

Factors Influencing the Incidence of Leptospirosis in the Work Area of the Tulakan Community Health Center, Pacitan Regency in 2025

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Keywords: *Factors, Leptospirosis, Incidence*

Abstract: Leptospirosis is zoonotic diseases caused by by bacteria *Leptospira* interrogation and transmitted from animal to man through contact direct with urine infected animals or polluted environment. Animals transmitter main is mice, although dogs, cows, and pigs can also become a reservoir. Research purposes this aim for analyze factor Gender and age risk factors influence the incidence of leptospirosis. in the working area of the Tulakan Community Health Center, Pacitan Regency in 2025. Method: Research observational analytic with a case control approach. Sample study This amounts to 84 people, for sample case totaling 42 people taken from all leptospirosis sufferers in January – August 2025 and for the control sample totaling 42 people with purposive sampling technique. Data collection using technique observation of secondary data, then data analysis in this study is analysis univariate (frequency distribution), bivariate analysis (chi square test). Results: Results study This show that There is no relationship between gender and the incidence of leptospirosis ($p=0.274$) and there is no relationship between age and the incidence of leptospirosis ($p=0.867$). Conclusion: There is no relationship between gender and age with the incidence of leptospirosis in the work area of the Tulakan Community Health Center, Pacitan Regency in 2025.

1 INTRODUCTION

Leptospirosis is zoonotic diseases caused by by bacteria *Leptospira* interrogation and transmitted from animal to man through contact direct with urine infected animals or polluted environment. Animals transmitter main is mice, although dogs, cows, and pigs can also become a reservoir. According to the World Health Organization (WHO), leptospirosis is a disease that is often underreported because its symptoms resemble other diseases such as typhoid fever, malaria, or dengue, so it is often misdiagnosed. WHO estimates that there are more than 1 million cases of leptospirosis each year globally, with a death rate reaching 58,900 cases per year. The case fatality

rate (CFR) varies between 5–15%, especially in severe cases such as Weil's disease (with kidney failure and bleeding) and leptospirosis with pulmonary hemorrhage syndrome (SPHS).

Ministry Health, on 2019 recorded as many as 920 cases with 122 deaths so that the case fatality rate (CFR) reaches around 13.3%. Amount case return increase on 2020 with reported around 1,170 cases and 106 deaths. On In 2022, 1,408 cases were reported with 139 deaths (CFR \approx 9.9 %). Province with case highest including Central Java, Java East Java, Special Region of Yogyakarta, West Java, and Banten, with peak case usually happen on season rain

(Ministry of Health of the Republic of Indonesia, 2024).

Mortality rate the effects of leptospirosis in Indonesia are relatively tall and in a number of report even exceed number death due to COVID-19 on the same period. Triggering factors height cases in Indonesia include rainfall Rain high, flood, sanitation bad environment, high population mice, and exposure people working in the sector agriculture. Conditions This making leptospirosis a Wrong One disease infectious necessary priorities get attention through surveillance strict, early diagnosis, reservoir control (rats), and education community. According to a report from the East Java Health Office, throughout 2023, 249 cases of leptospirosis were recorded in East Java, with 9 deaths. This represents a spike compared to the previous year, when 606 cases were reported in 2022. In 2023, Pacitan Regency contributed the majority, with 204 cases and 6 deaths (East Java Health Office, 2024).

In addition to environmental factors, gender and age also influence the occurrence of leptospirosis. Men are reported to be at higher risk than women. This is due to differences in daily activities, with men more frequently involved in jobs or activities that carry a high risk of contact with contaminated water or soil, such as farming, livestock raising, working in rice fields, irrigation, or other field activities. Research in Indonesia and several endemic countries reports that the proportion of male leptospirosis sufferers can reach 70–80% of total cases. In addition to gender, the productive age group (15–55 years) is reported to be the age group most frequently infected. This is related to environmental exposure and involvement in work activities. Those of productive age tend to be more active working in rice fields or

outdoor environments, thus increasing the chance of exposure to *Leptospira* bacteria. Elderly individuals (>50 years) are at higher risk of developing a severe form of leptospirosis (Weil's disease), resulting in higher mortality rates in this age group.

The results of Putri et al.'s research (2025) stated that men suffered more from leptospirosis than women with a ratio of men (51.1%) and women (48.9%) from 47 cases of leptospirosis while in terms of age, those aged <30 years were more affected by leptospirosis as much as (55.3%) from 47 cases of leptospirosis. In January-August 2025, the number of leptospirosis cases in the Tulakan Community Health Center Working Area was 42 cases. (Tulakan Community Health Center, 2025)

Based on the background description above, the research This aim For analyze factor Gender and age risk factors influence the incidence of leptospirosis. in the working area of the Tulakan Community Health Center, Pacitan Regency in 2025.

2 METHOD

Type This research is a research observational analytic with a *case control approach*. Sample study This amounts to 84 people, for sample case totaling 42 people taken from all leptospirosis sufferers in January – August 2025 and for the control sample totaling 42 people with a *purposive sampling technique* with a control population of 125 people. Data collection using technique observation of secondary data, then data analysis in this study is analysis univariate (frequency distribution), bivariate analysis (chi square test)

3 RESULT

Table 1. Distribution Frequency Leptospirosis Incidence Based on Gender and Age

Variables	Case (n=42)	Control (n=42)
Type Sex		
Man	25 (59.5%)	20 (47.6%)
Woman	17 (40.5%)	22 (52.4%)
Age		
14-25 years	5 (11.9%)	4 (9.5%)
26-45 year	12 (28.6%)	14 (33.3%)
46-65 years	25 (59.5%)	24 (57.2%)

Table 1 above, show based on gender group case dominated males, namely 25 (59.5%), while in the control group, the majority were females, namely 22 (52.4%). Furthermore, based on age, group case dominated age 46-65 years namely 25 (59.5%) while in the control group it was dominated by age 46-65 years namely 24 (57.2%).

Table 2. Results of Bivariate Analysis of Gender and Age Factors on Incident Leptospirosis in the working area of the Tulakan Community Health Center, Pacitan Regency in 2025

Variables	Cases (n=42)	Control (n=42)	P- value
Type Sex			
Man	25 (59.5%)	20 (47.6%)	0.274
Woman	17 (40.5%)	22 (52.4%)	
Age			
14-25 years	5 (11.9%)	4 (9.5%)	0.867
26-45 year	12 (28.6%)	14 (33.3%)	
46-65 years	25 (59.5%)	24 (57.2%)	

Based on table 2 above, it shows that There is no relationship between gender and the incidence of leptospirosis ($p=0.274$) and there is no relationship

between age and the incidence of leptospirosis ($p=0.867$)

4 DISCUSSION

Distribution Frequency Leptospirosis Incidence Based on Gender and Age. For gender in group case dominated the majority of the men were 25 (59.5%), while the control group was dominated by women, namely 22 (52.4%). The description above is in accordance with the research results of Harisa (2022), who stated that the leptospirosis sufferers in his research were of the type sex dominated by type sex man that is 33 (82.5%) respondents from 40 respondents, where men are more often involved in jobs or activities that have a high risk of contact with contaminated water or soil, such as farming, livestock, working in rice fields, irrigation, or other field activities. Furthermore, based on age, group case dominated age 46-65 years namely 25 (59.5%) while in the control group it was dominated by age 46-65 years That is, 24 (57.2%). Most of the population aged 46 years and over are still actively working in agriculture, animal husbandry, and other field activities that frequently involve contact with water, mud, or rice fields that may be contaminated with rat urine. This group is more likely to be in rice fields during the rainy season or harvest, which are peak periods for leptospirosis transmission.

Results analysis bivariate factor gender and age of incident leptospirosis in the working area of the Tulakan Health Center, Pacitan Regency in 2025, shows that There is no relationship between gender and the incidence of leptospirosis ($p = 0.274$) and there is no relationship between age and the incidence of leptospirosis ($p = 0.867$). The above description is

in line with the research results of Harisa (2022), which states that gender and age have no relationship with the incidence of leptospirosis in the city of Semarang with a value ($P = 1.000$), further research by Okatini et al. (2007), which states that gender and age have no relationship with the incidence of leptospirosis in Jakarta with a value of gender ($P = 0.770$) and age ($P = 0.663$). The similarity of exposure levels for both men and women is that they both work or are active in risky environments (for example, agriculture, livestock, or houses near rice fields and rivers). So, there is no significant difference in exposure to sources of infection. and young and old are equally exposed to risk. Both young and old often work in the rice fields, help with the harvest, or are in the same environment. This causes a relatively equal risk pattern between age groups.

Other risk factors, such as behavioral factors (e.g., not wearing boots, working in flooded rice fields, or having a house near a river), often influence leptospirosis more strongly than age. Environmental exposure and behavioral factors are more influential than biological factors, and socioeconomic conditions in endemic areas place men, women, and young and old at equal risk.

5 CONCLUSIONS

- Based on gender on group case dominated males, namely 25 (59.5%), while in the control group, the majority were females, namely 22 (52.4%). Furthermore, based on age, group case dominated age 46-65 years namely 25 (59.5%) while in the control group it was dominated by age 46-65 years namely 24 (57.2%)

- There is no relationship between gender and age with the incidence of leptospirosis in the work area of the Tulakan Community Health Center, Pacitan Regency in 2025.

6 SUGGESTION

- For the community, the community should receive education about leptospirosis and prevention and control efforts on a regular basis.
- For Service Health/Community Health Center that is maximize the surveillance system in effort prevention and control leptospirosis, carry out detection early/screening in area endemic/high cases, do education/counseling about Leptospirosis as well as effort prevention And its control in a way routine.
- For other researchers to do study related factor risk of leptospirosis with large samples with different areas.

7 REFERENCES

- East Java Provincial Health Office. (2024). East Java Provincial Health Profile 2023. Surabaya: East Java Health Office.
- Harisa EK. (2022). Factors that Influence Incident Leptospirosis in City Semarang. [Thesis]. Semarang: Study Program Health Public Unnes Postgraduate.
- Ministry of Health of the Republic of Indonesia. (2024). Indonesian Health Profile 2023. Jakarta: Ministry of Health of the Republic of Indonesia.
- Okatini et al. (2007). The Relationship between Environmental Factors and Individual

Characteristics to the Incidence of Leptospirosis in Jakarta, 2003-2005. *Makara, Health*, 11 (1), 2007.

Tulakan Health Center. (2025). *Leptospirosis Case Data in 2025*. Pacitan: Tulakan Health Center.

Putri et al. (2025). Description Factor Environment and Behavior Incident Leptospirosis in the Blud UPTD Bennu-Benu Community Health Center Work Area in 2022-2024. *Journal Health Environment*, 6 (1), 2025.

World Health Organization. (2020). *Human leptospirosis: guidance for diagnosis, surveillance and control* (2nd ed.). Geneva: WHO Press. Retrieved from <https://www.who.int/publications/i/item/human-leptospirosis-guidance-for-diagnosis-surveillance-and-control>.