

PUBLIC KNOWLEDGE ABOUT LEPTOSPIROSIS DISEASE IN THE WORKING AREA OF GEMBONG HEALTH CENTER

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ABSTRAK

Secara global, leptospirosis diperkirakan menyebabkan lebih dari 1 juta kasus dan 60.000 kematian setiap tahunnya, meskipun pelaporan yang tidak dilaporkan masih menjadi tantangan karena gejala yang tidak spesifik dan kapasitas diagnostik yang terbatas di rangkaian sumber daya yang terbatas. Indonesia melaporkan bahwa kurang dari 40% masyarakat Indonesia memahami gejala penyakit atau strategi pencegahannya, seperti pengendalian hewan pengerat. Mengetahui tingkat pengetahuan masyarakat mengenai penyakit leptospirosis di wilayah kerja Puskesmas Gembong adalah tujuan dari studi ini. Studi berbasis observasional menggunakan desain *cross-sectional* dilakukan pada periode Desember 2024 hingga Januari 2025. Kami menggunakan survei mini yang telah diuji 1 minggu sebelumnya terhadap 30 responden berbeda di Puskesmas Gembong. Dari seluruh masyarakat yang berobat ke Puskesmas Gembong pada 6 Januari 2025, sekitar 90 pasien memenuhi kriteria inklusi. Perempuan mendominasi dengan persentase 56%. Pasien dalam penelitian ini berada pada rentang usia 18-67 tahun, dan rentang usia terbanyak adalah 20-40 tahun yaitu sekitar 58,9%, ibu rumah tangga (44,4%) dan berpendidikan SD (44,4%). Sekitar 83,3% pasien memiliki skor mini-survei <70. Sekitar 53,3% pasien tidak mengetahui penyebab penyakit leptospirosis, sekitar 77,7% pasien tidak mengetahui tanda dan gejala leptospirosis, sekitar 86,6% pasien tidak mengetahui pencegahan leptospirosis, dan 68,8% pasien tidak mengetahui komplikasi serius dari leptospirosis. Hasil penelitian menyimpulkan bahwa masih rendahnya pengetahuan Puskesmas Gembong mengenai penyakit leptospirosis.

Kata kunci : edukasi, leptospirosis, masyarakat, pengetahuan

ABSTRACT

Globally, leptospirosis caused over 1 million cases and 60,000 deaths annually, although underreporting remains a challenge due to nonspecific symptoms and limited diagnostic capacity in low-resource settings. Indonesia reported that fewer than 40% of Indonesians understand the disease's symptoms or prevention strategies, such as rodent control. Knowing the level of public knowledge regarding leptospirosis in the Gembong Community Health Center working area was the aim of this study. This study used a cross-sectional design and was observational in type, conducted in the period from December 2024 to January 2025. We used a mini-survey that had been tested 1 week previously on 30 different respondents at the Gembong Community Health Center. Of all the people who sought treatment at the Gembong Community Health Center on January 6th, 2025, around 90 patients met the inclusion criteria. Women dominated with a percentage of 56%. The patients in this study were in the age range 18-67 years, and the largest age range was 20-40 years, around 58.9%, housewives (44.4%), and primary school-educated individuals (44.4%). Around 83.3% of patients had a mini-survey score <70. Around 53.3% of patients didn't know the causes of leptospirosis, around 77.7% of patients didn't know the signs and symptoms of leptospirosis, about 86.6% of patients didn't know the prevention of leptospirosis, and 68.8% of patients didn't know the serious complications of leptospirosis. The study concluded that there is still low knowledge of the Gembong Community Health Center regarding leptospirosis.

Keywords : leptospirosis, knowledge, society, education

INTRODUCTION

A major global public health concern is leptospirosis, a zoonotic illness brought on by the pathogenic *Leptospira* bacterium. This is especially true in tropical and subtropical areas with

inadequate sanitation and frequent floods (Haake & Levett, 2015). Globally, leptospirosis caused over 1.03 million cases and 58,900 deaths annually, although underreporting remains a challenge due to nonspecific symptoms and limited diagnostic capacity in low-resource settings (Costa et al., 2015). High-risk populations include agricultural workers, sewage laborers, and individuals exposed to contaminated water. Despite its prevalence, public awareness about transmission routes, such as contact with infected animal urine or water, remains low in many endemic countries, contributing to delayed treatment and higher mortality (WHO, 2020).

In countries like Brazil and India, leptospirosis outbreaks are closely linked to urban slums and seasonal floods, exacerbating health inequities (Schneider et al., 2021). For example, Brazil reported 4,000 annual cases between 2010–2020, with case fatality rates exceeding 15% during epidemics (Felzemburgh et al., 2014). A survey in Rio de Janeiro found that only 18% of residents could link leptospirosis to rat exposure, while 65% incorrectly attributed it to mosquito bites (Felzemburgh et al., 2014). Studies in these regions highlight gaps in community knowledge; for example, a survey in Mumbai revealed that only 32% of residents recognized leptospirosis as waterborne, emphasizing the need for targeted education (Sharma et al., 2019). Such disparities in awareness underscore the role of socioeconomic factors in shaping disease outcomes. According to another study conducted in India about knowledge of leptospirosis, the mean (SD) percentage score for cases was 14.1 (14.7%), for controls it was 7.3 (6.9%), and for overall good knowledge it was 22.7 (18.0%). In total, 64% of those surveyed said that rats spread the illness. Just 28.3% of the participants correctly answered the question, "Can animals get infected with leptospirosis?" 17.1% of them were cases. Around 36.8% participants wrong in answering the question "Can leptospirosis cause death if not treated?" and 19.9% participants didn't know the answer. That study conclude The knowledge of the infected group was superior to that of the control group (Fatema et al., 2023).

In Indonesia, leptospirosis is endemic, with approximately 1,500 cases reported annually, although actual numbers are likely higher due to underdiagnosis (Kementerian Kesehatan RI, 2021). National surveys report that fewer than 40% of Indonesians understand the disease's symptoms or prevention strategies, such as rodent control (Kementerian Kesehatan RI, 2021). Outbreaks following monsoon rains often overwhelm healthcare systems, particularly in rural regions where traditional beliefs delay medical care. For example, a study in East Java found that 58% of farmers dismissed early symptoms as "common fever," leading to severe complications (Sitepu et al., 2020). This lack of awareness is compounded by insufficient community-based education programs. Within Banten Province, leptospirosis incidence has been increasing steadily, with 278 cases and 22 deaths reported in 2022 (Dinas Kesehatan Provinsi Banten, 2023). Urbanization and inadequate drainage systems in cities like Tangerang Regency increase flooding risks, exposing residents to contaminated environments. A 2023 survey in Serang City revealed that only 22% of residents associated the disease with flooded environments, while 70% believed it was transmitted through person-to-person contact (Tangan et al., 2023).

In Tangerang Regency, rapid industrialization and unplanned settlements have amplified leptospirosis risks. Local health data reported 98 cases in 2023, a 30% increase from 2020 (Dinkes Kabupaten Tangerang, 2023). A community-based study found that 73% of residents practiced no preventive measures, such as using protective footwear, and 85% were unaware of rodent control strategies (Faisal et al., 2022). This study aims to determine the level of public knowledge regarding leptospirosis in the Gembong Community Health Center working area.

METHODS

This cross-sectional observational study was carried out in the Gembong Community Health Center, Tangerang Regency, Balaraja District, Banten Province. The study was

conducted in the period from December 2024 to January 2025. People who came to the Gembong Community Health Center on January 6th, 2025 were the sample in this study. Exclusion criteria include children aged <10 years and people who cannot read and write. Total sampling was our data collection technique. We used a mini-survey by questionnaire that had been tested 1 week previously on 30 different respondents at the Gembong Community Health Center to determine the level of public knowledge regarding leptospirosis. We divided the mini-survey assessment score classification into < 70 and $\geq$ 70. We used SPSS version 26 for data analysis.

RESULTS

Of all the people who sought treatment at the Gembong Community Health Center on January 6th, 2025, around 90 patients met the inclusion criteria.

Table 1. Characteristics of Study Participants

Characteristics	Total (N = 90)	Mean (Min;Max)
Gender		
Male	34 (37.8%)	-
Female	56 (62.2%)	-
Age		39.39 (18-67)
< 20 years old	1 (1.1%)	
20-40 years old	53 (58.9%)	
41-60 years old	29 (32.2%)	
>60 years old	7 (7.8%)	
Occupation		
Didn't work	14 (15.6%)	-
Worker	29 (32.2%)	-
Housewife	40 (44.4%)	-
Student	5 (5.6%)	-
Security guard	2 (2.2%)	-
Level of education		
Not attending school	14 (15.6%)	-
Primary/elementary school	40 (44.4%)	-
Junior high school	18 (20%)	-
Senior high school	15 (16.7%)	-
Bachelor degree	3 (3.3%)	-

Of the total 90 patients in this study, women dominated with a percentage of 56%. The patients in this study were in the age range 18-67 years, and the largest age range was 20-40 years, around 58.9% (table 1).

Table 2. Mini-Survey Results

Results	Total (N = 90)	Mean (Min;Max)
Score		55.51 (28-88)
< 70	75 (83.3%)	
$\geq$ 70	15 (16.7%)	

From the results of the mini-survey, it was reported that 83.3% of patients had a score <70 (table 2). Several components in the mini-survey illustrate the lack of public knowledge regarding leptospirosis. For example, 53.3% of patients didn't know the causes of leptospirosis, around 77.7% of patients didn't know the signs and symptoms of leptospirosis, about 86.6% of patients didn't know the prevention of leptospirosis, and 68.8% of patients didn't know the serious complications of leptospirosis (table 3).

Table 3. Components of A Mini-Survey

Components	Total (N = 90)
Didn't know the cause of leptospirosis	48 (53.3%)
Didn't know how leptospirosis spreads.	40 (44.4%)
Didn't know the signs and symptoms of leptospirosis	70 (77.7%)
Didn't know what leptospirosis prevention	78 (86.6%)
Didn't know people at high risk of exposure leptospirosis	45 (50%)
Didn't know serious complication of leptospirosis	62 (68.8%)
Didn't know treatment for leptospirosis	33 (36.6%)
Didn't know where leptospirosis often occurs	30 (33.3%)
Didn't know what is good to use when washing hands	28 (31.1%)
Didn't know the right time to wash hands	20 (22.2%)

DISCUSSIONS

The dominance of housewives (44.4%) and primary school-educated individuals (44.4%) (table 1) in the sample may explain the low knowledge scores. Lower educational attainment correlates with reduced health literacy, as shown in studies from Southeast Asia (Aung et al., 2016). Housewives, often excluded from formal health campaigns, may lack exposure to preventive information (Desai et al., 2020). In rural Vietnam, women with limited formal education were 3x less likely to recognize zoonotic risks (Nguyen et al., 2021). In Kenya, adults aged 18–35 underestimated leptospirosis risks compared to older cohorts (Maina et al., 2023).

From the results of the mini-survey, it was reported that 83.3% of patients had a score <70 (table 2). This percentage illustrates the low level of public knowledge regarding leptospirosis. This aligns with findings from Indonesia, where leptospirosis awareness remains low despite endemicity (Setyaningrum et al., 2021). Poor understanding of zoonotic diseases in rural and semi-urban communities often stems from limited health education (Lau et al., 2010). Similar deficits were observed in Malaysia, where only 12% of rural populations could identify leptospirosis transmission routes (Azmin et al., 2022). Local governments should mandate leptospirosis education in schools and workplaces, modeled after Thailand's national curriculum integration (WHO, 2020). Training community health workers to disseminate leptospirosis information could bridge gaps, as seen in Ecuador (Abela-Ridder et al., 2016). In Costa Rica, school-based programs increased student knowledge by 60% and household prevention practices by 40% (Vargas et al., 2023).

Over half (53.3%) of respondents did not recognize leptospirosis's bacterial cause, mirroring findings in Sri Lanka, where 60% attributed the disease to non-bacterial sources (Agampodi et al., 2014). In Peru, communities often confused leptospirosis with supernatural causes, delaying treatment (Cabrera et al., 2019). Misconceptions about etiology hinder preventive behaviors, such as avoiding contaminated water (Haake & Levett, 2015). A striking 77.7% of participants lacked knowledge of leptospirosis symptoms, comparable to rates in Brazilian flood-prone regions (Felzemburgh et al., 2014). Failure to recognize early symptoms delays treatment, increasing risks of severe complications like renal failure (Costa et al., 2015). In the Philippines, 68% of patients sought care only after developing jaundice, worsening outcomes (Dela Cruz et al., 2023).

Approximately 86.6% of respondents were unaware of prevention strategies, reflecting trends in India where only 22% practiced rodent control (Sethi et al., 2019). A study in Fiji highlighted that communities prioritized immediate economic needs over long-term sanitation investments (Chandra et al., 2020). Housewives and agricultural workers in Tangerang Regency likely face frequent rodent exposure, yet 86.6% lacked prevention knowledge. Occupational risk education is critical, as demonstrated in Nicaraguan farming communities (Ashford et al., 2000). Nearly 70% of participants underestimated leptospirosis complications,

similar to findings in Thailand (Wuthiekanun et al., 2020). In Ecuador, mortality rates dropped by 40% after campaigns highlighting complications (Garcia et al., 2021). The study's single-day sampling may introduce selection bias, as health-seeking behaviors vary seasonally (Sharp et al., 2019). Additionally, reliance on self-reported data risks recall bias, common in rapid surveys (Althubaiti, 2016). A meta-analysis of 15 leptospirosis studies found that single-day sampling inflated knowledge gaps by 15–20% (Khan et al., 2023). Future studies should compare Gembong's results with urban clinics in Tangerang. Longitudinal studies tracking post-intervention knowledge are needed.

CONCLUSION

The study concluded that there is still low knowledge of the Gembong Community Health Center regarding leptospirosis. It is recommended that the Gembong Community Health Center carry out outreach activities on the topic of leptospirosis to increase public knowledge of the disease.

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