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Local Response and Coping Mechanisms Adopted to Disruptions Associated with the COVID-19 Pandemic at a Filipino State University

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Abstract

The various social and mobility restrictions imposed during the COVID-19 pandemic brought unprecedented disruptions in working adults' day-to-day lives at Visayas State University in Leyte Island, Philippines. Everyone had to adjust abruptly to help contain the spread of the virus. In this paper, one of the local responses through an agricultural production program at the University is highlighted, and reflections on its employees' coping mechanisms are recorded in response to the pandemic. The initiative taken was to intensify vegetable production for local consumption to mitigate the looming disruption in the supply of vegetables to neighboring towns. To date, at least seven tons of assorted vegetables have been distributed to around 5,000 beneficiaries in the province. The results of the cross-sectional survey show that the topmost ranked coping mechanism for both men and women during the lockdown was engaging in household chores. Beyond that, men were more inclined to surf the Internet, while women focused more on gardening. Policymakers and administrators can use these results as a benchmark to develop programs and approaches that may contribute to working adults' well-being during this pandemic.

Keywords*: Community quarantine, pandemic, rural gardening, coping mechanisms*

Introduction

The COVID-19 pandemic caught everyone unprepared, and local institutions had to make abrupt adjustments. COVID-19 was declared a public health emergency of international concern by the World Health Organization (WHO) in January 2020 (WHO, 2020a); the outbreak escalated rapidly and was declared a pandemic by March. In the Philippines, a national emergency was declared and lockdown measures were imposed with varying degrees of community quarantine to slow the spread of the virus, flatten the curve, and potentially decrease the growing rate of positive cases (Official Gazette, 2020). This study documented the action of a State University focusing on vegetable production and distribution, and provides reflections regarding its employees' coping mechanisms. These will provide input for strengthening local actions in case similar situations occur in the future.

Coping Mechanisms in the Pandemic

The sudden and unprecedented pandemic has left everyone inadequately prepared and workplaces negatively affected (Babore et al., 2020). Nonetheless, local actions and various coping mechanisms have been adopted in response. Such disruptions can cause psychological stress. How an individual reacts to the situation depends on several factors such as the community one lives in and the socio-economic background. Coping is a behavioral and conscious effort to reduce, manage, or tolerate stress (Algorani & Gupta, 2020; Baqutayan, 2015; Folkman & Lazarus, 1980). It is a process in which people assess and deal with internal and external stressful situations (Skinner & Zimmer-Gembeck, 2016). Such mechanisms are used to maintain physical, emotional, psychological, and spiritual well-being.

Various studies have highlighted the coping mechanisms adopted by Filipinos in response to climate-related hazards. The review by Israel and Briones (2014) found that households used multiple coping mechanisms to address the negative effects of natural disasters such as floods, storm surges, and typhoons. Specifically, Predo (2010) found that people in selected municipalities in Southern Leyte who were affected by flooding and storm surges in 2007 coped by using family savings, obtaining loans, and receiving support and grants. Penalba and Elazequie (2011) found that households affected

by Typhoon Milenyo (2006) employed structural (i.e., house strengthening) and behavioral (i.e., securing basic necessities) coping strategies. The study of Seriño et al. (2021) found that coconut farmers coped with the destruction wrought by Super Typhoon Haiyan (2013) by replanting, adapted resilient cropping systems, and praying. At the local government level, the response to natural hazards may be through risk-coping strategies, such as doing clean-up operations and receiving aid from others (Ravago et al., 2018).

Various psychosocial problems have occured as a consequence of the lockdowns imposed to contain the spread of the coronavirus disease, and vulnerable communities should not be ignored in providing interventions (Mackolil & Mackolil, 2020). In India, people reported experiencing anxiety, sleeping disorders, and even paranoia about contamination by the virus (Roy et al., 2020). In China, Zhang et al. (2020) emphasized the need to identify whose health and well-being were more affected by the pandemic for targeted interventions. Banerjee (2020) stressed that working adults need to be made aware of common stress responses, and are encouraged to promote healthy behaviours during lockdowns by being referred to reliable sources of information. In the Philippines, teachers dealt successfully with anxiety during the lockdown through adopting virtual learning, communicating among themselves, adhering to quarantine requirements, and finding purposeful activities (Talidong & Toquero, 2020) . However, there is limited literature on local actions and coping mechanisms from rural areas. Hence, this study is important in documenting how a rural State University coped with the disruptions experienced. In addition, a survey was conducted on the coping mechanism of adults forced to work from home or adopt flexible working arrangements during the pandemic.

To better understand the coping mechanisms adopted by adults during the pandemic, this study aimed to address the following specific objectives:

1. To study the experiences and the local response made through an agriculture program at a State University located on the island of Leyte.
2. To determine and provide reflections on coping mechanisms of employees of a State University located on the island of Leyte**.**

The Study

Context of Study

The coronavirus was first detected in China in December 2019, and then spread exponentially worldwide (WHO, 2020b). In the Philippines, the Department of Health (DOH, 2020), recorded a total of 378,933 cases–41,291 active cases, 330,457 recoveries, and 7,185 deaths as of October 30, 2020. Nonetheless, with the increasing number of cases and local transmission, the government implemented community quarantine measures classified as enhanced, modified-enhanced, general and modified-general community quarantine (Esguerra, 2020). Physical distancing–along with wearing face masks or face shields in public places–were enforced, and curfews were implemented.

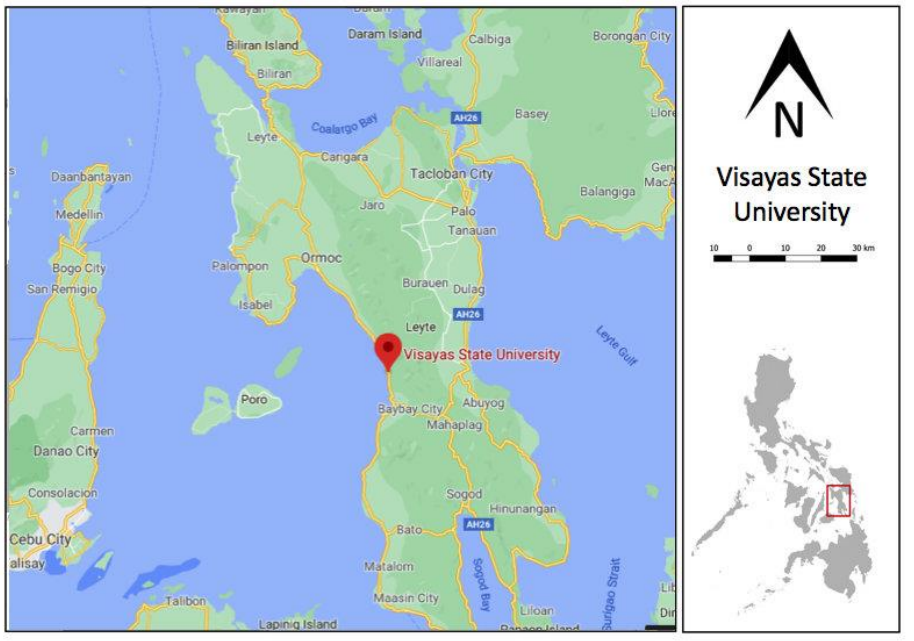
Various mobility restrictions were imposed to help contain the spread of the coronavirus. First, enhanced community quarantine (ECQ) was the strictest form adopted, where no movement of people was permitted, regardless of age and health status. Only minimal economic activity was allowed, and no public transport services ran except essential sectors, such as health and food. Second, the modified-ECQ (MECQ) allowed limited movement for work and services, and was restricted to 50% of the workforce. Limited transport services operated for essential goods and work-related transport, but face-to-face classes were not permitted. The third level was general community quarantine (GCQ), which represented a more relaxed approach, where 75% of the workforce was allowed to report to the office. Limited transport services were available with social distancing applying, but no face-to-face classes were permitted. Lastly, the lowest restriction level was the modified-GCQ (MGCQ). Here, economic activities and movements were allowed as long as minimum public health standards, such as wearing face masks or shields, and physical distancing occurred; no facetoface classes were permitted at all levels.

Following the Philippine national government's directives, the local provincial government of Leyte enforced a general community quarantine in March 2020. This meant that classes and work

were suspended and only a skeleton workforce operated. Students were immediately advised to go back to their respective homes. This occured in the middle of the semester, which resulted in the midterm exams being cancelled. Teachers were advised to design alternative learning approaches and implement a contingency plan to minimise disruption to learning. The teaching and non-teaching personnel adopted flexible working arrangements. Employees could choose to work from home, or report only twice or thrice per week depending on the nature of their jobs. However, frontliners such as medical doctors, nurses, security guards, and quarantine personnel were required to report daily to the University. In addition, returning residents, overseas Filipino workers, and locally stranded individuals had to follow quarantine protocols (CNN Philippines, 2020). Following the provincial government's orders, mayors declared the closure of municipal borders and limited the movement of people, goods, and services (Manila Bulletin, 2020). Although not intended, the movement of essential goods was impeded. With neighboring towns imposing tighter restrictions, the supply of goods was bound to be affected. Access to vegetable supplies from the vegetable bowl of Leyte Island was projected to be limited (Cagasan & Centino, 2019).

This study investigated the experiences and responses of employees of Visayas State University (VSU). The University is located 10 kilometers north of Baybay City and 34 kilometers south of Ormoc City, Leyte, Philippines. The University is a leading agricultual institution in the Eastern Visayas region (Auestero et al., 2012; QS Star, 2020). It plays a vital role in the provision of innovative technology and capacity building activities related to agriculture. It is a three-star university based on the QS Star ranking of top universities (QS Star, 2020). Figure 1 shows the location of the study.

Figure 1 *Location of the Study*



Note. Source Google Maps (2020) and Ruales et al. (2020)

Research Design

A mixed method approach that used qualitative methods and cross-sectional surveys was adopted in addressing the objectives of the study.

Data Collection and Analysis

In order to mitigate the looming disruption in the supply of vegetables, VSU launched a project dubbed #OplanTanom (meaning “operation vegetable planting”) on April 30, 2020. This local action aimed to provide fresh vegetables in anticipation of disruptions in supply chains (De Veyra, 2020). The vegetable production was situated on the campus. The University, being an agricultural university,

was able to allocate a portion of their experimental site (around 1.5 hectares) for vegetable production.

The plan was to grow at least 10 different kinds of vegetables, with the harvest being distributed freely to the VSU community, frontliners, local agencies, and neighboring communities. Employees of the University and representatives from nearby communities were able to avail themselves of fresh vegetables every week. Only representatives from the nearby communities were permitted to receive food in order to prevent people from gathering, flocking to the area, and not adhering to physical distancing. To ensure sustainaibility of the undertaking, free vegetable seedlings were also provided for those who wanted to grow their own vegetables.

This local action was documented through observation and interviews with key informants. Dr. Othello Capuno, the project leader (right foreground, Figure 2), responded to questions about the project. The other key informants (five) were experts from the university's research and extension unit. These included the vice president for research and extension, two horticultural experts, and farm workers. Interviews were conducted in an informal manner using open-ended and unstructured questions. This was done to facilitate free flowing discussions with the experts involved in the project. We asked them about the motivation for the project, its intended beneficiaries, how the project was conceptualized, and further plans related to vegetable intensification.

Figure 2 *Observations Conducted during Harvest and Preparations before Distribution of Fresh Vegetables*

The second aim was to determine and provide reflections on coping mechanisms of University employees. This was conducted online among the employees of the University. Employees were either working from home or operated on a flexible working arrangement. Flexible working arrangements permitted an employee to report once or twice per week and work from home for the rest of the time. The online survey aimed to collect information about the coping mechanisms of working adults in the University regarding movement restrictions. The survey was arranged in three major parts. Part 1 focused on the socio-demographic characteristics of respondents, Part 2 on their current situation during the lockdown, and Part 3 on their coping mechanisms. The survey collected multiple responses on coping mechanisms and adaptation strategies to counter pandemic-related anxieties. The main reference for the survey was taken from Seriño et al. (2021), where the impact of super typhoons on coconut farmers in Leyte, Philippines was assessed. Part of their survey documented the coping

mechanisms of typhoon-affected farmers. Some possible responses from this part were added to the questionnaire. We also modified some responses and added some options that were not indicated in the 2021 study. Every effort was made to capture all the unique responses from respondents. The online survey was made using a Google form which was pre-tested prior to conducting the survey. This led to the refinement of the questionnaire, but was accomplished without major revisions. The survey was conducted via email in mid-May 2020. In addition to sending emails, an online survey link was posted in websites and social media that were accessible to employees. A non-probabilistic sampling technique was employed. The online survey was open for one week, and a total of 133 out of over 800 employees responded to it.

To summarize the responses, descriptive statistics, available from the Statistical Packages for Social Sciences (IBM SPSS) version 20, were used. For the coping mechanisms employed, responses given by males and females were reported separately.

Results and Discussion

Experiences and Response to the Intensifyied Vegetable Production by the University

The vegetable production at the University was on the land area previously used for students' experiments and laboratory classes. Since classes were suspended and the students were sent home, the experimental area was availble for use. According to the project implementers, production of at least 10 different vegetables was planned, and these would be distributed to VSU employees and neighboring communities. According to Dr. Capuno, the project leader, "the team came up with a project on enhancing vegetable production, with the purpose of planting at least 10 different types of vegetables including bitter gourd, okra, bottle gourd, eggplant, tomato, pepper, water spinach, squash, basella (Malabar spinach), and string beans tops in such a way [that] we could produce a healthy and ample supply of vegetables to the VSU community."

According to the team's horticultural experts, these vegetables were suited to the field location, soil type, and climate. In addition, sufficient planting material was available including seeds, cuttings, and seedlings. It was held that the undertaking could "distribute at least 10 tons of assorted vegetable by December 2020." Dr. Salas, a horticultural expert, said "we have also started distributing seedlings for those who are interested to grow their own vegetables. If they need further information, they can visit us in the field. This vegetable production area has served also [as] a sort of demonstration farm for others to see how to care for and grow vegetables. We are encouraging households to plant vegetables."

We asked the farm workers about their contribution to the vegetable intensification projects. The project employed 10 farm workers, who are paid on an hourly basis. Their main involvement was in land preparation, care and maintenance, and harvesting. According to Mr. Tan, one of the farm workers, they depended upon instructions from the project leader and horticultural experts as to the care and maintenance of the crop.

By mid-October 2020, the project had distributed at least seven tons of assorted vegetables to more than 5,000 beneficiaries. This local action was a reflection of the "bayanihan" spirit. Bayanihan is a Filipino term referring to civic unity, cooperation, and helping each other. This project aimed to distribute free vegetables until December 2020. It was reasoned that ensuring a reliable supply of fresh vegetables in the local community would have the added benefit of encouraging the local people to eat more vegetables, enabling their immune systems to be boosted in defense against the virus. According to McDougall et al. (2019), vegetables are an essential component of a balanced diet, and ensuring availability of a local supply of vegetables would improve nutritional outcomes.

As food supply mobility was hindered by various movement restrictions, the vegetable intensification project of VSU aimed to augment the looming disruption in the supply of fresh vegetables. According to local experts, it appeared timely to plant various vegetables during the early stages of lockdown or community quarnatine. Aside from distributing fresh supplies of vegetables, seedlings were also distributed to VSU employees and nearby communities to encourage them to grow their own vegetables. This complemented the rising interest in backyard gardening by working adults, and acted as a valuable coping device against movement restrictions.

Survey of Coping Mechanisms

More than 100 respondents participated in the online survey (*N* = 133). This provided valuable documentation on how working men and women had handled the situation to remain mentally sound amidst the stress and anxiety brought on by the pandemic. The closure of schools, lockdowns, home quarantine, movement restrictions, and physical distancing implementation caused considerable anxiety and stress among working adults (Talidong & Toquero, 2020). Hence, information on how people responded was important to assess if there was a need to intervene or provide social support. Table 1 shows the selected socio-demographic characteristics of the respondents.

Table 1 *Summary Statistics of the Socio-Demographic Characteristics of the Respondents (N = 133*)

Characteristics	**Mean**	**Minimum**	**Maximum**
Female (1 = female, 0 = otherwise)	0.67	0	1
Single (1 = single, 0 = otherwise)	0.57	0	1
Married (1 = married, 0 = otherwise)	0.40	0	1
Age	35.1	22	64
Household size	4.8	1	12
College graduate (1 = for college graduate, 0 = otherwise)	0.53	0	1
With masters degree (1 = masters degree, 0 = otherwise)	0.32	0	1
With doctoral degree (1 = doctorate, 0 = otherwise)	0.15	0	1

Over half (67%) of the respondents were female. The percentage of single individuals was 57% and the percentage of married respondents was around 40%. The youngest respondent was 22 years and the oldest was 64 years, with an average age of 35.1 years old. The average household size of the respondents was five members. In terms of educational qualifications, 53% possessed bachelor degrees or were college graduates, around 32% of the respondents had master degrees, and only 15% had doctoral degrees.

The pandemic caused sudden changes and negatively affected the working environment, leaving the working adults inadequately prepared (Babore et al., 2020). Table 2 shows how the respondents handled the abrupt disruptions in their usual work routines. The respondents identified several strategies or activities that helped them cope during the pandemic.

Table 2 *The Coping Mechanism of Respondents during the COVID-19 Pandemic (N = 133)*

General Coping Mechanisms	***n***	**Percentage**
Doing household chores	103	77.4
Praying	92	69.2
Spending time with family	91	68.4
Increased social media usage	76	57.1
Surfing the Internet	76	57.1
Gardening	72	54.1
Educating myself (reading and writing)	65	48.9
Physical exercise	64	48.1
Movie marathon	63	47.4
Virtual connecting to family and friends	54	40.6
Develop a new skill	42	31.6
Spending time with pets	41	30.8
Restrict time watching/reading the news	30	22.6
Online/virtual classroom	26	19.5
Getting online jobs/selling online	15	11.3
Sewing/tailoring	10	7.5

Volunteering	6	4.5
Continue working from home	2	1.5
Home improvements/doing repairs/minor renovations	1	0.8
Meditation	1	0.8
Writing articles for publication	1	0.8

The results (Table 2) showed that working adults' top ranking coping mechanism was doing household chores (77.4%). This was followed by praying more (69.2%), spending time with family (68.4%), increased social media usage or surfing the Internet (57.1%), and gardening (54.1%). This suggests that home quarantine or working from home provided opportunities for families to spend more time bonding and reconnecting with each other. This reflects the findings of a study in Zimbabwe that also revealed that social (social media usage) and physical (cleaning, gardening, doing laundry, cooking etc.) coping strategies were guarding people from anxiety and fear during the lockdown because of COVID-19 (Chirombe et al., 2020). Similarly, Gan (2020) also reported that families spent more time bonding and reconnecting with each other in Wuhan, China and in addition, social media was a big help during lockdown situations. Praying was the second most used coping mechanism. This reflects what Verdida et al. (2020) and Seriño et al. (2021) reported. Praying has been one of the major coping mechanisms of Filipinos in times of disaster, as this has been reported by others (e.g., Almazan et al., 2019; Verdida et al., 2020; Seriño et al., 2021). Close to 50% of the respondents also undertook physical exercise at home. Burg et.al. (2017) reported exercising can improve mental health as well as physical health by alleviating stress.

The coping mechanisms of men and women are shown in Tables 3 and 4. Table 3 highlighted the coping mechanisms of women and Table 4 summarizes those of men. The results showed that there were slight differences in the coping mechanisms between women and men. The top-ranked coping mechanism for both women and men was completing household chores. This is plausible, as when people are forced to stay at home, they resort to household-related activities. The second top-ranked coping mechanism for women was praying (78.7%), followed by spending time with family (76.4%), gardening (56.2%), increasing social media usage (53.9%), surfing the Internet (53.9%), watching movie marathons (48.3%), and doing physical exercise (48.3%). Women tended to be less inclined to undertake home improvements, such as minor repairs.

Table 3 *Coping Mechanisms of Women during the COVID-19 Pandemic (N = 89)*

Coping Mechanisms of Women	***n***	**Percentage**
Doing household chores	75	84.3
Praying	70	78.7
Spending time with family	68	76.4
Gardening	50	56.2
Increased social media usage	48	53.9
Surfing the internet	48	53.9
Movie marathon	43	48.3
Physical exercise	43	48.3
Virtual connecting to family and friends	42	47.2
Educating myself (reading and writing)	39	43.8
Spending time with pets	30	33.7
Develop a new skill	25	28.1
Restrict time watching/reading the news	23	25.8
Online/virtual classroom	15	16.9
Getting online jobs/selling online	10	11.2
Sewing/tailoring	8	9.0
Continue working from home	2	2.2
Home improvement/doing repairs/minor renovation	1	1.1
Writing articles for publication	1	1.1

Table 4 shows that the top-ranking coping mechanisms of men were equally represented in household chores, increased use of social media, and surfing the Internet (63.6%). This was followed by upgrading their skills (59.1%), spending time with family (52.3%), doing gardening, and then praying (50%). In addition, men also indicated that they undertook physical exercises (47.7%) and watching movies at home (45.5%). A few male respondents indicated that they meditated or engaged in sewing related activities.

Table 4 *Coping Mechanisms of Men during the COVID-19 Pandemic (N = 44)*

Coping Mechanisms of Men*	***n***	**Percentage**
Doing household chores	28	63.6
Increased social media usage	28	63.6
Surfing the internet	28	63.6
Educating myself (reading and writing)	26	59.1
Spending time with family	23	52.3
Gardening	22	50.0
Praying	22	50.0
Physical exercise	21	47.7
Movie marathon	20	45.5
Develop a new skill	17	38.6
Virtual connecting to family and friends	12	27.3
Online/virtual classroom	11	25.0
Spending time with pets	11	25.0
Restrict time watching/reading the news	7	15.9
Volunteering	6	13.6
Getting online jobs/selling online	5	11.4
Sewing/Tailoring	2	4.5
Meditation	1	2.3

Both men and women were engaged in various activities while staying at home. These findings are in agreement with those of others, who have reported that people tend to use various coping strategies and localized activities to deal with the adverse psychological outcomes associated with a health crisis such as the current pandemic (Chew et al., 2020; Yildirim et al., 2020).

Based on our observations, the pandemic gave the opportunity for working women and men to engage in backyard gardening. This augmented households' supply of fresh vegetables, and in addition helped reduce the frequency of visits to crowded markets. Aside from the provision of fresh vegetables, gardening is a good physical activity. Soga et al. (2017) reported that gardening can bring positive effects on health, and can help reduce depression and anxiety. Furthermore, with more people engaging in agriculture during this pandemic, this explains why the agriculture sector alone posted a 1.6% growth in gross domestic product (GDP) against an overall massive decline of the Philippine GDP of 16.5% in the second quarter of 2020 (PSA, 2020). From a macroeconomic perspective, efforts to boost agricultural productivity should be continuously pushed to optimize its potential to contribute to regional economic growth in Eastern Visayas (Seriño, 2014).

Conclusions

The pandemic has caused unprecedented challenges and disruptions in life among working adults in the rural Philippines. Considering the increasing number of COVID-19 cases there, resumption of a normal working life is becoming more uncertain. This will have unpleasant economic and social implications. This paper highlighted one of the local actions, particularly the experiences and response from an agicultural project initiated by a university in Leyte, Philippines to mitigate disruptions brought by the pandemic. The initiative was to launch a project to intensify vegetable production for local consumption to mitigate the looming disruption in the supply of vegetables due to border closures in its neighborhood. To date, the project has distributed at least seven tons of assorted vegetables to at least 5,000 beneficiaries in the province. Undeniably, the COVID-19 pandemic has

given rise to an economic and health crisis. Local actions are vital to mitigate potential adverse disruptions to daily life in rural areas. The action of this University was a manifestation of the *bayanihan* spirit or civic unity of Filipinos. This local action contributed to the food security of rural households during the pandemic when there were looming food supply disruptions in the early stages of the lockdowns. To sustain this endeavour, free vegetable seedlings were provided to those who were interested in doing backyard gardening.

The various mobility restrictions through community quarantines brought sudden changes, and everyone had to adjust quickly. The varying conditions of working adults in VSU during the pandemic should be taken into consideration. Some were staying with their families, others lived alone, some were working from their homes, while others faced great anxiety related to health issues, especially those who had comorbidities. Under these conditions, some were coping better than others. The observations made at the University may resonate in other rural areas in the Philippines, where people are rediscovering household chores, have more family time, and have improved their gardening skills. Policymakers and administrators can use these results as a benchmark to develop programs and approaches that may contribute to working adults' well-being during this pandemic. Meeting individual needs and targeted interventions are crucial in allocating limited resources in responding to the crisis. Hence, documenting local actions and coping mechanisms is important in outlining concrete plans in case of similar incidents happening in the future. In addition, it will help policy makers assess local responses and strengthen their actions in mitigating disruptions and related public health hazards. The lessons learned from this pandemic can provide input into devising local policies to mitigiate adverse effects of the pandemic. Our case study shows the critical role of improving food self-sufficiency and the local coping mechanisms adopted to improve well-being when individuals are under isolation. As the pandemic continues to disrupt daily lives and social distancing remains in place, learning to cope with these disruptions can help adults become more resilient. However, our documentation warrants further investigation to evaluate the efficiency of local actions and coping mechanisms as a way of enhancing resiliency among working adults in the rural Philippines.

Limitations

This study had several limitations. Since this study presented the case of a State University located in Leyte Island, Philippines, its results cannot be generalized for situations in other universities. Second, having utilized open-ended and unstructured questions, no thematic analysis was undertaken from the qualitative interviews among key informants. Third, the survey involved decriptive analysis alone. In the future, statistical analysis could be undertaken to deliver meaningful inferences. A follow-up survey could be conducted to document how working employees at the University have transitioned and coped following the initial stages of lockdown to post-pandemic situations.

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