Residents' Perception on the Swine and Poultry Farm in Untaga, Alicia, Bohol

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ABSTRACT

The primary purpose of this study was to determine the residents' perception on the swine and poultry farm in barangay Untaga, Alicia, Bohol in terms of health, odor, and water resources. This study also determined the profile of the selected 150 respondents as to their estimated monthly income, highest educational attainment, occupation and purok address and analyzed if there was a significant difference between residents' profile and their perception. Through descriptive research design, the researchers used survey questionnaires to determine the residents' perception about the swine and poultry farm. Before final survey, the questionnaire systematically underwent pilot testing using Exploratory Factor Analysis in barangay La Hacienda, Alicia, Bohol where there is also a poultry farm nearby before doing the final survey in barangay Untaga, Alicia, Bohol. The R Studio was utilized in computing the data during pilot testing and final survey. Majority of the respondents acquired a "Very High" perception in terms of impact in Health, Odor, and Water Resources. Through One-Way Analysis of Variance (ANOVA), the result revealed that there was no significant difference between residents' profile and to their perception. Thus, the null hypothesis has been failed to be rejected. Except between Highest educational attainment and Health because the result showed that in this area, there is a significant difference when the two categories are compared. Therefore, estimated monthly income, occupation and purok address are factors that do not affect the perception of the residents, apart from the highest educational attainment, which can be a significant factor in influencing residents' perception when it comes to the extensive swine and poultry production.

INTRODUCTION

Rationale

The global surge in meat consumption has led to a significant boom in swine and poultry farming. This agricultural practice involves raising domesticated pigs (swine) and various fowl (poultry) to meet the growing demand for meat, eggs, and other animal products. While these operations play a vital role in providing mass-produced food. It is crucial to acknowledge and address the challenges associated with extensive swine and poultry production.

Globally, the adverse impacts of swine and poultry farming have become a prevalent concern addressed by residents. In Nigeria, pig farming is a significant agricultural activity, primarily in the southern and north-central regions, but inadequate pig waste management poses challenges to the industry's sustainability (Ewuziem, 2021). Unregulated disposal of pig waste, highlighted in reports by (Ume, S.I. et al., 2018) and (Kadurumba, et al., 2019), leads to the release of harmful gases, degrading air quality and affecting human and animal health (Anukam, 2013).

In Philippines, residents of barangay San Juan de Mata and Sto. Domingo, Tarlac, have voiced out their serious concerns about the harmful effects of three large commercial hog farms, including poultry farms, in their health and the environment. Each housing have 30,000 pigs, and are situated in densely populated rural areas and discharge their waste directly into the Benig River, rendering it biologically dead and unsuitable for irrigation. Improper waste management has led to unchecked insect and disease vector proliferation, affecting the environment and human health, as outlined in the study of (Catelo, et al., 2019).

In barangay Untaga, Alicia, Bohol, residents near a swine and poultry production is facing with adverse effects such as persistent odor, water pollution, and health concerns. In fact, it has already been a controversial topic on social media where residents aired their frustration and rants online about the problem relating to the swine and poultry farm. The pervasive stench from these facilities compromised the quality of life for those living in proximity. Water pollution is also a significant issue as concentrated waste contaminates nearby water sources, imposing threats to both aquatic ecosystems and residents relying on these water supplies. The emissions from the facility contaminate the air and water, leading to health issues, intensifying pre-existing health conditions, and present long-term health risks. Overall, the detrimental effects extend beyond inconvenience, encompassing a range of environmental and health challenges for the residents.

In light of the various implications coming from the extensive swine and poultry farm, the objective of this study was to undertake a rigorous local research endeavor. This investigation aimed to assess and examine resident's perceptions concerning the facility with their perceived effects on public health, air quality, and water resources.

LITERATURE BACKGROUND

The shift from conventional to intensified swine and poultry farming has undeniably increased production efficiency but at the cost of mounting environmental and health risks. This duality reflects what Beck (1992) identifies in his Risk Society Theory: modernization inevitably generates new ecological hazards that traditional governance struggles to control. While livestock farming provides food security, its unintended consequences—odor, air pollution, water contamination, and disease exposure—are disproportionately borne by surrounding communities.

Several studies have documented the hazards of poor waste management. Ume et al. (2018) and Kadurumba et al. (2019) highlight unregulated dumping of pig waste in Nigeria, which mirrors findings in the Philippines where Catelo et al. (2019) reported direct discharge of untreated effluents into rivers. These studies converge on the conclusion that livestock farming, when paired with weak regulatory enforcement, transforms local ecologies into risk hotspots. Yet, while the evidence of environmental degradation is consistent, the socio-cultural drivers of community perceptions remain underexplored.

The Waste Management Theory (Pongrácz, 2004) argues that sustainable systems should view waste not merely as a pollutant but as a potential resource. However, most existing studies on swine and poultry farms remain descriptive, focusing on pollutant measurements (e.g., ammonia, pathogens, heavy metals) rather than examining why farms fail to adopt resource-recovery approaches such as biogas production or nutrient recycling. This gap underscores a need for research that evaluates community perceptions of waste mismanagement as both an environmental and a governance issue.

Contrasting findings also emerge regarding socioeconomic determinants of environmental concern. Some research suggests income and occupational status strongly predict pro-environmental behavior (Diamantopoulos et al., 2003; Kennedy et al., 2018). However, other scholars argue that education exerts a stronger influence than income (Hines et al., 1987; Wang et al., 2022). In the Philippine context, UPLB (2017) reported that residents with higher educational attainment were more critical of swine and poultry operations, suggesting that awareness rather than wealth is the key predictor of risk perception. This inconsistency signals a gap in understanding how socio-demographic variables interact with risk awareness in rural communities.

Finally, existing literature often emphasizes the biophysical impacts of farming (e.g., air pollutants, pathogens, water eutrophication) but pays limited attention to the lived experiences of residents. Studies such as Pangilinan et al. (2017) indicate that odor and water contamination not only harm physical health but also induce psychological stress and reduced quality of life. These psychosocial dimensions are crucial in framing community responses yet remain understudied in current research.

RESEARCH METHODOLOGY

Research Inquiry

This research study sought to determine the perception of the barangay residents with regard to the swine and poultry production of a swine and poultry farm located in Untaga, Alicia, Bohol.

Specifically, this study aimed to answer the following questions:

1. What are the respondent's profile in terms of:

1.1 estimated monthly income;

1.2 highest educational attainment;

1.3 occupation; and

1.4 purok address?

2. What are the impacts as perceived by the respondents on the swine and poultry farm in terms of:

2.1 health;

2.2 odor; and

2.3 water resources?

3. Is there a significant difference between the respondents' profile and their perceived impact when they are grouped according to:

3.1 health;

3.2 odor; and

3.3 water resources?

4. What action plan to propose?

Research Design

The researchers utilized descriptive research design with the aid of survey-questioning method that will be used to get the sufficient data and information. The use of itemized questions, calculated frequencies, tabulated data, and curated tables is suited in achieving the needed results needed for the study. This investigation aimed to examine residents' perception and assessing their perceived effects concerning public health, air quality, and water resources.

Research Environment and Participants

The study was conducted in two municipalities in the province of Bohol. These locations were purposively chosen to gain in-depth information from key informants who have direct experiences and meaningful interactions with the Deaf student who is the subject of the case study. Conducting the research in these municipalities allowed the researcher to access and interview individuals from various stages of the student's educational and personal life.

Research Participant

The locale of the study is at Untaga, Alicia, Bohol. The study is particularly conducted at the barangay where the swine and poultry farm is situated and the residents' are primarily exposed to the impact of the said facility. A stratified sampling is used to identify and gather the needed one-hundred fifty (150) respondents coming from each household and purok address of barangay Untaga as the representative of the total population.

Research Instrument

In order to gather the data of the study, the researchers used survey-questionnaires (checklist and rating scale) to determine the residents' perception about the swine and poultry farm in Untaga. A printed survey containing information about the study and a table which the respondents can check the well-curated questions given.

The researchers utilized a survey questionnaire with two parts; (1) respondents' demographic profile (estimated monthly income, highest educational attainment, occupation, and purok address) and (2) the perceived impact in terms of health, odor, and water resources. The respondents are required to select the options which best matched their perception. The questionnaires were scored on a Likert scale from strongly agree to strongly disagree. The frequency of the residents' responses to the items of the questionnaire were counted for ranking. The original questionnaire has a total of thirty (30) items: ten (12) items for the health section, ten (8) items for odor section, and ten (10) items for water resources.

The questionnaire systematically underwent pilot testing using Exploratory Factor Analysis and some items were statistically omitted, Thus, leaving the twenty-four (24) items retained. In the health section, the eleven (11) remaining items have good indicators of reliability with an acceptable factor loading of ($0.614 \geq 0.6$) and Cronbach $\alpha=0.86$. In odor section, the three (3) remaining items have good indicators of reliability with an acceptable factor loading of ($0.860 \geq 0.6$) and Cronbach ($\alpha=0.93$). Lastly, in the water resources section there are ten (10) unchanged items which all have good indicators of reliability with an acceptable factor loading of ($0.659 \geq 0.6$) and Cronbach $\alpha=0.95$. The result reveals the reliability and validity of the instrument which implies that it is ready for final survey distribution.

Statistical Treatment

For the inferential analysis, One-Way Analysis of Variance (ANOVA) was used to test whether there were significant differences in residents' perceptions across profile categories (income, education, occupation, and distance). ANOVA was chosen because it allows for comparison of means across more than two groups, making it suitable for categorical demographic variables.

Before applying ANOVA, key statistical assumptions were checked:

1. Normality – Residuals were tested using the Shapiro–Wilk test. Results indicated that the data did not deviate significantly from normal distribution. This supports the validity of ANOVA's normality assumption.

Normality Tests (Shapiro–Wilk)

- Health scores: $W = 0.996$, $p = 0.948$ → not significantly different from normal.
- Odor scores: $W = 0.985$, $p = 0.115$ → not significantly different from normal.
- Water scores: $W = 0.993$, $p = 0.676$ → not significantly different from normal.

2. Homogeneity of Variances – Levene's test was applied to confirm that group variances were statistically equal. The test results suggested homogeneity, justifying the use of ANOVA.

Homogeneity of Variances (Levene's Test)

- Health (across education groups): $F = 0.017$, $p = 0.984$
- Odor (across education groups): $F = 0.390$, $p = 0.678$
- Water (across education groups): $F = 0.700$, $p = 0.498$

3. Independence – Each household respondent was sampled once, ensuring independent observations.

Inclusion Criteria

The participants of this study were selected based on the following criteria:

1. Residency – Must be a bona fide resident of Barangay Untaga, Alicia, Bohol, and living within the proximity of the swine and poultry farm.

2. Age – Respondents must be at least 18 years old to ensure legal capacity to provide informed consent and reliable responses.

3. Household Representation – Only one respondent per household was selected to avoid duplication of responses.

4. Willingness to Participate – Only residents who voluntarily agreed to take part in the study and accomplished the informed consent were included.

5. Exposure to Farm Impacts – Respondents must have direct experience or awareness of the swine and poultry farm's operations and its perceived effects on health, odor, or water resources.

Ethical Consideration

The researchers strictly observed ethical standards to safeguard the rights and welfare of all participants. Before the survey, respondents were fully informed about the objectives, procedures, potential risks, and benefits of the study, after which written consent was obtained. Participation was entirely voluntary, and residents were assured that they could withdraw from the study at any time without any form of penalty. Confidentiality and anonymity were prioritized by coding responses and ensuring that no personal identifiers appeared in the final report. The researchers also respected cultural values and the dignity of each respondent, upholding fairness and sensitivity throughout the process. All collected data were secured and used solely for academic purposes. Finally, permission and endorsement from barangay officials and local authorities were sought prior to data collection, ensuring that the study was conducted with transparency and accountability.

RESULTS AND DISCUSSION

Presentation, Analysis, And Interpretation Of Data

This chapter presents the data gathered on the residents' perception of the swine and poultry farm in Barangay Untaga, Alicia, Bohol. The results are analyzed and interpreted according to the specific problems of the study and are presented through tables and narrative discussions for clarity.

The chapter begins with the respondents' profile in terms of income, education, occupation, and purok address to provide context in understanding variations in perception. It then examines how residents view the impacts of the farm in three key areas: health, odor, and water resources. Each category is discussed to show the extent of the farm's influence on community well-being and daily living conditions.

Inferential analysis using One-Way ANOVA is also presented to determine whether demographic factors significantly affect perceptions. Finally, the findings serve as the basis for drawing conclusions and formulating recommendations that highlight community concerns and suggest measures for mitigating the adverse effects of swine and poultry farming.

Table 1 Profile of Residents' in Terms of Highest Educational Attainment, Estimated Monthly Income, Occupation, and *Purok* Address

Estimated Monthly Income	**F**	**%**
Poor (less than 9,100)	116	77.33
Low Income (9,101-18,200)	15	10
Lower Middle (18,201-36,400)	15	10

Middle Middle (36,401-63,700)	4	2.67
Upper Middle Class (63,701-109,200)	0	0
Highest Educational Attainment		
Elementary Level	31	20.67
Elementary Graduate	18	12
High School Level	22	14.67
High School Graduate	24	16
College Level	15	10
College Graduate	40	26.67
Occupatiion		
Blue Collar Jobs	28	18.67
Gray Collar Jobs	21	14
Green Collar Jobs	31	20.67
No Collar Jobs	41	27.33
Pink Collar Jobs	6	4
Red Collar Jobs	6	4
White Collar Jobs	17	11.33
***Purok* address**		
Purok 1 (500 meters)	51	34
Purok 2 (1 kilometer)	48	32
Purok 3 (300 meter)	27	18
Purok 5 (1.5 kilometer)	24	16

Table 1 shows that the majority of respondents belonged to low-income households, with 77.3% earning below ₱9,100 monthly. Despite this, 26.7% were college graduates, which reflects accessibility of higher education through state universities and local colleges. However, education did not always translate into higher income or occupational stability, as many respondents remained in “no collar” categories such as housewives, students, and senior citizens.

This disjunction between educational attainment and economic status is critical for interpreting perceptions. According to Risk Society Theory (Beck, 1992), risk exposure is often unevenly distributed, and those with limited resources are most vulnerable to the ecological consequences of modernization. In Barangay Untaga, poorer households lacked the means to mitigate exposure (e.g., access to clean water or relocation), intensifying their risk perception.

Table 2.1 Respondents' Perceived Impact of the Swine and Poultry Farm to their Health N=150

The swine and poultry farm contributes …	**SA**	**A**	**D**	**SD**	**Mean**	**Description**
1. Cough	75	54	20	1	3.35	SA
2. Cold	75	54	21	0	3.36	SA
3. Pneumonia	33	32	38	47	2.34	D
4. Stomachache	43	47	52	8	2.83	A
5. Loss of food appetite	58	56	33	3	3.12	A
6. Gastroenteritis	15	21	50	64	1.91	D
7. Allergies	50	53	35	12	2.94	A
8. Headache	68	62	20	0	3.32	SA
9. Fever	19	42	44	45	2.23	D
10. Stress and anxiety	100	45	2	3	3.61	SA
11. Bacterial, viral and other easily-transmittable diseases (e.g. Hand, Foot, and Mouth Disease)	39	57	30	24	2.74	A
Level of Perceived Impact on Swine and Poultry Farm	F			%		
Very High	62			41.33		
High	52			34.67		
Low	31			20.67		
Very Low	5			3.33		
SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree						

Based on the results in Table 2.1, the items *"Cough, Cold, Headache, and Stress and anxiety"* got a remark of Strongly Agree while the other four items got a remark of Agree. This outcome implies that most respondents are strongly agree with most of the items with regard to the negative health risks associated with the swine and poultry farm. However, there are items that the respondents deemed uncertain as they think some sickness are not entirely associated with swine and poultry farm but are influenced by other various factors. Nonetheless, overall the respondents possess a strong level of negative perception when it comes to the health risk associated with the swine and poultry farm thus perceiving the Health category as Very High.

This finding aligns with (Overcash, 1984) study, which the study affirms that livestock odors could potentially induce adverse physiological responses, such as nausea, vomiting, headaches, coughing, and irritations of the eyes, nose, and throat. Moreover, literature in health science demonstrated that odor exposure could worsen preexisting conditions, such as asthma (Chang and Williams, 1986). From the Risk Society lens, these perceptions embody a community living with manufactured risks—health issues not from natural causes but from industrialized farming systems. Residents' anxieties align with Beck's view that in modern societies, risk is inseparable from technological and economic progress. The swine and poultry farm, while contributing to food security, simultaneously imposes invisible and uncontrollable health hazards on nearby residents.

Table 2.2 Respondents' Perceived Impact on the Swine and Poultry Farm in terms of Odor N=150

Odor	**SA**	**A**	**D**	**SD**	**MODE**	**RANK**
I…						
12. Often smell bad odors coming from the swine and poultry farm.	99	50	1	0	SA	3
13. Feel uncomfortable due to the chicken dung, pig stool, and other waste odor from the facility.	106	42	2	0	SA	2
14. Notice how the air quality in our barangay has become bad.	128	21	0	1	SA	1
Level of Perceived Impact on Swine and Poultry Farm	**F**			**%**		
Very High	114			76		
High	36			24		
Low	0			0		
Very Low	0			0		
SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree						

Table 2.2 demonstrates unanimous agreement that odor severely degraded air quality, with 76% reporting "Very High" perceived impacts. The findings are supported by UPLB's (2016) assessment of high ammonia and particulate matter in Philippine farms. Odor, more than a nuisance, serves as a sensory marker of pollution, reinforcing distrust toward the farm's waste practices.

Using Waste Management Theory (Pongrácz, 2004), the persistence of foul odor reveals a systemic failure in minimizing waste emissions. Proper waste handling—through odor filtration, treatment facilities, or biogas recovery—could reduce air pollution, but the absence of such measures reflects inefficiencies in farm management. Residents' perceptions thus highlight not only immediate discomfort but also the consequences of neglected waste governance.

Table 2.3 Respondents' Perceived Impact on the Swine and Poultry Farm in terms of Water Resources N=150

Water Resources	**SA**	**A**	**D**	**SD**	**MODE**	**RANK**
I have observed that due to the swine and poultry farm...						
15. There is build-up of algae in the waterways.	86	47	14	3	SA	9
16. The waste run-off has contaminated nearby river.	130	19	1	0	SA	3
17. The waste run-off has caused fish kill in the river.	123	20	7	0	SA	5
18. The waste run-off has changed the color of nearby river.	137	11	2	0	SA	1
19. The waste has harmed the local waterways.	114	33	3	0	SA	6
20. The water emits foul odor.	78	59	10	3	SA	10

21. The water is not safe for consumption.	98	48	4	0	SA	7
22. The creek in our barangay is contaminated due to poor sewage system from the facility.	125	22	1	2	SA	4
23. The water is no longer fit for activities such as bathing, fetching water, and laundry washing.	133	15	1	1	SA	2
24. The polluted stagnant water has become a breeding-ground for mosquitos and other disease-carrying insects.	80	63	5	2	SA	8
Level of Perceived Impact on Swine and Poultry Farm	**F**			**%**		
Very High	126			84		
High	21			14		
Low	3			2		
Very Low	0			0		
SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree						

Table 2.3 illustrates that 84% of respondents perceived water-related impacts as "Very High." Key concerns included river discoloration, contamination, and loss of utility for domestic purposes. The observed algal blooms and fish kills mirror PCARRD's (2013) findings that livestock farms discharge nutrient-rich effluents into rivers, triggering eutrophication.

The theoretical framing underscores the significance of Waste Management Theory, which emphasizes that untreated waste runoff represents not only a lost resource (nutrients that could be repurposed as fertilizer or energy) but also a catalyst of ecological risk. By externalizing waste disposal into rivers, the farm shifts private benefits (profit from meat production) into collective costs borne by residents, a hallmark of what Beck (1992) calls "ecological modernization contradictions."

Table 3 Difference on Residents' Perception on Swine and Poultry Farm across Profile Categories

Profile	**Variable**		
	Health	**Odor**	**Water Resources**
Highest educational attainment	**0.0128***	**0.116**	**0.1480**
Estimated monthly income	**0.6403**	**0.197**	**0.4662**
Occupation	**0.2097**	**0.060**	**0.0838**
***Purok* address (distance)**	**0.1197**	**0.451**	**0.2092**
*P-values significant at 0.05 level of significance			

The Table 3 indicates that regardless of estimated monthly income, occupation, and *purok* address, all respondents convey the same negative perception. And among all the respondents' profile categories, there is only one (1) significant difference in all of the data set mainly in the Health category in relation to highest educational attainment as shown in the table. This implies that the higher educational attainment, the more knowledge is accumulated and therefore wider and deeper understanding of environmental issues. These

respondents also likely believed that the higher the exposure, the greater the risk when it comes from the swine and poultry farm. This result is supported by the study of (Wang et al., 2022), which brings forth compelling evidence of a strong connection between educational attainment and heightened pro-environmental attitudes and behaviors.

From a Risk Society perspective, this suggests that education enables residents to critically interpret risks, moving beyond mere experience of odor or illness to a broader recognition of systemic environmental hazards. This reinforces the need to integrate environmental education into community programs to empower informed collective action.

CONCLUSION

This study found that residents of Barangay Untaga, Alicia, Bohol perceive the swine and poultry farm as having strong negative impacts on health, odor, and water resources. Respondents frequently reported coughing, headaches, stress, and anxiety, linked to the farm's operations, while foul odors and poor air quality were seen as major nuisances. Water pollution was also strongly perceived, with issues such as river discoloration, fish kills, foul odor, and unsafe water use.

Statistical analysis showed that monthly income, occupation, and purok address did not significantly affect perceptions, but highest educational attainment was associated with stronger awareness of health impacts. This indicates that education plays a vital role in shaping environmental concern.

Overall, the study highlights that intensive swine and poultry farming poses serious environmental and health challenges. It underscores the need for stricter waste management, stronger regulatory enforcement, and collaborative action among government, farm operators, and residents to protect community welfare and ecological balance.

RECOMMENDATIONS

In light of the abovementioned findings and conclusions of this study, it is suggested that the following recommendations be taken into consideration:

1. Present the research study and the action plan to the Local Government Unit (LGU) of Alicia in formulating a responsive action towards the mitigation of the negative impact of extensive swine and poultry farm.

2. Future researchers may conduct further study that includes a larger number of sample sizes and multiple settings in order to maximize the results and findings.

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