Episode Book

EPISODE #5701

When Kids Hear Their Name in an Empty Room

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SYNOPSIS

Most people picture a psychiatric ward when they hear the word "hallucination." The epidemiological literature says that picture is wrong. In a meta-analysis pooling nineteen population studies, median prevalence of psychotic symptoms was 17% in children aged 9–12 and 7.5% in adolescents — meaning these experiences are most common in childhood and decline with age, exactly the opposite of what you'd expect if they were an early sign of illness. This episode walks through the numbers, the "you can't tickle yourself" predictive-coding account of why a developing brain might mislabel its own internal signals, and the specific dimensions that actually distinguish benign experiences from concerning ones: emotional valence, frequency, and controllability — not loudness, location, or whether the voice seems to have a personality.

TRANSCRIPT



Corn

Daniel wrote in with something he's been carrying around for years. Back when he was interning at the Irish newspaper in New York, he got assigned a piece on then-novel findings about how common hallucinations actually are, especially in early childhood. And the numbers apparently stuck with him, because he's got a whole set of questions about it. How common are hallucinations in people who never develop psychosis? What's the average lifetime incidence? Is there a threshold that separates the people who just have the experience from the people at higher risk of actual psychotic illness? And then the one he really wants answered: can once-off or very infrequent hallucinations be part of normal brain development, or is it always some kind of glitch in the system?



Herman

It's not a glitch. Well, sometimes it is, but mostly it isn't. That's the whole finding.



Corn

Good. We can stop there.



Herman

We cannot stop there, because the interesting part is where the line sits. When you say the word hallucination, most people picture a psychiatric ward. And the epidemiological literature landed like a brick in the early two-thousands precisely because it showed that picture is wrong. These experiences are common in people who are never diagnosed with anything.



Corn

So common that the old assumption, hallucination equals psychosis, doesn't survive contact with a population survey.



Herman

It doesn't. The model that replaced it is the psychosis continuum, sometimes called the extended psychosis phenotype. Psychotic experiences sit on a spectrum. At one end, a kid hears his name called once in an empty room and never thinks about it again. At the other end, persistent, distressing voices with a diagnosis attached. Most of the distribution sits



Herman (continued)

in the middle and never goes anywhere.



Corn

One spectrum, two very different addresses on it. And the address matters more than whether you're on the street at all.



Herman

Right. And here's the headline before we get into the numbers. In a meta-analysis pooling nineteen population studies, the median prevalence of psychotic symptoms was seventeen percent in children aged nine to twelve. Seven and a half percent in adolescents. So the peak is childhood, and it declines with age.



Corn

Declines. That's the tell.



Herman

That's the whole argument in one word. If these experiences were an early sign of illness, you'd expect prevalence to climb through adolescence into adulthood, when schizophrenia actually tends to onset. Instead it falls off a cliff. Which points at development, not disease.



Corn

So that's our arc. The numbers and the childhood peak. The developmental question and what the brain is doing. Then the threshold, what actually separates benign from concerning. And last, what any of this means for how we think about the mind.



Herman

And Daniel's last question runs underneath all of it. Glitch or not a glitch.



Corn

Start with the numbers, then. How common are we actually talking about?



Herman

Take the children first, because that's where it gets strange. A study of nearly eight thousand children aged nine to eleven, ninety-five percent of the eligible population, found that almost two-thirds endorsed at least one psychotic-like experience item. Two-thirds. The authors concluded these experiences may constitute part of a spectrum of normative development.



Corn

Normative development. So the default reading of a nine-year-old saying he heard something is not concern. It's Tuesday.



Herman

For a single item on a questionnaire, yes. And a separate study out of Japan found about twenty-one percent of eleven and twelve-year-olds had experienced hallucinations, with the authors taking care to separate the benign presentations from the concerning ones, which we'll come back to.



Corn

What about the kids who grow into teenagers?



Herman

Irish data, nationally representative, five thousand nine hundred and ten adolescents aged twelve to nineteen. Auditory hallucinations in thirteen point seven percent. Visual in ten point four. Paranoid thoughts in thirteen point one. So roughly one in seven hearing things.



Corn

One in seven. That's a classroom, not a case study.



Herman

And note the direction of travel across the whole set. Seventeen percent in the youngest children, seven and a half in adolescents, lower again in adults. Whatever this is, it mostly resolves on its own.



Corn

Which means the interesting population isn't the one that has the experience. It's the one that keeps having it.



Herman

That's exactly where the field moved. Adults, for reference: the range for auditory verbal hallucination in the general population runs from about five to twenty-eight percent depending on how you ask. Around six to thirteen percent of healthy individuals report voice hearing. In the UK Biobank sample, there were one thousand seven hundred and seventy-two people with auditory verbal hallucinations against one hundred and thirty thousand without.



Corn

One thousand seven hundred and seventy-two. That's not a rounding error in a healthy population. That's a small town.



Herman

That's the number I keep thinking about. Those aren't patients. That's a cohort of volunteers who mostly showed up for unrelated reasons.



Corn

Okay. So the prevalence claim is solid. Common in children, common enough in adults. Now the mechanism, because I want to know what the brain is actually doing when a kid hears his name in an empty room.



Herman

The leading framework is predictive coding, sometimes described in terms of a forward model. The brain isn't a passive receiver of sensory data. It's constantly predicting what its own actions are going to produce, and then cancelling out the predicted signal so you don't notice it.



Corn

Give me the concrete version.



Herman

You can't tickle yourself. That's the whole thing in one sentence.



Corn

Because the brain already knows the hand is coming.



Herman

It predicted the sensation, cancelled it, and what's left is nothing to report. Now imagine that prediction machinery is immature, or momentarily out of calibration. The internal signal doesn't get cancelled. It arrives as though it came from outside. And an uncancelled internal signal is, functionally, a hallucination.



Corn

So in a developing brain, the calibration is still in progress. Occasional misattribution isn't a fault. It's the system being built.



Herman

And the same machinery gets perturbed in adults by fatigue, stress, sensory deprivation. The mechanism isn't broken. It's being pushed.



Corn

Wait, I want to stay on that for a second, because I think people will hear "uncancelled internal signal" and think it's a metaphor. Is there a cleaner way to put it?



Herman

Think about the fact that you're not consciously aware of your own eye movements. Your visual field doesn't lurch every time you flick your eyes across the room, even though the image on your retina is being yanked around constantly. The brain predicts the movement and subtracts it. If it didn't, the world would seem to jump every time you looked at something new.



Corn

So the cancellation is happening constantly, in the background, for basically everything you do.



Herman

Constantly, and mostly invisibly. Now imagine a system where that subtraction occasionally fails. You'd get a fragment of your own internal activity showing up as though it were external. Not a voice from nowhere. A voice from you, mislabelled.



Corn

And a nine-year-old's brain is still tuning that subtraction.



Herman

That's the developmental argument in one image. The hardware is fine. The calibration is unfinished.



Corn

Which reframes Daniel's glitch question. A glitch implies a correct state and an error state. This sounds more like a system that's supposed to be noisy during assembly.



Herman

The Japanese paper makes the stress version explicit. Hallucinations in children have been reported in normally developing children and in association with temporary psychological reactions to acute stress. So a once-off isn't necessarily a glitch at all. It can be a stress response from a system working as designed.



Corn

Can I push on that? Because "stress response" and "developmental calibration" sound like two different explanations wearing the same coat. Which is it?



Herman

Both, and they're not in competition. The calibration story is about the machinery being immature. The stress story is about what happens when you load any version of that machinery past its current tolerance. A child under acute stress might have a hallucination because the system is still developing. An adult under acute stress might have one because the system is being pushed past its operating range. Same output, different reason.



Corn

So the experience itself doesn't tell you which one you're looking at.



Herman

That's the recurring theme, and it's going to come back when we get to the threshold. The phenomenology is the last thing to differentiate.



Corn

Right. Now I want the other half. If all this is so common and mostly benign, what actually separates the person who has one experience from the person who's on a path toward illness? Because there has to be something, or nobody would ever be flagged.



Herman

There is. It's just not presence or absence. It's a set of dimensions, and the research is fairly consistent about which ones. Start with modality and content, from the Japanese work on children. Kids whose hallucinations were combined-modality, meaning both auditory and visual, or had closely self-related auditory content, or concrete visual content, had significantly more psychopathology. Simple, isolated, non-self-referential experiences were the benign end.



Corn

So hearing something is one thing. Hearing something that's about you, specifically, is a different flag.



Herman

That's the pattern. Then frequency, valence, and control. This is the study I'd point anyone to, and the result is counterintuitive. One hundred and eleven healthy voice-hearers against one hundred and eighteen psychotic patients. They compared the phenomenology in detail. Location, inside the head versus outside. Number of voices. Loudness. Whether the voice had a personality. None of that differentiated the two groups.



Corn

None of it.



Herman

What did differentiate, at a strong level of significance: the emotional valence of the content, the frequency of the hallucinations, and the degree of control the person had over them. And age at onset was significantly younger in the healthy group, which is another developmental clue.



Corn

So the surface features people fixate on, where the voice is, how loud it is, whether it seems like a person, those are noise. The signal is how often, how nasty, and whether you can shut it off.



Herman

That's the cleanest summary of the threshold I can give you. Then you layer distress and function on top. In a community adolescent sample, seventy-five percent of those reporting psychotic experiences found them distressing, mean distress around seven out of ten. And those with psychotic experiences had poorer functioning overall.



Corn

That's a wrinkle. So even the experiences we'd call subclinical often carry real distress. The threshold isn't just about whether something happens. It's about what it costs the person.



Herman

And it compounds. In the Irish adolescent sample, reporting two of three psychotic experience types put you in what the authors called risk status. About ten percent of the sample. And that status was strongly associated with depression, low self-esteem, low optimism, school misconduct, high avoidance coping. The hallucination alone wasn't the marker. The cluster was.



Corn

So the flag isn't the experience. The flag is the experience sitting on top of everything else going wrong.



Herman

And persistence makes it sharper. A -analysis found pooled prevalence of psychotic-like experiences in children and adolescents at about seventeen percent, and those experiences were associated with increased risk of psychotic disorder in early adulthood, an odds ratio around three point eight. But the authors are careful: assessment method matters enormously. Interview-based assessments identify the trajectories that actually matter far better than self-report questionnaires.



Corn

So most of what a questionnaire captures is noise, and a much smaller interviewed subset carries the risk.



Herman

That's the honest reading. And to be fair to Daniel's third question, the population attributable fraction for that persistence finding was around thirty-three percent, which is not nothing. The population-level signal is real. It's just that at the individual level, the overwhelm



Corn

The overwhelming majority don't convert.



Herman

A separate -analysis of fourteen studies, nearly thirty thousand people, found psychotic experiences associated with roughly threefold risk of any mental disorder and fourfold risk of psychotic disorder. Those are elevated odds. And the absolute number of people with these experiences who never develop anything is enormous.



Corn

There's a modifier we haven't hit, and I think it's the biggest one. Trauma.



Herman

It's the one that reframes the whole continuum. Machine learning on the UK Biobank non-clinical sample identified childhood trauma, distress, anxiety, depression, and cannabis use as predictors of voice hearing. Sexual assault was associated with hallucinations at an adjusted odds ratio around two, and with psychotic disorder at around five point three.



Corn

So the same phenomenological experience can arrive from completely different roads. One kid hears a voice because the prediction machinery is still being calibrated. Another hears a voice because something happened to them and the system is under load.



Herman

Identical on the surface. Different story underneath. And that's precisely why the surface features don't differentiate in the Daalman study. You can't tell the road from the sound.



Corn

Which brings me back to Daniel's question in its sharpest form. Is it always a glitch.



Herman

The honest answer is that infrequent, non-distressing, controllable hallucinations are a normal-range phenomenon, not a glitch. But the same phenomenological event can, in a minority, be an early marker of a system under strain. The neuroimaging literature shows network dysconnectivity, interhemispheric miscommunication in auditory cortex, cortical gradient disruption, but those are trait markers of vulnerability. They're not present in every voice-hearer.



Corn

And the genetics point the same way. Polygenic risk scores for schizophrenia are associated with structural brain differences in healthy people, in the same biobank, people with no diagnosis.



Herman

Which supports a genetic continuum rather than a binary. Risk is distributed, not partitioned. And the polygenic signal and the psychotic-like experiences both track onto salience and default-mode network properties in people who are functioning fine.



Corn

So the model is: a continuous distribution of vulnerability, a continuous distribution of experience, and a threshold that's drawn by distress, frequency, control, and what else is going on in the person's life. Not by whether the experience happened.



Herman

That's the episode.



Hilbert

What did the man actually hear?



Corn

Sorry?



Hilbert

The stove one. There was a man who heard a single voice, once, telling him to check the stove. He got up and checked the stove, and the stove was on. Then he never heard it again. That was the case I remember from the job where we had to assess whether people were hearing things, and I've never settled it.



Herman

A non-distressing, self-referential, actionable hallucination. That's a strange profile against the literature. The valence is positive, the control is total, there's no frequency at all. One event.



Hilbert

He wasn't frightened by it. That's the part that stuck. He said it was like being tapped on the shoulder. He checked the stove. He turned it off. He went back to bed.



Corn

He never mentioned it to anyone until someone asked him directly.



Hilbert

For about six years. Then a survey came around and he mentioned it because it was on the list.



Herman

That's the ascertainment problem in one story. Everything we know about prevalence comes from people who happened to be asked. The man who ignores it and never thinks about it again is invisible to the data unless a questionnaire catches him.



Hilbert

What I noticed in that job was which ones were struggling. It wasn't the ones with the most voices. It was the ones who'd been told there was something wrong with them. The ones who'd been reassured did better, even when their experience was stranger.



Corn

The label is doing work the experience isn't.



Hilbert

That's what it looked like. I don't have numbers for it. I just have the seating chart, basically, of who came back.



Herman

There's a real finding adjacent to that. Distress and functional impairment track with the experience more strongly than the phenomenology does. If the story you've been handed about your own mind is that it's broken, that becomes part of the load.



Hilbert

The stove man is the other end of it. One signal, he acted on it, he never heard from it again. If the model is that the brain predicts and sometimes the prediction doesn't get cancelled, then that's a signal that got through. And in his case it was useful. He turned the stove off.



Corn

Which is a harder case for the glitch framing than anything in the papers. A glitch that tells you to check the stove and is correct isn't a glitch.



Hilbert

I don't know what to call it. I've had thirty years and I don't know. I'm going back to the desk now, the level on Herman's mic is drifting again.



Herman

He's right, it is.



Corn

The practical version of all of this. If the same experience can come from a calibrating brain, a stressed brain, or a traumatized brain, then the response can't be the same for all three.



Herman

The data supports that. The thing that predicts poor outcome isn't the presence of the experience. It's frequency, negative content, lack of control, multimodality, persistence, and what else is happening, distress, trauma, depression. Those are the things you'd actually assess.



Corn

Which is a strange place to land, given where we started. The word hallucination still carries the old meaning in most people's heads, and the research has been saying something different for twenty years.



Herman

The clinical practice lags the literature on this one. A single voice, once, in a nine-year-old, is probably developmental. A persistent, negative, uncontrollable voice in a fifteen-year-old with depression is a different thing entirely. Same category word, opposite implications.



Corn

The piece I keep circling is the childhood peak. Seventeen percent falling to seven and a half, falling again in adults. If the developing brain is where this happens most, then maybe the question isn't why children hallucinate. Maybe it's why we're surprised that they do.



Herman

There's a version of that question that gets at something bigger. We treat the adult brain as the reference standard and childhood as a work in progress toward it. But if the childhood peak is real, then the adult brain isn't the finished version of the child brain. It's the version that has pruned away most of this particular capacity.



Corn

Pruned, not fixed.



Herman

Pruned. Which raises the uncomfortable possibility that the capacity doesn't disappear. It just gets quiet. And under the right conditions, in an adult, it comes back.



Corn

Which would make the child's experience not a precursor to the adult's, but the adult's experience a return to something the child had all along.



Herman

That's the version I'd want someone to test. I don't know that anyone has.



Corn

If you want to read the papers themselves, the show notes have them. If you've got a weird prompt of your own, send it our way. Thanks to Hilbert Flumingtop for producing, and for the stove.



Herman

For the reminder that the most interesting case in the literature is usually the one that didn't make it into the dataset.



Corn

This has been My Weird Prompts.



Herman

We'll be back soon.