maximum value is 13. The mean value of education of household head is 5.89, while the minimum value of education of household head is 0 and the

maximum is 14. The mean value of income of the household is 14406.67, while the minimum value of income of household head is 5000 and the maximum value is 43000. The mean value of time to reach the main market is 11.39, while the minimum value of household time to reach the main market is 1 and the maximum value is 35. Similarly, if we see the statistic of the size of landholding and the number of livestock the mean values are 3.26 acres and 3.83 animals respectively. While the minimum value of the size of landholding and the number of livestock are 1.5 and 0, and the maximum values of both are 11.5 and 40 respectively. The mean value of household dietary diversity score (HDDS) is 3.77, while the minimum value of the household dietary diversity score is 1 and the maximum value is 9. The mean value of the dependent variable y (order) is 1.57. While the minimum value is 1 and the maximum value is 3.

Table 3: Socioeconomic characteristics of households.

Variable	Mean	SD	Min	Max
Age (Years)	48.58	7.45	35	65
Size of household (Number of household size members)	6.11	2.03	2	13
Education (Number of schooling years)	5.89	4.50	0	14
Income (In Pakistani Rupees)	14406.67	8532.26	5000	43000
Time to reach main market (Minutes)	11.39	11.16	1	35
Land size (Acres)	3.26	2.40	1.5	11.5
Livestock (Numbers)	3.83	7.98	0	40
HDDS	3.77	1.65	1	9
Y (order)	1.57	0.63	1	3

3.2 HDDS INFORMATION OF HOUSEHOLDS

Household dietary diversity score information for a rural household is presented in table 4. In rural areas, lower dietary diversity score is 1 which is 3.33 percent and higher dietary diversity score is 9 which is 2.00 percent. The reason behind this issue is that the rural household diet is usually based on starchy staples and cereals. HDDS is positively correlated with a higher intake of diversified food items and other micro and macronutrients. But in rural areas, people do not have enough resources to consume diverse food items in daily diets (Ruel, 2003).

Table 4: HDDS of households

HDDS	Frequency	Percentage
1	10	3.33
2	72	24.00
3	68	22.67
4	34	11.33
5	86	28.67
6	14	4.67
7	10	3.33
8	0	0
9	6	2.00
10	0	0
11	0	0
12	0	0
Total	300	100.00

3.3 HOUSEHOLD DIETARY DIVERSITY SCORE INFORMATION IN ORDER CATEGORY

In our data analysis, HDDS is divided into three categories or groups low, medium and high (Nithya, 2018). HDDS order information for rural households is presented in Table 5.

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Table 5: HDDS order for rural households

Y order category	Frequency	Percentage
1= (0-3)	150	50.00
2= (4-5)	128	42.67
3= (6-12)	22	7.33
Total	300	100.00

Table 5 indicates the household dietary diversity score order information on rural households. In rural areas the lower order category is one which is 50 percent, medium order category is 42 percent and the higher-order category is only 7.33 percent.

3.4 ESTIMATION OF ORDERED LOGISTIC REGRESSION

Various factors are responsible for household dietary diversity score. Regression results for household characteristics and dietary diversity patterns are presented in Table 6. The chi-square test value is 220.87 and the p-value is <0.001 highly significant at the 1 percent level of significance. It shows that our model is statistically significant. So, we reject the null hypothesis, it means that the final model is fit. In other words, our model as a whole is statistically significant, as compared to the null model with no predictors.

This study employed the Breusch-Pagan test to check the heteroscedasticity in the data. Thus, we set the null hypothesis that confirms constant variance. The chi-square test value is 0.65 and the p-value is greater than 0.05. It shows that that in rural data heteroscedasticity does not exist. So, the variance of the disturbance term is homoscedastic in the data. The explanatory variables age of household head, size, education, size of landholding and number of livestock are found significant while the household head monthly income and time to reach the main market are found insignificant. The R^2 is 0.82, that 82 percent change in the dependent variable (y ordered) is explained by the independent variables selected in the model and the remaining 18 percent change due to the other factors. This value of the pseudo- R^2 suggests a reasonable efficiency of the model.

The regression result indicates that the age of the respondent has a negative coefficient and significant at a level of 5 percent. Simply, we can say that one unit increase in variable X1 (age of household head), would expect a 0.23 decrease in ordered log-odds of being in a higher category, given that all of the other variables in the model are held constant. Kumar et al. (2016) and Ogundari (2017) have reported the same result for rural household head age.

The family size of the household has a negative coefficient and significant at a level of 5 percent. One unit increase in variable X2 (size of household) will bring a 0.71 unit decrease in ordered log-odds of being in the higher category. Beyene and Muche (2010) and Mbwana (2016) have reported the same results for rural household size.

The education of the household head has a negative coefficient in our sample size. One unit increase in variable X3 (education of household head), would expect a 0.54 increase in the log-odds of being at a higher level of Y order, given that all of the other variables in the model are held constant and it is significant at 1 percent. Mallick and Rafi (2010), Astemir (2014), Firdaus and Cahyono (2017) and Parappurathu (2015) reported the same results for rural household head education.

The income of the household head has positive coefficients in our sample size, but it is insignificant. The result of rural household head income is in line with Astemir (2014).

Time to reach the main market has a negative coefficient, but it is insignificant. Land size in our rural sample size affects positively and it is statistically significant at 10 percent confidence. So, One unit

increase in the variable X6 (size of landholding), would expect a 0.48 increase in the log-odds of being at a higher level of Y order. The results of the rural size of landholding are in line with Beyene and Muche (2010), Jones et al. (2014), Mallick and Rafi (2010) and Mbwana (2016).

Livestock in our rural sample size affects positively. One unit increase in X7 will bring a 0.43 unit increase in ordered log-odds of being in a higher category, and it is significant at 5 percent. Beyene and Muche (2010) and Lumole (2013) reported the same result for rural household numbers of livestock.

Table 6: Results of ordered logistic regression.

Variables	Coefficient	Std. Err.	P-value
Household head age	-0.23	0.10	0.018**
Size of household	-0.71	0.28	0.011**
Education	0.54	0.18	0.003***
Income	0.00004	0.0001	0.750
Time to reach main market	-0.08	0.06	0.201
Size of land holding	0.48	0.29	0.096*
Number of livestock	0.43	0.21	0.039**
Number of observation	150		
LR chi2(7)	220.87		
P value	<0.001***		
Log-likelihood	-24.80		
Pseudo R2	0.82		
Breusch-Pagan test			
Chi- square (1)	2.41		
P value	0.121		

Notes:* Level of significance at 10%, ** Level of significance at 5%, *** Level of significance at 1%.

4. CONCLUSION

In this study, the relationship between rural household characteristics and dietary diversity score (DDS) is investigated by using the ordered logistic regression model (OLRM). HDDS shows the summary of food that is utilized by people in case of comprising good nutrients or not. It is a qualitative degree of food intake that gives a household approach to a variety of food. So, HDDS refers to how people decide on what to eat. That varies from person to person and affected by a number of factors.

The final results of OLRM indicate that the household dietary diversity score of rural areas is affected by various socioeconomic factors such as age, size of households, education, the income of the household head, time to reach the main market, size of land holding, and numbers of livestock. The findings of this study concluded that these socioeconomic characteristics not only affect the household dietary diversity score but also influence the status of the rural household. Based on these results, the study recommends some important policy implications that will have a significant effect on rural household dietary diversity score. The government should launch food diversification programs in rural areas to increase household dietary diversity score. The government should implement such policies to increase and improve the education level of rural people, which would ultimately increase the income level of people. Improvement in infrastructure will mak4e easy access to the market. The government should give subsidies to increase the number of livestock of rural people who have a positive effect on food diversity. Investment programs should be designed focusing on rural areas which would ultimately increase household income and easy access to food.

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5. AVAILABILITY OF DATA AND MATERIAL

Data can be made available by contacting the corresponding authors.

6. REFERENCES

Arene, C. J., Anyaeji, C. (2010). Determinants of food security among households in Nsukka Metropolis of Enugu, Nigeria. *Pakistan J. Social science, 30*(1), 9-16.

Astemir, A. Y. (2014). *Determinants of food security in rural farm households in Ethiopia* (Doctoral dissertation, Master's Thesis). Institute of Social Studies, Hague, Netherlands.

Beyene, F., & Muche, M. (2010). Determinants of food security among rural households of Central Ethiopia: An empirical analysis. *Quarterly Journal of International Agriculture*, *49*(4), 299.

Coleman-Jensen, A., Nord, M., Andrews, M., & Carlson, S. (2012). *Household food security in the United States*. ERR-141. U.S. Department of Agriculture, Economic Research Service, USA.

Doppler, W. (2002). *Farming and rural systems approach*. Published Lecturing Material, University of Hohenheim, Stuttgart, Germany.

Eertmans, A., Baeyens, F., & Van Den Bergh, O. (2001). Food likes and their relative importance in human eating behavior: Review and preliminary suggestions for health promotion. *Health Education Research*, *16*(4), 443-456.

Evans, A., Banks, K., Jennings, R., Nehme, E., Nemec, C., Sharma, S., ... & Yaroch, A. (2015). Increasing access to healthful foods: A qualitative study with residents of low-income communities. *International Journal of Behavioral Nutrition and Physical Activity*, *12*(1), S1-S5.

FAO. (2011). *Guidelines for measuring household and individual dietary diversity*. Rome: Food and Agriculture Organization of the United Nations.

FAO. (2014). *The state of food insecurity in the world: Strengthening the enabling environment for food security and nutrition*. Rome: Food and Agriculture Organization of the United Nations.

Felker-Kantor, Erica, Wood, Charles, H. (2012). Female-headed households and food insecurity in Brazil. *Food Security*, *4* (4), 607-617.

Firdaus, N., & Cahyono, B. D. (2017). How food consumption pattern and dietary diversity influence food security: Evidence from Di YOGYAKARTA and East Nusa Tenggara. *Jurnal Ekonomi Pembangunan*, *25*(1), 27-38.

Hatloy, A., Hallund, J., Diarra, M.M. & Oshaug, A. (2000). Food variety, socioeconomic status and nutritional status in urban and rural areas in Koutiala (Mali). *Public Health Nutrition,* 3(1), 57-65.

Hussain, Z. & Akram, W. (2008). Persistent food insecurity from policy failures in Pakistan. *The Pakistan Development Review*, 47(4), 817-834.

Jones, A. D., Shrinivas, A., & Bezner-Kerr, R. (2014). Farm production diversity is associated with greater household dietary diversity in Malawi: Findings from nationally representative data. *Food Policy*, *46*(1), 1-12.

Kumar, A., Saroj, S., Singh, R. K. P., & Jee, S. (2016). Agricultural diversity, dietary diversity and nutritional intake: An evidence on inter-linkages from village level studies in Eastern India. *Agricultural Economics Research Review*, *29*(conf), 15-29.

Lumole, Z. S. (2013). *Household dietary diversity and nutritional status of children and women of reproductive age in Madizini township and its hinterland villages* (Doctoral dissertation). The Sokoine University of Agriculture, Morogoro, Tanzania.

Mallick, D., & Rafi, M. (2010). Are female-headed households more food insecure? Evidence from Bangladesh. *World Development*, *38*(4), 593-605.

Mbwana, H. A., Kinabo, J., Lambert, C., & Biesalski, H. K. (2016). Determinants of household dietary practices in rural Tanzania: Implications for nutrition interventions. *Cogent Food & Agriculture*, *2*(1), 1-13.

Mela, D. J. (2001). Determinants of food choice: Relationships with obesity and weight control. *Obesity*, *9*(S11), 249S-255S.

Ogundari, K. (2017). Categorizing households into different food security states in Nigeria: The socio-economic and demographic determinants. *Agricultural and Food Economics*, *5*(8), 1-20.

Parappurathu, S., Kumar, A., Bantilan, M. C. S., & Joshi, P. K. (2015). Food consumption patterns and dietary diversity in eastern India: Evidence from village level studies (VLS). *Food Security*, *7*(5), 1031-1042.

Ruel, M. T. (2003). Is dietary diversity an indicator of food security or dietary quality? A review of measurement issues and research needs. *Food and Nutrition Bulletin*, *24*(2), 231-232.

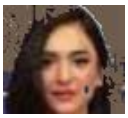
Skinner, J. D., Carruth, B. R., Bounds, W., & Ziegler, P. J. (2002). Children's food preferences: A longitudinal analysis. *Journal of the American Dietetic Association*, *102*(11), 1638-1647.

Sobal, J., Bisogni, C. A., & Jastran, M. (2014). Food choice is multifaceted, contextual, dynamic, multilevel, integrated, and diverse. *Mind, Brain, and Education*, *8*(1), 6-12.

Thorne-Lyman, A. L., Valpiani, N., Sun, K., Semba, R. D., Klotz, C. L., Kraemer, K., ... & Bloem, M. W. (2009). Household dietary diversity and food expenditures are closely linked in rural Bangladesh, increasing the risk of malnutrition due to the financial crisis–3. *The Journal of Nutrition*, *140*(1), 182S-188S.

Tuorila, H. (2007). Sensory perception as a basis of food acceptance and consumption. *Consumer-Led Food Product Development*, *10*(1), 34-65.

Yasin, M.A (2000). An investigation into the food security situation in rain-fed areas of district Rawalpindi. M.Sc. (Hons.) Thesis (Unpublished), *Department of Agricultural Economics*. University of Agriculture, Faisalabad, Pakistan.



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