



Achieving Food Security during the Pandemic: A case of the Rural Women in the Upland Province of Bukidnon, Southern Philippines

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ABSTRACT

The growing number of people affected by hunger and food insecurity, especially during the pandemic, is one of the biggest challenges in the rural areas. A livelihood project was implemented from 2019 to 2021 among the 33 members of a women's association in a disadvantaged upland community in Bukidnon province, Southern Philippines, for inclusive development. 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 implemented facilitated extension activities and surveys considering the health protocols imposed by the government. The technical training has resulted in a positive change in the knowledge level, promoted the production of vegetables in the households which generated additional income vital during the pandemic. Besides, there was a significant increase in the social capital of rural women during the last two years. Though not statistically significant, the project has caused an increase in 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 members of the community.

Keywords: food security, social capital, livelihood intervention, rural women, pandemi

INTRODUCTION

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) reported 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) referred to stability as both the availability and access of food security.

The Food and Agriculture Organization (2010) recognized the increasing number of people suffering from hunger and food insecurity as one of the biggest challenges of the world population. In 2015, the Food and Agriculture Organization of the United Nations State of Food Insecurity (FAO-UNSF) reported that an unacceptably large number of people still lack the food they need for an active and healthy life despite the continues fight against hunger (FAO et al., 2015). In 2020, world hunger has increased to 9.9% from 8.4% under the shadow of the COVID 19- pandemic (FAO et al., 2020). Singh et al (2021) found that food insecurity was a critical problem among low-income and disadvantaged families during the COVID-19 pandemic.

Being one of the most populous countries globally,

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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).

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) identified 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) explained that a robust social capital provides a foundation for community organizing. However, Murphy and Cunningham (2003) argued that community organizing is effective if it includes and enhances existing social capital and social networks. Woolcock (2001) stressed that social capital as an asset must be recognized by theorists, policymakers, and practitioners in helping rural communities.

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).

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) 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 through the College of Agriculture of Central Mindanao University (CMU) similarly situated in Bukidnon. It 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. Swanson (2008) reported 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.

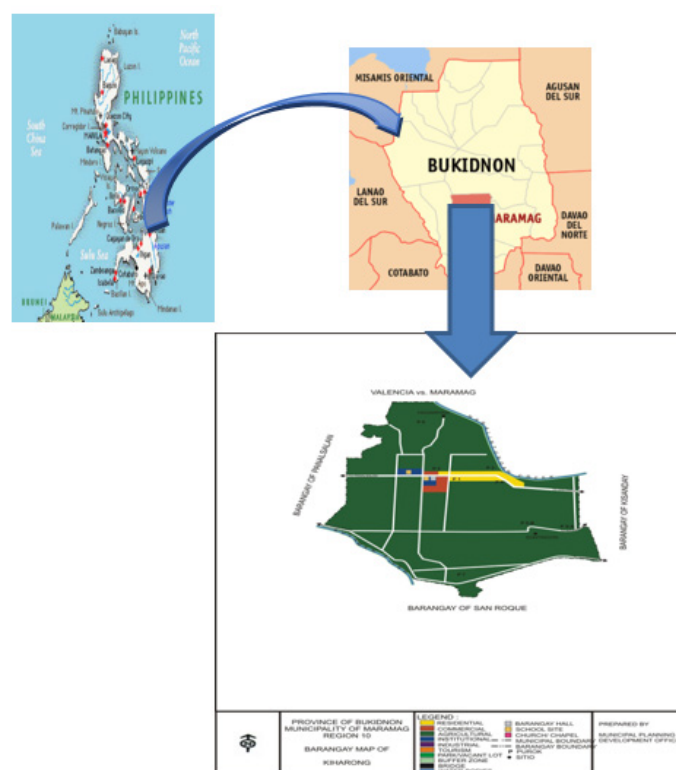


Figure 1. Map of the Philippines showing the location of Brgy. Kiharong

It is therefore, necessary to assess the effectiveness of the livelihood intervention of the Project CLImB in achieving 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.

METHODOLOGY

As shown in Figure 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.

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. Data were analyzed descriptively, while t-test was used to determine significant differences between indicators before and during the pandemic.

In early 2019, community profiling and community needs assessment was conducted among randomly selected residents of Barangay Kiharong and validated through focus group discussion with the local officials and officers of the KWA. 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. Technical training along with the identified livelihood interventions was conducted among the 33 KWA women participants by the Project CLImB in mid-2019. 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 CLImB staff.

Besides, the KWA women developed an enterprise development plan for mushroom production in 2020 and established the communal vegetable garden and individual backyard home garden starting the third quarter of 2019. These backyard home gardens were done through vertical gardening using recycled materials because of the 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. On the other hand, the KWA women provided the farm labor as their counterpart. The activities in the communal garden were highly affected, while home gardening started during the lockdown in April 2020 with the onset of the rainy season. 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 thus, taken as non cash expenses. Revenue from the communal garden and mushroom center was used for their continued operation and not included in the findings of the study.

On the other hand, 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., 2011) 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 household. Figure 2 shows the conceptual framework of the study indicating the social preparation, facilitated extension intervention and community enterprise implemented to establish a sustainable, and resilient community-based livelihood among the women farmers in a Geographically, Economically and Socially Disadvantaged (GESDA)

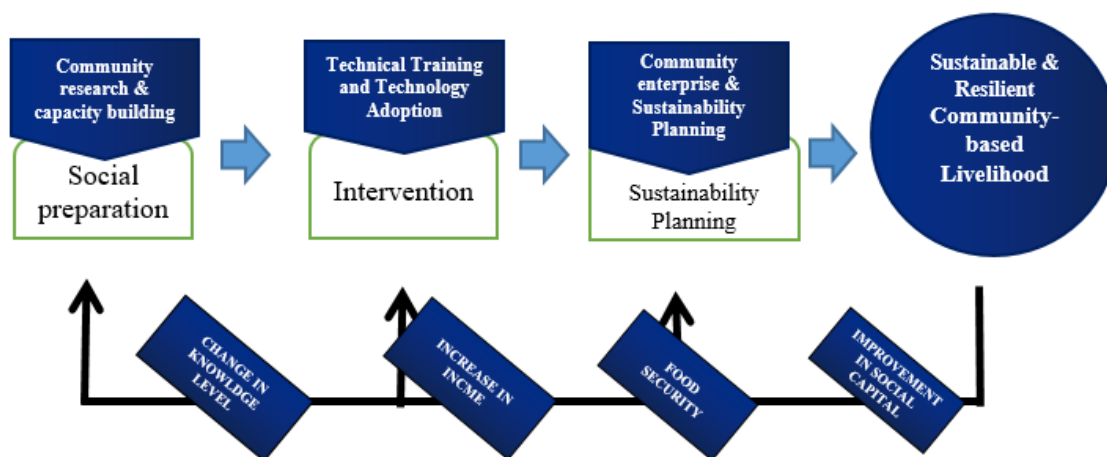


Figure 2. The Framework of the Study

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 (US\$ 131.67) (Php50:US\$1)	Php8,536.70 US\$170.73 (Php50:US\$1)

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

community. The effectiveness of a sustainable and resilient community-based livelihood through Project CLImB is dependent on the changes in the knowledge level, income, social capital, and food security in the women farmers attributable to the activities of the project.

RESULTS AND DISCUSSION

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 high 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% lower than in 2020.

Increase in Income from Vegetable Gardening

In 2019, the KWA women have an annual income of Php6,583.64 without the home garden. In 2020, the KWA women realized an annual income of Php8,536.70

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. The additional monthly income from gardening represented 27% of the total increase in their household income in 2020. The findings means that vegetable gardening provided opportunities for women to engage in economic activities despite the pandemic.

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in economic activities despite the pandemic.

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

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 vermicomposting (23%). The results suggested that the women were more interested in mushroom production and vermicomposting than rapid composting and goats health and nutrition. 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 in farming 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.

Change in the Social Capital of the Kiharong Women's Association

In this study, social capital was taken as the social ties between and among KWA women, developed through constant interaction which is considered as a social asset. Table 4 demonstrated an overall increase of 9.76% in the social capital of the KWA women in the last two years (2019-2020). Of the six dimensions of social capital, the KWA women perceived an improvement in their groups and network (15.47%), information

and communication (14.09%), and trust and solidarity (11.23%). The result indicated that the women were able to establish linkages and continue information-sharing even during the pandemic. However, empowerment and political action received the slightest increase of 0.6%, while social cohesion and inclusion have the highest mean score of 4.63. Understandably, the pandemic has limited the local political activities and the participation of the women in these activities, though they were able to maintain the connection with their group and members. The t-test results showed a highly significant difference in groups and networks, trust and solidarity, information and communication, and social cohesion and inclusion before and during the pandemic. The findings showed an increase in collective action, trusts, togetherness, and access to information and communication that helped strengthen the bonds that link each member of the KWA together especially during the pandemic. Based on the comments of the KWA members, Project CLImB has united the group and improved the relationship between and among members.

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

Food Availability

In this study, food availability was considered as the sufficient quantities of appropriate quality of food in the KWA household supplied locally or imported. Table 5 showed a minimal increase in the food availability among the KWA members before (overall mean: 4.0) and during (overall mean: 4.1) the pandemic. The t-test result does not show significant difference in food availability of the KWA households before and during the pandemic. Nevertheless,, the women were able to provide three meals a day, the needs and wants of their children, mid-snacks twice a day,

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 4. Change in the social capital of KWA, 2019 and 2020

INDICATOR	MEAN		P (T<=t) two-tail	Descriptive Rating
	2019	2020		
Groups and Networks	3.75	4.33	2.56352E-05**	Highly Significant
Trust and Solidarity	3.74	4.16	0.0027782**	Highly Significant
Collective action and Cooperation	4.00	4.18	0.021232227ns	Not Significant
Information and Communication	3.62	4.13	0.003910232**	Highly Significant
Social cohesion and Inclusion	4.17	4.63	0.004080169**	Highly Significant
Empowerment and Political action	3.50	3.52	0.932432888ns	Not Significant

** p≤0.01

ns- not significant

Table 5. Extent of Food Availability among the KWA Members in 2019 and 2020

INDICATOR	WEIGHTED AVERAGE	DESCRIPTIVE RATING	WEIGHTED AVERAGE	DESCRIPTIVE RATING
A. Availability	2019 (n=33)		2020 (n=33)	
1. My family does not eat three meals a day.	4.9	Never	5.0	Never
2. My family does not prepare kits with complete kinds of medicine.	4.0	Rarely	4.2	Rarely
3. I cannot provide the needs and wants for the children.	4.0	Rarely	4.2	Rarely
4. I cannot provide mid-snacks twice a day for my family.	4.0	Rarely	3.7	Rarely
5. I cannot provide the go, grow and glow foods for my family.	4.0	Rarely	3.6	Rarely
6. I cannot assure that my family could eat meat twice a week.	3.0	Occasional	3.9	Rarely
7. In the last 12 months, my family cannot afford to buy imported goods.	4.0	Rarely	3.8	Rarely
8. In the last 12 months, my family did sleep at night hungry because there was not enough food.	5.0	Never	5.0	Never
9. In the last 12 months, my family had a tightened food budget.	4.0	Rarely	4.0	Rarely
10. I am worried that my household would run out of food.	3.0	Occasional	3.1	Occasional
OVERALL MEAN	4.0	Rarely	4.1	Rarely

P (T<=T) two-tail 0.61054214^{ns}

Ns - not significant

Legend:

4.51-5.00 Never or it happened once only

3.51-4.50 Rarely (it happens 2-3 times)

2.51-3.50 Occasionally (it happens 4-5 times)

1.51-2.50 Often (it happens 6-7 times)

1.00-1.50 Always (it happens 8 or more times)

Food Secure At All Times

Rarely Food Insecure

Occasionally Food Insecure

Oftentimes Food Insecure

Food Insecure At All Times

and go, grow and glow foods for their households. They rarely ate meat and bought imported goods during the pandemic.

In terms of food sources, t-test result showed significant difference in the sources of food among the KWA women before and during the pandemic (Table 5). The KWA women obtained food from their farms and home gardens with decreasing dependence on the public market. The income obtained from their farm and labor provided monetary source to buy food for the household from the market and local sari-sari store.. They also sourced food from their locally raised livestock and chicken.. The findings showed that the KWA women relied heavily on domestic food sources for their household. The results suggested more food sources among the KWA households during the pandemic than before, implying an increase in food availability with the livelihood intervention of Project CLImB.

Food Accessibility

This study considered food accessibility as the ability of the KWA women to obtain adequate resources to acquire appropriate food for a nutritious diet. Data in Table 6 revealed no significant difference in KWA women's access

to food in 2019 and 2020. However, the KWA members observed an increase in their food accessibility in 2020 . In particular, the KWA members 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.

Food Utilization

This study defined food utilization as the proper biological use of food in a diet of the KWA members with sufficient energy, nutrients, potable water and sanitation. The data in Table 7 showed no significant difference in 2019 and 2020 in terms of food utilization in the KWA households.. The data however 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. In particular, the KWA members utilized pure and clean water, 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.

Table 5. Sources of Food for the Households, Before and During the Livelihood Intervention

INDICATOR	Before Project CLImB (2018) %	During Project CLImB (2019-2020) %
Own farm	48	91
Own livestock and poultry	52	55
Public market	76	67
Local shop/sari-sari store	88	88
Labor/wage	21	21
Household garden	-	60
P(T<=T) two-tail	7.28886E-08**	
** p≤0.01		

Table 6. Extent of Food Accessibility among KWA Members Before and During the Pandemic

INDICATOR	WEIGHTED AVERAGE	DESCRIPTIVE RATING	WEIGHTED AVERAGE	DESCRIPTIVE RATING
	2019 (n=33)		2020 (n=33)	
B. Accessibility				
1. My children do not have access to weekly child care from the barangay health station.	4.7	Never	4.1	Rarely
2. My family does not have access to information regarding proper sanitation at home.	4.0	Rarely	4.6	Never
3. My family does not have access to nutrition-related programs in the barangay.	4.0	Rarely	4.3	Rarely
4. In the last 12 months, my family had not afforded to eat a balanced meal.	4.0	Rarely	4.9	Never
5. In the last 12 months, my family did not eat for a whole day because there wasn't enough money for food.	4.0	Rarely	5.0	Never
6. In the last 12 months, my family does not have access the free medical check-up.	4.8	Never	4.5	Rarely
7. In the last 12 months, my family does not have sufficient money to provide for all of our needs.	4.0	Rarely	4.2	Rarely
8. In the last 12 months, my children do not have access to feeding programs in the school.	4.2	Rarely	4.2	Rarely
OVERALL MEAN	4.2	Rarely	4.5	Rarely

P (T<=t) two-tail 2.364624252^{ns}

NS - not significant

Legend:

4.51-5.00 Never or it happened once only

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2.51-3.50 Occasionally (it happens 4-5 times)

1.51-2.50 Often (it happens 6-7 times)

1.00-1.50 Always (it happens 8 or more times)

Food Secure At All Times

Rarely Food Insecure

Occasionally Food Insecure

Oftentimes Food Insecure

Food Insecure At All Times

Table 7. Food Utilization among KWA Members Before and During the Pandemic

INDICATOR	WEIGHTED AVERAGE	DESCRIPTIVE RATING	WEIGHTED AVERAGE	DESCRIPTIVE RATING
C. Utilization	2019 (n=33)		2020 (n=33)	
1. My family does not get water from pure and clean water.	4.7	Never	5.0	Never
2. My family suffers from getting a wise food.	4.0	Rarely	4.0	Rarely
3. My family feels uncomfortable with the safe food intake.	4.0	Rarely	5.0	Never
4. My family does not follow the recommended proper nutritional requirement.	4.0	Rarely	4.0	Rarely
5. My family does not eat the right amount of food necessary to the body.	4.0	Rarely	4.8	Never
6. I am not assured that my children have healthy condition.	4.0	Rarely	4.8	Never
7. I do not have adequate and updated information on basic nutritional facts from the health station.	5.0	Never	3.8	Rarely
8. In the last 12 months, my children suffer from illnesses due to improper food intake.	4.0	Rarely	4.9	Never
9. In the last 12 months, I did not experience illnesses due to food toxicity.	5.0	Never	4.0	Rarely
OVERALL MEAN	4.3	Rarely	4.5	Rarely

P (T<=t) two-tail 0.532032136 ^{ns}
 NS - not significant

Legend:

4.51-5.00 Never or it happened once only	Food Secure At All Times
3.51-4.50 Rarely (it happens 2-3 times)	Rarely Food Insecure
2.51-3.50 Occasionally (it happens 4-5 times)	Occasionally Food Insecure
1.51-2.50 Often (it happens 6-7 times)	Oftentimes Food Insecure
1.00-1.50 Always (it happens 8 or more times)	Food Insecure At All Times

Food Stability

To be food secure, the KWA household must have access to sufficient food at all time. The data in Table 8 showed no significant difference in the food stability among the KWA women before (2019) and during the pandemic (2020). During both years, there was high stability in the money to buy the required quality and quantity of the food in the household. The findings suggested that the KWA members 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.

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.

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 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.

Table 7. Food Utilization among KWA Members Before and During the Pandemic

INDICATOR	WEIGHTED	DESCRIPTIVE	WEIGHTED	DESCRIPTIVE
	AVERAGE	RATING	AVERAGE	RATING
D. Stability	2019 (n=33)		2020 (n=33)	
1. The food that I bought just did not last and I didn't have money to get more.	4.3	Rarely	4.7	Never
2. I am worried that our food would not run out before we got money to buy more.	4.0	Rarely	3.5	Often
3. My family does not provide long-term and nutritious quality food.	4.0	Rarely	4.5	Never
4. My children do not have monthly check-up from our barangay health station.	4.0	Rarely	4.0	Never
5. In the last 12 months, my family skips meals because there was not enough food.	5.0	Never	4.8	Never
6. In the last 12 months, my family felt hungry because we couldn't afford enough food.	5.0	Never	4.9	Never
7. In the last 12 months, my family eats a smaller meal than we felt we needed because there was not enough food.	5.0	Never	5.0	Never
OVERALL MEAN	4.5	Rarely	4.5	Rarely

P (T<=t) two-tail 0.916007505 ^{ns}

NS - not significant

Legend:

4.51-5.00 Never or it happened once only	Food Secure At All Times
3.51-4.50 Rarely (it happens 2-3 times)	Rarely Food Insecure
2.51-3.50 Occasionally (it happens 4-5 times)	Occasionally Food Insecure
1.51-2.50 Often (it happens 6-7 times)	Often Food Insecure
1.00-1.50 Always (it happens 8 or more times)	Food Insecure At All Times

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) explained that friends and family comprise the safety net during hard times. Similarly, Abad (2005) observed 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) stressed that fellowship, sympathy and social interaction help structure a unit within society. They argued 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) observed 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) confirmed that social networks are essential in surviving poverty.

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. 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.

RECOMMENDATION

The increase in the food security among the KWA

women may indicate the need to sustain the activities of the project in the locality beyond its lifetime. There is a need to upscale the technologies promoted by the project to other members of the community outside of the Kiharong Women's Association. Adoption of these technologies may be facilitated by issuing a local ordinance by the Barangay Council enjoining the local people to establish home gardens using local and indigenous materials. As part of the sustainability plan, the Central Mindanao University should include Barangay Kiharong in its extension areas, particularly after the termination of PCAARRD support. This effort could help sustain the livelihood intervention established by Project CLImB in the barangay and strengthen the extension activities of the University.

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