

Kids with cats have more than double the risk of developing schizophrenia, researchers find

December 11 2023, by Justin Jackson



Credit: Unsplash/CC0 Public Domain

Researchers at The Park Center for Mental Health, Australia, have added to the growing body of evidence that cat ownership is a major risk

factor for schizophrenia and quantified the risk at more than double.

In a paper, "Cat Ownership and Schizophrenia-Related Disorders and Psychotic-Like Experiences: A Systematic Review and Meta-Analysis," [published](#) in *Schizophrenia Bulletin*, the team details the connections between youth cat ownership and later-in-life schizophrenia-related diagnosis.

The researchers conducted an extensive study search across various databases and gray literature from January 1, 1980, to May 30, 2023, without geographical or language limitations. They included studies reporting original data on cat ownership and schizophrenia-related outcomes. Out of 1,915 identified studies, 17 were used from 11 different countries.

Cat ownership was associated with an increased risk of schizophrenia-related disorders. The unadjusted pooled odds ratio (OR) was 2.35, and the adjusted estimate was 2.24, indicating an over twofold increase in the odds of developing schizophrenia-related disorders among all individuals exposed to cats.

While some studies suggest childhood exposure to cats might be associated with an increased risk of developing schizophrenia-related disorders, the exact age or specific time frame of exposure is not clearly defined across all studies.

One included study from Finland initially reported higher scores on perceptual aberration, schizoid, and social anhedonia scales for those exposed to cats under age seven, though they limited their conclusion to perceptual aberration. Another study from the UK found associations between cat exposure during childhood (at 4 and 10 years) and higher psychotic-like experiences at age 13.

The research suggests that the critical window of exposure needs to be better defined and might be influenced by various factors. More robust investigations are needed to precisely identify the specific period of exposure that might pose the highest risk for schizophrenia-related disorders associated with youth cat exposure.

The overall risk trend focuses on the interaction between the developing brain and feline exposure. But of course, it is not just hanging out with cat personalities that is to blame for the higher risk. There is a causal agent operating unseen in the cat environment that is likely the true culprit—*Toxoplasma gondii*.

Toxoplasmosis

Toxoplasma gondii (*T. gondii*) is an intracellular protozoan parasite that causes toxoplasmosis, an infection that around 25% of the world population has gotten at some point.

It is the reason kitty litter bags have a warning label for pregnant women to avoid contact with cat feces, as toxoplasmosis infection is the leading cause of newborn blindness globally, as well as later vision loss, mental disability, and seizures.

Toxoplasmosis can be a significant cause of death among people with severely weakened immune systems. A daily drug is taken by patients with AIDS, undergoing organ transplant, or with intense chemotherapy treatments just to counter the effects of this one parasite.

T. gondii has previously been linked with all sorts of neurological impairments and [behavioral changes](#), from guilt issues to novelty seeking and increased car accidents. Some presentations of schizophrenia can be reversed by antiprotozoal drugs, suggesting that a *T. gondii* infection may have been the root cause of those case symptoms.

A 2012 [meta-analysis](#) of 38 studies, "Toxoplasma gondii and Other Risk Factors for Schizophrenia," also [published](#) in *Schizophrenia Bulletin*, found that patients with schizophrenia were nearly three times more likely to have toxoplasma antibodies in their blood, suggesting past infections were far more prevalent with the pathology.

A striking find in that study, while comparing risk factors for schizophrenia, was the discrepancy between the risk associated with having a first-degree relative with schizophrenia (RR 6.99–9.31) and the risk associated with specific genetic polymorphisms (OR 1.09–1.24). While a family disease pattern can suggest the involvement of shared genes, it can also point to nongenetic factors like environmental exposure to an infectious agent, like a chemical superfund site, or cats.

Toxoplasmosis has also been linked to various wildlife illnesses, as behavioral changes in [wild animals](#) often result in poor survival strategies. Rats, for example, become unafraid of cats while infected. It is a common comorbidity for most California sea lions found distressed or dead to have a toxoplasma infection. If anyone is wondering how a sea lion has contact with a cat, try to see a sandy beach from a cat's perspective. That and the human habit of flushing cat litter have created a massive problem for marine mammals.

Why cats?

The connection to cats has to do with *T. gondii*'s affinity for reproducing only in domestic cats. This affinity may be related to the lack of a single enzyme in feline guts, delta-6-desaturase.

While any mammal can become infected by the parasite, the digestive enzyme delta-6-desaturase prevents the parasite from getting high enough levels of linoleic acid the parasite requires to fuel reproduction.

Unlike all other mammals, cats are full of linoleic acid due to not producing the delta-6-desaturase enzyme that would convert linoleic acid to oleic acid. So, the parasite only reproduces in cat intestines.

Cats then shed oocytes (protozoan parasite eggs) by the millions when they defecate, trapping them on fur and paw used to dutifully cover up their deposit, tracking them wherever a cat's paw may wander.

With the parasite completing its lifecycle, it may not affect the rest of cat biology. In humans and other animals, the failure to turn into the larger reproductive form allows the tiny parasite to migrate past the blood-brain barrier, where the disruption occurs.

The missing enzyme and the independent social lives of outdoor cats, mingling in shared sandboxes and loose garden soils around the world, make cat contact the primary vector for the infection. The secondary vector would be anything that has been in contact with a cat, such as a kitchen counter or any surface a cat has walked on or rubbed against.

While social media has clearly made the case that society would crumble without cats, it is important for all cat owners never to allow their cats outdoors to prevent the continued spread of the *T. gondii* parasite.

It is even more important that parents, with or without cats, understand the danger cat-borne [parasites](#) can pose to the long-term [mental health](#) of their children.

More information: John J McGrath et al, Cat Ownership and Schizophrenia-Related Disorders and Psychotic-Like Experiences: A Systematic Review and Meta-Analysis, *Schizophrenia Bulletin* (2023). [DOI: 10.1093/schbul/sbad168](https://doi.org/10.1093/schbul/sbad168)

E. F. Torrey et al, *Toxoplasma gondii* and Other Risk Factors for

Schizophrenia: An Update, *Schizophrenia Bulletin* (2012). [DOI: 10.1093/schbul/sbs043](https://doi.org/10.1093/schbul/sbs043)

© 2023 Science X Network

Citation: Kids with cats have more than double the risk of developing schizophrenia, researchers find (2023, December 11) retrieved 13 May 2024 from <https://medicalxpress.com/news/2023-12-kids-cats-schizophrenia.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--