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Original Article

Association Between COVID-19 Vaccination and Neuropsychiatric Conditions

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Abstract

Introduction: This study explores the potential associations between COVID-19 vaccination and neuropsychiatric conditions. ***Methods:*** Data were collected from the CDC and FDA. The VAERS database was queried from January 1, 1990, to December 27, 2024, for adverse events (AEs) involving neuropsychiatric complications following COVID-19 vaccination. The timeframe included 420 months for all vaccines except COVID-19 vaccines which have been available to the public for only 48 months. Proportional reporting ratios (PRRs) were calculated by time comparing AEs after COVID-19 vaccination to those after influenza vaccination and to those after all other vaccines. The CDC/FDA stipulates a safety concern if a PRR is ≥ 2. ***Results:*** Comparing COVID-19 vaccination to influenza vaccinations, the CDC/FDA's safety signals (PRR, 95% confidence interval, p-value, Z-score) were breached for the following combinations: 47 AEs associated with cognitive impairment (PRR: 118, 95% CI: 87.2-160, $p < 0.0001$, Z-score: 30.9); 28 AEs associated with general psychiatric illness (PRR: 115, 95% CI: 85.1-156, $p < 0.0001$, Z-score: 30.8); and 11 AEs associated with suicide/homicide (PRR: 80.1, 95% CI: 57.3-112, $p < 0.0001$, Z-score: 25.7). ***Conclusions:*** There are alarming safety signals regarding neuropsychiatric conditions following COVID-19 vaccination, compared to the influenza vaccinations and to all other vaccinations combined.

Keywords: ***COVID-19 vaccines, Alzheimer's disease, Dementia, Cognitive function, Psychiatric illnesses, Suicide, Homicide***

Introduction

COVID-19 vaccine lipid nanoparticle (LNP) technology was designed to facilitate delivery to all bodily tissues, including the ability to cross natural barriers, such as the blood-brain barrier. The Food and Drug Administration (FDA) issued its first Emergency Use Authorization (EUA) for the Pfizer-BioNTech mRNA COVID-19 gene therapy product on December 11, 2020, followed one week later by Moderna's version. Although these experimental, non-traditional "vaccines" were classified as vaccines under a new CDC definition, they contained a degradation-resistant mRNA sequence coding for a single COVID-19 viral antigen, known as the spike protein. The spike protein can cross the blood-brain barrier through vascular damage and exhibit pathological activity, while both the LNPs and the spike protein are highly inflammatory. It is also known that the mRNA for the spike protein can be expressed in the brain following both a natural infection and, particularly, after repeated COVID-19 mRNA "vaccinations" [1-3].

Rushed testing and careless reviews by the FDA inexcusably overlooked the fact that the spike protein is a biologically toxic molecule. The FDA also failed to recognize that the spike protein mRNA inserted into the pseudo-vaccine incorporates potential amyloidogenic regions [4] within its tertiary structure. Roh and colleagues [5] report a potential association between COVID-19 vaccination and the rapid progression of Alzheimer's disease. Further studies may link this to the effects of chronic cytokine production. Perez, Moret-Chalmin, and Montagnier, a former Nobel Laureate, reported 26 cases of Creutzfeldt-Jakob Disease (CJD), all

diagnosed in 2021, with the first symptoms appearing an average of 11.38 days after receiving a Pfizer, Moderna, or AstraZeneca COVID-19 injection. Biomarkers were consistent with this diagnosis, but unfortunately, histological analysis was never performed [6]. Cognitive deficits [7,8] and the onset of psychiatric illnesses [8,9] have also been reported after the COVID-19 vaccines.

The purpose of this investigation is to query the CDC/FDA's Vaccine Adverse Event Reporting System (VAERS) to determine whether COVID-19 vaccines, compared to other vaccines, are associated with neuropsychiatric conditions.

Methods

MedAlerts [10] is one of only two long-standing platforms used to query the CDC/FDA's Vaccine Adverse Event Reporting System (VAERS). VAERS was queried from January 1, 1990, to December 27, 2024, for adverse events (AEs) involving cognitive, general neuropsychiatric, and suicidal/homicidal complications following COVID-19 vaccination. The time included 420 months for all vaccines, except COVID-19 vaccines, which were used for only 48 of the 420 months (January 1, 2021, to December 27, 2024). The Medical Dictionary for Regulatory Activities (MedDRA) is a five-level organization of all known symptoms. The lower-level group terms (LLT) are the lowest level with the most detail in VAERS relevant to the cognitive neuro-psychiatric disorders. For ease of investigators replicating our data presented here, the LLT are listed in British spelling and in alphabetical order exactly as they appear in VAERS.

LLT (47) associated with *cognitive* neuropsychiatric disorders with the exact wording and spelling used in VAERS: brain fog, brain injury, brain oedema, brain scan abnormal, cerebral atrophy, cerebral calcification, cerebral disorder, cerebral haemangioma, cerebral haematoma, cerebral haemorrhage, cerebral infarction, cerebral ischaemia, cerebral mass effect, cerebral microangiopathy, cerebral microembolism, cerebral microhaemorrhage, cerebral microinfarction, cerebral small vessel ischaemic disease, cerebral thrombosis, cerebral vascular occlusion, cerebral vasoconstriction, cerebral venous sinus thrombosis, cerebral venous thrombosis, cerebral ventricle collapse, cerebral ventricle dilatation, cerebral ventricular rupture, delirium, dementia of the Alzheimer's type, dementia of the Alzheimer's type with delirium, dementia of the Alzheimer's type with depressed mood, dementia with Lewy bodies, dementia, demyelinating polyneuropathy, demyelination, depressed level of consciousness, executive dysfunction, intellectual disability, intelligence test, intensive care unit delirium, ischaemic demyelination, mental disorder, mental fatigue, mental impairment, mental status changes, organic brain syndrome, perfusion brain scan, and perfusion brain scan abnormal.

LLT (28) associated with *general* neuropsychiatric disorders with exact wording and spelling used in VAERS: acute psychosis, anxiety, anxiety disorder, conversion disorder, delusion, generalized anxiety disorder, mixed anxiety and depressive disorder, mania, manic symptom, neuropsychiatric symptom, neuropsychological test, panic attack, psychiatric evaluation abnormal, psychiatric investigation, psychiatric symptom, psychological factor affecting medical, psychological trauma, psychomotor hyperactivity, psychotherapy, psychotic behaviour, psychotic disorder, psychotic symptom, schizoaffective disorder, schizoaffective disorder bipolar type, schizophrenia, schizophreniform disorder, stress, and stress at work.

LLT (11) associated with neuropsychiatric conditions focusing on *suicidal/homicidal* disorders with exact wording and spelling used in VAERS: aggression, depression suicidal, homicide, homicidal ideation, physical assault, physical violence, self injurious ideation, suicidal behaviour, suicidal ideation, suicide attempt, and suicide threat.

Proportional reporting ratios (PRRs) by time were used to compare adverse events (AEs) following COVID-19 vaccination to those following influenza vaccination and other vaccine products. A recent publication analyzing the VAERS database employed PRRs based on three different variables: AE per time, AE per inoculation, and AE per individual vaccinated. This publication [11] used Poisson distributions for disproportionality analysis by time, vaccination dose, and person vaccinated, with Poisson E-tests to compute the p-value. Denominators for COVID-19 vaccinations and the number of individuals vaccinated were sourced from Our World in Data [12]. Denominators for influenza vaccinations and the number of individuals vaccinated were derived from historical data combined with Monte Carlo simulation modeling. These extensive, time-consuming analyses were not necessary to repeat in this study, as the AE per time had already been validated by AE per dose and AE per person vaccinated [11].

The PRR, calculated by time as previously validated [11], was used in accordance with the CDC/FDA Vaccine Adverse Event Reporting System (VAERS) "Standard Operating Procedures" [13]. As explained on page 15 of the CDC/FDA's "Standard Operating Procedures," PRRs compare the proportion of a specific adverse event (AE) following a particular vaccine to the proportion of the same AE following the receipt of a different vaccine. Additionally, as outlined on page 15, the CDC/FDA considers a PRR ≥ 2 to indicate a safety signal breach [13]. Standard statistical methods were employed to calculate the PRR by time, along with 95% confidence intervals, p-values, and Z-scores, using the statistical software MedCalc® version 23.1.5 – 64-bit [14].

The Z-score is a statistical measurement that indicates how many standard deviations a data point is from the mean of a data set. It can be positive (above the mean) or negative (below the mean). The Z-score provides more detailed insight than a p-value in understanding the degree of deviation from an expected value within a given distribution. MedCalc® Statistical Software version 23.1.5 reports p-values as < 0.0001 or as a specific number if the p-value is ≥ 0.0001.

Results

Tables 1, 2, and 3 present lower-level group terms (LLT) in VAERS associated with 47 LLT neuropsychiatric conditions focused on *cognition*, 28 LLT *general* neuropsychiatric conditions, and 11 neuropsychiatric conditions focused on *suicidal/homicidal* disorders. The raw data in Column 2 are displayed as follows: AEs for COVID-19 vaccines over 48 months / AEs for influenza vaccines over 420 months / AEs for all vaccines except COVID-19 over 420 months. Column 3 compares AEs for COVID-19 vaccines over 48 months to AEs for influenza vaccines over 420 months. Column 4 compares AEs for COVID-19 vaccines over 40 months to AEs for all other vaccines over 420 months. Due to space limitations, only the most relevant LLT are shown in Table 1 for *cognitive* focused neuropsychiatric disorders. Table 2 focuses on the LLT *general* neuropsychiatric disorders. Table 3 displays LLT for *suicidal/homicidal* focused neuropsychiatric disorders.

Table 1: Presents 47 lower-level group terms (LLT) associated with c*ognitive* neuropsychiatric disorders in VAERS. The raw data in Column 2 are shown as follows: AEs for COVID-19 vaccines over 48 months / AEs for influenza vaccines over 420 months / AEs for all vaccines except COVID-19 over 420 months. Column 3 compares AEs for COVID-19 vaccines over 48 months with AEs for influenza vaccines over 420 months. Column 4 compares AEs for COVID-19 vaccines over 40 months with AEs for all other vaccines over 420 months. Row 2 compares AEs for all 47 LLT combined, followed by a comparison of only the 17 most relevant LLT out of the 47.

	Raw Data COVID-19 / Influenza / All Vaccines	**COVID vs Flu Vax PRR (95% Confidence Interval), P-Value, Z Statistic**	**COVID vs All Vax PRR (95% Confidence Interval), P-Value, Z Statistic**
Total of 47 LLT	23321 / 1772 / 7677	115 (85.1-156), <0.0001, 30.8	26.8 (19.8-36.1), <0.0001, 21.5
Brain fog	1223 / 103 / 262	104 (72.5-149), <0.0001, 25.3	40.8 (29.4-56.6), <0.0001, 22.2
Brain injury	352 / 42 / 242	73.3 (47.3-114), <0.0001, 19.2	12.7 (9.05-17.9), <0.0001, 14.6
Brain oedema	418 / 62 / 441	59.0 (39.5-88.0), <0.0001, 20.0	8.29 (5.98-11.5, <0.0001, 12.7
Cerebral atrophy	235 / 32 / 101	64.3 (40.0-103), <0.0001, 17.2	20.4 (13.9-29.7), <0.0001, 15.6
Cerebral disorder	338 / 25 / 140	118 (71.5-196), <0.0001, 18.6	21.1 (14.8-30.2), <0.0001, 16.7
Cerebral haemorrhage	2164 / 61 / 333	310 (210-460), <0.0001, 28.7	56.9 (41.3-78.3), <0.0001, 24.7
Cerebral small vessel ischaemic disease	225 / 20 / 42	98.4 (57.0-170), <0.0001, 16.4	46.9 (30.0-73.1), <0.0001, 17.0
Cerebral thrombosis	726 / 8 / 22	794 (372-1690), <0.0001, 17.3	289 (172-485), <0.0001, 21.4
Cerebral venous sinus thrombosis	1049 / 3 / 21	3060 (948-9880), <0.0001, 13.4	437 (259-739), <0.0001, 22.7
Delirium	1569 / 256 / 852	53.6 (38.7-74.3), <0.0001, 23.9	16.1 (11.8-22.0), <0.0001, 17.6
Dementia of the Alzheimer's type	179 / 11 / 19	142 (72.3-281), <0.0001, 14.3	82.4 (47.1-144), <0.0001, 15.5
Dementia with Lewy bodies	24 / 0 / 1	425 (25.4-7110), <0.0001, 4.21	210 (27.8-1590), <0.0001, 5.18
Dementia	895 / 57 / 176	137 (92.0-205), <0.0001, 24.1	44.5 (31.7-62.5), <0.0001, 21.9
Depressed level of consciousness	3148 / 317 / 1909	86.9 (63.1-120), <0.0001, 27.3	14.4 (10.6-19.6), <0.0001, 17.2
Mental fatigue	644 / 8 / 35	704 (330-1500), <0.0001, 16.9	161 (102-253), <0.0001, 22.0
Mental impairment	1613 / 123 / 563	115 (80.8-163), <0.0001, 26.5	25.1 (18.3-34.3), <0.0001, 20.1
Mental status changes	2525 / 205 / 549	108 (77.4-150), <0.0001, 27.7	40.2 (29.4-55.0), <0.0001, 23.2

Table 2: Presents 28 lower-level group terms (LLT) associated with *general* neuropsychiatric disorders in VAERS. The raw data in Column 2 are displayed as follows: AEs for COVID-19 vaccines over 48 months / AEs for influenza vaccines over 420 months / AEs for all vaccines except COVID-19 over 420 months. Column 3 compares AEs for COVID-19 vaccines over 48 months with AEs for influenza vaccines over 420 months. Column 4 compares AEs for COVID-19 vaccines over 40 months with AEs for all other vaccines over 420 months. Row 2 compares AEs for all 28 LLT combined, followed by a comparison of the 13 most relevant LLT out of the 28 for psychiatric disorders.

	Raw Data COVID-19 / Influenza / All Vaccines	**COVID vs Flu Vax PRR (95% Confidence Interval), P-Value, Z Statistic**	**COVID vs All Vax PRR (95% Confidence Interval), P-Value, Z Statistic**
Total 28 LLT	**21701 / 1609 / 6643**	**118 (87.2-160), <0.0001, 30.9**	**28.6 (21.2-38.6), <0.0001, 21.9**
Acute psychosis	54 / 4 / 11	118 (41.0-340), <0.0001, 8.83	43.0 (21.0-87.7), <0.0001, 10.3
Anxiety	14917 / 1120 / 4420	117 (85.9-158), <0.0001, 30.6	29.5 (21.9-39.9), <0.0001, 22.1
Conversion disorder	232 / 29 /209	70.0 (43.0-114), <0.0001, 17.1	9.71 (6.83-13.8), <0.0001, 12.6
Delusion	301 / 53 / 113	50.0 (32.7-75.4), <0.0001, 18.3	23.1 (16.0-33.4), <0.0001, 16.7
Mania	142 / 8 / 3	155 (71.7-336), <0.0001, 12.8	414 (127-1350), <0.0001, 9.99
Panic attack	2932 / 130 / 486	197 (140-279), <0.0001, 29.9	52.8 (38.6-72.2), <0.0001, 24.8
Psychiatric investigation	21 / 0 / 1	373 (22.2-6250), <0.0001, 4.12	184 (24.2-1440), <0.0001, 5.04
Psychiatric symptom	109 / 4 / 37	238 (84.1-676), <0.0001, 10.3	25.8 (16.0-41.6). <0.0001, 13.3
Psychotic disorder	354 / 39 / 148	79.4 (50.9-124), <0.0001, 19.2	20.9 (14.7-29.8), <0.0001, 16.8
Psychotic symptom	25 / 0 / 3	442 (26.5-7380), <0.0001, 4.24	72.9 (21.2-251), <0.0001, 6.81
Schizoaffective disorder	14 / 20 / 21	6.13 (2.91-12.9), <0.0001, 4.77	5.83 (2.79-12.2), <0.0001, 4.68
Schizophrenia	72 / 2 / 34	315 (74.9-1320), <0.0001, 7.85	18.5 (11.2-30.7), <0.0001, 11.3
Stress	1680 / 124 / 534	119 (83.5-168), <0.0001, 26.7	27.5 (20.1-37.7), <0.0001, 20.7

Table 3: Presents 11 lower-level group terms (LLT) associated with *suicidal/homicidal* neuropsychiatric disorders in VAERS. The raw data in Column 2 are shown as follows: AEs for COVID-19 vaccines over 48 months / AEs for influenza vaccines over 420 months / AEs for all vaccines except COVID-19 over 420 months. Column 3 compares AEs for COVID-19 vaccines over 48 months with AEs for influenza vaccines over 420 months. Column 4 compares AEs for COVID-19 vaccines over 40 months with AEs for all other vaccines over 420 months. Row 2 compares AEs for all 11 LLT combined with the 11 LLT for psychiatric disorders.

	Raw Data COVID-19 / Influenza / All Vaccines	**COVID vs Flu Vax PRR (95% Confidence Interval), P-Value, Z Statistic**	**COVID vs All Vax PRR (95% Confidence Interval), P-Value, Z Statistic**
Total 11 LLT	**1748 / 191 / 1094**	**80.1 (57.3-112), <0.0001, 25.7**	**14.0 (10.3-19.0), <0.0001, 16.8**
Aggression	455 / 113 / 760	35.2 (24.5-50.6), <0.0001, 19.2	5.24 (3.80-7.22), <0.0001, 10.1
Depression suicidal	61 / 1 / 12	534 (72.3 (3940), <0.0001, 6.16	44.5 (22.4-88.4), <0.0001, 10.8
Homicide	1 / 0 / 0	26.0 (1.05-647), =0.0469, 1.99	26.0 (1.05-647), =0.0469, 1.99

Homicidal ideation	14 / 5 / 5	24.5 (8.46-71.0), <0.0001, 5.89	24.5 (8.46-71.0), <0.0001, 5.89
Physical assault	13 / 1 / 4	114 (14.6-889), <0.0001, 4.51	28.4 (8.92-90.7), <0.0001, 5.66
Physical violence	9 / 1/ 3	78.8 (9.76-635), <0.0001, 4.1	26.3 (6.87-100), <0.0001, 4.78
Self injurious ideation	44 / 1 / 5	385 (51.9-2860), <0.0001, 5.82	77.0 (29.1-204), <0.0001, 8.76
Suicidal behaviour	22 / 1 / 3	44.5 (22.4-88.4), <0.0001, 10.8	64.2 (18.5-222), <0.0001, 6.56
Suicidal ideation	999 / 57 / 210	153 (103-229), <0.0001, 24.6	41.6 (29.8-58.1), <0.0001, 21.9
Suicide attempt	120 / 11 / 91	95.5 (48.1-190), <0.0001, 13.0	11.5 (7.70-17.3), <0.0001, 11.9
Suicide threat	10 / 0 / 1	182 (10.5-3160), =0.0003, 3.58	87.5 (11.0-698), <0.0001, 4.22

Discussion

We found multiple concerning safety signals within the CDC/FDA Vaccine Adverse Event Reporting System (VAERS) related to COVID-19 vaccinations and neuropsychiatric disorders. The CDC/FDA consider a proportional reporting ratio (PRR) ≥ 2 to indicate a safety signal breach [13]. Z-scores are valuable for evaluating PRRs, as they represent the number of standard deviations above the mean PRR. For example, a Z-score above 6 is considered statistically improbable, meaning the PRR is so far in the upper tail of the distribution that the probability of this association occurring by chance alone is near zero.

The Association of COVID-19 Vaccinations and *Cognitive* Neuropsychiatric Disorders

The authors identified 47 lower-level group terms (LLT) associated with *cognitive* neuropsychiatric disorders within VAERS. When all 47 LLT were combined and COVID-19 vaccinations were compared to influenza vaccines, the proportional reporting ratio (PRR) was 115 (95% confidence interval: 85.1–156, p-value: <0.0001, Z-score: 30.8). When compared to all other vaccines, the PRR was 26.8 (95% confidence interval: 19.8–36.1, p-value: <0.0001, Z-score: 21.5). Some individual LLT PRRs within the cognitive deficit category, comparing COVID-19 versus influenza vaccines and COVID-19 versus all vaccines, include the following (PRR, 95% confidence interval, p-value, Z-score). The terminology and British spellings are listed exactly as in VAERS in order to facilitate the replication of our data by independent investigators.

- Brain fog: 104 (72.5–149), <0.0001, 25.3 and 40.8 (29.4-56.6), <0.0001, 22.2
- Brain oedema: 59.0 (39.5-88.0), <0.0001, 20.0 and 8.29 (5.98-11.5, <0.0001, 12.7
- Cerebral atrophy: 64.3 (40.0–103), <0.0001, 17.2 and 20.4 (13.9–29.7), <0.0001, 15.6
- Cerebral haemorrhage: 310 (210-460), <0.0001, 28. and 56.9 (41.3-78.3), <0.0001, 24.7
- Cerebral small vessel ischaemic disease: 98.4 (57.0-170), <0.0001, 16.4 and 46.9 (30.0-73.1), <0.0001, 17.0
- Cerebral venous sinus thrombosis: 3060 (948-9880), <0.0001, 13.4 and 437 (259-739), <0.0001, 22.7
- Dementia: 137 (92.0-205), <0.0001, 24.1 and 44.5 (31.7-62.5), <0.0001, 21.9
- Dementia of the Alzheimer's type: 142 (72.3–281), <0.0001, 14.3 and 82.4 (47.1-144), <0.0001, 15.5
- Dementia with Lewy bodies: 425 (25.4–7110), <0.0001, 4.21 and 210 (27.8-1590), <0.0001, 5.18
- Depressed level of consciousness: 86.9 (63.1-120), <0.0001, 27.3 and 14.4 (10.6-19.6), <0.0001, 17.2
- Mental impairment: 115 (80.8–163), <0.0001, 23.5 and 25.1 (18.3–34.3), <0.0001, 20.1

Other individual LLT within the cognitive deficit category are listed in Table 1.

Our findings are consistent with those reported around the globe. Roh and colleagues noted an association between COVID-19 vaccination and the development of Alzheimer's disease [5].

Their study, conducted in Seoul, South Korea, analyzed data from a random 50% sample of city residents aged 65 and above, totaling 558,017 individuals. Participants were divided into vaccinated and unvaccinated groups, with vaccinations including both mRNA and DNA vaccines. The study focused on the incidences of Alzheimer's disease and mild cognitive impairment post-vaccination, identified via ICD-10 codes, using multivariable logistic and Cox regression analyses. The mRNA vaccine group exhibited a significantly higher incidence of Alzheimer's disease (odds ratio [OR]: 1.225; 95% confidence interval [CI]: 1.025–1.464; P = 0.026) and mild cognitive impairment (OR: 2.377; CI: 1.845–3.064; P < 0.001) compared to the unvaccinated group [5].

As previously mentioned, Perez and colleagues [6] reported the emergence of 26 new cases of Creutzfeldt-Jakob Disease (CJD), all diagnosed in 2021, just days after COVID-19 vaccinations. The study's authors believed that the vaccine injections triggered the disease in these 26 patients. Given the extreme rarity of CJD and its typically slow onset, the authors' conclusion about causation is likely valid. In these patients, the first symptoms appeared within an average of 11.38 days after receiving a Pfizer, Moderna, or AstraZeneca COVID-19 injection. Historically, it usually takes decades for CJD to progress to a fatal disease state. One of the co-authors of this publication, Luc Montagnier, a Nobel Prize-winning virologist, passed away shortly after reporting these cases.

The authors [6] implicate prions as a potential cause of COVID-19 vaccine-induced CJD. According to Tetz and Tetz, there is a prion region in both the spike proteins produced by SARS-CoV-2 and the COVID-19 vaccines [15-17]. Prions are proteins that transition from non-aggregated to self-templating, highly ordered, aggregated complexes. Seneff and Nigh [15] describe the "GxxxG" signature motif, consisting of a three-amino acid sequence flanked by two glycine residues, within the coding sequence of the COVID-19 vaccine mRNA. They propose that the "GxxxG zipper motif" increases the risk of protein misfolding, creating toxic oligomers, which may potentially contribute to the acceleration of prion diseases.

The physiological folding of proteins into their three-dimensional, functional structure is an energy-dependent process. In 2022, Thorp and colleagues [18] published their thesis on energy-dependent mechanisms that contribute to the pathogenesis of protein misfolding, prion disease, and the development of large white clots observed both in vivo and postmortem. They suggest that COVID-19 infection and/or vaccination led to an energy-depleted state, caused by the diversion of energy from normal cellular functions to abnormal processes, including the production of large amounts of spike protein. This disruption in intracellular energy availability inevitably affects protein folding and may contribute to protein misfolding diseases, such as Creutzfeldt-Jakob disease (CJD) or a cytokine-driven progression of very early CJD. Moreover, this disruption could contribute to thromboembolic disease and the formation of large white thrombi and microthrombi, which have

been well-documented since the advent of COVID-19 vaccinations [19,20]. Additionally, Rogers and colleagues [21] highlighted the significant risk of cerebral thrombotic syndromes related to COVID-19 vaccinations, likely contributing to impaired cognitive function. Ota et al in Japan documented COVID-19 mRNA injection spike proteins are expressed in cerebral arteries of hemorrhagic stroke patients for up to 17 months [22].

In 2022, Chaurasia and colleagues [7] described cognitive deficits and memory impairments following COVID-19 vaccinations. They reported the case of a 65-year-old man who developed sudden cognitive and memory impairments six days after receiving his first dose of the Oxford AstraZeneca COVID-19 vaccine. He was admitted to the hospital after experiencing sudden memory loss that lasted for one day. He was disoriented to time, place, and person, and was unable to recall both short- and long-term memories previously acquired. On examination, his speech was non-fluent and characterized by isolated words. He was completely unaware of his presence in the hospital. A non-contrast CT scan was essentially normal, showing no evidence of hemorrhage or focal lesions. All routine blood tests were normal. The acute cognitive deficits and memory impairments following vaccination were attributed to a cerebrovascular cause.

The Association of COVID-19 Vaccinations and General Neuropsychiatric Disorders

The authors identified 28 lower-level group terms (LLT) associated with *general* neuropsychiatric disorders within VAERS. When all 28 LLT were combined, and COVID-19 vaccinations were compared to influenza vaccines, the proportional reporting ratio (PRR) was 118 (95% confidence interval: 87.2–160), p-value: <0.0001, Z-score: 30.9. When compared to all other vaccines, the PRR was 28.6 (95% confidence interval: 21.2–38.6), p-value: <0.0001, Z-score: 21.9.

Some of the individual LLT PRRs within the *general* neuropsychiatric disorders category, comparing COVID-19 vs. influenza vaccines and COVID-19 vs. all vaccines, include the following (PRR, 95% confidence interval, p-value, Z-score):

- Acute psychosis: 118 (41.0–340), <0.0001, 8.83 and 43.0 (21.0-87.7), <0.0001, 10.3;
- Anxiety: 117 (85.9–158), <0.0001, 30.6 and 29.5 (21.9–39.9), <0.0001, 22.1;
- Conversion disorder: 70.0 (43.0–114), <0.0001, 17.1 and 9.71 (6.83–13.8), <0.0001, 12.6;
- Delusion: 50.0 (32.7–75.4), <0.0001, 18.3 and 203 (108–381), <0.0001, 16.5;
- Mania: 155 (71.7–336), <0.0001, 12.8 and 414 (127–1350), <0.0001, 9.99;
- Panic attack: 197 (140–279), <0.0001, 29.9 and 52.8 (38.6–72.2), <0.0001, 24.8;
- Psychiatric symptom: 238 (84.1–676), <0.0001, 10.3 and 25.8 (16.0–41.6), <0.0001, 13.3;
- Psychotic disorder: 79.4 (50.9–124), <0.0001, 19.2 and 20.9 (14.7–29.8), <0.0001, 16.8;
- Psychotic symptom: 442 (26.5-7380), <0.0001, 4.24 and 72.9 (21.2-251), <0.0001, 6.81
- Schizophrenia: 315 (74.9–1320), <0.0001, 7.85 and 18.5 (11.2–30.7), <0.0001, 11.3;
- Schizoaffective disorder: 6.13 (2.91-12.9), <0.0001, 4.77 and 5.83 (2.79-12.2), <0.0001, 4.68;

Other individual LLT within the psychiatric category are listed in Table 2.

Consistent with the findings of this study, Kim and colleagues [9] conducted a population-based cohort study in Seoul, South Korea, and documented psychiatric adverse events following COVID-19 vaccination.

Vaccines used prior to the pandemic have also been associated with adverse effects on cognition, learning disabilities, and psychiatric symptoms. A recent landmark study [23] investigated the neurodevelopmental outcomes of 47,155 nine-year-old children enrolled in the Florida State Medicaid program from birth to age 9. By reviewing healthcare records for these children, the study compared neurodevelopmental outcomes between vaccinated and unvaccinated cohorts. The authors found that vaccinated children had significantly higher rates of neurodevelopmental disorders than unvaccinated children (27.8% in the vaccinated group compared to 11% in the unvaccinated group). These disorders included autism spectrum disorders, hyperkinetic syndrome, epilepsy or seizures, learning disorders, encephalopathy, and tic disorders. This study has unique strengths, as it utilized a comprehensive government dataset (Florida Medicaid), documented vaccination age and healthcare visits, and included valid control groups [23].

Psychiatric drug-induced chronic brain impairment (CBI) is characterized by four symptoms: cognitive dysfunction, apathy or loss of energy and vitality, emotional worsening (affective dysregulation), and anosognosia, which refers to a lack of self-awareness regarding these symptoms of brain dysfunction. According to Breggin [24], CBI results from long-term exposure to psychiatric drugs. Given the continued chronic production of the neurotoxic spike protein, which readily crosses the blood-brain barrier for extended periods, it is possible that COVID-19 vaccinations could cause a form of psychiatric drug-induced CBI, as described by Breggin. The four symptoms of CBI closely resemble those experienced by many individuals who have had repeated COVID-19 vaccinations. Yet, federal health agencies remain unable to process the growing body of data documenting the adverse consequences of the inoculations, both in the medical literature and among their own patients.

A recent study from Yale documents that the neurotoxic spike protein is produced for up to 709 days after the last mRNA COVID-19 vaccination [25]. Additionally, several individuals who have suffered from COVID-19 vaccine injuries have shown continued production of the spike protein for over 1500 days after their last injection [26,27]. Most recently the COVID-19 mRNA was documented in cerebral arteries for 17 months after hemorrhagic stroke [22]. It is possible that the mRNA from the COVID-19 vaccine is reverse transcribed and could remain in the human genome of some recipients, leading to lifelong production of the spike protein. The potential for this was clearly demonstrated in vitro as early 2021 [28]. Despite these findings, federal health regulatory agencies proceeded to promote vaccination for women at any trimester, children, and eventually age groups down to infants, a demographic at no particular risk from COVID-19..

Association of COVID-19 Vaccinations and Neuropsychiatric Suicidal/Homicidal Disorders

The most severe spectrum of neuropsychiatric disorders includes suicidal and homicidal behaviors. We have identified 11 lower-level group terms (LLT) associated with these severe neuropsychiatric disorders within the VAERS database. When all 11 LLT were combined and COVID-19 vaccinations were compared to influenza vaccines, the proportional reporting ratio (PRR) was 80.1 (95% confidence interval: 57.3–112), with a p-value of <0.0001 and a Z-score of 25.7. Compared to all other vaccines, the PRR was 14.0 (95% confidence interval: 10.3-19.0), with a p-value of <0.0001 and

a Z-score of 16.8. All 11 individual suicidal and homicidal symptoms are listed in Table 3. Clearly, the dramatic increase in psychiatric disorders, including suicide and homicide, over the past four years is multifactorial. However, COVID-19 vaccinations have likely made a significant contribution.

The limitations of this study stem from the inherent constraints of the CDC/FDA VAERS system. It cannot compare vaccine adverse events (AEs) to a non-vaccinated control population, nor does it allow for prospective observational analysis. VAERS only enables the comparison of novel vaccines to vaccines already in use, assumed to be safe. This introduces bias in favor of the novel vaccine, as it is known that all vaccines carry inherent risks of morbidity and mortality. Additionally, it is well-established that only a small fraction of vaccine-related complications is reported to VAERS, with estimates suggesting that only about 1% of adverse events are documented. VAERS was established by law on November 14, 1986, through the National Childhood Vaccine Injury Act, and the CDC/FDA is obligated to maintain the integrity of this reporting system.

Interestingly, on April 21, 2021, then Director of the CDC, Rochelle Walensky; Editor-in-Chief of the New England Journal of Medicine (NEJM), Eric Rubin; and NEJM Managing Editor, Stephen Morrissey, published an Op-Ed in the NEJM [29] stating that VAERS was accurate and a useful tool for monitoring vaccine injuries, and that the COVID-19 vaccine was safe. Walensky was aware of Pfizer's 5.3.6 post-market analysis, completed seven weeks earlier, on February 28, 2021, which documented that the COVID-19 vaccine was the deadliest medical product ever rolled out in medical history. In the first 10 weeks alone, 42,086 casualties were reported, including 1,223 deaths [30]. The CDC/FDA and Pfizer attempted to conceal this data for 75 years [31]. As the Director of the CDC/FDA, it was necessary for Walensky to vouch for the veracity of VAERS on April 21, 2021 because she was responsible for ensuring its validity. On that date, Walensky and her subordinates appeared confident they could hide the unprecedented numbers of injuries from COVID-19 vaccines [32]. However, the caseload of severe COVID-19 vaccine-associated injuries and deaths was far too high to conceal, and they could not discredit a system that they were responsible for maintaining.

Since then, it appears there has been a systemic disregard and undermining of VAERS across all media platforms. For example, in 2023, CDC Vaccine Safety Office Director Shimabukuro echoed Walensky's hollow words in defense of the CDC's handling of the onslaught of COVID-19 vaccination adverse events (AEs). When asked about the AEs, Walensky had dubiously claimed in her 2021 NEJM discussion that the CDC took these reports "very seriously" [29]. Later, in a January 2023 public safety meeting, Shimabukuro repeated Walensky's words as if scripted. When answering a question about how the CDC was handling AEs not captured by the closed Vaccine Safety Datalink (VSD) system, Shimabukuro stated that the CDC takes these reports "very seriously" [33]. CDC Director Walensky and CDC Vaccine Safety Official Shimabukuro provided false assurances that the CDC took these AEs "very seriously," when the opposite was true.

Other widely influential organizations have attempted to undermine the credibility of VAERS [34,35]. One such organization is the Johns Hopkins Bloomberg School of Public Health, which claims on its webpage that VAERS gained "dubious notoriety" during the pandemic because "anti-vaccination fringe groups" attempted to "spin false stories using VAERS data", adding to misinformation about the safety of COVID-19 vaccines" [35]. However, Johns Hopkins has significant financial and other conflicts of interest. Johns Hopkins University is reported to lead all U.S. universities and colleges as the top recipient of National Institutes of Health (NIH) funding [36] and is one of only nine medical research centers in the U.S. selected to partner with the CDC's Clinical Immunization Safety Assessment (CISA) project [37]. In 2022 alone, Johns Hopkins reportedly received $1.3 billion in government funding [38]. Additionally, the sudden promotion of mRNA vaccines in pregnancy by the American College of Obstetricians and Gynecologists (ACOG) raises questions. Is their stance based on clinical science, or is it due to the fact that ACOG received an $11 million grant from the CDC to promote mRNA vaccination under the CDC's own guidelines? [39].

Conclusion

In conclusion, there are unprecedented safety signals indicating an association between COVID-19 vaccination and the development of neuropsychiatric disorders. The effects of these biological products on maternal and fetal health are of great concern [40,41]. Our findings are worrisome for the future population risk for a variety of neuropsychiatric disorders including those affecting cognition and suicidal/homicidal behaviors. Additionally, population intelligence should be thoroughly assessed among vaccinated and unvaccinated groups. In the meantime, the COVID-19 vaccines should be immediately withdrawn from the market.

Declarations

The authors confirm that the content of this research is original work. It has been submitted only to the MDPI Preprint server.

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