

Influencing Factors and Stress Coping Mechanisms in Agricultural Communities of Occidental Mindoro, Philippines

Ryan Mark A. Ambong¹, Artemio M. Gonzales, Jr.²

¹Research, Development and Extension Unit, Occidental Mindoro State College, Philippines

²Midwifery Department, Occidental Mindoro State College, Philippines

ABSTRACT : This paper aims to provide an insight regarding stress-related experiences of agricultural workers and some key differences in terms of the roles and nature of farm work. Moreover, this paper investigated how working environment and experiences of farmers influence stress. A cross sectional study design was utilized to assess the stress-related experiences and coping mechanism of farmers through survey questionnaire. Stressors on farming were determined using Edinburgh Farming Stress Inventory instrument. To assess the different ways in which farmers respond to stress, Brief COPE was used. Other variables were measured using an instrument containing self-report items related to the other exposure variables. These variables were age, sex, civil status, farm size, hour of work and nature of work. This paper revealed that majority of the farming stress is contributed by the government policies and regulations and geographic isolation. The coping mechanism usually adopted by the farmers is active coping like problem solving and religion.

Keywords: agricultural activity, Brief COPE, farming, health, sickness, stressors

I. INTRODUCTION

The image of agricultural work and rural life is that of a healthy pursuit, far from city-wide pollution that provides an opportunity for fresher air, family bond and financial security. However, these past few years it is quite interesting that farming is found to be one of the occupations which are associated with variety of health-related illnesses (Myers, 2011). Farming is a grueling work (Schenker, 1996) and creates a high frequency of work-related injuries. According to the International Labor Organization (2000), Out of a total of 335,000 workplace-related fatalities worldwide, there are some 170,000 deaths among agricultural workers.

Work-related stress is the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope. As health is the state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 2015). Psychological hazards have been associated with farming (Gregoire, 2002) including stress. Lower the efficiency and productivity prevent the farming people from enjoying the pleasures and happiness of life and threatening health condition could be the consequence of excessive stress. In a relative study conducted by Ramesh and Madhavi (2009), found out that agricultural sector to be one of the potential areas for stress which includes financial stressors, weather stressors, work overload stressors, other people as stressors and farming hassles. Moreover, the study indicates that among the farming people 50.72% of them have perceived high stress due to weather and the remaining 48.28% have perceived medium level of stress and recommends periodical surveys among farmers regarding their problems should be conducted.

Previous studies on the working condition among teachers (Usop, Askandar, & Langguyuan-Kadtong, 2013), nurses (Andal, 2006), and medical doctors (Domantay, 2015) for example are concerned with the formal sector of the economy and, furthermore, have linked stress. Farmers are important group in the Philippines who have not received enough attention concerning their health problems, especially, stress from work. This is very important to focus on those farmers wellness to achieve the much-needed improved and sustained growth that will truly make the country's agriculture sector haven for them. In a World Bank report (Habito & Briones, 2005), agriculture's importance appears larger when it comes to employment, with 37% of jobs currently coming from the sector. That is the reason that specifies the vital role of health and wellness of the workforce in agricultural sector to be very important in the country's economic development.

This paper aims to provide insights about the stress-related experiences of farmers and to validate whether this group of workers have experienced more stress in their farming activities. Key differences in terms of the roles and nature of farm work were also identified. Moreover, the paper investigated the influence of working

environment and experiences of farmers to their stress levels. Lastly, the coping mechanisms of farmers to stress were also explored.

II. METHODS

A cross-sectional study was conducted to assess the stress-related experiences and coping mechanism of farmers. This study utilized survey through questionnaire. Data were gathered from selected farms of different nature of farming activities (i.e. crop production, animal husbandry, aquaculture, and salt farming) in Occidental Mindoro. The participants were farm owners, farm managers and tenant farmers. Data were gathered using a questionnaire consisting of the following parts:

Edinburgh Farming Stress Inventory instrument consisting 35 items was used to identify different stressors among farmers. It measures 6 domains of farming related stress: farming bureaucracy, financial issues, uncontrollable natural forces, time pressures, personal farm hazards, farm hazards and geographical isolation (Deary, Willock, & McGregor, 1997). The participants were asked to rate the frequency of occurrence of stressors that may adversely affect their psychological well-being using five-point scale as follows:

- 5- Always
- 4- Frequently
- 3- Sometimes
- 2- Rarely 1- Never

To assess the different ways in which farmers respond to stress, Brief COPE was used. The inventory included some responses that are expected to be dysfunctional, as well as some that are expected to be functional. From the original 60-item uni-dimensional questionnaire (Carver, C. S, Scheier, M. F., & Weintraub, J. K., 1989), the shorter item was set partly because earlier samples became impatient at responding to the full instrument both because of the length and redundancy of the full instrument and because of the overall time burden of the assessment protocol (Carver, 1997). This study utilized a 28-item questionnaire Brief COPE responded as follows:

- 1- I haven't been doing this at all
- 2- I've been doing this a little bit
- 3- I've been doing this a medium amount
- 4- I've been doing this a lot

Brief COPE has been reported to have fairly good reliability and validity, internal consistencies ranged from 0.25 to 1.00 (Yusoff & Low, 2009). To measure other variables, the instrument also contained self-report items related to the other exposure variables. These variables were age, sex, civil status, farm size, hours of work and nature of work.

III. RESULTS AND DISCUSSION

3.1 Demographic profile of farmers

The table 1, shows the farmer distribution by their demographic profile (N=74). Most of the respondents are tenant farmer (N=39) which ages from 24-56 years old (mean age=42.03). Other job title of the respondents includes farm owner (N = 23) ages from 23-78 (mean=52.14) and farm manager (N=12) ages from 34-71 (mean=50.72). Most of the respondents are male (N=57, 23.5%) and most of the farmers are married (N=57, 23.5%).

Table 1. Farmer distribution by demographic profile.

Job Title	Frequency (N= 74)	Age		Sex		Civil Status			
		Mean	Range	Male	Female	Married	Single	Civil Union	Widowed Separated
Farm Manager	12	50.72	34-71	7	5	7	0	1	4 0
Farm Owner	23	52.14	23-78	16	7	19	1	0	3 0
Tenant Farmer	39	42.03	24-56	34	5	31	2	2	3 1

3.2 Farming Characteristics

An average working experience of the farmers in Occidental Mindoro is 19 years. Farm owner has a long working experience among three farming job title of 22.23 years. Farm sizes vary among the three-farming job title as shown in Table 2. Farm owners handle an average 2.15 hectares of land. Also, farm tenants and farm manager handle average farm sizes of 2.07 and 2.00 hectares, respectively. The result also shows a significant deviation in terms of working hours. Tenant farmers work for an average of 85.49 hours per week in comparison with the farm manager (mean=32.27 hours/week) and farm owner (mean=38.05 hours/week). In

terms of number of sick days per year, tenant farmers and farm owner contacted with sickness for an average of 4 days a year and 5 days of sickness per year to the farm manager.

Table 2. Farming characteristics.

Job Title	Mean Working Experience (Year)	Farm Size (ha)		Mean Number of Employees/Co-workers	Mean Working Hours/Week	Mean Number of Days Sick/Year
		Mean	Range			
Farm Manager	17.57	2.00	0.25-4.50	13	32.27	4.82
Farm Owner	22.32	2.15	0.25-9.00	17	38.05	4.41
Tenant Farmer	17.06	2.07	0.25-4.50	33	85.49	3.84

3.3 Industry distribution of farmers

Fig. 1 shows the industry distribution by farm sector. It is important to note that a farmer can possibly be involved in several farming activities. Most of the farm managers involved in agronomy (N=10) which are greatly focused in rice farming as one of the most prevalent farming activities in the province of Occidental Mindoro especially in the municipality of Calintaan followed by aquaculture (N=4) focused on milkfish farming which is usually sited in the municipality of Magsaysay and San Jose. Farm owners are mostly concentrated in horticulture business (N=13) and agronomy (N=12). Most of the horticulture businesses of the farm owners are Onion, vegetables such as Squash, Sitao (Vigna), Bitter gourd, Eggplant and Watermelon. Farm tenant mostly works in livestock (N=20) followed by horticulture (N=15) and agronomy (N=13). Livestock workers are commonly situated in the municipality of Rizal. Livestock farming does not only involve ruminant and swine raising but also poultry raising.

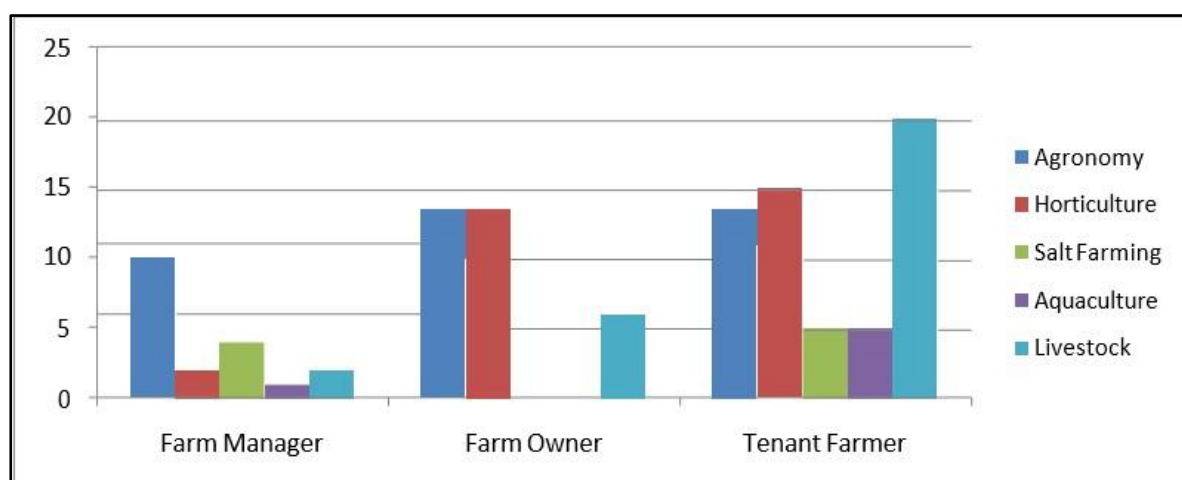


Fig. Distribution of farmers according to industry sector.

3.4 Sources of farming-related stress

As the Table 4 shows, government policies and regulation stressors have the highest weighted mean of 3.62. Among this domain, filing of government forms revealed as the highest source of stress among farmers (mean = 4.22). Filing in government includes tax declaration and payment commonly accomplished by the farm owners. Other government related documents on farm owners needed for their land in order for them to avail agricultural inputs are giving them anxiety. According to Ang (2010), government deregulations and the external environment influences occupational stress among farmers due to the continuing changes in farming practices. Moreover, farming industry has greatly changed in terms of government regulation of agricultural sector and economic reform since 1986 (Reyes, 2002). The changes in government policy have had a major impact on the process of restructuring in the rural sector to achieve sustainability.

Additionally, geographic isolation is also considered as an influencing factor of stress with average weighted mean of 3.53. Interestingly, farmers report a high source of stress on not seeing other people. Due to some geographic conditions, farmers are more likely not to see other people tend them to feel state of isolation. This is supported by a study conducted by Allen (2015) rural isolation has a greater impact on the psychological wellbeing of the person and gives negative impacts such as mental health issues, the risk of suicide and

potentially reduced life expectancy. In farming stress study by Lobley et. al (2004), social isolation poses a great risk of severe stress among vulnerable people including farmers. Remote rural dwellers may experience stress differently because of their different outlook and cultural norms. On the other hand, farm and personal hazard also contribute farm stressor in the province having a weighted mean of 3.21. Agricultural workers are more exposed of different biological and chemical hazards due to intimate contact with parasites in soil, wastewater/sewage, dirty tools, and rudimentary housing, exposure to a wide range of dusts and gases from decomposition of organic materials in environments with few exposure controls and limited use of personal protective equipment in hot climate and uncomfortable working conditions (Cole, 2006). Older population are more likely to have degenerative diseases like hypertension, diabetes and asthma and easily contacted with disease due to degrading functions of their body (Sarode, 2014). Also, decision making serves as one of the major stress contributors in farming. Tenant farmers are limited to make decision because of bureaucracy in farming where most of the decision making are done by the farm owner or farm manager. Government and public bureaucracy play a big role in the development of agricultural sector. Farming families surpass the impact of bureaucratic constraints when they have the capacity to manipulate it and at the same time appear to be compliant to avoid the loss of entitlement in their job (Lees, 1986). Government bureaucracy evolving in the Philippines affects Filipino farmers such as price intervention policy environment. One example is the monopoly over the international trade in rice and corn while undertaking domestic market interventions aiming to stabilize prices and narrow geographic divergences in prices by the Philippine government through National Food Authority (NFA) in the 1980s (Habito & Briones, 2005).

Table 4. Sources of farming-related stress.

Farm Stressor Domains	Mean
Domain 1. Financial Matters	2.96
Debt Load	2.48
Not enough ready cash	2.63
Making major purchases for the farm	2.89
Worrying about owing money	2.97
Financing my retirement	3.82
Domain 2. Time Pressures	3.14
Decision when to sell produce	3.30
Increased work load at peak times	2.36
Long hours of work	2.75
Few holidays away from the farm	3.00
Too much to do and too little time to do it	3.16
Having to make decisions without the necessary information	3.37
Problems of balancing work and family duties	3.27
Not being free to make my own decisions	3.93
Domain 3. Farm/Personal Hazard	3.21
Significant production loss due to disease/pest/weeds	3.12
Personal illness during busy times	3.25
Concerns about the continuing viability of the farm	2.81
Farming related accidents	3.68
Hazardous materials on the farm (dust/chemicals/powders)	2.84
Risk of injury on the farm	3.58
Domain 4. Government Policies and Regulations	3.62
Adjusting to new government regulations and policies	3.55
Filling in Government forms	4.22
Complying with environmental regulations	3.34
Changes in common agricultural policy	3.36
Domain 5. Geographic Isolation	3.53
Feeling isolated on the farm	3.86

Having to travel long distances for services and healthcare	2.75
Worrying about keeping the farm in the family	3.53
Not seeing enough people	4.04
Lack of close neighbors	3.44
Domain 6. Unpredictable Factors	3.18
Bad weather	3.12
Machinery breakdown at busy times	3.60
No farm help or loss of help when needed	3.23
Unplanned interruptions	3.37
Unpredictability of the weather	2.64
Keeping up with new technology and procedures	2.77
Worrying about market conditions	3.49

3.5 Farm stress coping mechanisms

Coping mechanism differ among farmers as shown in Table 5. Active coping is the most common coping strategy adopted by the farmers in Occidental Mindoro (mean = 2.91). Active coping includes concentrating the efforts on doing something about the situation (mean=3.00) and been acting to try to make the situation better (mean=2.82). The results support the findings of Gunn, Kettler, Skaczkowski, & Turnbull (2012) which concludes that active coping is one of the strategies commonly employed by the farmers during drought season. In the contrary some literature found a negative correlation of active coping among different population. According to Compas, (1988) as cited by Umar & Umar BF (2013), emotion coping correlates positively in psychological adaptation to stress compared to active coping mechanism and rather than solving their problem they are more inclined to change their attitude towards the problem. Furthermore, religion provides a good coping strategy for the farmers (mean=2.75). Farmer most often used prayer for peace (mean=3.27) and find comfort in religion or spiritual beliefs (mean=2.23). Filipinos are normally described as religious people. According to Ereno et al (2014) religious significantly decreases the presence of stressors because Filipinos found their strength and courage to their religion. They usually find solidarity in their religion that can help them find inner peace and positive outlook to cope with their problems.

Table 5. Coping mechanism among farmers using Brief COPE.

Coping Mechanism	Mean + SD
Self-distraction	2.62 ± 0.02
Active coping	2.91 ± 0.13
Denial	2.05 ± 0.18
Substance use	2.08 ± 0.30
Use of emotional support	2.05 ± 0.25
Use of instrumental support	2.36 ± 0.19
Behavioral disengagement	2.01 ± 0.16
Venting	2.40 ± 0.06
Positive reframing	2.41 ± 0.17
Planning	2.59 ± 0.23
Humor	2.11 ± 0.21
Acceptance	2.64 ± 0.11
Religion	2.75 ± 0.74
Self-blame	1.66 ± 0.13

IV. CONCLUSIONS

This study reveals that majority of the farmers are middle adult male, married and with more than a decade of farming experience. They work as tenant engaged mostly in livestock farming specifically goats and chickens. Most of the tenant farmers work longer hours compared to farm owners and managers. Still, tenant farmers have

shorter days of sickness compared to farm owners and managers. This is likely because tenant farmers are relatively younger as compared to farm owners and manager. The most common coping mechanism used by the farmers in the province of Occidental Mindoro is active coping by means of concentrating their efforts on doing something about the situation and been acting to try to make the situation better. Religion also provides a good coping mechanism for the farmers and often use prayer for peace and finding comfort in religion or spiritual beliefs.

V. ACKNOWLEDGEMENTS

The authors are grateful to Occidental Mindoro State College-Research, Development and Extension Unit (OMSC-RDE Unit) for the support in conducting this research. Appreciation is especially given to Mr. Leoniel S. Bais, Science Research Analyst of RDE Unit, for his help during the field survey.

REFERENCES

- [1] Allen, M. (2015). Rural isolation, poverty and rural community/farmer wellbeing - scoping paper. *Research and Information Service Briefing Paper, Northern Ireland Assembly*.
- [2] Andal, E. M. (2006). A pilot study quantifying filipino nurses' perception of stress. *Californian Journal of Health Promotion*, 4(4), 88-95.
- [3] Carver, C. S, Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 267-283.
- [4] Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, 92- 100.
- [5] Cole, D. (2006). Understanding the links between agriculture and health: occupational health hazards of agriculture. *International Food Policy Research Institute*.
- [6] Compas, B. M. (1988). Coping with stress in older children and young adolescents. *Journal of Consulting and Clinical Psychology*.
- [7] Dal Grande, E., Taylor, A., & Wilson, D. (2002). South Australian health and wellbeing survey, December 2000. *Population Research and Outcome Studies Unit, Department of Health, South Australia*.
- [8] Deary, I. J., Willock, J., & McGregor, M. (1997). *Stress in farming*. Stress Medicine.
- [9] Domantay, J. A. (2015). Health-related quality of life of future physicians at a medical school in the Philippines: a cross-sectional study. *SAGE Open Journals*.
- [10] Ereno, J., Andrade, K., & Miyauchi, S. (2014). Encountering and countering work stress: a multivariate analysis of the occupational stress and coping mechanisms of fast food restaurant personnel in the Philippines. *European Scientific Journal*.
- [11] Gregoire, A. (2002). The mental health of farmers. *Society of Occupational Medicine*, 471-476.
- [12] Gunn, K., Kettler, L., Skaczkowski, G., & Turnbull, D. (2012). Farmers' stress and coping in a time of drought. *The International Electronic Journal of Rural and Remote Health Research, Education, Practice and Policy*.
- [13] Habito, C. F., & Briones, R. M. (2005). Philippine agriculture over the years: performance policies and pitfalls. *World Bank*.
- [14] Habito, C. F., & Briones, R. M. (2005). Philippine agriculture over the years: performance, policies and pitfalls. *Policies to Strengthen Productivity in the Philippines*. Makaty City: Asia-Europe Meeting (ASEM) Trust Fund, Asian Institute of Management Policy Center, Foreign Investment Advisory Service, Philippines Institute of Development Studies and the World Bank.
- [15] Huat Bin (Andy), A. (2010). Occupational stress among the New Zealand farmers - a review. *Labour, Employment and Work in New Zealand*.
- [16] ILO. (2000). Safety and health in agriculture. *SafeWork, Programme on safety, health and the environment, Labour Protection Department*.
- [17] Lees, S. (1986). Coping with bureaucracy: survival strategies in irrigated agriculture. *American Anthropologist*.
- [18] Lobley, M., Johnson, G., & Reed, M. (2004). Rural stress review. *Centre for Rural Research, University of Exeter*.
- [19] Myers, M. L. (2011). Health problems and disease patterns in agriculture. *Health and Environmental Issues, International Labor Organization*.
- [20] Ramesh, A. S., & Madhavi, C. (2009). Occupational stress among farming people. *The Journal of Agricultural Sciences*, 4(3), 115-125.
- [21] Reyes, C. M. (2002). Impact of agrarian reform on poverty. *Philippine Journal of Development*.
- [22] Sarode, V. (2014). Chronic diseases related to aging and disease prevention in slums in Mumbai. *Journal of Aging Science*.
- [23] Schenker, M. B. (1996). Preventive medicine and health promotion are overdue in the agricultural workplace. *Journal of Public Health Policy*, 17(3), 275-305.

- [24] Umar, S., & Umar BF, I. A. (2013). Coping strategies among farmers and herders during post conflict situation in the Kainji Dam Area of Yauri Emirate, Kebbi State Nigeria. *Journal of Educational and Social Research*.
- [25] Usop, A. M., Askandar, K., &Langguyuan-Kadtong, M. (2013). Work performance and job satisfaction among teachers. *International Journal of Humanities and Social Science*, 3(5), 245-252.
- [26] WHO. (2015). *Occupational Health: Fact Sheet*. Retrieved July 2015, from World Health Organization: http://www.who.int/occupational_health/topics/stressatwp/en/
- [27] Yussof, N., & Low, W. (2009). Reliability and validity of the Brief COPE Scale (english version) among women with breast cancer undergoing treatment of adjuvant chemotherapy: A Malaysian study. *Medical Journal Malaysia*, 41- 50.