



Original Research



Prevalence, Lesion Characteristics, Risk Factors of Scabies Transmission in Cats (*Felis catus*) at Go Pet Care Animal Clinic (2020-2022)

¹Sarah Azzahra Dwi Dara , ²Nisa Fauziah , ^{2*}Shafia Khairani

¹Undergraduate Student of Veterinary Medicine Study Program, Faculty of Medicine, Padjadjaran University, Bandung, Indonesia

²Department of Biomedical Science, Faculty of Medicine, Padjadjaran University, Bandung, Indonesia

*Corresponding author: shafia@mail.unpad.ac.id

ABSTRACT

The COVID-19 pandemic (2019-2021) resulted in a surge in pet adoptions, potentially elevating the risk of various diseases in domestic cats, including scabies. Scabies, a highly contagious dermatological condition, is primarily caused by parasitic mites such as *Notoedres cati* and *Sarcoptes scabiei*. This study aimed to investigate the prevalence, clinical manifestations, and associated risk factors of scabies in domestic cats at Go Pet Care Animal Clinic in West Bandung Regency over the period from 2020 to 2022. Utilizing a cross-sectional study design, secondary data were extracted from medical records and analyzed using Microsoft Excel and SPSS version 29.0.1.0. A chi-square test was performed with a 95% confidence level ($\alpha = 0.05$) to assess the statistical significance of the findings. Out of 71 cats diagnosed with scabies, the highest incidence was observed in cats under one year of age (kittens), long-haired breeds, and females. The prevalence of scabies showed a significant increase, rising from 2% to 11.2% over the study period. Common clinical manifestations included alopecia and crusting. Statistical analysis revealed that age was a significant risk factor influencing the prevalence of scabies. These findings underscore the need for heightened awareness and preventive measures for scabies, particularly in younger and long-haired cats.

ARTICLE INFO

Article history

Received: August, 8th 2024
Revised: January, 24th 2025
Accepted: January, 24th 2025
Published: March, 15th 2025

Keywords

Alopecia,
Clinical features,
Crust,
Go Pet Care Animal Clinic,
Scabies.

INTRODUCTION

The COVID-19 pandemic, which spanned from 2019 to 2021, had profound effects on various aspects of society, including mental health. In response to increased stress and isolation, many individuals turned to pet adoption as a means of emotional support, with domestic cats being a popular choice (Febriani, 2021). However, the rising number of adopted cats has also highlighted a concurrent issue: the prevalence of dermatological conditions, particularly scabies. Scabies, a skin disease caused by infestations of parasitic mites such as *Notoedres cati* and *Sarcoptes scabiei*, is among the most prevalent dermatological conditions affecting both domestic and wild felines (Kumar *et al.*, 2008; Cahya, Primarizky and Yunita, 2022).

This condition is highly contagious and can spread rapidly among cats, with symptoms including intense itching that leads to widespread lesions and secondary infections exacerbated by scratching (Dewi *et al.*, 2022). If left untreated, scabies can result in significant hair loss and severe excoriation, compromising the overall health of affected animals (James, 2016).

Historical data reveals a notable prevalence of scabies in domestic cats, with a reported 3.7% incidence rate in Yogyakarta from January to August 2012 (Amalia, 2013). A subsequent study encompassing 1,152 cats across eight Asian countries during 2017-2018 identified Indonesia as having the highest incidence rate, particularly in urban areas such as Jakarta, Bogor, and Yogyakarta,



where 34.6% of cats were infested with *Notoedres cati* (Colella *et al.*, 2020). The expanding cat population in Bali further exacerbates the risk of scabies transmission (Sivajothi, Bhavanam and Venkatasivakumar, 2015).

Several factors, including sex, breed, and age, influence the susceptibility to scabies. Kittens, with their developing immune systems, are particularly vulnerable to infestations (Hellmann *et al.*, 2013). The presence of specific lesions, such as hyperkeratosis characterized by thickening of the stratum corneum can serve as an initial indicator of scabies (Yudhana *et al.*, 2021). Despite the increasing incidence of scabies in Indonesia, there is a notable lack of data on its prevalence in West Java. This study aims to address this gap by evaluating the prevalence, lesion characteristics, and risk factors associated with scabies in domestic cats (*Felis catus*) at Go Pet Care Animal Clinic from 2020 to 2022. This study intends to look at the factors that lead to skin conditions in cats, the prevalence of scabies in cats admitted to Go Pet Care Animal Clinic on 2020 - 2022, and possible ways to prevent it in order to lower the number of cases of scabiosis. Additionally, the findings will provide critical insights for mapping the distribution of scabies in West Java and inform effective disease control strategies.

MATERIALS AND METHODS

This study employed a cross-sectional design to investigate the clinical features of scabies in domestic cats (*Felis catus*) at Go Pet Care Animal Clinic from 2020 to 2022. Data were sourced from secondary records within the clinic's medical database during this period. The sample was selected through purposive sampling, focusing on cases diagnosed with scabies at the clinic. In addition, examinations were also conducted on cats experiencing similar cases as supporting data from the clinic's medial database. Data was collected from patients being treated at Go Pet Care Animal Clinic while research is in progress.

The study was conducted at Go Pet Care Clinic, located in West Bandung Regency. The collected data were systematically analyzed using Microsoft Excel and the Statistical Program for Social Sciences (SPSS) Version 29.0.1.0. Descriptive statistics were utilized to assess and present the prevalence rates, lesion characteristics, and associated risk factors of scabies in the sampled population. The findings were organized into tables and detailed descriptions to facilitate a comprehensive understanding of the scabies cases observed at the clinic.

RESULTS AND DISCUSSION

From 2020 to 2022, Go Pet Care Animal Clinic in Cimareme, West Bandung Regency, recorded a total of 3,081 cat patients. The annual distribution of patients was 399 in 2020, 1,713 in 2021, and 969 in 2022. Among these, 176 cats were diagnosed with scabiosis, with 71 cases selected for detailed analysis. These cases were confirmed through microscopic examination and clinical observations of pruritus, alopecia, and crusting—common indicators of scabiosis.

The data reveal a significant rise in scabiosis prevalence over the study period. As shown in Table 1, the average prevalence of scabiosis from 2020 to 2022 was 5.5%. The prevalence increased from 2% in 2020 to 3.2% in 2021, and surged to 11.2% in 2022. Correspondingly, the number of scabiosis cases grew from 3 in 2020 to 23 in 2021, and 45 in 2022. This upward trend in prevalence aligns with an increased adoption rate of cats, potentially due to pandemic-related stress (Cahya, Primarizky and Yunita, 2022). Additionally, inadequate cleanliness and poor sanitation in cat enclosures, along with humid environmental conditions, may contribute to the persistence and spread of mites, which can survive for over 30 days in such settings (Susanto *et al.*, 2020).

Table 1. Distribution of Cat Patients at Go Pet Care Animal Clinic from 2020 to 2022

Variable	Year 2020		Year 2021		Year 2022		Total	
	f	%	f	%	f	%	f	%
Age								
Kitten (0-1 year)	3	100	18	78.2	36	80	57	80.2
Young Adult (1-6 year)	0	0	5	21.8	9	20	14	19.8
Mature Adult (7-10 year)	0	0	0	0	0	0	0	0
Senior (<10 year)	0	0	0	0	0	0	0	0
Total	3	100	23	100	45	100	71	100
Breed								
Short Hair	1	33.3	6	26	17	37.8	24	33.8
Long Hair	2	66.7	17	74	28	62.2	47	66.2
Total	3	100	23	100	45	100	71	100
Gender								
Male	1	33.3	7	30.4	25	55.6	33	46.4
Female	2	66.7	16	69.6	20	44.4	38	53.6
Total	3	100	23	100	45	100	71	100

Table 2. Distribution of Lesions by Location in Cats Affected by Scabies

Lesion Type	Head					Extremities		Body				Total Cases
	Ear	Eyes	Chin	Nose	Others area	Ex. cranial	Ex. caudal	Thorax	Abdomen	Back	Tail	
<i>Alopecia</i>	11	0	0	0	3	0	0	0	0	1	1	16
<i>Crusta</i>	55	0	0	0	2	0	5	0	0	1	0	63
<i>Scale</i>	3	0	0	0	0	0	0	0	0	0	1	4
<i>Erythema</i>	5	0	0	0	1	0	0	0	1	0	0	7
<i>Pruritus</i>	1	0	0	0	0	0	0	0	0	0	0	1

*Data represent total Scabies Cases

Diagnostic confirmation of scabiosis was achieved through skin scraping, considered the gold standard for this condition (Basavashree, Halmandge and Patil, 2022). Statistical analysis using the chi-square test in SPSS Version 29.0.10 revealed that age is a significant risk factor, with kittens under 1 year being particularly susceptible to scabiosis (Table 1). The underdeveloped immune systems of young cats make them more vulnerable to mite infestations, which can induce inflammation and an immune response within 4-6 weeks of contact (Bhat *et al.*, 2017). Additionally, a diminished immune response can exacerbate the severity of scabiosis (Colombo *et al.*, 2022). Allergic reactions associated with scabiosis may also increase leukocyte levels, further indicating the body's attempt to combat the infection (Palgunadi, Wangge and Wardhani, 2021).

Sex was not identified as a significant risk factor for scabiosis, as both male and female cats were equally affected. However, social behaviors such as allogrooming and allorubbing may contribute to the spread of mites. Allogrooming involves cats grooming each other, often focusing on areas like the head and neck, while allorubbing involves body contact (Crowell-Davis, Curtis and Knowles, 2004).



Figure 1. Crust Lesion: A detailed illustration depicting the appearance and location of crust lesions associated with scabiosis in domestic cats. This figure highlights the typical presentation of crusting on various anatomical regions affected by scabiosis.

Regarding breed, no significant correlation was found between breed and scabiosis occurrence ($p > 0.05$), consistent with the findings of Cahya *et al.* (2022). Nonetheless, Table 1 highlights a higher number of scabiosis cases among long-haired breeds. This may be attributed to the dense fur, which provides an ideal environment for mites and

retains humidity, facilitating mite penetration and survival. Long fur can also trap moisture, further exacerbating the condition.

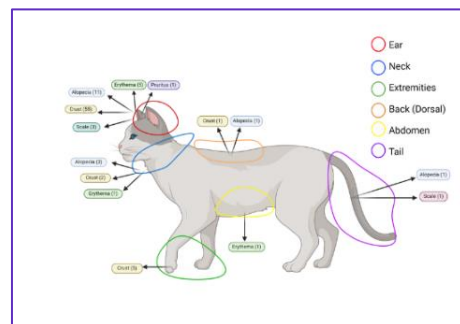


Figure 2. Schematic diagram illustrating the distribution and locations of lesions associated with scabiosis in domestic cats.

This study is limited by its reliance on secondary data from medical records, which may not capture all relevant variables or details about scabiosis cases. Additionally, the study's findings are specific to the Go Pet Care Animal Clinic, which may limit the generalizability of the results to other regions or clinics. Despite these limitations, the data underscores the urgent need for improved management practices, including better cleanliness and environmental controls, especially in humid conditions. Targeted prevention should address the heightened susceptibility of younger and long-haired cats, and continued monitoring and research are crucial for effectively managing and mitigating the impact of scabiosis in domestic cats.

CONCLUSION

The analysis of scabiosis cases in domestic cats (*Felis catus*) at Go Pet Care Animal Clinic from 2020 to 2022 reveals a significant and sustained increase in prevalence, with rates rising from 2% in 2020 to 11.2% by 2022. This upward trend corresponds with the growing number of affected cats, which increased from 3 cases in 2020 to 45 cases in 2022. The predominant clinical features of scabiosis include crusting and alopecia, particularly around the ears. The study highlights that age is a critical risk factor for scabiosis, with younger cats being more susceptible. In contrast, breed and sex do not significantly impact the likelihood of scabiosis. These findings underscore the need for targeted preventive measures and enhanced management practices, particularly for younger cats, to address and control the increasing prevalence of this condition.

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to Go Pet Care Animal Clinic for granting permission to conduct our research at their facility. Their support and cooperation were invaluable to this study, and we greatly appreciate the access provided to their resources and expertise.

AUTHORS' CONTRIBUTIONS

SK and NF were responsible for designing the research. SADD conducted the research, performed the analysis, and drafted the manuscript. SK and NF reviewed the draft manuscript and provided approval for the final version.

CONFLICT OF INTEREST

The author(s) declare that there are no conflicts of interest regarding the publication of this manuscript. The research was conducted independently, and no financial or personal relationships have influenced the study or its outcomes.

FUNDING INFORMATION

This research was conducted without any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

ETHICAL APPROVAL

The research received ethical approval from the Health Research Ethics Committee (KEPK) of the Faculty of Medicine, Universitas Padjadjaran, under approval number 1200/UN6.KEP/EC/2023.

REFERENCES

- Amalia, D. (2013) *Prevalensi Scabies Pada Kucing Di Rsh Prof. Soeparwi Yogyakarta Periode Januari-Agustus 2012*. Available at: <https://etd.repository.ugm.ac.id/penelitian/detail/61924#filepdf> (Accessed: 15 November 2023).
- Basavashree, K., Halmandge, S.C., and Patil, N.A. (2022) 'Diagnosis and therapeutic management of feline scabies', ~ 1847 ~ *The Pharma Innovation Journal*, 11(10), pp. 1847–1848. Available at: <https://doi.org/10.1111/j.1365>.
- Bhat, S.A. *et al.* (2017) 'Host immune responses to the itch mite, *Sarcoptes scabiei*, in humans', *Parasites & vectors*, 10(1), p. 385. Available at: <https://doi.org/10.1186/s13071-017-2320-4>.
- Cahya, N., Primarizky, H., and Yunita, M.N. (2022) 'Risk Factors and Scabious Prevalence in Cats During 2020 in Griya Satwa Clinic, Magetan', *Jurnal Medik Veteriner*, 5(1), pp. 81–86. Available at: <https://doi.org/10.20473/jmv.vol5.iss1.2022.81-86>.
- Colella, V. *et al.* (2020) 'Zoonotic Vectorborne Pathogens and Ectoparasites of Dogs and Cats in Eastern and Southeast Asia', *Emerging infectious diseases*, 26(6), pp. 1221–1233. Available at: <https://doi.org/10.3201/eid2606.191832>.
- Colombo, M. *et al.* (2022) 'An Uncommon and Severe Clinical Case of *Sarcoptes scabiei* Infestation in a Cat', *Pathogens (Basel, Switzerland)*, 12(1). Available at: <https://doi.org/10.3390/pathogens12010062>.
- Crowell-Davis, S.L., Curtis, T.M., and Knowles, R.J. (2004) 'Social organization in the cat: a modern understanding', *Journal of feline medicine and surgery*, 6(1), pp. 19–28. Available at: <https://doi.org/10.1016/j.jfms.2003.09.013>.
- Dewi, A.H.K. *et al.* (2022) 'Penanganan skabies pada kucing di Yourdaily Petshop and Vet Jakarta Timur', *ARSHI Veterinary Letters*, 6(4), pp. 65–66. Available at: <https://doi.org/10.29244/avl.6.4.65-66>.
- Febriani, A.A. (2021) *Hubungan Antara Kelekatan Terhadap Kucing Peliharaan Dengan Stres Di Masa Pandemi Covid 19*. Available at: <http://digilib.unisayogya.ac.id/> (Accessed: 1 November 2023).
- Hellmann, K. *et al.* (2013) 'Treatment of naturally Notoedres cati-infested cats with a combination of imidacloprid 10 % / moxidectin 1 % Spot-on (Advocate® / Advantage® Multi, Bayer)', *Parasitology research*, 112, pp. 57–66. Available at: <https://doi.org/10.1007/s00436-013-3281-y>.
- Kumar, K.S. *et al.* (2008) 'Ivermectin Therapy in The Management of Notoedric Mange in Cats', *Tamilnadu Journal Veterinary & Animal Sciences*, 4(6), pp. 240-241. Available at: <https://api.semanticscholar.org/CorpusID:74032781>.
- Palgunadi, B.U., Wangge, K.K.G., and Wardhani, L.D.K. (2021) 'Handling of Scabies in Domestic Cat at Q-one Petklinik Surabaya', *Journal of Applied Veterinary Science and Technology*, 2(2), pp. 50. Available at: <https://doi.org/10.20473/javest.v2.i2.2021.50-53>.
- Sivajothi, S., Bhavanam, S.R., and Venkatasivakumar, R. (2015) 'Chronic Dermatitis Complicated with Otitis Due to *Notoedres cati* in Persian Cat', *The Journal of Advances in Parasitology*, 2(1), pp. 19-22. Available at: <https://doi.org/10.14737/journal.jap/2015/2.1.19.22>.
- Susanto, H. *et al.* (2020) 'Kasus Scabies (*Sarcoptes Scabiei*) Pada Kucing Di Klinik Intimedipet Surabaya', *Jurnal Biosains Pascasarjana*, 22(1), pp. 37-45. Available at: <https://doi.org/10.20473/jbp.v22i1.2020.37-45>.
- Yudhana, A. *et al.* (2021) 'Diagnosa dan Observasi Terapi Infestasi Ektoparasit *Notoedres cati* Penyebab Penyakit Scabiosis Pada Kucing Peliharaan', *Media Kedokteran Hewan*, 32(2), pp. 70-78. Available at: <https://doi.org/10.20473/mkh.v32i2.2021.70-78>.