

## FOOD CONSUMPTION, CALORIE INTAKE AND POVERTY STATUS A CASE STUDY OF NORTH WEST FRONTIER PROVINCE

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### ABSTRACT

An adult member of the households, surveyed in Dheri Baghbanan (Rural Peshawar, Pakistan) during 2006, consumed on average 340.39 grams of flour, 43.05 gram of meat, 484.41 grams of vegetables, 36.07 grams of rice, 27.80 grams of pulses, 115.45 grams of fruits, 35.23 grams of fats, 156.44 grams of milk, 51.64 grams of sugar/gur and 5.46 grams of tea per day. This provided a total of 2412 calories per day to an adult person. Wheat flour contributed the major proportion (1187.95 calories), followed by fats (315.08), sugar (197.85), vegetables (176.48), milk (167.79), rice (131.30), meat (88.22), pulses (71.35), fruits (59.64) and tea (16.01). When compared with previous studies carried out in different areas of NWFP, the food consumption in the study area in terms of calories (2412) seems higher than the estimates of some of the studies, where calorie intake ranged between 2084 to 2392 and lower than that of some others, where the estimates ranged between 2510 to 3384 calories. When compared to national and international levels, the study area's calorie intake is about equal to Pakistan's average (2431) for 2000-02, but is lower than the world, developed countries, developing countries and Asia & the Pacific region countries' averages, which, respectively, are 2803, 3314, 2667 and 2674 calories per capita per day. With the exception of a very few studies, this and other studies have shown the NWFP per capita calories intake at a very low level – a level just close or a little higher than the poverty line. Since a person requires 2350 calorie daily, he/she is considered on or above poverty line if he/she gets this level of calorie generating food consumption; he/she is considered below poverty line if he/she gets less than 2350 calories. The ratios computed as *Calorie Intake/2350* provide the measuring rod to decide who is on, above or below poverty line. For the present and previous studies, these ratios have been found as 1.03 for present study, compared to 1.39 of Tarnab, 1.44 of Shabqadar, 0.9980 of urban Peshawar, 1.02 of Dargai, 1.07 of Dir and 0.89 of Bajour. Majority of studies have placed NWFP on or a little above poverty line. These facts point out the importance of measures aiming at to increase food production and its availability so that food consumption is enhanced and poverty reduced.

**Key Words:** Food consumption, Calories intake, North West Frontier Province, Pakistan, Poverty line

### INTRODUCTION

Agricultural commodities like wheat, rice, maize and other food-grains, gram, mung, masoor and other pulses, potato, tomato, onion, peas, beans and other vegetables, apple, mango, citrus, grapes and other fruits, rapeseed/mustard, sunflower and other oilseeds, sugarcane and sugar-beet and livestock and livestock products are human foods that provide carbohydrates, protein, fats, vitamins and other sources of energy needed for human bodies. The very existence of human beings and their day-to-day routine health depend on the level, composition and quality of the available agricultural commodities, which in their raw as well as processed form constitute the daily items of human food consumption.

The level of food consumption also determines how much a nation and its inhabitants are poor or wealthy. Poverty line may be defined on the basis of food consumption level. Since each item of food provides a specific level of energy measured in terms of calorie, an adult person on average requires 2350 calorie a day to perform his daily routine work.

The Government of Pakistan has officially defined 'Povert-line' as the level of expenditure or income, which provides basic foods enough to generate 2350 calories per adult-equivalent per day (CRPRID 2002). Hence a person with food consumption generating 2350 calorie is considered on poverty line, and the one receiving less than or higher than 2350 calories is considered below or above poverty line.

The paper aims at to find out the level of food consumption, estimate calories generated from that level of food consumption and determines poverty status in the province of North West Frontier.

### MATERIALS AND METHODS

#### *Analytic and Methodological Framework*

Through a survey of 100 households of Dheri Baghbanan – a Peshawar city suburb, daily per capita consumption level of food was first estimated (Table I; column 2). Using the respective calorie estimates of various food items (column 3), estimates of calorie intake were then computed (column 4). Similarly, estimates of calorie intakes were computed from data

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on food consumption available from three studies conducted at Tarnab, Shabqadar and urban Peshawar during 1999 and three studies conducted at Dargai, Timergara and Bajour during 2004 (Table II). These estimates of calorie intakes (Table II) were then used to arrive at poverty status, using the following formula.

$$PL = DCI/2350 \quad (1)$$

Where,

PL = poverty line

DCI = daily calorie intake

If  $PL > 1$ , it would mean the person was above poverty line; if  $PL = 1$ , it would mean the person was on poverty line and if  $PL < 1$ , it would mean the person was below poverty line.

## RESULTS AND DISCUSSION

Table I provides the estimated level of per capita food consumption found through the present study. It was found that an adult member of the household surveyed, on average, consumed 340.39 grams of flour, 43.05 gram of meat, 484.41 grams of vegetables, 36.07 grams of rice, 27.80 grams of pulses, 115.45 grams of fruits, 35.23 grams of fats, 156.44 grams of milk, 51.64 grams of sugar/gur and 5.46 grams of tea per day. This provided a total of 2412 calories per day. Wheat flour contributed the major proportion, i.e., 1187.95 calories, followed by fats (315.08 calories), sugar (197.85), vegetables (176.48), milk (167.79), rice (131.30), meat (88.22), pulses (71.35), fruits (59.64) and tea (16.01).

When compared with previous studies (Mehmood 1999, Khan 1999, Tabassum 1999), Ahmad 1999, Shah 2004 and Abdullah 2003) carried out in other parts of NWFP (Table II), the food consumption in the study area in terms of calories (2412) seems higher than the estimates of three studies (where calories intake ranged between 2084 - 2392) and lower than that of other three studies (where calorie ranged between 2510 - 3384).

Using formula (1), we computed poverty lines (PL) for calorie intakes found through various studies referred above.

$$PL \text{ (Present Study; 2006)} = 2412/2350 = 1.03 \quad 2a$$

$$PL \text{ (Tarnab; 1999)} = 3263/2350 = 1.39 \quad 2b$$

$$PL \text{ (Shabqadar; 1999)} = 3384/2350 = 1.44 \quad 2c$$

$$PL \text{ (Peshawar; 1999)} = 2346/2350 = 0.9980 \quad 2d$$

$$PL \text{ (Dargai; 2004)} = 2392/2350 = 1.02 \quad 2e$$

$$PL \text{ (Dir; 2003)} = 2510/2350 = 1.07 \quad 2f$$

$$PL \text{ (Bajour; 2003)} = 2084/2350 = 0.89 \quad 2g$$

On average, for all studies, PL is estimated at 1.12, suggesting that NWFP is somewhat above poverty line.

The food consumption in the study area in terms of calories (2412) seems higher than the estimates of three previous studies (2084 - 2392) and lower than that of other three studies (2510 - 3384). When compared to national and international levels, the study area's calorie intake is about equal to Pakistan's average (2431) for 2000-02, but is lower than the world, developed countries, developing countries and Asia & the Pacific.

With the exception of a very few studies, this and other studies have shown the NWFP's per capita calories intake at a very low level – a level just close or a little higher than the poverty line. Since a person requires 2350 calorie daily, he is considered on or above poverty line if he gets this level of calorie generating food consumption; he is considered below poverty line if gets less than 2350 calories. The ratios computed as *Calorie Intake/2350* provide the measuring rod to decide who is on, above or below poverty line. For the present and other studies, these ratios have been found: Present Study = 1.03; Tarnab = 1.39; Shabqadar 1.44; Peshawar = 0.9980; Dargai = 1.02; Dir = 1.07; and Bajour = 0.89. Majority of studies place NWFP on or a little above poverty line.

## CONCLUSION

The above discussion points out the importance of measures aiming at to increase food production and its availability so that food consumption is enhanced and poverty is reduced. Increase in food consumption would be possible through (a) increase in food production and its availability to general masses and (b) increase in consumers' income. It is therefore recommended that efforts and actions at all levels be enhanced to achieve the stated objectives.

Table I. *Estimated calorie per capita per day*

Particulars	Consumption per capita per day (gm)	Calorie per 100 grams	Estimated Calorie per capita per day
(1)	(2)	(3)	(4)
<b>Flour</b>	<b>340.39</b>	<b>349</b>	<b>1187.95</b>
Beef	32.50	212	68.91
Mutton	2.80	178	4.99
Poultry	7.74	185	14.33
<b>Meat</b>	<b>43.05</b>		<b>88.22</b>
Cauliflower	45.45	26	11.82
Peas	16.51	84	13.87
Potatoes	55.53	81	44.98
Okra	57.77	31	17.91
Tinda	36.58	23	8.41
Thori	35.15	19	6.68
Bitter guard	21.04	19	4.00
Spinach	53.39	31	16.55
Tomato	69.34	20	13.17
Onion	93.64	41	38.40
<b>All Vegetables</b>	<b>484.41</b>		<b>176.48</b>
Basmati	23.13	364	84.19
Irri	12.94	364	47.10
<b>Rice</b>	<b>36.07</b>		<b>131.30</b>
Grams	8.23	347	28.55
Beans	7.01	175	12.26
Mahoo	7.11	158	11.23
Masoor	5.45	354	19.30
<b>All Pulses</b>	<b>27.80</b>		<b>71.35</b>
Oil	10.01	880	88.09
Ghee	25.22	900	226.99
<b>All Fats</b>	<b>35.23</b>		<b>315.08</b>
Fresh Milk	149.53	106	158.50
Milk pack	5.40	106	5.72
Powder milk	1.50	237	3.56
<b>All Milk</b>	<b>156.44</b>		<b>167.79</b>
Sugar	46.64	391	182.38
Gur	4.99	310	15.48
<b>All sugar</b>	<b>51.64</b>		<b>197.85</b>
Black Tea	3.65	290	10.58
Green Tea	1.81	300	5.44
<b>All Tea</b>	<b>5.46</b>		<b>16.01</b>
Kino	19.87	40	7.95
Orange	10.90	25	2.73
Banana	10.60	108	11.44
Apples	7.03	58	4.08
Mango	20.28	64	12.98
Peaches	4.28	53	2.27
Melon	27.72	23	6.37
Grape	14.77	80	11.82
<b>All Fruits</b>	<b>115.45</b>		<b>59.64</b>
<b>Total calorie</b>			<b>2411.68</b>

**Table II. Daily per capita calorie intake: a comparison with previous studies**

Study-Period	2006	1999	1999	1999	2004	2004	2004
Study-Area	Rural Peshawar	Tarnab	Shabqadar	Peshawar	Dargai	Dir	Bajaur
(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)
Flour	1187.95	1743.26	1611.01	922.21	1121.16	1149.61	1336.43
Beef	68.91	98.26	108.26	95.74	60.95	47.47	19.00
Mutton	4.99	14.69	25.58	28.02	5.93	25.03	0.82
Poultry	14.33	15.10	24.40	75.72	20.04	24.98	13.56
Cauliflower	11.82	0.00	0.00	0.00	0.00	0.00	0.00
Peas	13.87	0.00	0.00	0.00	3.15	0.00	0.00
Potatoes	44.98	30.09	34.24	37.30	56.03	27.88	16.30
Okra	17.91	12.20	11.10	10.00	3.36	6.51	6.00
Tinda	8.41	0.00	0.00	0.00	2.68	0.00	0.00
Thori	6.68	0.00	6.41	4.30	0.16	0.00	0.00
Bitter guard	4.00	0.00	0.00	0.00	0.00	0.00	0.00
Spinach	16.55	0.00	0.00	0.00	5.55	0.00	0.00
Tomato	38.40	12.41	13.15	0.00	8.75	7.35	4.71
Onion	38.40	0.00	0.00	0.00	0.00	0.00	0.00
Basmati	84.19	99.71	129.08	167.60	151.67	115.17	15.87
Irri	47.10	0.00	89.49	31.51	0.00	134.72	44.26
Grams	28.55	59.64	92.04	47.80	10.12	57.46	37.61
Beans	12.26	3.57	0.00	14.81	19.69	17.05	5.15
Mahoo	11.23	11.18	22.49	0.00	48.06	9.20	1.98
Masoor	19.30	24.08	44.02	0.00	0.00	0.00	0.00
Oil	88.09	65.05	82.38	248.48	73.33	69.17	0.00
Ghee	226.99	395.51	404.26	146.99	315.00	291.42	237.24
(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)
Fresh Milk	158.50	234.93	229.69	273.45	174.90	119.46	140.53
Milk pack	5.72	0.00	10.02	15.64	0.00	4.61	0.00
Powder milk	3.56	25.80	5.60	5.01	0.00	0.00	0.00
Sugar	182.38	241.34	240.70	144.84	249.26	226.12	56.11
Gur	15.48	97.29	82.67	0.00	0.00	92.91	99.85
Black Tea	10.58	12.10	14.40	13.58	16.92	14.88	13.46
Green Tea	5.44	0.00	0.00	0.00	0.00	0.00	0.00
Kino	7.95	0.00	0.00	0.00	0.00	0.00	0.00
Orange	2.73	0.00	0.00	0.00	0.83	0.00	0.00
Banana	11.44	19.84	42.89	13.18	22.05	25.48	10.61
Apples	4.08	0.00	16.23	0.00	7.98	17.28	14.38
Mango	12.98	26.50	36.19	49.62	0.00	12.26	0.90
Peaches	2.27	0.00	0.00	0.00	0.00	0.00	0.00
Melon	6.37	11.56	8.11	0.00	0.10	0.00	0.00
Grape	11.82	0.00	0.00	0.00	0.00	0.00	0.00
<b>TOTAL</b>	<b>2411.68</b>	<b>3262.54</b>	<b>3384.43</b>	<b>2345.79</b>	<b>2391.68</b>	<b>2510.31</b>	<b>2084.15</b>

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