

Effectiveness of a Livelihood Intervention in Improving Social Capital and Food Security among the Rural Women in Southern Philippines

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Abstract

During the pandemic, the growing number of people affected by social isolation and food insecurity posed serious challenges in the rural areas. A livelihood project was implemented by the government from 2019 to 2021 among the 33 members of a women's association in a disadvantaged upland community in Bukidnon province, Southern Philippines. This study aimed to determine the effectiveness of the livelihood intervention in changing income, knowledge about farming, social capital, and food security amidst the pandemic. The project has facilitated extension activities and surveys considering the health protocols imposed by the government. The technical training has improved the knowledge level, promoted the production of vegetables in the households which generated additional income vital during the pandemic. The social capital of rural women has significantly increased during the last two years which was influenced by their main occupation, sources of income and ethnicity. Though not statistically significant, the project has increased the food availability, accessibility, and utilization in the household during the pandemic. The findings indicated that a livelihood intervention can effect changes in the social and economic situation of the rural women even during the pandemic which could be promoted to other communities.

Keywords: Social capital, livelihood interventions, food security, rural women, pandemic.

1. Introduction

Being one of the most populous countries globally, the Philippines is regarded as a country with inequality and vulnerability despite its middle-income status (DAFF, 2015). As agriculture production a priority program of the Philippine government, substantial resources

were channeled towards the attainment of food security and agricultural efficiency. However, there were still many existing policy, and institutional constraints hindering the realization of a “food-secure” country (Cabanilla et al., 2006).

Bukidnon was identified as one of the 10 poorest provinces in the Philippines (PSA, 2015), having a poverty incidence of 54.1% (PSA, 2018). According to the Philippine Statistics Authority, the Bukidnon province has a poverty threshold level of Php10,503.48 and a food threshold level of Php7,334.58 in 2017 (PSA, 2018). Of the 20 towns of Bukidnon, Maramag Township has a relatively low incidence of poverty (47.90%), with about 30% of its households have income below the food threshold level. However, the 2017 survey has identified Barangay Kiharong as one of the poorest barangays in Maramag, with food and poverty threshold level lower than that of the provincial average. As such, Barangay Kiharong was identified as a Geographically, Economically and Socially Disadvantaged (GESDA) community with a poverty incidence of 64.90%, and a low food threshold level among 54.2% of its households. The barangay has 1,588 population at 52:48 male-female sex ratio (CBMS Core Indicators, Barangay Kiharong, 2017).

With this, the Department of Science and Technology (DOST), through the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) has funded the S&T Community-based for Inclusive Development (STC4iD) program through the Community-based Livelihood Improvement for Bukidnon or Project CLImB in Barangay Kiharong, Maramag, Bukidnon in Southern Philippines for three (3) years starting 2019 to 2021 through the College of Agriculture of Central Mindanao University (CMU) similarly situated in Bukidnon. The project was a demonstration of an extension delivery service in a disadvantaged community, and social group in the agriculture, aquatic and natural resource (AANR) sector for inclusive development by establishing a sustainable and resilient community-based livelihood. It primarily aimed to uplift the social and economic well-being of the rural women. Swanson (2008) observes that improving livelihoods requires extension and advisory services to be more carefully focused on the needs of different clientele within the rural communities. The extension activities sought to enhance the efficiency of the farm by increasing production and improving the standard of living of the farm family. Extension does not only seek to improve the productivity, but also develop farmers’ abilities to direct their future development.

According to the United Nations Committee on World Food Security, a person is considered “food secure” when s/he has the physical, social and economic access to sufficient, safe and nutritious food based on his/her dietary needs and food preferences for an active and healthy life (OECD, 2021; IFRI, 2021). The FAO et al. (2020) report however, that world hunger and malnutrition have grown with COVID-19 pandemic and related containment measures. Consequently, the pandemic negatively affected poor people’s quality of diet and make healthy diets less accessible.

Food security, and therefore food insecurity, was generally recognized as multidimensional. Food insecurity started with the loss of jobs that happened during the pandemic, leading to significant decline of living standards. Poverty limited the ability of people to search for work which contributes to a long-term unemployment trap. Lack of

income due to unemployment contributed to food insecurity and social exclusion problems (Toit et al., 2011).

To be food secure, four (4) dimensions should be fulfilled simultaneously: physical availability of food; economic and physical access to food; food utilization; and stability throughout the time. A household or individual must have access to adequate food at all times and should not risk losing this access due to sudden disturbances (e.g., an economic, health or climatic crisis), or cyclical events (e.g., seasonal food insecurity). Meade and Thome (2017) refer to stability as both the availability and access of food security.

On the other hand, the idea of social capital has been considered an essential element of many community development strategies. The World Bank (2011) and Grootaert et al. (2004) identify six (6) dimensions of social capital: groups and network, trust and solidarity, collective action and cooperation, information and communication, social cohesion and inclusion and empowerment and political action. Putnam (2000) referred to social capital as the connections among individuals, social networks and the norms of reciprocity and trustworthiness that arise from them. Warren (2009) explains that a robust social capital provides a foundation for community organizing. However, Murphy and Cunningham (2003) argues that community organizing is effective if it includes and enhances existing social capital and social networks. Woolcock (2001) stresses that social capital is an asset that must be recognized by theorists, policymakers, and practitioners in helping rural communities.

In the Philippines, Abad (2005) observes that most of the Filipinos lack bridging and linking capital with other people with a scarcity of social cohesion and lack of trust. Social capital serves as social ties and networks in the community development process to improve economic conditions and provides a variety of public services to support quality development outcome (Phillips and Pittman, 2009). In addition, Claridge (2019) suggests to revitalize the social capital of the community because it motivates people to be generous, supportive and participative.

It is therefore, necessary to assess the effectiveness of the livelihood intervention of the Project CLImB in improving social capital and food security among the members of the Kiharong Women's Association, especially during the pandemic. Specifically, this paper sought to describe the socioeconomic attributes, and changes in the knowledge level in farming, income, social capital and food security of the rural women during the pandemic particularly food availability, food accessibility, food utilization, and food stability. It examined the significant differences in the social capital and food security before and during the pandemic. It also analyzed the factors influencing social capital among the rural women.

2. Methodology

2.1 Locale and Participants of the Study

As shown in Fig. 1, the Project CLImB was implemented in Barangay Kiharong, Municipality of Maramag, province of Bukidnon in close coordination with the concerned local government and the Kiharong Women's Association (KWA). The KWA was registered with the Department of Labor and Employment (DOLE) in 2016 with 53 women members.



Figure 1. Map of the Philippines showing the location of Brgy. Kiharong

The KWA officers and the local government officials identified five (5) livelihood interventions viz: organic vegetable gardening, vermicomposting, mushroom production, Natural Farming Technology System (NFTS), and goat production. The project has conducted technical training along with the identified livelihood interventions among the 33 KWA women participants in mid-2019.

As part of the project, 33 KWA women participated and established the communal vegetable garden and individual backyard home gardens during the third quarter of 2019. These backyard home gardens were done through vertical gardening using recycled materials because of their very limited area. In 2020, two (2) KWA members received two (2) pregnant does each for goat production. The Project CLImB has provided agricultural inputs to the KWA members in terms of seeds, seedlings, vermicompost, and inoculated fruiting bags for mushroom production. The KWA women provided the farm labor as their counterpart.

2.2 Data Collection

In early 2019, community profiling and community needs assessment were conducted among randomly selected residents of Barangay Kiharong and validated through focus group discussion with the local officials and officers of the KWA. Surveys on the

socioeconomic attributes of women, social capital and food security were conducted in 2019 and 2020 using purposive sampling from the 33 KWA members who participated in Project CLImB.

The six dimensions of social capital including groups and network, trust and solidarity, collective action and cooperation, information and communication, social cohesion and inclusion and empowerment and political action were measured following the World Bank Social Capital-Integrated Questionnaire (Grootaert et al., 2004) using indicators answerable by a 1 to 5 scale and described through weighted means.

The food security questionnaire which consisted of food availability, accessibility, utilization and stability was adapted from the US Household Food Security Survey Module (ERS, 2012). This comprised a revised series of questions about behaviors and experiences associated with difficulty in meeting food needs of the KWA households.

2.3 Data analysis

The percentage change in the knowledge level was measured using pretest and post-test given before and after the conduct of training by the project staff. Monthly revenue from the home gardens was based on the actual monetary value of all vegetables harvested, either consumed, sold or given as determined by the KWA members and retrieved every end of the month by the project staff. No cost and return analysis was done as agricultural inputs were provided free.

Data were analyzed descriptively, t-test was used to determine significant differences in the social capital and food security before and during the pandemic, while regression analysis was employed to determine factors influencing social capital of the rural women.

3. Results

3.1 Socioeconomic Attributes of KWA Women

From the survey, majority (91%) of the KWA women were married, 46 years old with five (5) household members. They have attained primary education, with some of them graduated from secondary school (27%) and college (21%). Most of them were migrants from Central Philippines (89%). Their primary source of income was farming (93%), where they obtained less than US\$200 a month in 2020 (Table 1), which was lower than the poverty threshold of the province. In comparison, the KWA women obtained a monthly income of Php6, 583.64 (US\$131.67) in 2019 which was 29% lesser than in 2020.

Table 1. Socioeconomic Attributes of the KWA Women

ATTRIBUTES	Results (n=33)	
	Mean	%
Marital status: Married		91%
Age	46 years old	
Household size	5 members	
Educational attainment:		
High school graduate		27%
College graduate		21%
Ethnic Origin: Cebuano (Central Philippines)		89%
Main occupation/source of income: Farming		93%
Household Monthly income	2019	2020
	Php6,583.64	Php8,536.70
	(US\$ 131.67)	US\$170.73
	(Php50:US\$1)	(Php50:US\$1)

3.2 Increase in Income from Vegetable Gardening

In 2019, the KWA women have obtained an annual income of US\$131 without the home garden. In 2020, the KWA women realized an annual income of US\$170 with the home garden. From July to December 2020, the KWA women realized a mean monthly income equivalent to US\$10.52 (US\$1: Php50) from their home gardens based on the actual value of vegetables consumed, given, and or sold (Table 2). This income was considered as early economic gain generated by the KWA women from Project CLImB despite the lock downs during the pandemic. This additional monthly income from gardening represented 27% of the total increase in their household income in 2020. The findings suggests that vegetable gardening provided opportunities for women to engage in economic activities despite the pandemic.

Table 2. Income Realized from the KWA Women's Home Garden, July – December 2020

MONTH (2020)	Average Monthly Income (Php) (n=33)
July	648.75
August	495.50
September	541.56
October	462.54
November	469.83
December	541.38
Overall Mean	526.59 (US \$10.53)

This also suggested that despite the pandemic, the women were able to produce food for their household and generate additional income for their other needs.

3.3 Change in Knowledge Level in Farming

Table 3 depicted a positive change in the knowledge level of the KWA women in all the technical training conducted by Project CLImB, particularly in mushroom production (30%) and vermi composting (23%). The results suggested that the women were highly interested in mushroom production and vermi composting compared to rapid composting and goat production. The findings indicated that the training has enhanced the knowledge of the women in farming which facilitated the adoption and practice of these technologies in their community and home gardens. Moreover, the women have reported having shared their knowledge gained from the training with their neighbors and friends, suggesting networks and potential diffusion of the technologies necessary to sustain the livelihood intervention in the locality.

Table 3. Change in the Knowledge Level of the KWA Women from the Technical Training Conducted by the Project CLImB

TRAINING CONDUCTED	Mean Pre-test Score (n=33)	Mean Post Test Score (n=33)	% change
Vermicomposting	5.89	7.26	23.26
Natural/Rapid Composting	6.25	7.25	16.0
Mushroom Production	6.83	8.89	30.16
Goats' Health & Nutrition	6.25	7.25	16.0

Table 5. Regression Analysis between Selected Variables and the Social Capital of the KWA

PREDICTORS	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.974	.792		5.019	.000
Main Occupation	-.535	.125	-.620	-4.294	.000
Sources of Income	.387	.169	.449	2.291	.031
Ethnic Origin	.395	.162	.399	2.436	.023
R = .759 ^a	R Square= .576	Adjusted R Square= .434	F value= 4.072	Sig. =.0049	

Based on the results, the regression equation for the social capital is derived as:

$$Y = 3.974 - .535 X_1 + .387 X_2 + .395 X_3$$

Where: Y = social capital of the KWA women

X₁ = Main occupation

X₂ = Sources of income

X₃ = Ethnic origin

3.5 The Extent of Food Security among the Kiharong Women's Association Members Before and During the Pandemic

Table 6 showed increase in the food availability, accessibility, utilization and stability among the KWA women from 2019 to 2020. However, the t-test result indicated no significant difference in the food security of KWA women before and during the pandemic. In food availability, there was a minimal increase before (overall mean: 4.0) and during (overall mean: 4.1) the pandemic. Based on the findings, the women were able to provide three meals a day, the food needs and wants of their children, mid-snacks, and go, grow and glow foods for their households. They rarely ate meat and bought imported goods during the pandemic.

Table 6. T-test Result of Food Security among the KWA Women Before and During the Pandemic

INDICATOR	MEAN		P (T<=t) two-tail
	2019	2020	
Food Availability	4.0	4.1	0.61054214 ^{ns}
Food Accessibility	4.2	4.5	2.364624252 ^{ns}
Food Utilization	4.3	4.5	0.532032136 ^{ns}
Food Stability	4.5	4.5	0.916007505 ^{ns}

^{ns} Not significant

Similarly, the KWA members observed an increase in their food accessibility in 2020 (Table 6). The findings showed that the women have access to information on the proper sanitation at home, nutrition-related programs in the barangay, balanced meal during the last 12 months, and a whole day meal. Though not statistically significant, the increasing access to food among the KWA members during the pandemic could be attributed to their home gardens which started in mid-2020.

For food utilization, the findings revealed that the KWA members were rarely food insecure in 2019, and were food secured at all times during the pandemic in 2020 in terms of food utilization (Table 6). The findings indicated that the KWA members utilized pure and clean water, and safe and right amount of food for their healthy children. The livelihood intervention of Project CLImB has to some extent increased the food utilized by the household during the pandemic.

In food stability, the findings showed that the KWA women have high stability in terms of the money to buy the required quality and quantity of food in the household (Table 6). They have rarely experienced food instability before and during the pandemic.

Overall, the findings indicated that while the food was stable among the KWA members before and during the pandemic, food was more available, accessible and utilized during the pandemic than before, though not statistically different. The findings further implied that during its short period of implementation, Project CLImB has endeavored to increase the amount of food as well as the access and utilization of food among the KWA members, especially during the pandemic.

4. Discussion

4.1 Effectiveness of the Livelihood Intervention to Improve Food Security among the KWA Women during the Pandemic

Being identified as a GESDA community, the DOST- PCAARRD through Project CLImB has provided livelihood intervention to improve food security among the members of the Kiharong Women's Association since 2019. Though it is quite early to find significant differences in the food security of the KWA brought about by the livelihood intervention, the data indicated positive outcome attributable to Project CLImB despite the social and economic disturbances brought about by COVID-19. The World Bank (2021) has recognized the severe and widespread global food insecurity due to COVID-19, which affected the vulnerable households in almost every country, which may continue through 2022. The health crisis has caused a reduction in incomes and increase in the prices of some foods, putting food out of reach for many, and undermining the right to food (Committee on World Food Security, 2020). With the loss of jobs and income, and limited access to food brought about by the pandemic (Kim et al (2020), Project CLImB was able to provide additional source of food for the rural poor. As food access was most affected by the crisis triggered by lockdown which similarly influenced food stability in the market (HLPE, 2020), the home garden of the KWA women served as source of food for their households.

In addition, the findings showed that the facilitated extension activities of Project CLImB have increased the knowledge on farming and generated additional income of the KWA households. These preliminary outcomes indicate the effectiveness of the livelihood intervention, and its potential sustainability in the project site. The 2008 FAO report reiterated the significant role of agriculture in achieving food security in the country, particularly in the rural areas. The ability of family farming and smallholder agriculture to promote growth by increasing productivity differs, however it is critical in reducing poverty and hunger. Change in family farming and smallholder agriculture has significant effects on the livelihoods of the poor by increasing food availability and income (FAO et al., 2015). Food production is an essential prerequisite for food security (Misselhorn et al., 2012) which includes home and community gardens (Singh et al., 2021). With new global food security challenges, Elias & Jambor (2021) argued for a stronger emphasis on poverty reduction and raising the wages of low-income households.

4.2 Livelihood Intervention Improved the Social Capital of KWA Amidst the Pandemic

The study results demonstrated a significant difference in the social asset of the KWA before and during the pandemic. The findings indicated a favorable influence of the livelihood interventions on the social capital of the rural women. With the capacity-building and technical training conducted by Project CLImB, the KWA women experienced an improvement in their collective action, common trust, access to information and communication, social unity and togetherness within the association in 2020, despite the social restrictions during the health crisis. Vegetable gardening has made the neighborhood closer with the sharing of information as well as their harvest. The result suggested that Project CLImB's activities have enhanced the trust and developed the bonds between, and among the KWA members.

The training conducted by the Project increased their knowledge about farming, and the sharing of information with neighbors strengthened their bond as a community. Woolcock (2001) explains that friends and family comprise the safety net during hard times. Similarly, Abad (2005) observes that Filipinos often rely on a network of family and close friends to fulfill needs and reach goals. With access to information, poor communities have a stronger voice in matters affecting their welfare (World Bank, 2002). Woolcock and Narayan (2000) stress that fellowship, sympathy and social interaction help structure a unit within society. They argue that social capital accumulates when a neighbor contacts other neighbors to satisfy social needs.

The effect of social capital on increasing the availability of food in the KWA household was critical, especially during the pandemic. Liang et al. (2018) observe that each dimension of social capital has a significant and positive impacts on the economic performance of cooperatives. Recent studies promoted econometric analysis to demonstrate quantifiable effects of social capital on economic outcomes (Engbers et al., 2016).

In general, the findings indicated that social capital helps the KWA address the problem of food security, especially during difficult time. Conversely, economic activities improve the social capital of the KWA. To Woolcock (2001), communities with strong social networks

and civic associations will be in a better position to address poverty and vulnerability and, or take advantage of new opportunities. Social relationships between KWA members enable productive outcomes as trust increases their ability to work together (Hutagalung, 2016). Thus, it is critical that the activities of the poor are not only spread, but are also scaled up (Woolcock, 2001). McCabe et al. (2013) confirm that social networks are essential in surviving poverty.

4.3 Predictors of Social Capital among the Rural Women

Farming as the main source of income and the ethnicity of the women have facilitated the growth in the social capital of the KWA women. Although farming practices were affected by the health protocols during the pandemic, these however have helped improve their social capital. This indicates that farming as the main occupation of the women has provided them the opportunities to share common knowledge and new information which helped build trust with each other. In particular, the vegetable gardening initiated by the Project CLImB has encouraged closeness among the women that promoted collective action in the association. This livelihood intervention has resulted to available food for the household and the neighborhood while generating additional income in the midst of the pandemic. Putnam (2000) reports that social networks have value, and social contacts affect the productivity of individuals and groups.

Moreover, being farm workers of similar ethnic descent doing similar activities for a living have strengthened the trust, cohesion, flow of information, and collective action among the KWA women. Kwon (2016) reports that ethnicity may affect the affiliation of an individual within a particular ethnic group. McCabe et al. (2013) conclude that connections are built in places where people felt comfortable and accepted within their own culture. They argue that traditional cultures and values offered a critical basis for network development.

5. Conclusion

The KWA women were middle-aged mothers of large households who attained primary education with income below the poverty, and food threshold levels. Amidst the pandemic, the Project CLImB has implemented a livelihood intervention which provided food and income and improved the knowledge of the women about farming. These activities made them more trusting, cohesive, cooperative and informed. Overall, the project's activities significantly enhanced the social capital of the Kiharong Women's Association. Consequently, the social capital increases the efforts of KWA members to generate additional income for their households. Farming as their main occupation, other sources of income and ethnicity influenced the social capital of the rural women. Though not statistically significant, the livelihood intervention of Project CLImB has resulted to an early increase in food availability, food accessibility and food utilization among the KWA women especially during the pandemic. These preliminary and early results showed the effectiveness of, and provided potential indicators for, the sustainability and resiliency of the community-based livelihood intervention of Project CLImB.

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