

ANALYSIS OF GENDER EQUALITY IN HOUSEHOLD LIVELIHOODS OF DAIRY FARMERS POST-FOOT AND MOUTH DISEASE (FMD) (Survey in the KPSBU Lembang Work Area, West Bandung Regency)

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Abstract

Gender equality is an increasingly relevant issue for developing countries, including Indonesia. However, recognition of women's contribution to the livestock sector still needs to improve, as it affects their motivation to be more actively involved in the livestock business. The Foot and Mouth Disease (FMD) pandemic has become an additional challenge by causing a decrease in income from livestock activities. This research aims to examine the division of women's roles, analyze the impact of household characteristics on gender equality, and evaluate the level of gender integration among post-FMD livestock farmers. The research method used was simple random sampling and multinomial logit regression analysis. The research results in the role of women who are more active in diversifying sources of income, as well as the influence of household characteristics on gender equality in access to economic opportunities. In addition, the level of gender integration among farmers after the FMD has shown a responsive level of 56% and a transformative level of 44%, reflecting positive developments in gender practices and awareness in the livestock sector.

Keywords: Dairy farmers, Gender Integration, Foot and Mouth Disease

ANALISIS KESETARAAN GENDER DALAM PENGHIDUPAN RUMAH TANGGA PETERNAK SAPI PERAH RAKYAT PASCA PENYAKIT MULUT DAN KUKU (PMK)

(Survey di Wilayah Kerja KPSBU Lembang Kabupaten Bandung Barat)

Abstrak

Kesetaraan gender merupakan isu yang semakin relevan bagi negara berkembang, termasuk Indonesia. Namun, pengakuan terhadap kontribusi perempuan dalam sektor peternakan masih perlu ditingkatkan, karena berdampak pada motivasi mereka untuk lebih aktif terlibat dalam usaha peternakan. Pandemi Penyakit Mulut dan Kuku (PMK) menjadi tantangan tambahan dengan menyebabkan penurunan pendapatan dari kegiatan peternakan. Penelitian ini bertujuan untuk mengkaji pembagian peran perempuan, menganalisis dampak karakteristik rumah tangga terhadap kesetaraan gender, dan mengevaluasi tingkat integrasi gender pada peternak pasca-PMK. Metode penelitian yang digunakan adalah simple random sampling dan analisis regresi logit multinomial. Hasil penelitian menunjukkan peran perempuan yang lebih aktif dalam mendiversifikasi sumber pendapatan, serta pengaruh karakteristik rumah tangga terhadap kesetaraan gender dalam akses peluang ekonomi. Selain itu, tingkat integrasi gender di kalangan peternak pasca-PMK menunjukkan tingkat responsif sebesar 56% dan tingkat transformatif sebesar 44%, yang mencerminkan perkembangan positif dalam praktik dan kesadaran gender di sektor peternakan.

Kata Kunci: Peternak sapi perah, Integrasi Gender, Penyakit Kuku dan Mulut

INTRODUCTION

Gender discrimination is a widespread problem in various aspects of life, even though significant efforts to achieve equality have been made. In reality, however, these characteristics and discrimination levels vary across countries and regions (Zugman et al., 2023). Therefore, gender equality is considered a key issue in development because it is expected to strengthen the country's capacity to develop,

reduce poverty, and increase government effectiveness (Jayachandran, 2015). Indonesia, as a developing country, has its challenges regarding gender equality. Significant gender inequality is reflected in the higher index compared to surrounding countries. In the context of sustainable development, gender equality significantly impacts achieving development targets, as stated in point 5 of the SDGs (Agarwal, 2018).

Research has emphasized the importance of gender equality not only as a human right but also as a key to alleviating poverty and improving living standards. The involvement of women in the informal sector, especially in the agricultural and livestock sectors, reflects efforts to empower them by providing recognition for their contributions (Petros et al., 2018). However, gender challenges are also present in Indonesia's livestock sector, especially after the Foot and Mouth Disease (FMD) outbreak threatened livestock production and income. In this context, integrating gender equality in livestock farming households is important to face post-FMD challenges. Therefore, this research aims to understand the role of women in dairy farmer households after the FMD, analyze the influence of household characteristics on gender equality, and spread the level of gender integration among livestock farmers after the change.

Sampling Design

The data sources in this study consisted of primary data and secondary data. Primary data was obtained directly from the field through surveys, observations, and in-depth interviews. Quantitative data was collected using questionnaires, while qualitative data was collected through in-depth interviews that explored the factors that influence the distribution of gender roles in dairy farming in farmer households. Secondary data was obtained from written documents related to dairy farming in Lembang, West Bandung Regency, which were then analyzed and evaluated before being used as the main reference source.

The subjects of this research were women farmers who already had husbands. Random sampling was conducted on 250 women farmers entering the post-FMD phase. Out of 250 women farmers, 100 respondents were randomly selected as research subjects using a random sampling approach to avoid selection bias. The data obtained will provide an accurate picture of how farmers manage their businesses during and after the FMD period.

Data Analysis

By monitoring women's roles in managing livestock and household responsibilities post-FMD, the impact of the

crisis on gender roles in livestock farming households can be identified. This data allows evaluation of structural changes, the potential for increasing or decreasing gender equality, and women's adaptability in facing new challenges.

Using multinomial logit regression to analyze the effect of household characteristics on gender equality post-FMD provides a robust statistical approach, as this analytical tool allows modeling the probability of an observation belonging to one of the categories of the dependent variable based on the values of one or more independent variables. Thus, factors that significantly influence the achievement of gender equality in farming households post-FMD can be quantitatively identified, and variables such as income, education level, or other resources that influence gender equality can be evaluated, providing predictive probabilities for each category (de Jong et al., 2019).

Classifying the level of gender integration among livestock farmers after the pandemic through data will provide a deeper understanding of how far gender equality has been achieved. This includes decision-making roles, participation in agricultural activities, technology access, or empowerment programs. This analysis allows evaluating not only the existing level of gender equality but also specific areas where further improvements are needed to improve gender equality in livestock communities after the pandemic.

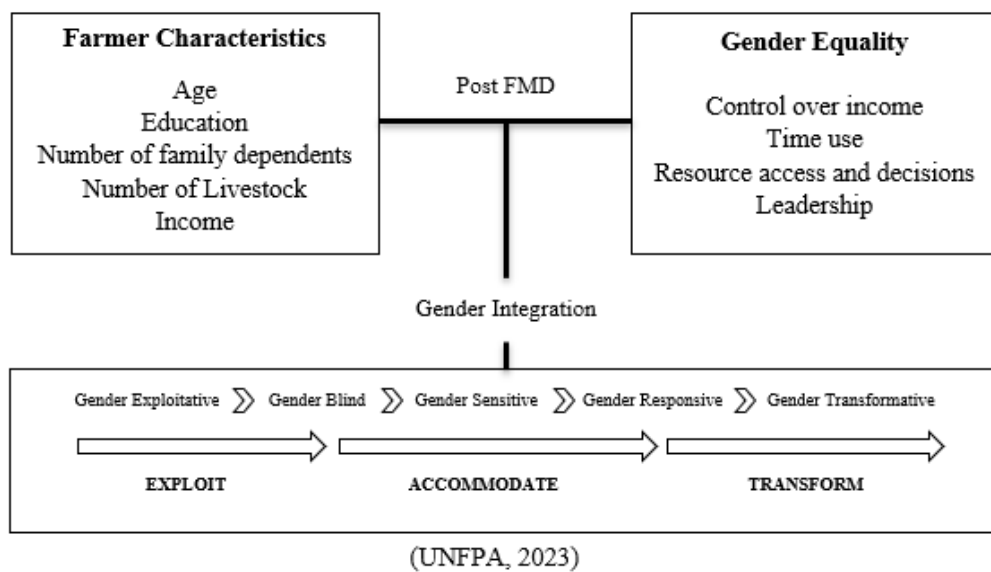
RESULTS AND DISCUSSION

At the cooperative and farmers' level, foot and mouth disease in livestock is a serious challenge, threatening animal welfare and reducing productivity and financial stability. Although the Cooperative (KPSBU) in Lembang successfully overcame the FMD case, it still needs to recover economically. The FMD outbreak caused a drastic decline in milk production from dairy cows, forcing cooperative members to demand increased milk prices and improved feed supplies. Post-FMD challenges are also felt at the individual farm level, where milk production recovery and livestock health management are the main focus. In addition, the role of women in livestock farming households is key in income diversification and family financial

management, playing an important role in accelerating the family's economic recovery post-FMD. Cooperation and coordination between all family members is the key to achieving successful economic recovery and improving overall family welfare.

The majority of respondents were middle-aged livestock farmers who may have extensive experience in animal husbandry. However, most of them have low levels of education, which may limit their access to information and technical innovation (Afzal et al., 2023). The family's many dependents mean they must balance family obligations with livestock management. Most farmers have a

small business scale, which can affect their production capacity and income. The low average income reflects the economic challenges livestock farmers face, which several factors, including limited business scale and low production efficiency, can cause (Goldstein et al., 2015). To improve the welfare of farmers, efforts are needed to increase access to training and technical information, as well as economic empowerment (Suvedi et al., 2017). Increasing market access and increasing business scale are also strategies that need to be considered to increase farmer income (Shete & Rutten, 2015).



Ilustrasi 1. Flow of the thinking framework for Farmer Characteristics with gender equality to identify the women farmers' level of gender integration.

Table 1. Characteristics of Farmers

Information	Number of Respondents (%)
Age (Lotfi & Abdollahi, 2012)	
- 18-30 years old	21
- 31-50 years old	60
- >51 years old	19
Amount	100
Education (Bilgiler Eğitimi Araştırmaları Dergisi et al., 2020)	
- Did not graduate / finish elementary school	49
- Junior High School	37
- High School / Bachelor' s degree	14
Amount	100
Family dependents (Buhr et al., 2018)	
- Low (<3 people)	27
- Medium (3-4 people)	52
- High (>4 people)	21
Amount	100

Livestock Ownership (Yuana, 2023)	
- Low (<3 cows)	39
- Medium (4-5 cows)	39
- High (>6 cows)	22
Amount	100
Average Income (Nations, 2009)	
- Low = < Idr1,865,400/ month	46
- Medium= Idr1,865,400 - Idr3,726,600 / month	40
- High = > Idr3,726,600 / month	14
Amount	100

Table 2. Gender Equality

No	Statement	Answers %					Amount
		SA	A	N	DA	SD	
1	Control Over Income	39	54	5	2	0	100
2	Use of work time in the family	19	69	10	2	0	100
3	Resource Access and Decisions	35	53	6	5	1	100
4	Leadership	12	55	19	13	1	100

A total of 54% of respondents agreed with the concept of control over income with their partner. Factors such as income diversity and economic and social conditions influence their views. Different understandings of income control also influence responses, as perceptions of them may vary. Personal values and views also play a role, with some respondents favoring tight control while others prefer freedom in managing income.

A total of 69% of respondents agreed with the importance of time management to balance work and family life, encouraging productivity and a better quality of life. In contrast, 19% of them strongly agreed based on their positive personal experiences with effective time management. At the same time, 10% may have a neutral view or be less concerned about time management; it may be due to differences in individual priorities or needs in time management.

Most respondents, 53%, agreed that access to and decisions regarding family resources are important for creating a balanced and harmonious environment. Meanwhile, 35% of them strongly agreed, indicating a positive view of active involvement in managing family resources. However, 6% of them may be less concerned about this issue due to a lack of awareness or attention to resource management in the household.

A total of 55% of respondents agree with women's leadership in the family and society, showing recognition of women's contribution in leading. Meanwhile, 12% of them strongly agreed, showing a positive view of women's leadership role. However, an average of 19% expressed indifference or a neutral view, perhaps influenced by traditional views or a lack of awareness of the importance of women's inclusion in leadership.

Multinomial Logit Regression Model Equation

The constant value of 4.397 indicates that an increasing level of variable X will significantly increase the probability of women farmers becoming Transformative. The farmer's age has a regression coefficient X1 of -2,589 (negative), indicating that the older the age, the lower the probability of being Transformative. Difficulty accepting the adoption of gender equality in old age may be due to getting used to rigid social norms regarding traditional gender roles (Unicef, 2020).

The regression coefficient X3 (Dependents) was 1.669 (positive), indicating that the higher the number of family dependents, the higher the level of gender integrity or towards Transformative. A large number of family dependents increases financial dependence, raising awareness of the

importance of recognizing the financial contribution of each individual, regardless of gender (Anderson et al., 2020).

The regression coefficient value X5 (Income) was -4.188 (negative), indicating that the higher the income, the lower the level of gender integration towards Transformative. People with high incomes tend to be less motivated to address gender inequality due to their financial security and tendency to maintain a status quo that benefits them (Greene et al., 2022).

Even though the number of livestock is not significant in the context of gender equality post-FMD pandemic, business diversification can increase family income regardless of gender differences, creating gender equality in

decision-making and economic contributions in farmer families. The economic emergency focuses on increasing incomes, but improving employment remains critical for long-term stability (Friedline et al., 2021). Daily life priorities and economic conditions that influence priorities can reduce the urgency of gender integration in the context of the FMD pandemic. In addition, the education level of livestock farmers did not have a significant impact on gender integration during the FMD pandemic because the focus was on immediate needs, such as food and health, and the decline in income shifted attention from long-term issues, such as gender integration, to the immediate needs for day-to-day survival (Alvi et al., 2023).

Table 3. Parameter Estimates

Integritas_Gender ^a	B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
							Lower Bound	Upper Bound
Intercept	4.397	1.590	7.652	1	.006			
[Age=1]	-2.589	.945	7.508	1	.006	.075	.012	.478
[Age=2]	-1.587	.777	4.175	1	.041	.205	.045	.937
[Age=3]	0 ^b	.	.	0	.	.	.	.
[Education=1]	-1.111	.883	1.583	1	.208	.329	.058	1.858
[Education=2]	-.794	.880	.814	1	.367	.452	.081	2.537
[Education=3]	0 ^b	.	.	0	.	.	.	.
[Dependents=1]	.290	.740	.153	1	.696	1.336	.313	5.701
[Dependents=2]	1.669	.713	5.473	1	.019	5.305	1.311	21.472
[Dependents=3]	0 ^b	.	.	0	.	.	.	.
[Cow=1]	.293	1.024	.082	1	.774	1.341	.180	9.968
[Cow=2]	1.014	.805	1.585	1	.208	2.756	.569	13.358
[Cow=3]	0 ^b	.	.	0	.	.	.	.
[Income=1]	-4.188	1.511	7.683	1	.006	.015	.001	.293
[Income=2]	-2.881	1.285	5.027	1	.025	.056	.005	.696
[Income=3]	0 ^b	.	.	0	.	.	.	.

a. The reference category is: Gender_Transformative.

b. This parameter was set to zero because it was redundant.

Table 4. Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	108.489			
Final	74.741	33.748	10	.000

Table 5. Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	62.632	50	.108
Deviance	58.500	50	.192

Table 6. Classification

Observed	Predicted		
	Gender_Responsive	Gender_Transformative	Percent Correct
Gender_Responsive	43	14	75.4%
Gender_Transformative	13	30	69.8%
Overall Percentage	56.0%	44.0%	73.0%

Simultaneous Significance Test

Table 4 explains that the analysis results show a significance value of 0.000, lower than the significance limit of 0.05, resulting in the rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_a). This shows a significant influence of at least one independent variable on Gender Equality literacy. This finding aligns with those who emphasized the importance of these factors in increasing literacy and integrating gender equality in society.

Model Fit Test

Based on Table 5, the sig value obtained was $0.108 > 0.05$. Therefore, the null hypothesis (H_0) was accepted (Model Fit), and the resulting logistic regression model was considered fit the data well (Gio & Rosmaini, 2016)

Classification Accuracy

Based on Table 6, from a total of 57 respondents, the majority of them were at the Gender Responsive integration level. In this group, 14 respondents are predicted to move to the Gender Transformative level of integration. The prediction has a correctness rate of 75%, indicating good accuracy. Overall, the level of Gender Responsive integration reached 56%, while the level of Gender Transformative integration was 44%. Even though the number of respondents who entered the Gender Transformative level was smaller, predictions for this category had an accuracy rate of 73%. The Classification Table results provide a clear picture of the distribution of respondents between the two levels of gender integration and the accuracy of predictions in identifying transitions between integration categories.

CONCLUSION

Understanding and acknowledging the pivotal role of women in farming households

post-FMD management is crucial for achieving sustainable economic recovery and enhancing family welfare. Recognizing women's contributions to animal care, family financial management, and income diversification is essential for sustainable economic recovery and improved family well-being. The influence of household characteristics on gender equality post-FMD highlights the complexity of their relationship, where factors such as age, family responsibilities, and income play crucial roles. Analysis results suggest that differences in household characteristics can affect gender equality integration in accessing economic opportunities. Furthermore, the level of gender integration among farmers post-FMD demonstrates responsiveness and transformative potential. Most respondents exhibit a responsive level of gender integration, with some predicted to reach a transformative level, indicating that awareness and actions related to gender equality have become integral parts of daily practices within the farming community.

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