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Plasma neurofilament light protein is differentially associated with age in individuals with treatment-resistant schizophrenia and bipolar affective disorder compared to controls

Psychiatry research (2024) - 1 Comment

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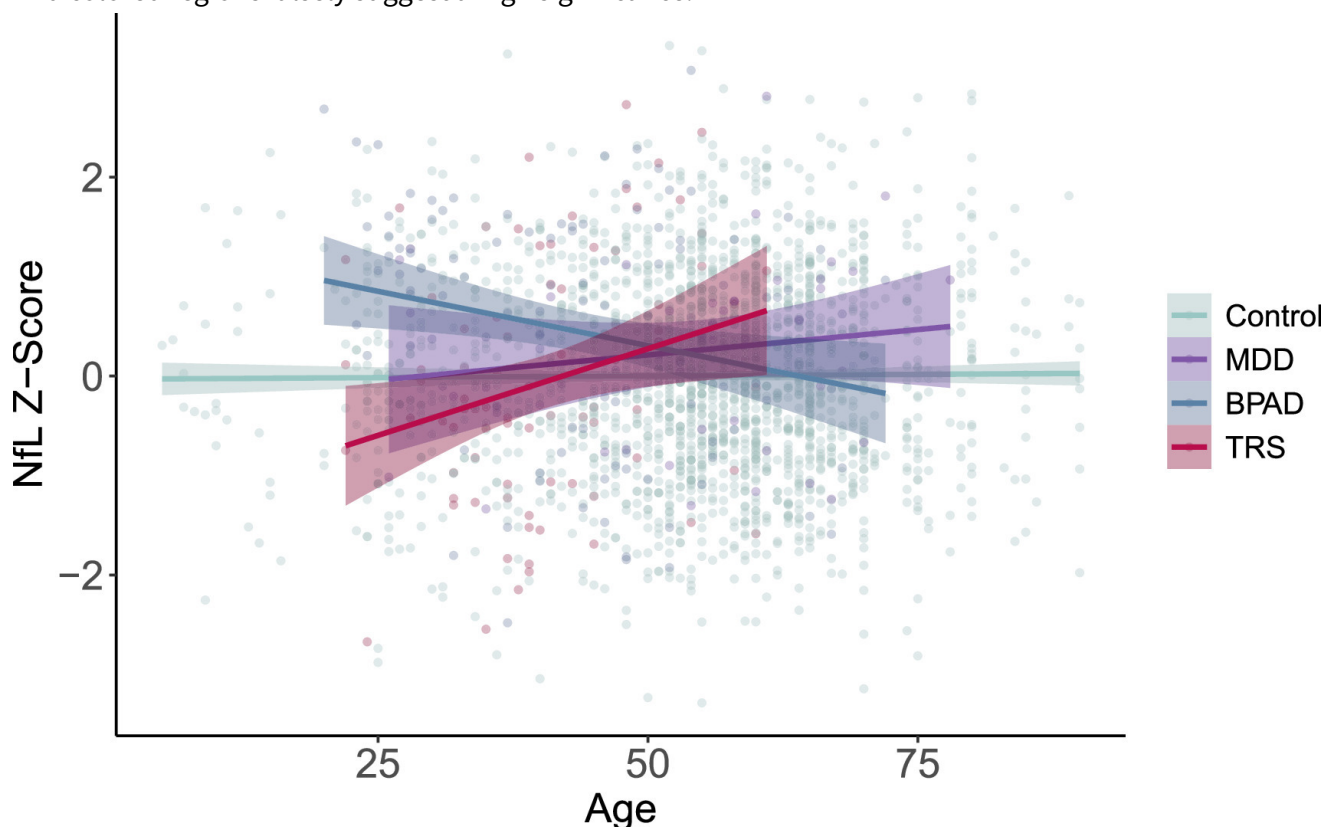
Anoplotermes parvus comment awaiting moderation



Awaiting Moderation

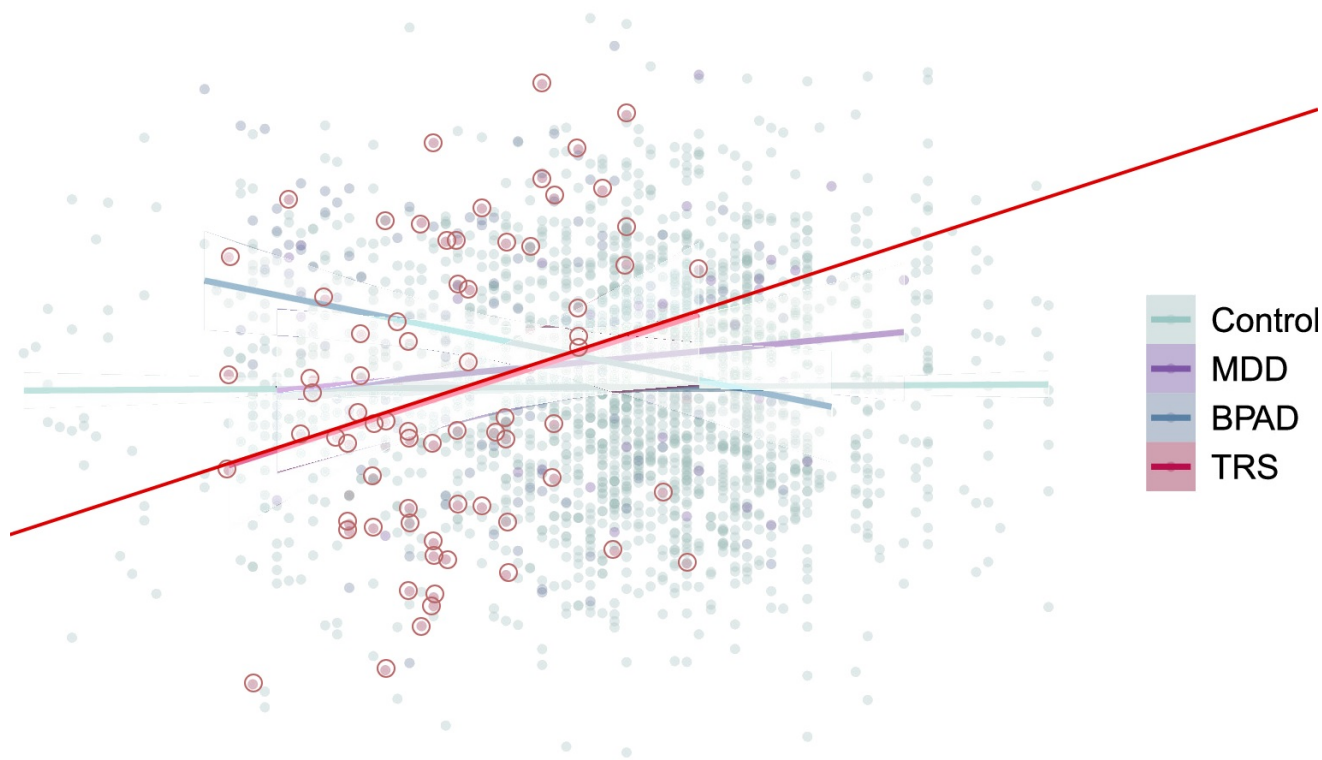
The presented findings are a pure random result because they compare small data sets ((major depressive disorder (n = 42), bipolar affective disorder (n = 121), treatment-resistant schizophrenia (TRS, n = 82)) to a huge control group (healthy control (HC) groups (n = 1,926 and n = 59)).

And colored regions falsely suggest a high significance:



(<https://pubpeer.com/storage/image-1746954778818.png>)

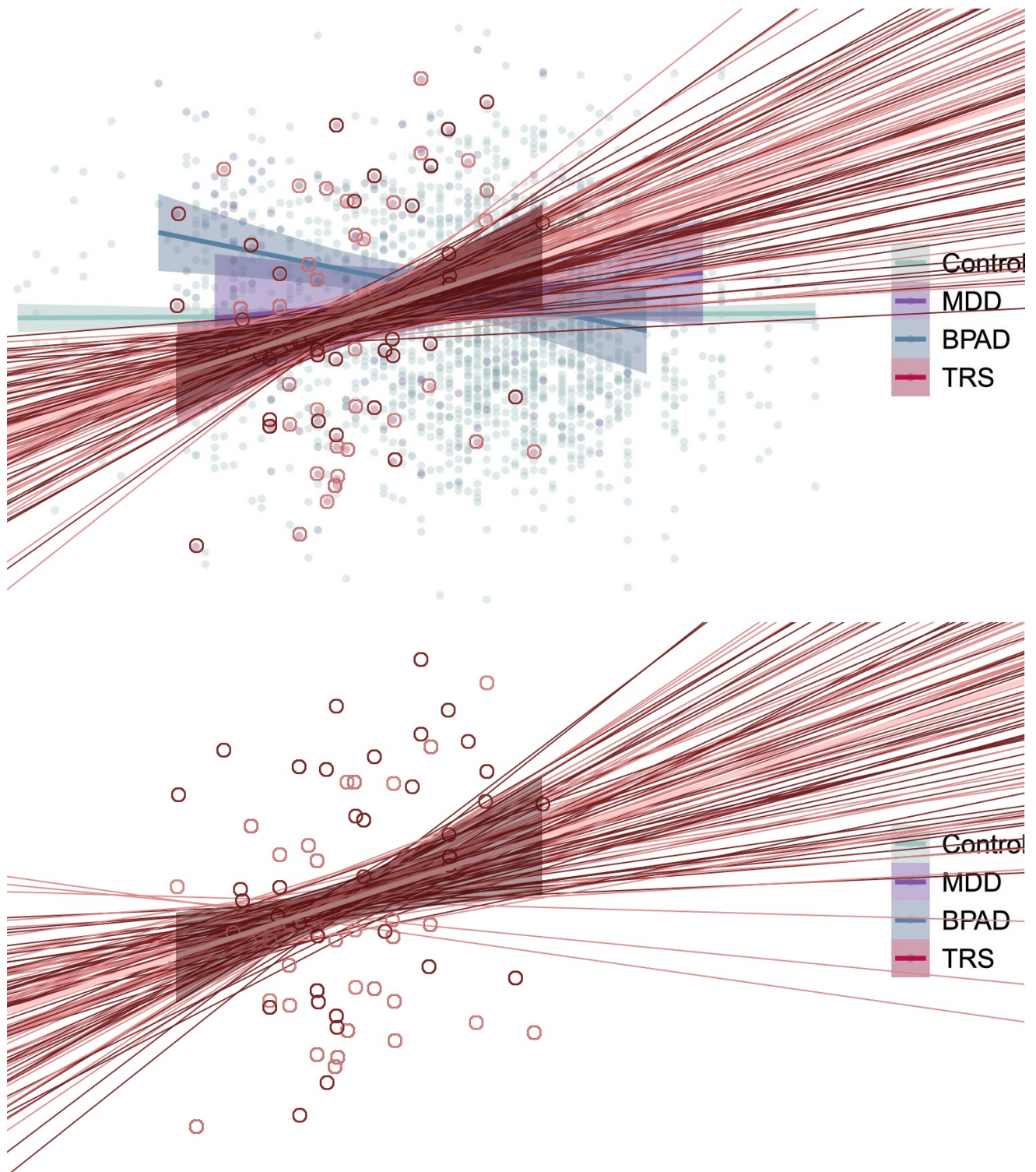
By subtracting the colored areas and recovering 71 of the 82 TRS data points, i instantly could reproduce their linear regression:



(<https://pubpeer.com/storage/image-1746954833551.jpg>)

And splitting these 50 times into two equal random subsets, i was able to reproduce the colored area by generating 100 artificial data points from these 100 linear regressions and chose 1.5 standard deviations as the upper and lower bound:



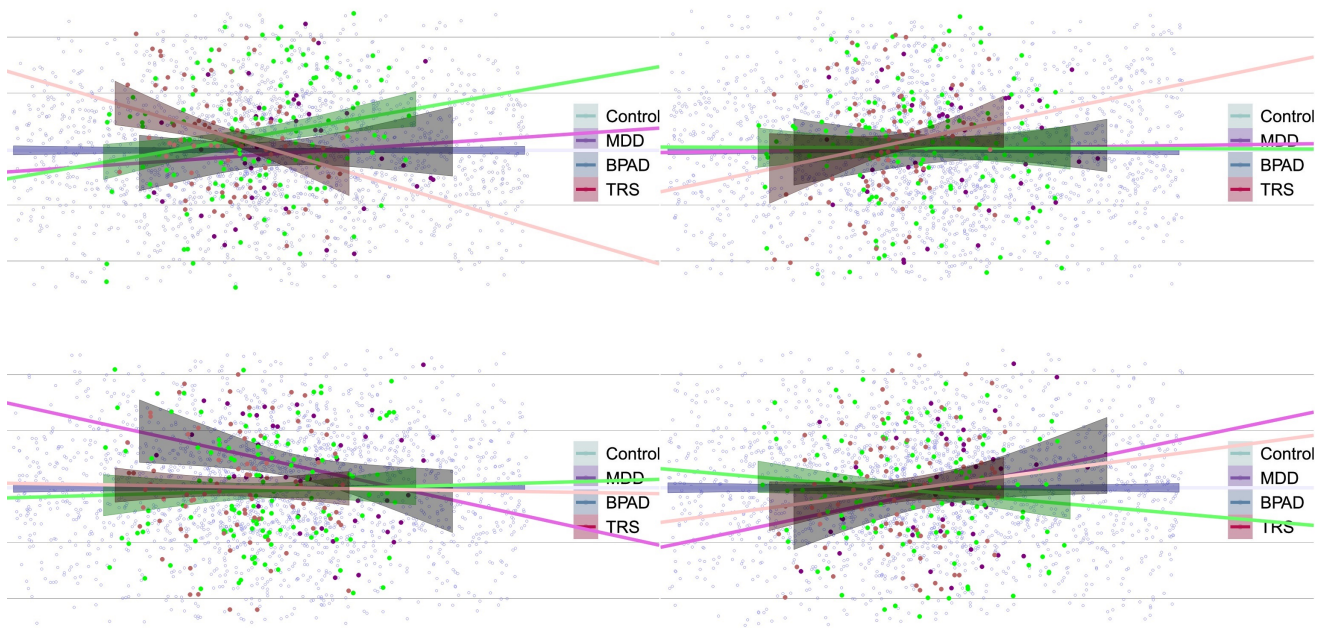


(<https://pubpeer.com/storage/image-1746955059535.jpg>)

Which is idiotic because 1.5 standard deviations are about 80% of (these artificial) data points inside, whereas in truth, 70% of the original data points are outside this region. So these colored regions do have no real meaning at all.

Next I built everything with random data points, proving that 'increasing or decreasing brain damage' is just the result of comparing small data sets to a huge control group:

1985x (95%/68% set flat) + 82x MDD=purple + 121x BPAD=green + 42x TRS=pink

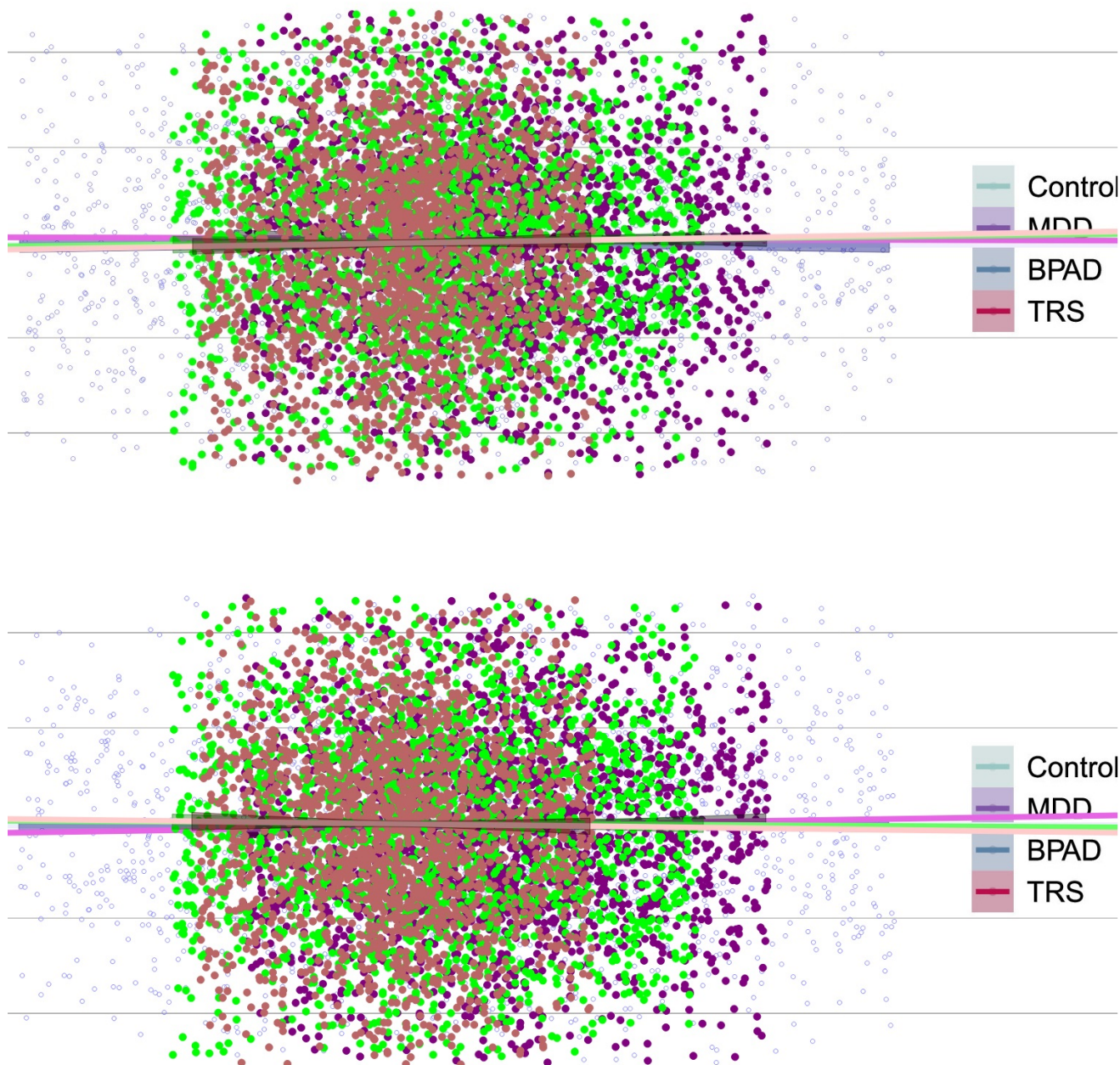


(<https://pubpeer.com/storage/image-1746955519833.jpg>)

When comparing same huge data sets, everything simply equals out:



1985x (95%/67% set flat) + 1985x MDD=purple + 1985x BPAD=green + 1985x TRS=pink



(<https://pubpeer.com/storage/image-1746955585587.jpg>)

And they do not only compare data sets different in size but also in range! The width of the TRS data set is less than 50% in width, so of course, the chance to steeper linear regression doubles.

They do not mention the severe flaws of their setup at all, even so they acknowledge '*The potential mechanisms driving lower NfL levels in younger TRS individuals compared to controls are unclear*'.

But if you by force draw a linear regression for a small data set, then of course, the left half of the line will be either lower (TRS, MDD) or higher (BPAD) than the average. Instead of this plain obvious explanation they write '*distinct neuropathological processes may be driving reductions in NfL in younger TRS individuals*.' and conclude with '**further research is required to fully understand relationships between age**

and NfL in younger individuals (https://pubpeer.com/journals) | About (https://pubpeer.com/static/about) | Privacy Policy (https://pubpeer.com/static/privacy)

So no wonder that news media did pick up the study with evil misleading headlines like <http://www.pubpeer.com/>

Schizophrenia: Researchers find cause of mental disorder; Schizophrenia: Accelerated degradation of nerve cells could trigger disorder; Schizophrenic brains age faster; <https://www.morgenpost.de/ratgeber-wissen/article408843204/schizophrenie-forscher-finden-ursache-fuer-psychische-stoerung.html> (<https://www.morgenpost.de/ratgeber-wissen/article408843204/schizophrenie-forscher-finden-ursache-fuer-psychische-stoerung.html>)

And that is why this evil study got published: a controversial topic good to make headlines. Potentially causing several more suicides among people with schizophrenia. (Schizophrenia affects approximately 24 million people worldwide, at least 5–13% of schizophrenic patients die by suicide, and Hopelessness is among the risk factors. <https://pmc.ncbi.nlm.nih.gov/articles/PMC1845151/>) (<https://pmc.ncbi.nlm.nih.gov/articles/PMC1845151/>)

Of course TRS might likely be associated with some sorts of brain changes, and '*Nfl forms an essential component of the neuronal cytoskeleton particularly important for growth and stability of axons*'. So already learning a new language like Chinese might stimulate a rebuild of axon connectivity and lead to a higher Nfl levels. But still, the results presented in this study are purely fabricated.

P.S. the authors claim that '*Positive relationships between age and Nfl z-scores in individuals with TRS remained significant when controlling for clozapine dose ($\beta = 0.04 [0.01, 0.8]$, $p = .01$), chlorpromazine equivalent dose ($\beta = 0.04 [0.01, 0.8]$, $p = .009$), and serum clozapine levels ($\beta = 0.04 [0.01, 0.8]$, $p = .01$)*'. TRS means that standard medication (which already have serious side effects like reducing brain volume) has already failed! So where is the control group of 82 schizophrenic patients (ages 24-60) who do not take medication at all ??

little physicist here, my proof that all the findings are meaningless can be found here: <https://robodurden.de/badscience/> (<https://robodurden.de/badscience/>) Simply click strg+u to get the source code

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