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Trend of Feline Medical Articles in SINTA 2-Accredited Veterinary Journals Published by Veterinary Medical Schools across Indonesia: A Systematic Review

Tren Artikel Medik Kucing pada Jurnal Kedokteran Hewan Terakreditasi SINTA 2 yang Diterbitkan oleh Sekolah Kedokteran Hewan di Indonesia: Tinjauan Sistematik

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Abstrak

Kucing adalah hewan peliharaan yang sangat populer di Indonesia diikuti oleh semakin berkembangnya ilmu medik kucing yang berbasis bukti. Akan tetapi, sejauh ini kontribusi penelitian dari institusi pendidikan kedokteran hewan di Indonesia terhadap keilmuan ini belum pernah dipetakan secara sistematik. Tinjauan sistematis ini bertujuan untuk menganalisis tren artikel *feline medicine* yang diterbitkan dalam jurnal kedokteran hewan oleh sekolah kedokteran hewan di seluruh Indonesia. Artikel yang terkait dengan *feline medicine* dikumpulkan dari berbagai jurnal kedokteran hewan terakreditasi SINTA 2 yang terbit pada 2022 hingga 2024, meliputi penelitian asli dan case report. Dari total 943 artikel, hanya 38 (4,03%) yang berfokus pada *feline medicine*, yang menunjukkan perhatian yang terbatas. Jumlah publikasi *feline medicine* tumbuh dari 10 pada tahun 2022 menjadi 20 pada tahun 2023, sebelum turun menjadi 8 pada tahun 2024. Analisis konten mengungkapkan bahwa 50% penelitian bersifat kuantitatif, 15,79% kualitatif, dan 34,21% metode campuran. Desain penelitian meliputi laporan kasus (39,47%), studi cross-sectional (23,68%), dan survei (13,16%), dengan proporsi yang lebih kecil melakukan *rondomized controlled trials*, studi kohort, dan tinjauan. Analisis deskriptif (63,16%) merupakan teknik analisis data yang paling umum, diikuti oleh uji-t, Chi-Square, dan ANOVA. Penelitian ini mencakup disiplin ilmu seperti penyakit dalam (47,37%), bedah (13,16%), dan dermatologi (10,53%).. Terungkap adanya kesenjangan penelitian dalam bidang *feline medicine* di jurnal-jurnal kedokteran hewan Indonesia. Hasil tinjauan ini menuntut peningkatan kuantitas dan kualitas penelitian *feline medicine* untuk mengisi kekosongan bukti ilmiah yang dibutuhkan dalam pengembangan bidang ilmu ini.

Kata kunci: artikel; *feline*; Indonesia; medik

Abstract

Cats are very popular pets in Indonesia, and evidence-based feline medicine is growing. However, the research contributions of Indonesian veterinary educational institutions to this field have never been systematically mapped. This systematic review aims to analyze the trends in feline medical articles published in veterinary journals by veterinary schools across Indonesia. Articles related to feline medicine were collected from various SINTA 2-accredited veterinary journals published between 2022 and 2024, including original research and case reports. Out of 943 total articles, only 38 (4.03%) focused on feline medicine, indicating

its limited attention. The number of feline medicine publications grew from 10 in 2022 to 20 in 2023, before dropping to 8 in 2024. The articles analyzed consisted of quantitative (50%), qualitative (15.7%) and mixed (34.21%) research. Approximately 39.47% were case reports, 23.68% cross-sectional and 13.16% surveys. RCT, Cohort and review designs were found to be very few. Descriptive analysis (63.16%) was the most common data analysis technique, followed by t-tests, Chi-Square, and ANOVA. The research covered disciplines like internal medicine (47.37%), surgery (13.16%), and dermatology (10.53%). A research gap in feline medicine research has been identified in Indonesian veterinary journals. This review calls for increasing the quantity and quality of feline medicine research to address the gap in scientific evidence needed to develop this field.

Keywords: articles; feline; Indonesia; medical

Introduction

According to Plitman *et al.,* (2019) and Biezus *et al.,* (2018), cats are the most popular pets in the world. Companion animals, especially cats, are very important to society. There are an estimated 600 million of them living closely with people around the world (Hosie & Hofmann-Lehmann, 2022). The domestic cat is the only species in the Felis genus that has changed from being a wild, solitary animal to one of the most popular pets in the world (Finka, 2022). In recent years, the number of domestic cats has grown a lot (Steagal *et al.* 2022). The number of cats in Indonesia has been steadily rising, and about 47% of Indonesians own one (Hidayat & Sugiyono, 2024). Dozier *et al.,* (2023) say that about 4.3% of cats live in hoarding situations, which are homes with more than eight cats. A cat's quality of life significantly determines its overall health and well-being. As cat ownership increases globally, the need for cat healthcare services is also increasing (Steagal et al. 2022). It creates a demand for advanced veterinary services, including specialized care in feline internal medicine, surgery, and other related fields.

In Germany, cats are the most common pets seen at veterinary clinics (Karn-Buehler & Kuhne, 2022), and the same may be true in Indonesia. Also, there are too many cats in the world (Wagner *et al.,* 2018). In Indonesia, veterinary medical services have seen a significant increase in public demand over the past decade (Chandrasaputra *et al.,* 2021). Nonetheless, clinical research specifically targeting feline medicine is still quite limited in Indonesia. Indonesian veterinary scientific publications predominantly focus on large animal medicine and other agriculturally significant species. Due to the high number of cats with both infectious and non-infectious diseases (Rahmawati *et al.,* 2023), it is very important to encourage research on this subject in Indonesia. At the same time, high-quality clinical studies in feline medicine are necessary to create evidence-based guidelines for effective disease management in cats (Sparkes *et al.,* 2016). This gap appears troubling given the importance of the quantity of research in cats as an evidence base for feline medicine practice. Furthermore, humans and cats share a strong bond, making feline research, including epidemiological research, crucial (Biezus *et al.,* 2018).

This review aims to systematically evaluate trends in feline medicine research based on articles published in veterinary journals in Indonesia. The hope is that there will be an increase in the quantity and quality of feline medicine research in Indonesia, contributing to feline medicine practice and policies related to the health of small animals, particularly cats. This review also will be helpful for Indonesian cat researchers and veterinarians as there has not been a comprehensive study focused solely on trends in feline medical research within the country.

Materials and Methods

This study, conducted from November 2024 to January 2025, did not concentrate on a particular geographical area, as it was intended to be a literature review. People could read articles about cat medicine online by going to the websites of certain Indonesian veterinary journals. This made them easy to find no matter where they were.

The selected articles were those that met the following inclusion criteria: (1) original research articles or case reports, (2) authors

from veterinary schools or faculties in Indonesia, and (3) the main focus of the article was feline medicine, or related topics. We did not include articles that were editorials, nonsystematic reviews, short reports without data, non-veterinary articles, or articles that did not clearly say what the research was about cats. We got the names of the journals and their accreditation levels from https://sinta.kemdiktisaintek.go.id/ and then checked them on the journal's website. Article searches were conducted directly on the website or online journal system of each Indonesian veterinary journal. Article searches were conducted by volume, issue number, and year of publication. In the period from 2022 to 2024, veterinary journals affiliated with veterinary schools across Indonesia published a total of 943 articles. Among these, 38 articles met the specified inclusion criteria, which required a focus on feline medicine, publication in journals with a minimum accreditation level of SINTA 2, and release during the aforementioned timeframe, and were subsequently selected for analysis.

The study applies content analysis as its methodological framework, examining various parameters such as the annual distribution of published articles, utilized research methodologies, study designs, data analysis techniques, pertinent scientific disciplines, and the geographical contexts of the research (Fauzi & Pradipta, 2018). According to the framework put forth by Sumiarto and Budiharta (2021), research designs are divided into two groups: descriptive designs and analytical designs. Descriptive designs include case reports, case series, surveys, and longitudinal studies. Analytical designs are further divided into observational approaches (case-control, cross-sectional, and cohort studies) and experimental approaches (laboratory experiments and randomized controlled trials, or RCTs). A Chi-Square test was employed to assess the significance of differences (Sumiarto & Budiharta, 2021) among the components within each analyzed dimension.

Results and Discussion

Number of Published Articles

Out of 943 articles published in SINTA 2-accredited veterinary journals from veterinary schools across Indonesia, only 38 (4.03%) were about feline medicine. Table 1 shows a list of the articles that were collected, along with their authors, years, publishers, and digital object identifier links (DOI).

Table 1. List of feline medical articles in SINTA 2-accredited Indonesian veterinary journals published in 2022, 2023, and 2024

No.	Author's Name	Year	Digital Object Identifier/Link
1	Ritonga et al	2022	https://doi.org/10.29244/avi.10.1.51-57
2	Restijono et al	2022	https://journal.ipb.ac.id/actavetindones/article/view/41825
3	Widyarini et al	2022	https://doi.org/10.22146/jsv.70506
4	Ritonga et al	2022	https://doi.org/10.22146/jsv.67650
5	Maryatmo et al	2022	https://doi.org/10.22146/jsv.69624
6	Cahya et al	2022	https://doi.org/10.20473/jmv.vol5.iss1.2022.81-86
7	Palupi et al	2022	https://doi.org/10.20473/jmv.vol5.iss1.2022.124-130
8	Purnamaningsih et al	2022	https://doi.org/10.19087/jveteriner.2022.23.1.36
9	Nururrozi et al	2022	https://doi.org/10.19087/jveteriner.2022.23.1.112
10	Putri & Wahyuwardani	2022	https://doi.org/10.19087/jveteriner.2022.23.1.121
11	Vera et al	2023	https://doi.org/10.21157/j.ked.hewan.v17i1.29418
12	Wahyuni et al	2023	https://doi.org/10.21157/j.ked.hewan.v17i2.28242
13	Erwin et al	2023	https://doi.org/10.29244/avi.11.1.63-68
14	Gunawan et al	2023	https://doi.org/10.29244/avi.11.1.79-86
15	Prihatiningsih et al	2023	https://doi.org/10.29244/avi.11.1.26-33
16	Wardhani et al	2023	https://doi.org/10.29244/avi.11.2.116-121
17	Irawan et al	2023	https://doi.org/10.29244/avi.11.2.131-138
18	Alham et al	2023	https://doi.org/10.29244/avi.12.1.91-96
19	Desiandura et al	2023	https://doi.org/10.22146/jsv.75944
20	Prasetyo et al	2023	https://doi.org/10.22146/jsv.81730
21	Dami et al	2023	https://doi.org/10.22146/jsv.79940
22	Plumeriastuti et al	2023	https://doi.org/10.20473/jmv.vol6.iss1.2023.15-20
23	Baroroh et al	2023	https://doi.org/10.20473/jmv.vol6.iss1.2023.114-119
24	Mahdi et al	2023	https://doi.org/10.20473/jmv.vol6.iss2.2023.180-184

25	Jayanti et al	2023	https://doi.org/10.20473/jmv.vol6.iss2.2023.288-296
26	Wardhana et al	2023	https://doi.org/10.20473/jmv.vol6.iss3.2023.136-139
27	Mardatillah et al	2023	https://doi.org/10.19087/jveteriner.2023.24.1.69
28	Pemayun et al	2023	https://doi.org/10.19087/jveteriner.2023.24.2.221
29	Budiono et al	2023	https://doi.org/10.19087/jveteriner.2023.24.3.279
30	Arios et al	2023	https://doi.org/10.19087/jveteriner.2023.24.3.295
31	Anindya et al	2023	https://doi.org/10.19087/jveteriner.2023.24.4.552
32	Bermani et al	2024	https://jurnal.usk.ac.id/JKH/article/view/34542
33	Kusumawati et al	2024	https://doi.org/10.29244/avi.12.2.133-140
34	Ramadhani et al	2024	https://doi.org/10.22146/jsv.79590
35	Gunawan et al	2024	https://doi.org/10.22146/jsv.75941
36	Kajang et al	2024	https://doi.org/10.22146/jsv.86438
37	Mulyani et al	2024	https://doi.org/10.22146/jsv.83658
38	Prasetyo et al	2024	https://doi.org/10.19087/jveteriner.2024.25.1.55

Figure 1 shows a clear trend: the number of articles went up from 10 (26.32%) in 2022 to 21 (55.26%) in 2023, but then went down to only 7 (18.42%) in 2024. For the past three years, data shows that research in feline medicine in Indonesia is still very limited. This is especially true when compared to other fields, such as livestock and poultry medicine, where there is a much larger proportion of research. It is still unclear if this shortage exists in other countries as well. This finding aligns with the bibliometric analysis conducted by Colombino *et al.,* (2021), which identified a deficiency of research specifically focused on feline medicine from a total of 1,696 publications. There is still no clear answer to why the number of medical publications about cats doubled from 2022 to 2023. It is also not clear what caused the big drop from 2023 to 2024. There are probably a lot of things going on that need more research.

The recent update of the European Advisory Council on Feline Diseases' guidelines for feline infectious peritonitis shows how important it is to keep researching feline medicine. Several relevant studies are included in the new guidelines (Tasker *et al.,* 2023). Thus, there appears to be a similar trend to the review of the management of urethral obstruction in cats, which requires research findings to serve as a clinical basis for feline medicine practice (Cosford & Koo, 2020).

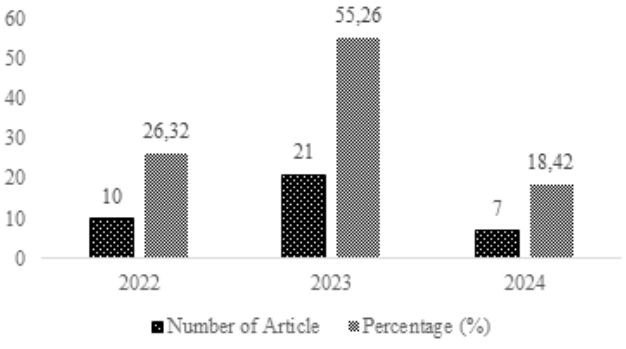

Figure 1. Number of feline medical articles published by SINTA 2-accredited veterinary journals of veterinary schools across Indonesia from 2022 to 2024

The European Advisory Council on Feline Diseases recently updated its peritonitis guidelines, incorporating numerous research findings as references (Tasker et al. 2023). This global development should be a concern for veterinary schools in Indonesia, encouraging increased research in feline medicine. This will also improve understanding of feline diseases and cat health in Indonesia.

There has been a lot of progress in human medicine, but there is still not much research published in veterinary medicine (Agaphour & Bockstahler, 2022). The small number of studies shows that more are needed. Scientific articles are essential sources of evidence that support decision-making in clinical practice and the formulation of public policy (Sampaio *et al.,* 2018). In addition to quantity, the quality of articles must also be enhanced, as it reflects the advancement of the research domain (Aslim *et al.,* 2023).

Research Approaches Performed

Quantitative approaches in feline medicine research appear to be more popular in Indonesia than qualitative and mixed approaches. Figure 2 illustrates the proportion of the three approaches to feline medicine research in Indonesia between 2022 and 2024. The percentage differences between the three approaches are significant ($\chi 2$=6.684; α=0.05; df=2; p-value=5.991). However, this is not fundamentally problematic,

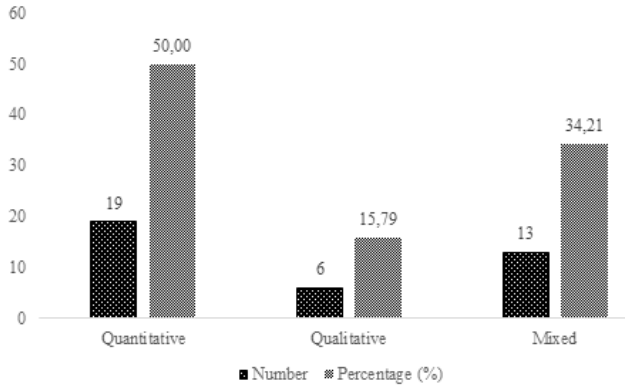

Figure 2. Proportion of quantitative, qualitative, and mixed approaches in feline medicine research in Indonesia

as medical research generally uses quantitative approaches.

It is acknowledged that quantitative approaches do have advantages over others because they can produce statistically robust findings, making them suitable for clinical studies (Arrigo *et al.,* 2023). According to Barroga *et al.,* (2023), quantitative approaches are considered methodical, where researchers clarify theories, formulate hypotheses, empirically evaluate hypotheses, and reevaluate the underlying theories. Research on feline CKD control strategies is one of many feline medicine studies that utilizes a quantitative approach (Tsunekawa & Sato 2024). In fact, recent artificial intelligence technology has been shown to aid in quantifying lymphocytes in feline small intestinal biopsies, potentially yielding accurate and consistent results, especially when supported by pathological monitoring (Wulcan *et al.,* 2024). In fact, quantitative approaches are more desirable because veterinarians need to utilize measurable, quantitative data in making medical decisions (Arrigo *et al.,* 2023).

Figure 2 shows a relatively high proportion of mixed approaches (the second largest). However, quantitative data in medical research needs to be combined with qualitative data, such as histopathological features. According to Guetterman *et al.,* (2015), a mixed approach is recommended in health research. A concrete example is research on feline kidney health, which requires ultrasound observations as qualitative data, in addition to quantitative data such as blood chemistry, kidney function, and so on (Hillaert *et al.,* 2022). Thus, a combination of quantitative and qualitative approaches can help refine research findings. Another example is the study of hemoplasmosis in cats using a mixed approach by Jayanti *et al.,* (2023). However, this mixed approach is quite beneficial, so feline medicine studies in Indonesia should also use this approach for comprehensive results.

Unlike other approaches, qualitative research is still rarely used in feline medicine research in Indonesia, although it remains necessary. Ritter *et al.,* (2023) stated that qualitative approaches offer valuable insights and can fundamentally strengthen interdisciplinary collaboration. In veterinary economics, qualitative data is needed to formulate policies tailored to the social, cultural, and political conditions of a region (Degeling & Rock, 2020). Of course, in the Indonesian context, a qualitative approach is crucial, given that cat keeping is a part of Indonesian culture.

Research Designs Used

Of the many types of research designs in veterinary medicine, case reports are the most commonly used or present in feline medicine articles published in Indonesia. Other identified designs include surveys, reviews, case-control, cross-sectional, cohort, and randomized controlled trials (RCTs). Statistically, there was significant variation in the distribution of research design types among articles focusing on feline medicine in Indonesia ($\chi 2=27.95$; $\alpha=0.05$; df=6; p-value=12.59).

Tabel 2. Various research designs used in feline medical research found in the published articles.

Research Designs	Number of Articles Found	Percentage (%)
Case report	15	39.47[a]
Survey	5	13.16[b]
Review	1	2.63[c]
Case-control	1	2.63[c]
Cross-sectional	9	23.68[b]
Cohort	3	7.89[b]
RCTs	4	10.53[b]

a,b,c Significant differences are indicated by different superscripts in the same column ($p < 0.05$).

About 40% (15 out of 38) of the articles that were looked at used a case report design. This high percentage indicates a significant

emphasis on the documentation of individual cases in feline medicine, with diminished attention to more extensive, population-level research methodologies. Case reports and case series, as uncontrolled study designs, exhibit an elevated risk of bias; however, they have profoundly influenced medical literature and continue to be instrumental in the enhancement of clinical knowledge (Murad *et al.,* 2018). The case report research design records important scientific findings observed in clinical practice, thereby enhancing the current knowledge base (Alsaywid & Abdulhaq, 2019). The preference for case reports in clinical scientific writing may stem from their comparatively low methodological complexity. While some journals have stopped publishing case reports, many new journals that only publish this type of report have opened in the last few years (Bouchara & Chaturvedi, 2018). Samuel *et al.,* (2023) found that about 43% of the 15,512 articles on veterinary interventional radiology and endoscopy were research that used a case report design. Case reports were classified as one of six categories in a study examining trends in veterinary radiation oncology publications from 1976 to 2015 (Nagata, 2019). This trend indicates that strong study designs are urgently needed in Indonesia due to the need for evidence-based feline medicine practice efforts.

In second place is the cross-sectional design, widely used by Indonesian researchers. Cross-sectional research is a form of analytical survey research (Sumiarto & Budiharta, 2021), observational in nature, with data collected at a single point in time (Wang & Cheng, 2020). This design is among the most commonly used in veterinary studies (Fonseca *et al.,* 2017; Martinez *et al.,* 2017). The widespread use of this design was reported by Doré *et al.,* (2012) in a systematic review, in which 16 of 23 articles (published by 12 journals from 11 countries) that addressed risk factors for Mycobacterium avium subsp. paratuberculosis transmission used a cross-sectional design. Studies that examine disease prevalence, identify disease determinants, and profile the characteristics of specific population groups also frequently use this design (Wang & Cheng, 2020).

Cohort, case-control, and RCT designs are less frequently used in Indonesia than case reports and cross-sectional designs. However, these designs offer sufficient precision for determining causality, risk factors, and analyzing treatment effectiveness. In fact, RCTs are considered the most ideal design for drug efficacy research (Wareham *et al.,* 2017). According to Cortegiani and Absolam (2021), RCTs are currently considered the most reliable in medical research, serving as the "gold standard" for testing rigorous hypotheses. Furthermore, clinical studies involve samples that represent a broader population, requiring a design that accommodates these findings to ensure scientific validity (Castro, 2019). Therefore, inferential designs such as RCTs are essential for feline medicine research in Indonesia. This goes back to the fact that clinical studies are crucial for evidence-based feline medicine practice.

The low use of RCTs may be a sign that there are not many feline medicine researchers in Indonesia, or perhaps that adequate training and facilities are needed. One of the most important parts of a randomized controlled trials (RCTs) is having one or more comparison (or control) groups. This lets researchers control who gets the intervention (Sargeant *et al.,* 2014). As a result, the evidence base in feline medicine may be limited, potentially compromising the integrity of clinical decision-making. Di Girolamo and Reynders (2016) found that veterinary medicine randomized controlled trials (RCTs) were usually smaller and didn't use real patients as often as RCTs in human medicine. Addressing this gap offers veterinary schools and research institutions the chance to encourage and fund more analytical and interventional studies to further feline medical research.

Data Analysis Techniques Applied

Of the 38 articles reviewed, it was identified the use of seven distinct data analysis techniques (Figure 3). The proportions of these techniques exhibited statistically significant differences ($\chi 2=76.95$; $\alpha=0.05$; $df=6$; p-value=12.59) with descriptive analysis emerging as the predominant method, employed in 24 of the 38 articles reviewed. This indicates that a significant portion of feline medical research in Indonesia

remains in the observational or exploratory stage, primarily focused on identifying baseline characteristics or documenting trends, rather than testing specific hypotheses.

The high use of descriptive analysis techniques may be correlated with the high use of case report designs which is also seen in the feline medicine articles analyzed. According to Kaliyadan & Kulkarni (2019), descriptive statistics can summarize sample descriptions, while remaining focused on data characteristics and eliminating the need for inferences based on probability theory. The magnitude of data phenomena, their distribution, and their time are also addressed by descriptive analysis (Loeb *et al.,* 2017). In the context of modern big data, descriptive statistics is a crucial tool for researchers, as it captures data patterns and trends (Lušņičenko *et al.,* 2024). As Dong (2023) notes, descriptive statistics provides the foundation for more complex data analysis techniques, thus playing a vital and in-depth role. The advantages of descriptive analysis in summarizing data are also crucial in biomedical research (Mishra *et al.,* 2019).

Other widely used data analysis techniques include the t-test and Chi-square test. Implementation of these techniques is seen in Zimmermann *et al.,* (2023), who measured differences in tracheal dimensions using CT in normocephalic cats. There was a retrospective case-control study conducted by by Holland *et al.,* (2023), employed a t-test to evaluate disparities in echocardiographic measurements of the aorta between 76 cats diagnosed with systemic hypertension (SH) and 76 normotensive (NBP) cats. In a comparable study, Do et al (2022) employed a t-test to investigate both the palatability and gastrointestinal macronutrient digestibility of a diet containing black soldier fly larvae, as well as its influence on the fecal characteristics of cats consuming this diet. The t-test was also used by Do et al. (2022) to measure the palatability and gastrointestinal macronutrient digestibility of cat food containing black soldier fly larvae, as well as their effects on fecal characteristics. The student's t-test, which is used to measure comparisons of group means, is particularly appropriate for making statistical inferences when data are normally distributed as sample size increases (Mishra *et al.,* 2019; Zhao *et al.,* 2021).

Another data analysis technique frequently used in veterinary research is the chi-square test. For example, Siswandi (2023) used chi-square testing to demonstrate that cat age and sex were not associated with the number of cats visiting a veterinary clinic with gastrointestinal parasites. This analysis technique has also been used to determine risk factors for feline lower urinary tract disease (Plumerastuti *et al.,* 2023). Chi Square could be very useful for a lot of different studies in the field of feline medicine. This test is a statistical tool that researchers use to look at

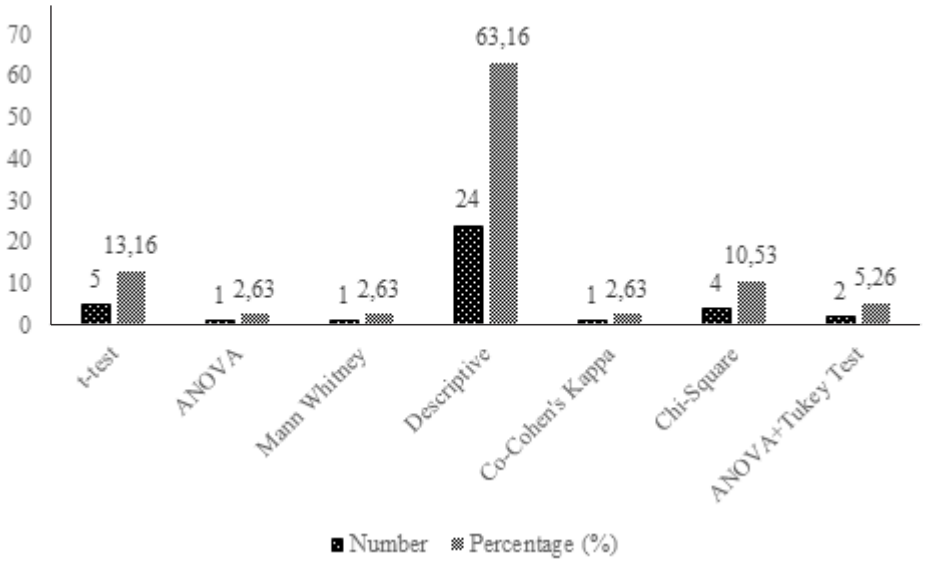

Figure 3. Some of the techniques used in data analysis identified in feline medicine articles in Indonesia

how often and where categorical data is found. If researchers understand its principles well, they will be better able to analyze categorical data and understand the results more accurately (Thukral *et al.,* (2023). As feline healthcare in Indonesia improves, there is a vital opportunity to utilize more advanced analytical methods that can provide nuanced insights into feline medicine.

Scientific Discipline Category

The distribution of veterinary disciplines (Table 3) is dominated by veterinary internal medicine, with 18 (47.37%) articles. The second position is occupied by surgery with 5 (13.16%) articles followed by dermatology with 4 (10.53%) articles. Several articles were found focusing on veterinary physical medicine and rehabilitation, veterinary nutrition and oncology, with 2 (5.26%) articles each. The rest of the articles discuss reproduction, ophthalmology, pharmacology, anesthesiology and dentistry, with 1 (2.63%) article each. Statistically, the proportion of these disciplines differs significantly ($\chi2=72.58$; $\alpha=0.05$; df=10; p value=1.41x10-14) or is not evenly distributed across the 38 articles analyzed.

Seen in this review that internal medicine is the most frequent topic. The predominance of research focusing on internal medicine could be attributed to its prevalence as a common health concern in feline populations (Dotsenko *et al,* 2022). A surveillance conducted by Ozturan & Akin (2023) at a cat shelter with a population of 2,305 cats, reported several incidents of internal diseases such as respiratory system disorders of 58.21% and associated with inadequate shelter conditions. Ukrainian and other researchers have undertaken foundational studies on domestic cats, focusing on a range of diseases such as urolithiasis, chronic renal insufficiency, glomerulonephritis, polycystic kidney disease, hepatic lipidosis, diabetes mellitus, chronic hepatitis, cholangiohepatitis, as well as gastrointestinal and bronchial disorders (Dotsenko *et al,* 2022). Diabetes mellitus is even becoming a common endocrinopathy in cats and shows an increasing prevalence (Sparkes *et al,* 2015). In fact, Ridwan *et al,* (2023) reported that internal zoonotic diseases caused by internal parasites in cats showed a high prevalence, where 53.80% of cats were infected with helminths. Among these cats were infected with hookworm (11.11%); *Toxocara* spp (38.01%); Dipylidium caninum (4.68%). The number of other internal diseases present in cats is certainly very large. This includes SARSCoV-2 (of zoonotic origin and has shown reverse zoonotic transmission) which was detected positive by RT-PCR in 1.1% of cats and showed a seroprevalence of 2.6% (Mūrniece et al, 2024). The incidence of internal diseases, particularly respiratory disorders, in cats is also high, as evidenced by Fujiwara-Igarashi *et al,* (2024) in a retrospective study (2003-2020), in which 540 cats were diagnosed with respiratory disorders. It is important to understand that interdisciplinary research collaboration is essential, such as in handling the SARS-CoV-2 pandemic, which requires scientific integration within a "One Health" framework (Mobasheri, 2020).

Veterinary medicine is a highly diverse field of medicine (Brown *et al.,* 2022), which consequently encompasses a wide range of research areas. For example, viral diseases are crucial in feline medicine, leading to substantial research on viral diseases in cats (Beatty & Hartmann, 2021). Therefore, it's understandable that veterinary medicine encompasses a vast field of study. The American Veterinary Medical Association even recognizes 22 specialty organizations in the veterinary field, consisting

Tabel 3. Various scientific disciplines categorized and found in the published articles.

Scientific Disciplines	Number of Articles Found	Percentage (%)
Internal medicine	18	47.37[ab]
Surgery	5	13.16[ab]
Dermatology	4	10.53[b]
Physical medicine and	2	5.26[b]
rehabilitation	2	5.26[b]
Nutrition	2	5.26[b]
Oncology	1	2.63[b]
Ophthalmology	1	2.63[b]
Reproduction	1	2.63[b]
Pharmacology	1	2.63[b]
Dentistry	1	2.63[b]
Anesthesiology		

ab, b Different superscripts in the same column showed significant differences ($p < 0.05$)

of 48 different specialties (American Veterinary Medical Association, 2025).

Conclusion

This systematic review concluded that feline medical articles were the most frequently published in SINTA 2-accredited Indonesian veterinary journals in 2023 (55.26%), with quantitative approaches being the most widely used (50%), and case reports being the most commonly used design (39.47%). Descriptive data analysis was the most widely used (63.16%), and feline internal medicine was the most widely studied discipline (47.37%). The analysis highlights the limited focus on feline medicine within Indonesian veterinary research, with only a small proportion of studies addressing this field. Despite a modest increase in publications in 2023, the diversity of study designs and methodologies underscores the need for more robust and comprehensive research to advance feline medical knowledge.

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