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Toward the Integration of Agro-Nursing in Philippine Public Health Systems: A Policy Analysis

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ABSTRACT

Background: The integration of public health and agriculture represents a unique and revolutionary mechanism to create solutions to the problems of malnutrition, hunger and rural health that are prevalent in the Philippines. **Purpose:** This policy analysis documents the introduction of "agro-nursing" – an interdisciplinary approach that incorporates agriculture into therapeutic health interventions and nutritional care – into the public health system of the Philippines. **Methods:** The policy analysis uses the Health Policy Triangle as an analytic lens to contend with the content, context, process, and actors associated with the integration of agro-nursing. **Results:** The results of the policy analysis demonstrate that while there is a policy-oriented window of opportunity, specifically in the Universal Health Care (UHC) Act, to enact multi-disciplinary, multi-agency health interventions, the coordination of Agency-level partnerships between the Department of Health (DOH) and the Department of Agriculture (DA) must continue to advance. The findings suggest the integration of agro-nursing can create a bridge between clinical care and community food sovereignty, especially amongst climate-affected rural communities. More significantly, the findings show that several issues of policy related to legislation, regulatory scopes of practice, and resource allocation need to be addressed. **Conclusion:** It is recommended that inter-agency governance be institutionalized, nursing education be supplemented with nutrition-sensitive agriculture components, and pilot models be implemented at the Local Government Unit (LGU) level. By shifting community health from reactive medical care to a proactive ecological health lens, the Philippines could bolster community resilience and sustainable health outcomes.

KEYWORDS

Agro-nursing, Philippine public health, Policy analysis, Health Policy Triangle, Universal Health Care Act.

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1. BACKGROUND

The Philippines is currently navigating a challenging landscape in public health, which is illustrated by a "double burden" of malnutrition whereby undernutrition and micronutrient deficiencies co-exist with increased rates of diet-related non-communicable diseases. Despite being an agrarian society, significant populations living in rural communities throughout the

Philippines are challenged with food insecurity and limited access to primary healthcare services. Historically, health interventions have been clinical practices that treat disease and health-related symptoms, instead of addressing the social and ecological determinants of health that frame these concerns.

Agro-nursing offer a new conceptual approach to nursing science and agricultural practice, as it refers to the clinical use of agricultural activities (community gardening, therapeutic farming, and gardening for nutrition-sensitive crops) to support health outcomes. For the population of the Philippines, which is primarily rural, agro-nursing can further enhance health by including food production within the healthcare service delivery system, consistent with the goals of Primary Health Care (PHC) program which emphasizes community empowerment and self-reliance.

If we hope to integrate agro-nursing as a feasible health intervention into the formal public health system, then we must also critically analyze the health policy. Currently, the health system is essentially separated from agriculture, where the Department of Health (DOH) privies itself to medical services, and DA governs crops, yield, and economic productivity. This silos health fragmentation and misses opportunities to create interventions that may improve nutritional status while increasing economic viability.

The enactment of the Universal Health Care (UHC) Act (Republic Act No. 11223) offers a timely policy opportunity. The Act advocates for a shift towards population-based health services and delineates the significance of the social determinants of health. Having said that, how these are operationalized remains a challenge, especially concerning how health professionals, such as nurses, can advance their scope of practice to include ecological and agricultural interventions.

This paper addresses the viability of including agro-nursing in the public health system in the Philippines. Using the Health Policy Triangle framework, this study will assess the political, social, and economic aspects of policy development. We will explore the role of varying stakeholders, the legislative barriers to inter-sectoral collaboration, and the potential benefits agro-nursing may have on community health resilience. The paper will offer policymakers a framework to consider a more integrated and sustainable public health model.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The Concept and Evolution of Agro-Nursing in Global Health Care

The evolving field of agro-nursing draws from several established concepts; social farming, green care and therapeutic horticulture. In many developed societies, social farming is viewed as a valid intervention for a range of needs such as mental health, rehabilitation, and social inclusion (Jarábková, 2022). These practices include using agricultural landscapes and farming activities as a means to provide to social or educational care services for vulnerable groups of people. Realizing these practices is part of the evolution of the concept, it is increasingly being recognized that health is not merely the absence of disease rather it is a state of physical, mental, and social wellbeing that is intricately tied to the environment.

Agro-nursing has evolved with varying practices globally. In some sectors it is integrated into care for mental health supports by providing patients with grounding activities and cognitive functioning improvements that minimize anxiety. In other health system sectors, agro-nursing has acted as a rehabilitative tool for geriatric care promoting older adults to be physically active and socially connected through activities such as community gardening. In addition, some cultures have practice the concept of "agro-spiritualism", where agricultural practices facilitate one of self-transformation and are used as a community service to enjoy the effects of engaging with a piece of property (Kapoor, 2025).

Incorporating technology such as Virtual Reality (VR), has also be explored to enhance agricultural education and medical learning. VR has been used to educate students and professionals for agricultural techniques in a simulated environment before employing in a work setting (Durojaye, 2023). Despite these advances, the application of agro-nursing in low- and middle-income countries (LMICs) remains under-explored. In LMICs, the application or focus shifts from a purely therapeutic outcome and/or mainly to the pragmatic necessity of food security and nutritional resilience (Muonde, 2024).

The interaction between agriculture and health is also evident in the management of chronic disease. For example, studies on Type 2 Diabetes have demonstrated that practice of self-care, such as diet and physical activity, is vital to risk reduction (Mhlanga, 2024). Agro-

nursing addresses these needs directly by providing an environment for physical activity and growing healthy, nutrient-dense food. By bringing the means of crop production closer to the population through urban and peri-urban farming, shorter supply chains and greater food resilience can be realized (Csambalik, 2024).

Theoretical Framework: The Health Policy Triangle

This study analyzes the intersection of agro-nursing in the Philippines through the Health Policy Triangle, a framework developed by Walt and Gilson in 1994 that is widely used in health policy and systems research to provide context for an understanding of how policies evolve and are enacted (O'Brien, 2020). The triangle has four integrated dimensions: content, context, actors, and process.

The "Content" dimension refers to the substance of the policy, specifically the goals, strategies, and technical details of the agro-nursing integration. This includes defining the competencies of agro-nursing, developing clinical protocols for agricultural interventions, and identifying the legislative language needed to enable to authorize such practices.

The "Context" dimension involves the systemic factors—political, economic, social, and cultural—that impact the policy (Alonazi, 2022). In the Philippines, this has included the decentralization of health services to Local Government Units (LGUs), the vulnerability of the Philippines to climate change and natural disasters, and the socio-economic disparity in access between rural and urban populations (Suleymanov, 2024). Understanding the context is critical to identify the drivers and barriers of public policy change (Perera, 2024).

"Actors" are people, groups, or organizations that shape the policy process. This may include policy elites in the Department of Health (DOH) and Department of Agriculture (DA), professional regulatory bodies such as the Professional Regulation Commission (PRC), educational institutions, and frontline health workers (Yong, 2020). Power dynamics among actors are important in the policy process to determine whose interests are served and in what way resource allocation (Topp, 2021).

Lastly, the "Process" dimension relates to the way that the policy is initiated, formulated, negotiated, communicated, and enacted. This includes the analysis of the various stages in the policy cycle from

agenda-setting and legitimacy to implementation and evaluation (Raofi, 2020). In the Philippines, the process is often a combination of top-down mandates and bottom-up community initiatives that must balance national standards and local flexibility (Doshmangir, 2019).

Synergies Between Agriculture and Nursing in Community Health

The synergies between agriculture and nursing are grounded in the same aim of improving human well-being. Nurses as community health leaders are able to act as change agents for agricultural interventions because of their skills in nutrition, health education, and community organizing that allows them to translate agricultural practices to health. This interdisciplinary approach is vital to the achievement of sustainable development goals (Mundhe, 2023).

One of the main benefits relates to food security. Nutrition-sensitive agriculture aims to improve the availability and access to a variety of nutrient-rich foods (Muonde, 2024). Nurses can assist communities in the selection of crops to solve local-specific nutritional deficiencies, such as crops with iron to reduce anemia. This places the nurse in a role beyond a provider of food advice to one that is actively engaged in the facilitation of food sovereignty.

Further, agro-nursing also addresses the environmental determinants of health. Sustainable farming practices such as agroecology protects the environment, contributing to healthier ecosystems that impact human health (Fiore, 2024). By improving water quality and sustainable agricultural practices, nurses are positioned to work towards reducing waterborne disease and chemical exposures in farming communities (Pay, 2023). This "One Health" perspective is an acknowledgement that human, animal, and environmental health are interconnected (Mariappan, 2021).

Moreover, the psychosocial benefits of engaging with nature, often called "green care," also adds strength to the nursing-agriculture link. For communities facing challenges of trauma recovery from natural disasters, which is a common occurrence in the Philippines, agro-nursing could also act as a rehabilitative mechanism for resilience and for mental well-being. Caring for plants provides opportunities to foster a sense of agency and hope, which are central elements of psychological recovery.

3. METHODOLOGY

Policy Analysis Design and Scope

This study is a qualitative policy analysis design examining the potential feasibility for agro-nursing to improve the Philippine public health system, with strategic pathways to do so. The scope of the analysis is limited to the national and sub-national policy environments in the Philippines, specifically health and agricultural policy intersections. The time frame examined began with the approval of the Universal Health Care Act in 2019 and continues to the present to reflect the current policy landscape.

The overall intention is to assess how existing policy supports or inhibits the adoption of agro-nursing, as well as what policy possibilities are needed to adopt agro-nursing interventions. As such, the design is exploratory to lay groundwork for potential empirical studies and pilot implementation research. The study relies upon the "policy window" that has been created through this most recent health reform process for possible actionable recommendations that can be provided to policymakers and health administrators during this evolving timeframe.

Data Sources and Document Selection Criteria

Data was collected for this analysis through primary and secondary document reviews. Document analysis refers to the systematic process of reviewing or evaluating documents and is a useful method of qualitative research in health policy to understand the historical and political context of a policy (Kayesa, 2020).

Document selection criteria included:

1) Official government documents, including a full text of the Universal Health Care Act (RA 11223), the Philippine Nursing Act (RA 9173), and relevant administrative orders from the DOI and DA (Department of Agriculture, n.d.).
2) National health and agricultural agency strategic plans and reports.
3) Refereed academic literature on agro-nursing, social farming, and inter-sectoral health policies (Jarábková, 2022; Fiore, 2024).
4) Reports from global organizations such as the World Health Organization (WHO) and the Food and Agriculture Organization (FAO) on nutrition and public health (Muonde, 2024).

Of the 46 documents identified, 32 were chosen for further analysis because of their relevance to the context of the Philippines and the Health Policy Triangle as

a framework. The search strategy using keywords included "Philippine health policy," "agro-nursing," "community health," "food security," and "inter-sectoral collaboration".

Analytic Framework for Policy Evaluation

The analytic framework follows the four dimensions of the Health Policy Triangle: content, context, actors, and process. Each document went through a coding and categorization process based on these dimensions to find themes, gaps, and contradictions.

For the "Content," analysis the study explored the provisions within the UHC Act and the Nursing Act to examine the legal boundaries for agro-nursing. For the "Context" analysis, socio-economic data and reports on climate vulnerability were evaluated to examine external forces exerting pressure on the need for integrated health-agriculture models (Suleymanov, 2024).

For the "Actor" analysis, stakeholder mapping provided an opportunity to identify the key actors and their possible opinions concerning agro-nursing integration. The study also explored the power struggle toward integration for the DOH, DA, and LGUs (Topp, 2021). Finally, the "process" denoted the exploration of the mechanisms for policy implementation, including Local Health Boards and the difficulties of looked towards inter-agency collaboration to create feasibility (Doshmangir, 2019).

The findings from each analysis offer an integrated view of the policies related to health and agriculture that provides the opportunity to look for strategic entry points for agro-nursing implementation. The analysis also highlighted ethics and professional standards needed for a successful transition and that the suggested framework was rigorous and practical.

4. SITUATIONAL ANALYSIS OF THE PHILIPPINE PUBLIC HEALTH LANDSCAPE

Implementation of the Universal Health Care Act

The Universal Health Care (UHC) Act was established in 2019 and is a transformational change in the Philippine health system. The UHC Act was politically tasked to guarantee all Filipinos access to a comprehensive set of quality health services without (financial) hardship. One noted provision in the UHC Act consisted of the provision for "population-based health services," which can be described as interventions applied to both populations and sub-populations versus individuals.

This marks a large opportunity for agro-nursing, where population-based services are required to address the social determinants of health, including nutrition and environment. As part of a new UHC approach, the health system will change to "Province-wide" and "City-wide" health systems, providing integrated and coordinated care across a region. Regionalization provides regions with a better opportunity for context-specific health interventions, such as acceptance of agricultural programs for rural provinces (Doshmangir, 2019).

Despite this, the implementation of the UHC Act has been fraught with challenges in terms of fiscal capacity and local health systems' readiness. The transition will take sizeable financial commitments and the political will to reform established bureaucratic systems. The Act creates the legal basis for a comprehensive approach to health, but program operational guidelines for inter-sectoral programs such as agro-nursing remain unclear. More clearly defined protocols on how health funds can directly support agricultural-based health interventions are warranted.

Current Agricultural Support Policies and Rural Health Initiatives

The Department of Agriculture (DA) currently manages an array of programs that bolster food production and rural livelihoods, including the provision of seeds, fertilizers, and farmer education and technical support (Department of Agriculture, n.d.). Recently there has been an increasing effort in support of "nutrition-sensitive agriculture," which promotes the production of a range of crops in hopes of increasing their farming households' dietary diversity.

Despite the growing majority of organizations involved with agricultural development, there is still a gap between agricultural supports and health outcomes, even where farming populations are the intended beneficiaries. Agricultural policies seem to be largely driven by economic goals, such as improving rice self-sufficiency or export earnings, which do not often tie to the nutritional needs of local community populations. For instance, a monolithic approach to cropping monocropping fails to promote dietary diversity; food producers may be deficient in micronutrients, even when they are food secure.

From the health side of rural health initiatives, the approach has historically

been a clinical approach, with clinical services such as immunizations and maternal care delivered through Rural Health Units (RHUs). Although these services are necessary and must be part of the rural health picture, they are often implemented without a clear connection to agriculture in the health system of the rural community. There have been attempts at "community gardens" established at health centers (e.g., RHUs) which are often limited in scope and devoid of technical or organizational support provided by the DA or other agencies which could facilitate a sustained approach to health and nutrition in nursing practice. The potential for both a more explicit local dimension to the DA's extension services and the DOH community health programs seem to be under-utilized opportunities.

Identification of Gaps related to Holistic Health Interventions

The analysis indicates that there are a number of critical gaps related to the current priorities related to holistic health in the Philippines. First, there is a "silo" problem between the two sectors of health and agriculture. Each department is working under completely different authorities, budgets, and reporting structures that have made collaboration with one another difficult, if not impossible. This silo-ing is often compounded at the local level, where the Municipal Health Office and Municipal Agriculture Office are often working independently on the same populations.

Second, health workers are not professionally prepared for implementation of agricultural interventions. Nursing education in the Philippines continues to focus heavily on clinical and hospital-based health care and limit exposure to social and ecological determinants of health. Nursing education prepares nurses to practice but, often misses the opportunity to create knowledgeable actors in health who can facilitate agricultural interventions at the community level.

Third, the problem of the "double burden" of malnutrition cannot be addressed appropriately using traditional medical-based models of intervention. Clinical interventions can treat acute malnutrition, but those interventions do nothing to address root causes of food insecurity and blended dietary habits. Models of sustainable interventions driven by communities that connect food production directly to health outcome interventions are largely absent.

Finally, the effect of climate change on health and agriculture is an increasing worry that needs integrated solutions (Suleymanov, 2024). The Philippines is in one of the most disaster-prone countries globally and typhoons often interrupt health services and food supply. Policies generally tend to emphasize reactive disaster responses over an integrated model, such as agro-nursing, that builds long-term community resilience. Closing this gap will require a systemic rethinking of health principles and policies, where we begin to adopt a "Health in All Policies" model.

The data indicates that regions with high agricultural employment, such as the Bicol Region, experience higher levels of stunting and food insecurity. The disconnect is often referred to as the "paradox of plenty." This presents evidence of the inability of currently siloed policies to translate agricultural productivity into public health. Agro-nursing is a strategic framework aimed at bridging the dichotomy of agriculture and health, as it would ensure that agricultural products are deliberately designed and managed to meet the health and dietary needs of the community. An integrated agriculture and health partnership such as agro-nursing may be a step toward a more resilient and equitable health system that addresses the holistic needs of the people.

5. POLICY ANALYSIS: FEASIBILITY AND BARRIERS TO INTEGRATION

Legislative and Regulatory Constraints in the Health Sector

Integrating agricultural nursing (agro-nursing) services within the Philippine public health system will require a careful examination of existing legislative frameworks, specifically the Universal Health Care (UHC) Act (Republic Act No. 11223) and the Philippine Nursing Act of 2002 (Republic Act No. 9173). Empirical literature supports that while the UHC Act has opened up a "policy window" by re-iterating population-based health services and primary care, the definition of nursing practice is primarily in a clinical and hospital setting (Dayapera, 2024). The definition of current nursing scope of practice under RA 9173 is limited to providing care according to the initiation and performance of nursing care during an intermediate or acute care stage of illness, which could be construed as limiting the legal protections afforded to nurses participating in non-conventional interventions outside of the health system in agriculture.

Further, evidence of the "One Health" transition in the Philippines demonstrates significant legislative operationalization gaps. Although there are mechanisms for multi-sectoral coordination, these are often overshadowed as limited governance and risk communication (Dayapera, 2024). For agro-nursing services to be recognized formally, regulatory organizations such as the Professional Regulation Commission (PRC) will need to expand the "Competency Standards for Nursing Practice" framework to include environmental health and nutrition-sensitive agriculture capacity. Without these legislative changes in regards to nursing, nurses will remain in the ambiguous position of re-defining "professional boundaries," with agricultural activities often being considered outside their professional role, which may result in challenges with malpractice insurance, accountability, and professional status.

Stakeholder Analysis: Department of Health and Department of Agriculture

A barrier to the integration of agro-nursing services lies in the historical "silo" between the Department of Health (DOH) and the Department of Agriculture (DA). The policy analysis suggests that the DOH has a predominant focus on clinical outcomes and disease management, whereas the DA primarily focuses on crop yield, livestock production, and market access to produce (Dayapera, 2024). There is a gap in addressing social determinants of health that are related to food sovereignty and nutritional security outcomes. Stakeholder mapping indicates that although the DOH is the principal authority and responsibility for health policy, their ability to manage inputs that constitute agriculture is limited and will require stakeholder relationship with the DA to plan and supply farmers with expertise and resources such as seeds and tools for community health gardens.

Local Government Units (LGUs) are the most powerful players, given the devolution of the Philippine health system. Since the Local Government Code was created, LGUs have been responsible for both primary health care and agricultural extension systems. However, there is evidence that local health boards lack the interdisciplinary input and advocates to explore, discuss, and create agro-nursing initiatives (Reyes, 2022). The engagement of non-governmental organizations (NGOs) and indigenous community representation, e.g., the Ati people, is also critical, as these groups often have deeper understanding and historical knowledge of the land that

would support scientific nursing knowledge in practice (Biclar, 2022).

Socio-Economic Effects and Resource Allocation Requirements

The feasibility of agro-nursing relies heavily on the re-directed resources from a tertiary hospital care model to community-based preventive services. In the Philippines, high out-of-pocket health care costs continue to significantly burden rural households, pushing families into poverty as a result of malnutrition-induced illnesses (Bank, 2020). Agro-nursing provides a socio-economic buffer by enhancing local production, thereby lowering costs associated with specialized nutritional supplements and preventing expensive inpatient care. However, it will take an initial capital investment to establish these programs, including, for example, "green infrastructure", like community seed banks and therapeutic gardens.

The research conducted on small and medium enterprises (SMEs) in the Philippines highlights rural communities' extreme variability in their vulnerability to natural disasters that affect their health and livelihoods (Ballesteros, 2015). Agro-nursing supports economic viability, improving the access of community health workers and creating "inclusive businesses" to connect health outcomes and agricultural productivity (Briones, 2016). However, the "digital divide" is a problem; nearly 60 percent of households in the Philippines do not have reliable internet access and therefore would be unable to utilize digital tools for the purposes of monitoring nutritional progress or marketing surplus agricultural production from agro-nursing plots (Bank, 2020).

6. SUGGESTED STRATEGIC FRAMEWORK FOR AGRO-NURSING

Inter-Agency Policy and Governance Recommendations

To successfully incorporate agro-nursing, it is suggested to employ the "Health in All Policies" (HiAP) approach and provide it a formal structure through an Inter-Agency Task Force on Agro-Public Health. This, to include the DOH's National Nutrition Council and the DA's Bureau of Plant Industry. Institutionalizing governance at the provincial-level will ensure that agro-nursing initiatives will not be exposed to changing political cycles within local politics. The government could operationalize the Multi-sectoral One Health Coordination Framework for standardized protocols

related to joint risk assessment and resource sharing (Dayapera, 2024).

A principal policy recommendation would suggest the creation of a "Green Health Fund" where a portion of the sin taxes or the UHC budget would be reserved for community-led agricultural health projects. This would fund the purchase of agricultural inputs for Rural Health Units (RHUs) while also incentivizing the Local Government Units (LGUs) that are able to meaningfully reduce stunting rates, while also employing agro-nursing. The use of the Community-Based Monitoring System (CBMS) must be mandated to identify households most at risk of food insecurity in order to facilitate "prescriptions" for agro-nursing (Reyes, 2022).

Professional Standards and Improvement of Nursing Curriculum

The sustainability of agro-nursing relies on the evolution of nursing education in the Philippines. The Commission on Higher Education (CHED) should include "Ecological Public Health" and "Nutrition-Sensitive Agriculture" as part of the Bachelor of Science in Nursing (BSN) curriculum. This change shifts nursing education away from a "labor export" model and toward a "Rural Health Immersion" model that prioritizes community resilience at home. Students should be trained in "permaculture for health," learning how to design therapeutic landscapes that provide medicinal herbs and micronutrients.

Professional standards will also need to be updated to recognize "Agro-Nursing Specialist" as a domain. This would require building clinical pathways where agro-based food systems, such as gardening and small-scale livestock-raising, are considered therapeutic interventions for mental health, geriatric, and chronic disease patients. Research around "commoning" food systems suggests that once communities embrace the idea of food as a public good (instead of a commodity), noticeable differences in health outcomes emerge (Rossi, 2021). Recognizing nurses as trusted community leaders, we can leverage their unique role to facilitate a change in the value of food.

Local Government Units Pilot Implementation Models

Pilot implementation must begin in "barrio" communities vulnerable to disaster and with significant nutritional gaps. The implementation of these pilots could utilize "sentinel gardens" at RHUs, where nurses demonstrate the soil health-human health

relationship. For example, in coastal communities, we could explore integrated multi-trophic aquaculture (IMTA) as an example of addressing protein deficiencies while preserving marine ecosystems (García-Poza, 2020). In upland communities, agro-forestry models might be used as alternatives to prevent soil erosion, while diversifying food sources.

The implementation models can also utilize digital technologies to address the gap between rural health and modern science. Piloting storytelling-based video interventions or crowdsourced geographic information has the potential to educate communities about its potential benefits, even in areas with limited connectivity (Reñosa, 2021; Haklay, 2014). The pilot programs will also need to measure indicators of health in standard ways—i.e., Body Mass Index (BMI), hemoglobin levels, household food diversity scores, etc.—which will also provide the data to provide evidence ofscale up at a national level. Successful models, such as the Community-based Participatory Action Research (CBPAR) conducted in collaboration with the Ati community demonstrates how interventions that empower marginalized sociocultural groups to develop agricultural marketing and production have both economic and health resilience (Biclar, 2022).

7. DISCUSSION AND MANAGERIAL IMPLICATIONS

Effect on Community Health Resilience and Food Sovereignty

The inclusion of agro-nursing directly addresses the concept of "food sovereignty," which is of fundamental importance in the Global South for sustainable food security (Byaruhanga, 2023). Giving nurses the opportunity to facilitate local food production reduces the global supply chain reliance within the health system, which is compromised by climate-related disasters or pandemics. Instead, this model is still socially connected through "social-ecological resilience," which ties the health of a community to the health of the local environment (Fernández-Giménez, 2022). Given the Philippines deal with typhoons that frequently disrupt food access and destroy crops; agro-nursing plots may serve as "life-saving nutrition hubs" during immediate needs after disaster (Rogayan, 2020).

From a management perspective, this encompasses a shift from “reactive” health care—treating deficiencies resulting from malnutrition—to “proactive” health care—

ensuring sustainable access to nutrient-rich food. "Smart" agricultural technologies, like gene-edited crops that are biofortified for Vitamin A or Iron supplementation, may be introduced into an agro-nursing approach better to support managing specific vitamin or mineral deficiencies in the community (Jones, 2022). However, these complex technological interventions must work in tandem with "environmental justice" efforts to ensure the most vulnerable populations are not left behind in technological advances (Wu, 2022).

Ethical Implications and Professional Scope of Practice

Caring for the health of the community through agro-nursing will generate many ethical dilemmas surrounding the "professional identity" of the nurse. Nurses are at risk of being seen as "manual laborers," and this perception may, in turn, affect morale and recruitment. It is critical that nurses do not frame the work being done in the agricultural space as "farming," but rather as "clinical interventions" using agricultural practices as therapeutic interventions. The ethics of "prescribing" these labor-intensive activities also need to be considered; the agricultural work of nurses must always remain voluntary and remain therapeutic efforts of patient-centered care, while being cognizant of the physical burden that the nurse or rural communities already bare.

Additionally, the "double burden" of responsibility for rural health nurses—immunizations, maternal care, disaster management—must be acknowledged. Rural health should ensure that nurses are not doing the work alone when possible. All activities must also consider the use of community volunteers. Agro-nursing should not be an "unfunded mandate" to communities, but rather will be an example of provision from the nurse that is adequately resourced with consideration of hiring of "Agricultural Health Assistants." Ethical practice would also imply that any water or soil used for the agro-nursing plots would be free from contamination. For example, research on a local river, the Sapangdaku River, has identified the aggregate concentration of heavy metals (e.g. copper) in water originating from industrial development, which raises concern about risk to consumers, and implications for farming in the river area (Sanchez, 2020).

Long-term sustainability and scalability of agro-nursing

As such, a sustainable agro-nursing approach box must be institutionalized within the "Provincial Health Systems," a mandate of the UHC Act. Sustainable agro-nursing management also involves establishing long-term budget lines for agricultural health inputs and utilizing agro-nursing as part of the "Local Climate Change Action Plans" (LCCAP). For example, scalability of agro-nursing approaches could also consider the framework of "Industry 4.0" for consideration of artificial intelligence (AI) and the Internet of Things (IoT) as potential tools for monitoring soil moisture or nutrient levels at community gardens, thus reducing manual workload for the nurse, or creating opportunities to build more aquaponic systems (Dadios, 2018; Wang, 2021).

Sustainability in the "digital economy" lends itself to the same principles to address sustainability. For example, "inclusive businesses" can be developed digitally to help communities understand market value for surplus food produced from agro-nursing projects. Creating a self-sustaining financial model, while also reducing care reliance on government grants for health related projects (Bank, 2020; Briones, 2016). Enabling the "ASEAN Regional Capacity" in disaster health management can also provide platforms that are supportive of sustainability through knowledge sharing, and best practices in the healthcare system, with respect to agro-nursing models across SE Asia (Wuthisuthimethawee, 2022).

8. CONCLUSION

The implementation of agro-nursing in the Philippine public health systems signals an important movement away from a clinical model toward a more holistic, ecological stance on health. By bridging nursing science and agricultural practice, the Philippines may directly address the determinants of malnutrition and chronic diseases while simultaneously building community resiliency against climate change. The analysis indicates that while significant legislative, regulatory, and "siloed" bureaucratic barriers exist, the Universal Health Care (UHC) Act, and One Health framework has provided a viable approach for integration.

Strategic recommendations outline the need for inter-agency governance, reform to the curriculum, and local government unit (LGU) led pilot programs which employ data driven tools such as Community-Based Monitoring Systems

(CBMS). Above all, agro-nursing is not about nurses acting as farmers; it is about nurses resuming their role as advocates for the total well-being of the community. By re-commoning food and health, the Philippines can build a more equitable, sustainable, and resilient health system that is rooted in both the land and the people that live upon it. Changing health policies is not an option, but a necessity as the environmental and health crises become increasingly volatile.

CONFLICT OF INTEREST

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REFERENCES

Alonazi, W. B., & Altuwaijri, E. A. (2022). Health policy development during COVID-19 in Saudi Arabia: Mixed methods analysis. Frontiers in Public Health. https://doi.org/10.3389/fpubh.2021.801273

Ballesteros, M., & Domingo, S. (2015). Building Philippine SMEs resilience to natural disasters-. https://doi.org/10.62986/dp2015.20

Bank, W. (2020). Philippines digital economy report 2020. World Bank. https://doi.org/10.1596/34606

Biclar, L. A. B. (2022). Post COVID-19 insights: Building an economically sustainable and resilient Ati community in the Philippines through community-based participatory action research (CBPAR). Pakistan Journal of Life and Social Sciences.https://doi.org/10.57239/pjlss-2022-20.2.007

Briones, R. (2016). Growing inclusive businesses in the Philippines: The role of government policies and programs. https://doi.org/10.62986/dp2016.06

Byaruhanga, R., & Isgren, E. (2023). Rethinking the alternatives: Food sovereignty as a prerequisite for sustainable food security. Food Ethics. https://doi.org/10.1007/s41055-023-00126-6

Csambalik, L., Gál, I., Madaras, K., Tóbiás, A., & Pusztai, P. (2024). Beyond efficiency:

The social and ecological costs of plant factories in urban farming-A review. Urban Science. https://doi.org/10.3390/urbansci8040210

Dadios, E. P., Culaba, A. B., Albert, J. R., Paqueo, V., Orbeta, A. C., Serafica, R., Bandala, A. A., & Bairan, J. C. A. C. (2018). Preparing the Philippines for the Fourth Industrial Revolution: A scoping study. https://doi.org/10.62986/dp2018.11

Dayapera, L. Z. A., Sy, J. C. Y., Valenzuela, S., Eala, S. J. L., Rosario, C. M. I. P. D., Buensuceso, K. N. C., Dy, A. S., Morales, D. A., Gibson, A. G., & Apostol, G. L. C. (2024). One health in the Philippines: A review and situational analysis. One Health. https://doi.org/10.1016/j.onehlt.2024.100758

Department of Agriculture (n.d.). Official portal of the Department of Agriculture. https://www.da.gov.ph/

Doshmangir, L., Moshiri, E., Mostafavi, H., Sakha, M. A., & Assan, A. (2019). Policy analysis of the Iranian health transformation plan in primary healthcare. BMC Health Services Research. https://doi.org/10.1186/s12913-019-4505-3

Durojaye, A., Koolahdoz, A., Nawaz, A., & Moshayedi, A. J. (2023). Immersive horizons: Exploring the transformative power of virtual reality across economic sectors. EAI Endorsed Transactions on AI and Robotics. https://doi.org/10.4108/airo.v2i1.3392

Fernández-Giménez, M. E., Ravera, F., & Oteros-Rozas, E. (2022). The invisible thread: Women as tradition keepers and change agents in Spanish pastoral social-ecological systems. Ecology and Society. https://doi.org/10.5751/es-12794-270204

Fiore, V., Borrello, M., Carlucci, D., Giannoccaro, G., Russo, S., Stempfle, S., & Roselli, L. (2024). The socio-economic issues of agroecology: A scoping review. Agricultural and Food Economics. https://doi.org/10.1186/s40100-024-00311-z

García-Poza, S., Leandro, A., Cotas, C., Cotas, J., Marques, J. C., Pereira, L., & Gonçalves, A. M. M. (2020). The evolution road of seaweed

aquaculture: Cultivation technologies and the industry 4.0. International Journal of Environmental Research and Public Health. https://doi.org/10.3390/ijerph17186528

Haklay, M., Antoniou, V., Basiouka, S., Soden, R., & Mooney, P. (2014). Crowdsourced geographic information use in government. https://doi.org/10.1596/20725

Jarábková, J., Chreneková, M., & Vařecha, L. (2022). Social farming: A systematic literature review of the definition and context. European Countryside. https://doi.org/10.2478/euco-2022-0027

Jones, M. G. K., Fosu-Nyarko, J., Iqbal, S., Adeel, M., Romero-Aldemita, R., Arujanan, M., Kasai, M., Wei, X., Prasetya, B., Nugroho, S., Mewett, O., Mansoor, S., Awan, M. J. A., Ordonio, R. L., Rao, S. R., Poddar, A., Hundleby, P., Iamsupasit, N., & Khoo, K. (2022). Enabling trade in gene-edited produce in Asia and Australasia: The developing regulatory landscape and future perspectives. Plants. https://doi.org/10.3390/plants11192538

Kapoor, V. (2025). (Re)viewing postsecularity through the pragmatic pursuits of new religious movements in India. Religions. https://doi.org/10.3390/rel16020157

Kayesa, N. K., & Shung-King, M. (2020). The role of document analysis in health policy analysis studies in low- and middle-income countries. Health Policy OPEN. https://doi.org/10.1016/j.hpopen.2020.100024

Mariappan, V., Vellasamy, K. M., Mohamad, N. A., Subramaniam, S., & Vadivelu, J. (2021). One health approaches contribute towards antimicrobial resistance: Malaysian perspective. Frontiers in Microbiology. https://doi.org/10.3389/fmicb.2021.718774

Mhlanga, N. L., & Netangaheni, R. T. (2024). Physical activity and diet for type 2 diabetes reduction among older people living with HIV in Harare. Health SA Gesondheid. https://doi.org/10.4102/hsag.v29i0.2445

Muonde, M., Olorunsogo, T. O., Ogugua, J. O., Maduka, C. P., & Omotayo, O. (2024). Global nutrition challenges: A public health review of dietary risks

and interventions. World Journal of Advanced Research and Reviews. https://doi.org/10.30574/wjarr.2024.21.1.0177

Mundhe, E. (2023). Interdisciplinary approaches and strategies for sustainable development. Zenodo. https://doi.org/10.5281/zenodo.7847920

O'Brien, G. L., Sinnott, S., Walshe, V., Mulcahy, M., & Byrne, S. (2020). Health policy triangle framework: Narrative review of the recent literature. Health Policy OPEN. https://doi.org/10.1016/j.hpopen.2020.100016

Pay, D., S., M. Z., & P., S. F. (2023). Water quality in agriculture: Risks and risk mitigation. https://doi.org/10.4060/cc7340en

Perera, P., Amarasinghe, S. N., Fonseka, S., Abeysinghe, N., & Rannan-Eliya, R. P. (2024). Factors impacting sustained coverage in the context of donor transitions: Experience from Sri Lanka. Health Policy and Planning. https://doi.org/10.1093/heapol/czad099

Raoofi, A., Takian, A., Sari, A. A., Olyaeemanesh, A., Haghighi, H., & Aarabi, M. (2020). COVID-19 pandemic and comparative health policy learning in Iran. Archives of Iranian Medicine. https://doi.org/10.34172/aim.2020.02

Reñosa, M. D. C., Wachinger, J., Bärnighausen, K., Aligato, M. F., Landicho-Guevarra, J., Endoma, V., Landicho, J., Bravo, T. A., Demonteverde, M. P., Guevarra, J. R., Claro, N. D., Inobaya, M., Adam, M., Chase, R. P., & McMahon, S. A. (2021). How can human-centered design build a story-based video intervention that addresses vaccine hesitancy and bolsters vaccine confidence in the Philippines? BMJ Open. https://doi.org/10.1136/bmjopen-2020-046814

Reyes, C., Vargas, A. R., & Arboneda, A. (2022). Evidence-based local planning and budgeting using the CBMS. Philippine Institute for Development Studies. https://doi.org/10.62986/rps2022.02

Rogayan, D. V., & Dollete, L. F. (2020). Disaster awareness and preparedness of barrio community in Zambales,

Philippines. Review of International Geographical Education Online. https://doi.org/10.33403/rigeo.634564

Rossi, A., Coscarello, M., & Biolghini, D. (2021). (Re)commoning food and food systems. Agriculture. https://doi.org/10.3390/agriculture11060548

Sanchez, J. M. P., Picardal, M. T., Libres, M. T., Pineda, H., Paloma, M. L. B., Librinca, J. M., Caturza, R. R. A., Ramayla, S. P., Armada, R. L., & Picardal, J. P. (2020). Characterization of a river at risk. AIMS Environmental Science. https://doi.org/10.3934/environsci.2020035

Suleymanov, F. (2024). A review of the multifaceted relationship between drought dynamics and conflicts. Hydrological Processes. https://doi.org/10.1002/hyp.15262

Topp, S. M., Schaaf, M., Sriram, V., Scott, K., Dalglish, S. L., Nelson, E., Rajasulochana, S. R., Mishra, A., Asthana, S., Parashar, R., Marten, R., Costa, J., Sacks, E., Rajeev, B., Reyes, K. A., & Singh, S. (2021). Power analysis in health policy and systems research. BMJ Global Health. https://doi.org/10.1136/bmjgh-2021-007268

Wang, K., Zhao, Y., Gangadhari, R. K., & Li, Z. (2021). Analyzing the adoption challenges of IoT and AI for smart cities in China. Sustainability. https://doi.org/10.3390/su131910983

Wu, H., Greig, M., & Bryan, C. (2022). Promoting environmental justice and sustainability in social work practice. Social Sciences. https://doi.org/10.3390/socsci11080336

Wuthisuthimethawee, P., et al. (2022). Strengthening ASEAN regional capacities on disaster health management. Prehospital and Disaster Medicine. https://doi.org/10.1017/s1049023x22000061

Yong, L. M. O., & Koe, L. W. P. (2020). War on diabetes in Singapore: A policy analysis. Research Square. https://doi.org/10.21203/rs.3.rs-82475/v1