

Prevalence of cognitive dysfunction syndrome (CDS) in cats

Sara Rodríguez Ribas
Faculty of Veterinary Medicine
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UAB
Universitat Autònoma
de Barcelona

Introduction

Increased life expectancy in pets has led to a rise in age-related disorders such as Feline Cognitive Dysfunction Syndrome (FCDS), a progressive neurodegenerative condition comparable to Alzheimer's disease in humans.

Clinical signs include: Vocalization (excessive meowing), Interaction changes (increased affection or attention-seeking), Sleep-wake cycle disturbances, House-soiling (inappropriate elimination), Disorientation (spatial or temporal), Activity changes, Anxiety, Learning/memory deficits. All summarized by the acronym **VISHDAAL**.

Unlike in dogs, where Cognitive Dysfunction Syndrome is better studied and diagnosed, FCDS remains underdiagnosed due to the subtle nature of feline behavior and stress associated with veterinary visits.

The **aim of this study** is to estimate the prevalence of FCDS in cats living in the province of Barcelona, using currently available diagnostic tools. It also seeks to identify potential risk factors associated with the development of the syndrome.

Methodology

Study period: December 16, 2024 – April 30, 2025.

Location: Clínica Felina de Barcelona and Centro Veterinario Taxdirt.

Tool: A Google Forms questionnaire adapted from validated canine cognitive dysfunction scales, including 17 questions based on the VISHDAAL behavioral signs, plus data on sex, age, reproductive status, and medical history.

Participants: Owned cats whose guardians completed the form in the waiting room.

Inclusion criteria: Clinically healthy cats with no medical conditions that could explain behavioral changes (e.g., arthritis, hypertension, hyperthyroidism, kidney disease, infections, etc.).

Age: All ages included to detect early signs; changes may begin as early as 6–8 years old.

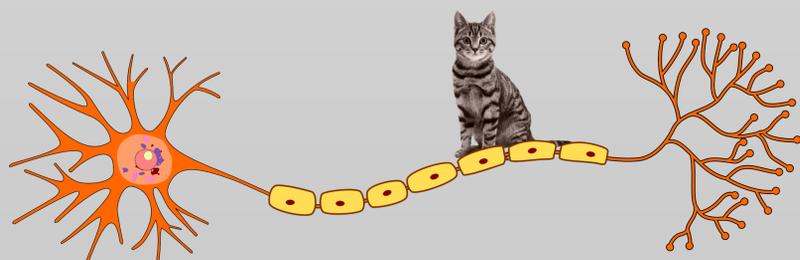
Data collection:

- 38 anonymous forms were collected and exported to Excel.
- Cats were classified by compatibility with FCDS and medical status, then subgrouped by age:

Group	Criteria	Notes
1a	≥8 y, FCDS signs, no medical issues	Suspected FCDS
1b	<8 y, FCDS signs, no medical issues	Behavioral problems or early signs
2	Any age, FCDS signs + medical issues	Excluded
3a	≥8 y, no FCDS signs, no medical issues	Control group
3b	<8 y, no FCDS signs, no medical issues	Control group

Analysis:

- Comparison of behavioral changes by age (Groups 1a vs. 1b).
- Fisher's exact test used to assess association between sex/reproductive status and FCDS (Groups 1a vs. 3a), due to small sample size and zero values in some cells.



References

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Results

Definition of each group and the number and percentage of cats surveyed in each group based on the total number of completed forms

Groups	Cats surveyed in each group/surveys completed (n/n)	Cats in this group (%)
1a	6/38	15.8
1b	7/38	18.4
2	12/38	31.6
3a	8/38	21.1
3b	5/38	13.2

Proportion of reported behavioral signs in suspected-FCDS cats from group 1a and group 1b all exhibiting at least one sign consistent with the syndrome

Behavioral signs	Group 1a (%)	Group 1b (%)
Excessive vocalization	83.3	28.6
Altered interaction with owners	16.7	28.6
Altered sleep-wake cycles	66.7	57.1
Inappropriate elimination	16.7	0
Spatial and/or temporal desorientation	33.3	57.1
Activity disturbances	16.7	14.3
Anxiety	0	0
Learning/memory deficits	0	42.9

Proportion of cats showing at least one sign of cognitive dysfunction, categorized by sex and reproductive status in groups 1a and 3a

Sex/Reproductive Status	Group 1a (%) (n=6)	Group 3a (%) (n=7)
Spayed female	0	75 (6)
Intact female	0	0
Spayed male	100 (6)	25 (2)
Intact male	0	0

Distribution of cats by sex and reproductive status (neutered males vs others) in groups 1a and 3a

Sex/Reproductive Status	Group 1a	Group 3a	Total
Spayed male	6	2	8
Others	0	6	6
Total	6	8	14

A Fisher's exact test comparing sex and reproductive status between FCDS-suspected (group 1a) and control cats (group 3a) showed a significant association ($P = 0.0097$). Neutered males were significantly overrepresented in the FCDS-suspected group.

Discussion

Feline Cognitive Dysfunction Syndrome (FCDS) is a neurodegenerative disorder affecting up to 50% of cats over 15 years. In this study, a 15.8% prevalence was found in cats aged 8 years or older, aligning with existing literature. Despite its frequency, it remains underdiagnosed due to limited feline-specific tools.

In this study, unexpectedly more behavioral signs were reported in cats under 8 years, likely due to owner misinterpretation or early disease onset, potentially inflating prevalence estimates.

Vocalization was the most common symptom in older cats (83.3%). Its causes may include disorientation or attention-seeking, but more specific investigation is needed to determine its origin and guide treatment.

An overrepresentation of neutered males in the FCDS-suspected group suggests possible hormonal involvement. Similar findings in dogs point to a possible neuroprotective role of testosterone. Further feline-specific studies are needed to confirm this link.

Key limitations included the small sample size, lack of clinical validation, and reliance on owner-reported data. Future studies should incorporate clinical diagnostics and post-mortem confirmation to improve accuracy.

Conclusion

Feline Cognitive Dysfunction Syndrome (FCDS) **remains underdiagnosed**, as early signs are subtle and often mistaken for normal aging.

Results suggest a **notable presence of FCDS-compatible signs, specially in cats over 8 years (15.8%)**. The most **frequent behavioral changes** were excessive vocalization, altered sleep-wake cycles, spatial and/or temporal disorientation.

A significant **overrepresentation of neutered males** in the FCDS-suspected group suggests a possible influence of **sex and hormonal status**.

Although limited by **sample size and self-reported data**, these findings support the importance of regular behavioral assessments, increased awareness among veterinarians and cat owners and further research into early-onset FCDS and hormonal factors.