

Household Characteristics, Housing Profile and Diet Diversity of *Pantawid Pamilyang Pilipino* Program (4Ps) Beneficiaries and Non-beneficiaries in Lucena City, Quezon, Philippines

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ABSTRACT

Background. The Philippines adopted the Conditional Cash Transfer (CCT) program as the *Pantawid Pamilyang Pilipino* Program (4Ps) that serves as the government's flagship social assistance program for the poor. This provides short-term income support to poor families while investing on health and education to overcome future poverty.

Objective. This study aimed to characterize the beneficiary and non-beneficiary households and evaluate the impact of 4Ps program on housing facilities and diet diversity.

Methods. Quasi-experimental design was used to evaluate survey outcomes between 91 randomly sampled beneficiaries and 91 completely enumerated non-beneficiaries (incoming grantees). FANTA Household Dietary Diversity Score (HDDS) was used as an indicator for dietary diversity while structured questionnaire on housing profile was based on BIDANI and CEM-UPLB tools.

Results. The 4Ps beneficiaries had significantly higher maternal education, household size ($p=0.038$), and improved water source ($p=0.004$) than non-beneficiaries. Cash transfer among 4Ps households provided 11% increase in the average monthly income of P7,324 *pre-transfer*. Diet diversity using FANTA scoring (0-12) showed that non-beneficiaries were significantly lower by 0.4 than 4Ps score of 7.9 ($p=0.003$). Maternal education was found to have significant positive correlation with diet diversity. Both groups had high cereals and fats intake (>90%) while low in complex carbohydrates and legumes (<31%).

Conclusion. The 4Ps had positive correlation on housing profile and diet diversity among beneficiaries. Family Development Session should integrate practical methods on improving variety of foods, specifically, the low consumption food groups. Additionally, a review on the selection criteria based on the provincial poverty threshold vis a vis income of grantees must be implemented to accurately target intended beneficiaries.

Key Words: conditional cash transfer, dietary diversity, impact assessment

INTRODUCTION

Poverty remains a big challenge in the Philippines in spite of continued economic growth, as observed in the past decade. This supports the fact that structural poverty persists to be a binding constraint in sustainable growth and attainment of Sustainable Development Goals (SDGs). To help alleviate the poverty in the country and meet population consumption needs while fostering investment in human capital, the Philippines launched a Conditional Cash Transfer (CCT) program in 2008¹. This program

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provides short-term income support to poor families to help meet their immediate needs while enhancing their human capital to overcome future poverty. It provides cash to eligible households with good compliance to education and health conditionalities.²

The Philippines' CCT has been named the *Pantawid Pamilyang Pilipino* Program (4Ps). It has two grants—a monthly health grant of Php 500 per household for 12 months and an education grant of Php 300 per 6-14-year-old child attending school (maximum of 3 children) for 10 months of the school year. Additionally, health care commitment is applicable to pregnant mothers and children aged 0-5 years. Should a beneficiary household satisfy all conditionalities, a maximum health grant of Php 6,000 and education grant of Php 3,000 per child will be received for each year.²

The conditionalities include: (1) pregnant women must avail of the pre- and post-natal care and must be attended by a trained medical professional during childbirth; (2) parents must attend monthly Family Development Session (FDS); (3) children aged 0-5 years must undergo regular preventive health checks and receive vaccines; (4) children aged 3-5 years must attend day care or preschool classes at least 85 percent of the time; (5) children aged 6-14 years must enroll in elementary or high school and attend at least 85 percent of the time; and (6) children aged 6-14 years old must receive deworming pills twice a year. The family-beneficiaries will receive the grant for at most five years, provided that they comply with the conditionalities.³

The FDS serves as a platform to discuss with parents or guardians topics on family relationships, laws affecting the Filipino families, gender and development, parental obligations, and positive child discipline. This enables households to become socially aware and be pro-active in community development activities. There are three modules in FDS namely: (1) Building the foundation in the *Pantawid Pamilya* program, (2) Preparing and caring of Filipino families, and (3) Participation of Filipino families in community activities. Moreover, *FDS plus* is an enhanced package with a range of complementary community-based initiatives not included as conditionalities to the grantees. These activities aim to promote, develop and target participants to attain concrete and tangible outputs after active participation in lecture series and interactive demonstrations.⁴

For the effect on income of *Pantawid Pamilya* program, the benefit level is relatively generous on the basis of estimated equivalent income percentage of monthly cash grant compared to the CCT of other countries.⁵ In the Philippines, if all conditions are met, grants are estimated to be 23 percent of the beneficiary income, which is at par to that of Mexico's *Oportunidades* program in 2004. This is comparatively higher than Brazil (*Bolsa Familia* program) which was 5 percent in 2004.¹

The CCT program also aids in the family's nutritional status by increasing the economic access of beneficiary

households to food. Consequently, it is expected to translate to better health and nutrition outcomes. Food and nutrition outcomes can be determined using the household dietary diversity score (HDDS), which reflects a snapshot of economic access to a variety of food while individual DDS reflects nutrient adequacy.⁶ A more diverse diet is a good proxy indicator of food security since it is positively associated with improved outcomes in birth weight, child anthropometric status, and hemoglobin concentrations; and is highly correlated with caloric and protein adequacy.⁷ It was observed that even in very poor households, additional income can lead to increased food expenditure which is associated with improved diet quantity and quality.⁷

To ensure the maximum efficacy of the program, further evaluation on its outcomes would aid in the continuous assessment and improvement of the program. This study focused on evaluating the impact of 4Ps on the housing facilities and diet diversity.

MATERIALS AND METHODS

Study Population

This study included 4Ps beneficiaries and non-beneficiaries in Lucena City, Quezon, Philippines.

Study Design and Sampling

The study employed an evaluation design using quasi-experimental case control design. This is used to carry out evaluation when it is not possible to construct treatment and control group using random assignment.⁸ The design estimates program impact by comparing outcomes among the 4Ps beneficiaries in the treatment group against the incoming beneficiaries as a proxy for non-beneficiaries which serves as the control.¹ Selection of households should satisfy inclusion criteria of 4Ps grantees, that are on the average, equal across the treatment and control groups. As a result, it establishes a credible basis for comparison and direction of causality.⁹

The study had two sample groups wherein 4Ps beneficiaries were randomly sampled while non-beneficiaries were completely enumerated. Because there were 91 non-beneficiary households (incoming grantees), an equal number of 4Ps beneficiaries were thus randomly selected. Therefore, results among non-beneficiaries reflected the true value of the population while statistical weighting was applied in 4Ps beneficiaries for better population representation.

Data Collection

Data collection on household profile was conducted through a structured questionnaire based on the tools of Barangay Integrated Development Approach for Nutrition Improvement (BIDANI) and the College of Economics (CEM), University of the Philippines Los Baños. This includes basic household characteristics, economic status and

housing facilities. In determining the diet diversity, FANTA Household Dietary Diversity Score (HDDS) was used. The HDDS consists of 16 food groups that were further aggregated into 12 groups for analysis. All the tools had been developed and tested for validity and reliability.

Data Analysis

Data entry was done using Microsoft Excel and SPSS (Ver. 20) for statistical analyses. Descriptive statistics were reported as frequencies, percentages, means and standard deviations (\pm SD). Statistical weighting was applied in 4Ps group for better population representation. Phi Cramer's V was used in determining the association of household profile and housing facilities, against a sample which may be classified as a beneficiary or non-beneficiary. Meanwhile, for continuous variables, one-sample t-test was used in determining the significant difference of diet diversity and household characteristics between the two groups. Pearson Product correlation was used in determining relationship of "diet diversity" with continuous data such as "household size" and "income" while Spearman rank order correlation was used for associating "diet diversity" with "maternal education".

RESULTS AND DISCUSSION

Socio-demographic Profile and Characteristics

One of the major bases of *Pantawid Pamilya* program in identifying potential beneficiaries is through the socio-demographic and economic profiling including housing facilities of the households. The Department of Social Welfare and Development (DSWD) uses the National Household Targeting System for Poverty Reduction (NHTS-PR) to identify the poorest households within the selected municipalities through the use of Proxy Means Test (PMT). Assessment is conducted using certain proxy variables like ownership of assets, type of housing, education and employment of household head, and access to water and sanitation facilities to predict income.³

1. Household profile

Beneficiaries of 4Ps had significantly higher household size ($p=.038$) with the average of 6.3 vs. 5.9 in non-beneficiaries (Table 1). On the other hand, non-beneficiary households had higher monthly income than 4Ps with the average of Php 7,958 vs. 7,324. Assuming

Table 1. Percentage distribution of household characteristics and housing facilities of 4Ps beneficiary and non-beneficiary households

Variable	4Ps Beneficiaries	Non-beneficiaries	p-value
Household Size (number of members)			
1-3	3.2	6.6	0.038 ¹
4-6	57.0	60.4	
7-9	33.0	28.6	
>10	6.6	4.4	
Mean \pm SD	6.3 \pm 1.7	5.9 \pm 2	
Range	3-10	2-12	
Monthly Household Income (Php) (absolute value)			
Mean \pm SD	7324 \pm 4117 (pre-transfer) 8124 \pm 4137 (post-transfer) [*]	7958 \pm 5470	0.271 ¹
Range	1000 - 20000 1800 - 20800	0 - 36000	
Toilet Facility			
Owned, water sealed (sewage/septic tank)	38.6	27.5	0.364 ²
Owned, opened/closed pit	31.8	40.7	
Shared/public, water sealed	19.4	19.7	
Shared, opened/closed pit	10.2	12.1	
Water source			
Own use, faucet tube/piped well	17.6	11.0	0.004 ²
Shared faucet, community water system	34.1	31.8	
Shared, tube/piped well	15.3	12.1	
Others (specify)	33.0	45.1	
Electricity			
Owned, electricity line	89.0	87.9	0.998 ²
Gas	3.3	3.3	
None	5.5	6.6	
Others	2.2	2.2	
Garbage Disposal			
Collected	71.6	72.5	0.767 ³
Compost pit	4.5	3.3	
Burned	23.9	24.2	
Others	0	0	
Household Dietary Diversity Score			
Mean \pm SD	7.9 \pm 1.3	7.5 \pm 1.4	0.003 ¹
Range	5-11	4-11	

^{*}Assuming a minimum of monthly Php 800.00 cash grant. ¹One sample t-test. ²Phi Cramer's V. ³Chi square.

that 4Ps households with a minimum of one child satisfy all conditionalities, a monthly cash grant of Php 800 will be received. Hence, 4Ps grants increased the income (Php 8,124 ± 4,137), contributing to an 11 percent increase in monthly income.

A study from World Bank showed that consumers in low-income countries make greater adjustments in their household spending on food when incomes and/or prices change. In particular, it is estimated that an increase of 10 percent household income would lead a consumer in the Philippines to typically increase food spending by 6.5 percent.¹⁰

Moreover, the average income of both groups had a wide value range with positively skewed distribution. Beneficiaries of 4Ps had an income range of Php 1,000- 20,000 (*skewness of 1.160*) while range was Php 0- 36,000 (*skewness of 2.049*) for non-beneficiaries. This might reflect conflict on one of the 4Ps selection criteria which states that eligible grantees must be families whose condition is equal to or below the provincial poverty threshold.

The educational attainment and unemployment status of mothers in 4Ps households was higher than those of the non-beneficiaries.¹¹ Lower employment among 4Ps respondents could be accounted by the financial support from the cash grant. In addition, commitment to the conditionalities becomes the priority of mothers in the context of time allotment. Hence, they had less time opportunity to seek work.

Among the parameters, there was a significant association between the household income and size for both 4Ps beneficiaries ($r=0.399$, $p=.000$) and non-beneficiaries ($r=0.470$, $p=.000$) (Table 2). Trend in raw data showed that as household size increased, the number of working members increased accordingly, hence, leading to higher household incomes.

Table 2. Association of household characteristics variables

Association variable	Correlation value	p-value
HH Income to HH size ¹	0.459	0.000
4Ps beneficiaries ¹	0.399	0.000
Non-beneficiaries ¹	0.470	0.000
HH Income to Maternal education ²	0.010	0.894
4Ps beneficiaries ²	-0.058	0.583
Non-beneficiaries ²	0.097	0.358
HH Size to Maternal education ²	0.019	0.801
4Ps beneficiaries ²	-0.031	0.774
Non-beneficiaries ²	0.013	0.900

¹Pearson product correlation. ²Spearman rank order correlation.

2. Housing Facilities

One of the indicators of poverty index includes housing facilities. This includes sanitation facilities where related diseases become prevalent in low income communities.¹² Results showed that almost half of both 4Ps beneficiaries and non-beneficiaries practiced open/close pit system (42 vs. 52.8%). Much literature demonstrated that young children

from households with unimproved sanitation facilities are of greater risk of being undernourished.¹³

In relation to this, water source is strongly linked to sanitation and hygiene, which in turn affects health. Majority of water source for both 4Ps beneficiaries (49.5%) and non-beneficiaries (44%) were shared water supply. Meanwhile, only 17.6% of 4Ps have their own faucet (tube/piped well), as compared to 11% for non-beneficiaries. Similarly, this causation could also explain the significant association of water source with being a 4Ps beneficiary or not ($p=0.004$). A significant percentage of non-beneficiaries (45.1%) and 4Ps (33%) relied on vendor-water supply, wherein households were mostly in coastal *barangays*. These areas have high prevalence of slums where water sources are not well established.

For garbage disposal, more non-beneficiaries practiced better garbage disposal system than 4Ps beneficiaries, having higher proportion of collector system (72.5 vs. 69.2%). Studies showed that under-five children have higher prevalence of nematodes infection in households without proper isolation and collection of solid waste.¹⁴

For electricity line, more 4Ps beneficiary households than non-beneficiary households have their own line (89 vs. 87.9%) while a few (5.5% vs. 6.6%) did not have electricity at all. This also indicates better economic access for improved facilities.

Diet Diversity

Household dietary diversity score (HDDS) was determined using FANTA (2010) tool in which food list were categorized into 16 food groups. For analysis, food groups with similar macronutrients are further aggregated to 12 groups. This reflects the economic food access of the household to a variety of foods.⁶ Results showed that dietary diversity of non-beneficiaries is significantly lower by 0.4 ($p=.003$) with that of 4Ps beneficiaries average score of 7.9 ± 1.3 . In general, 4Ps beneficiaries had better economic access to different food groups than non-beneficiaries, leading to a more diverse diet (Figure 1). It has been well recognized that higher economic status has positive relationship with diet diversity as affected by purchasing power.^{6,15} Similarly, this often leads to higher quality diet as defined by having nutrient- rather calorie-dense foods.¹⁵ A study in diet diversity demonstrated that it is positively associated with per capita caloric intake.⁶

The food groups that were highly consumed (>90 %) by both groups were: cereals; spices, condiments and beverages; and oils and fats. It was then followed by fish and other seafoods and vegetables being consumed by around 80 to 90% of households. This reflects that the typical household diet of the target population is similar with that of the national survey results—rice, fish, and vegetables.¹⁶ Other sources of carbohydrates like tubers were less consumed by both 4Ps beneficiaries (19.8%) and non-beneficiaries (11%).

Among all the macronutrients, it is evident that other protein sources was consumed by less than half of the

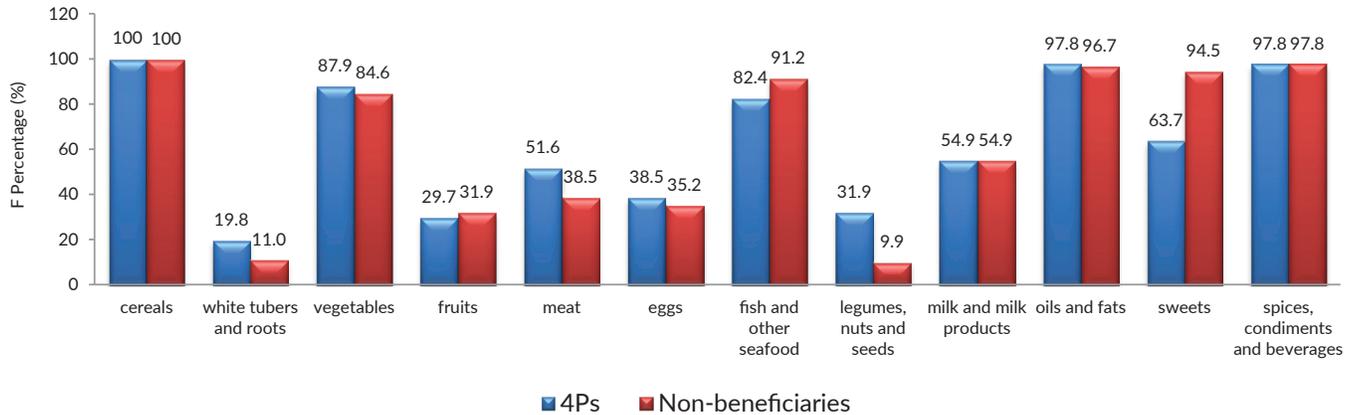


Figure 1. Percentage distribution of different food group consumption of 4Ps and non-beneficiary households.

households in both groups wherein 4Ps were higher than non-beneficiaries in the consumption of meat (51.6 vs. 38.5 %); eggs (38.5 vs. 35.2 %); and legumes, nuts, and seeds (31.9 vs. 9.9 %). In addition, around half of both groups consumed milk and milk products, mostly powdered filled milk in coffee and less often, cheese.

Fruits and vegetables food groups are proxy indicator of the household micronutrient sources, specifically, iron and vitamins A and C. Only one third of both groups consumed fruits, which was higher among non-beneficiaries than 4Ps beneficiaries (31.9 vs. 29.7 %). Meanwhile, more than half of both groups consumed leafy vegetables and other vegetables such as eggplant, tomato and onions while less Vitamin A rich vegetable was consumed. As reported by the households, fruits are more expensive than vegetables, and therefore, not a usual part of their daily diet.

Lastly, non-beneficiaries were 30.8 percentage points higher than 4Ps beneficiaries (94.5 vs. 63.7 %) in “sweets” consumption which were mostly sugar, sweetened juice drinks, and candies. A similar trend was observed in another study showing higher consumption of sugar and sweetened beverage among lower income households.¹⁷

In general, diet quality of 4Ps beneficiaries and non-beneficiaries were high in fats and sweets, low in complex carbohydrates, and main protein intake was more from animal rather than plant sources. This pattern could be accounted to urbanization of the area where nutrition transition is greatly linked.¹⁸

In associating HDDS with different determinants, maternal education of both groups showed a positive correlation ($r=0.153$, $p=.040$) (Table 3). Similar studies showed that higher maternal educational attainment is associated with improved quality of food consumption and diet diversity as there is a higher tendency for an educated mother to consider health on food choices.^{19,20} Meanwhile, only among non-beneficiary households did monthly income have a positive correlation with diet diversity ($r=0.228$, $p=.030$). Higher household income is a strong determinant of diet diversity as it increases food access.^{21,22}

Table 3. Association of household dietary diversity score to household characteristics

Association variable	Correlation value	p-value
Household Size ¹	0.113	0.127
4Ps beneficiaries ¹	0.015	0.866
Non-beneficiaries ¹	0.162	0.125
Household Income ¹	0.220	0.465
4Ps beneficiaries ¹	0.044	0.681
Non-beneficiaries ¹	0.228	0.030
Maternal education ²	0.153	0.040
4Ps beneficiaries ²	0.221	0.035
Non-beneficiaries ²	0.109	0.305

¹Pearson product correlation. ²Spearman rank order correlation.

CONCLUSION AND RECOMMENDATIONS

The 4Ps in Lucena City had positive correlation on housing profile and diet diversity among beneficiaries.

Impact evaluation on nutritional status of 0-5 year-old children showed that all forms of malnutrition among 4Ps beneficiary households are still high.¹¹ Hence, addressing all possible contributing factors such as household profile, sanitary facilities and diet diversity should be considered. To maximize attainment of the intended program’s objectives, it is recommended to integrate methods in improving dietary diversity in the Family Development Seminar. This includes alternative food sources to low consumption food groups or providing smart measures in maximizing a household’s monetary budget for food without sacrificing diet diversity. For further improvement, expanding cash assistance for sanitation facilities such as toilet and water sources could have long term positive impact. Possible means of community activities could be integrated in the current FDS plus. This includes pro-active provision of income generating activities for beneficiaries in partnership with the local government units; financial assistance in exchange for community work; and paid labor for beneficiaries in constructing sanitary facilities.

Improvement in the beneficiary targeting system should be heightened given that the average 4Ps monthly

income was Php 7,324 ± 4,117. Moreover, almost a quarter of 4Ps beneficiary households (23%) and non-beneficiary households (24%) had monthly income greater than Php 10,000. One of the established selection criteria for eligible grantees is to have a condition equal to or below the provincial poverty threshold. In this case, Quezon province's per capita poverty threshold is Php 1,492.²³ Thus, targeting systems should have stronger measures for validation to assure that more eligible households are accommodated. Having strict monitoring measures on the compliance to selection criteria can be implemented. In this way, allocation of financial assistance could be granted to those deserving families within the poverty threshold.

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Statement of Authorship

All authors have approved the final version submitted.

Author Disclosure

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