THE OFFICIAL NUMBER OF COVID-19 DEATHS IS A MANY-FOLD OVERESTIMATION.

The Math-logic Method to Measure the Real Number of Covid-19 Lethal Victims.

The guideline analysis, the U.S. in 2020.

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Abstract

BACKGROUND: What do the data presented in the CDC tables „Deaths involving coronavirus” mean? The one objective information is: „xxx thousands of people have died and being probably infected with Covid-19”. But how many of these people would for sure still live if not Covid-19? The aim of this paper is to present the math-logic method that makes possible to reveal the real number of lethal Covid-19 victims of in the U.S.

METHODS: The ideas for solutions are original, mathematical – logical; there were used constructed by us estimators. The calculated data are usually slightly rounded, because the method presentation is the main aim of the article.

FINDINGS: Under 10% of those reported as Covid-19 victims, in the US in 2020, died from Covid-19 complicity and all the rest would have died in the same or in a very close to identical time anyway (also without Covid-19) because their deaths resulted only from the normal age-structure of deaths in the United States, creating the average age of death in the given year.

INTERPRETATION: The official number of Covid-19 victims is in a vast majority “the double counting” of those who would die whatsoever in the same time even without Covid-19. The 'ex post’ analysis is necessary to discover the real number of deaths due to Covid-19.

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Introduction

It seems there is no correct essay analyzing the real Covid-19 mortality to find. What do the data presented in the CDC tables „Deaths involving coronavirus” mean? The one objective information is: „xxx thousands of people have died and being probably infected with Covid-19”. But how many of these people would for sure still live if not Covid-19? The main summary reason of deaths is “aging” =advancing age and all diseases (conditions) the frequency and deadly effects of which are very strongly correlated with it (what means, with the overall weakness of the organism); those conditions sources are in the body itself or a condition progress needs much time and advancing age. Next, there are deaths caused by fully external causes like different injuries. Infections have burdening actions (deadly effects are strongly correlated with the overall weakness of the organism /age). Infant mortality is another quite important group of causes of death. The important point to remember is that the number of chronic conditions and life expectancy are strongly correlated too. The aim of this paper is to show how to calculate the real number of Covid-19 lethal victims.

/Any potential influence of wrong diagnoses (e.g. Covid-19 instead of the flu or other coronaviruses) on the final result is not included in the calculations./
Methods

The ideas for solutions are original, mathematical - logical. A few logic guesses had to be resolved. At first it was calculated what the average age of death would be in the year 2020 in a similar group (to the one assumed to be killed by Covid-19) but if there were only those died in 2020 due to other reasons in it and those really died due to Covid-19 (otherwise expected to live longer) were excluded. Then, the average further life expectancy for the people from the whole “deaths involving Covid-19” group, if they were still alive, was calculated. The calculations widely used the CDC, NSC and other institutions’ databases, and also Life Table. There were used constructed by us estimators. To understand the procedures of calculations and what the consequences are a reader must follow the resolving and explanations given below. The obtained data are further a bit rounded. In general, some of intermediary results are a bit rounded and the method is in some places slightly simplified to chase calculations and because not all most precise data were available, while the idea presentation is the main goal of this article; however it cannot meaningfully influence the final result of this analysis.

Detailed Procedure & Results

Part 1

The average age of those who officially died from Covid-19

No ready data concerning Covid-19 can be found, apart from the rounded median age of 78 in the early data [1]. But let’s start with the average age of death in the U.S. society in the year 2019. The growing population (with a considerable role of immigration of younger mobile people) made it much lower than life expectancy in the U.S. (LE = 78.75 for 2019 [2]) [about LE changes over decades can be read in the -c- part].

On the site wonder.cdc.gov –‘Underlying Cause of Death’ we can get data grouped by ‘Single-Year Ages’ of decedents plus choose 2019 and then calculate it to receive 73.77 years. …For the purpose of this analysis we take the average theoretical (assuming Covid-19 absence) age of death, in the society in the year 2020, to be 74.0 [it strongly increased from 2018 to 2019 -by 0.5 year (aging of the society), so the next increase should slow down and make up to about 74.0 years [4]. …It is advised to get a more precise estimation/anticipation by a detailed demographic with death rates -study.

The average age of those forming the official “deaths involving Covid-19” group (DIC) we calculate in this much later revised version in a better way as ‘Single-Year Ages’ for 2020-Covid-19 have been available much later. [ICD code of Covid-19 is U07.1]. So we enter www.wonder.cdc.gov –‘Underlying Cause of Death’ and ask for the data: ‘Single-Year Ages’ + ‘2020’ + ‘U00-U99’. -The calculated result was 76.08 year, but with a bit lower 350 thousands of cases included there. It is almost the same value as we have previously assumed to be (7.1), receiving it in an indirect way, not having the wonder.cdc.gov data yet.
How many of the U.S. official DIC group could have had their date of death accelerated

a) In the beginning we must calculate what the average age of decedents would be in a group* close to identical to the official ‘deaths involving Covid-19’ group [the CDC] if they died in 2020, but without genuine Covid-19 related deaths (*called from now the CTIWCD group). The already taken, assuming Covid-19 absence, average age of death in the US in the year 2020 (AD) is 74.0 years. But this value needs to be revised upwards due to some factors. Deadly injuries shorten a person’s life and their impact is unique because are not derivatives of already ‘not far from deadly’ health status! Deadly injuries are independent and so exclude the Covid-19 causative participation, thus the average age of death for our group (CTIWCD) must exclude the impact of injuries in their broad meaning. In the CDC.gov data named "Leading Causes of Deaths" and see there are some groups of causes not directly dependent on aging of the organism.

-Accidents (unintentional injuries): 167127 cases in 2018 (data for 2019 not available then yet)
-Intentional self-harm (suicides): 48344
-Assaults: 18830

Going deeper into it (data for 2018, imported in January 2021 from the website: https://injuryfacts.nsc.org), we can see there are some sub-categories concerning ‘Accidents’, with different age structures of their victims.

-'Poisoning’ 20.0 per 100,000 (deaths per 100,000 population)
-'Motor-vehicle crashes’ 12.4 per 100,000
-'Falls’ 12.0 per 100,000
-'Choking’ 1.6 per 100,000
-'Drowning’ 1.1 per 100,000
-'Fires/smoke’ 0.9 per 100,000
-'Mechanical suffocation’ 0.4 per 100,000

We calculate the negative contribution of ‘Poisoning’- (P) to the average age of death (AD) in the following way. The share of all ‘accidental’ deaths in the structure of US deaths is 0.0589 and the share of the ‘Poisoning’ category in ‘accidental’ deaths is 0.37 (0.0589 x 0.37 = 0.0218). We calculate it precisely, using the following estimator [43.5 = the average age of a victim of lethal poisoning (estimate)]:

\[
(1 - 0.0218) \times (AD + P) + 0.0218 \times 43.5 = AD
\]
\[
0.9782 \times 74 +0.9782 \times P + 0.9483 = 74
\]
\[
72.3868 + 0.9782 \times P = 73.0517
\]
\[
P = 0.6649 /0.9782 = 0.68
\]

The ‘Poisoning’ category by about 0.70 y. has its negative impact on the average age of death in the US. The calculations of the influence of the less important categories in the US: ‘Suicides’, ‘Moto-vehicle crashes’ and ‘Assaults’ give for our group: 0.45, 0.40 and 0.25 year respectively. ‘Drowning’, ‘Choking’, ‘Fires’/‘Smoke’
and ‘Mechanical suffocation’ are all trifles and add up together to the additional 0.10 year. There is one important category with the average age of a victim meaningfully higher than the average age of death in the society in the year = ‘Falls’. We estimated (Injuryfacts.nsc.org) the average ‘Falls’ victim age to be 80.0 years. The share of all ‘accidental’ deaths in the structure of the US deaths is 0.0589 and the share of the ‘Falls’ category in all ‘accidental’ deaths is 0.235. So again: 0.0589 x 0.235 = 0.014.

\[
(1 - 0.014) \times (AD + F) + 0.014 \times 80.0 = AD \\
0.986 \times 74 + 0.986 \times F + 1.12 = 74 \\
72.964 + 0.986 \times F = 72.88 \\
F = -0.084/0.986 = -0.085
\]

There are additional minor causes of ‘preventable injuries’ (Accidents) with their total share of 9% in it (Injuryfacts), but their age structure is not given there; however it can be checked in another source [3–p.40] and because their calculated average age is as high as 64.5 years the impact is only 0.05 year. There are also deaths due to injury-like preventable medical errors like drug events, mistakes during operations and postoperative events. But they do not let to make any meaningful revision of the average age of death for our group, because those deaths should not concern otherwise of the standard health status people but those who are mostly old and in a worse, on average, than the age-standard state and so seek for intensive care. Additionally, opinions about their number are extremely different one from another. There could be up to about 50 thousands of such deaths yearly (= but unofficially, if to make use of most extreme and rather loose opinions), but on the other hand there are opinions that the official data are most objective and there are only 5 thousands of deadly ‘complications of medical and surgical care’ yearly [3-p.41], so of an injury-like type there should probably be up to 2 thousands. We estimate (subjectively) the revision needed due to this factor as from Zero to 0.20 year, and we take 0.1 for the further analysis.

There are still factors that will noticeably revise upwards the average age of death for our group (CTIWCD), but these factors are associated mainly with the lowest age ranges. Factors of the lowest age ranges are in a vast majority “consumed” in the 0-1 age range. Infant mortality = birth defects, low birth weight, term birth complications and the rest of the causes. As it could be expected, the weight of this age sub-group in the ‘deaths involving Covid-19’ group is close to none (over 70 times less than the norm in all deaths in the society [3] = 0.01% vs. 0.73%). But from the second value we must subtract classical injuries -mainly cases of ‘mechanical suffocation’ (Injuryfacts), not to repeat them. It gives: 0.73 - 0.04 = 0.69%

\[
[1 - (0.0069 - 0.0001)] \times (AD + I) + (0.0069 - 0.0001) \times 0.5 = AD \\
0.9932 \times 74 + 0.9932 \times I + 0.0034 = 74 \\
73.4968 + 0.9932 \times I = 73.9966 \\
I = 0.4998/0.9932 = 0.5032
\]
Another upward adjusting of the expected average age of death for our group is necessary if the deaths-age-structure of the official “deaths involving Covid-19” (DIC) group is further disrupted by deficits of lower age-subgroups’ shares when compared to the normal shares after subtracting deaths due to ‘injuries’

Those people, who die at age of a lower age range, create this age range negative impact on the average age of death in the year; that impact diminishes with diminishing % of people dying at age of this age range.

We compared shares of age subgroups of the DIC group (this time being based on much later available data from wonder.cdc.gov, so with a little different age-structure than in early 2021 CDC-data, to fit it to the received from this source average age in the DIC group ≈76.1) with its normal shares in all deaths in the society [3-p.25]. Then we corrected the second values by deducting all deaths due to ‘injuries’ (Injuryfacts and [3]). Next, we calculated the preliminary values by which the average age of death in the CTIWCD group should additionally be revised upwards.

the 01-14 subgroup shares: 0.02% vs. 0.32% (0.20% after the correction)  
[9.17 /285.484 and (9.17 - 3.82) /2614.50]  
the 15-24 subgroup shares: 0.14% vs. 1.04% (0.27% after the correction)  
[29.77 /285.484 and (29.77 - 22.59) /2614.50]  
the 25-34 subgroup shares: 0.64% vs. 2.07% (0.81% after the correction)  
[59.18 /285.484 and (59.18 - 38.12) /2614.50]  
the 35-44 subgroup shares: 1.73% vs. 2.91% (1.83% after the correction)  
[82.99 /285.484 and (82.99 - 35.19) /2614.50]  
the 45-54 subgroup shares: 4.84% vs. 5.62% (4.85% after the correction)  
[160.39 /285.484 and (160.39 - 33.58) /2614.50]  
the 55-64 subgroup shares: 12.00% vs. 13.13% (13.01% after the correction)  
[374.94 /285.484 and (374.94 - 34.69) /2614.50]  
the 65-74 subgroup shares: 21.74% vs. 19.46% (20.38% after the correction)  
the 75-84 subgroup shares: 27.66% vs. 24.10% (25.49% after the correction)

There are considerable share-differences in the 01-14 and 15-24 subgroups, but next happen only delicate ones. Deaths due to congenital anomalies have 5%-share in the 1–19 age range and conditions (mainly cancer and heart diseases) play a very small role [5].

Those preliminary revisions due to deficits of subgroups’ shares are estimated in the following way (the example for the 15-24 subgroup):

\[
1 - (0.0027 \cdot 0.0014) \times (75.75 + S) + (0.0027 - 0.0014) \times 20 = 75.75 \\
0.9987 \times (75.75 + S) + 0.026 = 75.75 \\
75.652 + 0.9987 \times S = 75.724 \\
S = 0.072 / 0.9987 = 0.072
\]

\[75.75 = \text{the average age of death (in 2019) after deducting the negative impact of ‘injuries’}; \ 20.0 = \text{the middle age of death in the subgroup (younger subgroups are of close to zero shares so a simplifying by using a middle age is acceptable)};\]
as an average age of a subgroups of the DIC group is usually slightly lower than of the comparative group -the risk of a total underestimation is eliminated."

If some percentages would miss in lower subgroups then it means they should next be distributed in higher-age subgroups of the CTIWCD group. For example the total deficit in the 0-24 age-range is: $0.72 + 0.18 + 0.13 = 1.03\%$, so the next share of 0.64% (the 25-34 subgroup) we should compare (when calculating the next revision) not with 0.81% on the right side, but with: $0.81 / (1 - 0.0103) = 0.82\%$ …and further we compare 1.73% not with 1.83% on the right side, but with 1.85%; etc.

The sum of preliminary revisions (PR) due to changed shares is:

$$0.123 + 0.072 + 0.082 + 0.043 + 0.021 + 0.191 - 0.047 + 0.071 = 0.556$$

The total sum of PR additionally includes the revision due to ‘infant mortality’ (which is by a big part similar to ‘injuries’):

$$0.503 + 0.556 = 1.059$$

However what matters is the sum of final revisions. Shares of lower-age subgroups can be a bit lower in the “deaths involving Covid-19” (DIC) group than in the society in 2020 mostly due to impartial reasons (e.g. some of congenital anomalies and some pediatric affairs). But the factor of genuine Covid-19 deaths, lowering the average age of death, is superimposed what produces the downwards (age) directed pressure; so we should next eliminate the effect of this factor on the revision for the CTIWCD group. -If not that a bit decreased average age of death then the deficits of shares of lower age-subgroups would be yet bigger and so the revisions should be yet higher. The DIC group must be a straight derivative of the CTIWCD group in the sense that is explained in the end of Part 2 (please go there obligatory). The average age of death in the DIC group, even with the deficits of shares of lower age-subgroups, is lowered, so to calculate the sum of final revisions (for the CTIWCD group) we must adjust the average age of death in the DIC group to the higher value of: ’75.95 plus the sum of final revisions itself’* as the revision should be reflected by the same value (surplus) over the 75.95 year (/why there should not be assumed this* value to be yet higher is explained in the end of Part 2). Quite a good approximation here is ’75.95 plus the preliminary sum of revisions’ (75.95 = 74 + 1.95; 1.95 -the impact of injuries, please check the next page); /a more complicated method would be necessary only if the average age in the DIC group was much more distanced from 75.95+1.06/. …Shares of the DIC group (with the exception of the last and open summary range (85+) which means ‘the rest’ = ‘100% minus the sum of all previous shares’) must be diluted. Those shares we recalculate/diminish: Sn x 76.10 /(75.95 + 1.06).

…It gives the following shares:

$$0.02\%, 0.14\%, 0.63\%, 1.71\%, 4.78\%, 11.86\%, 21.48\%, 27.33\%$$

Then when calculating the sum of “final” revisions we must also make the down-correction (the simplified way is: ‘x 75.75 /75.95’) due to the fact that we take (for 2020) the increased, by about 0.2 year, average age of death. Taking both factors into account we receive the sum of final revisions only little bigger = 1.10(1) year.

Why this revision for the CTIWCD group cannot be assumed to be yet higher -is explained in the end of Part 2. 

//Injury-like preventable medical errors are not included in the above calculations because their precise age-structure is unknown and their effect is very small and unsure./
[If we had a huge subgroup of decedents (in the given year) and its age-structure was close to identical to that of all deaths (after eliminating reasons of death other than “aging”) and the subgroup was (before all deaths) of the standard age-state-of-health then no new killing factor could be common exclusively in that subgroup: any new and common killer should have considerably diminished the average age of death! Covid-19 cannot omit the rest and choose to infect and kill stronger/strongest ones and by this way to show a similar shares of decedent-age-subgroups, and so we cannot say that e.g. a statistical 70-year-old already decedent would otherwise live, on average, yet longer if was additionally infected with Covid-19. To fully understand the question please continue reading through the sub-parts -b- and -c-.]

…Thus, the total value of the upwards adjusting for our group (CTIWCD) is:

\[
(0.70 + 0.45 + 0.40 + 0.25 + 0.10 - 0.10 + 0.05)* + 0.10** + 1.10 = 3.10 \text{ year}
\]

/*The summary value above is revised up by 0.05 because finally available data for 2019 show the number of injury-deaths increased by 3.5 %, when the total number of deaths increased only by 0.55%; we have started the essay with injury-data from 'Injuryfacts' due to its bigger precision.*/

/*added subjectively (injury-like medical errors)/

So: 74.0 + 3.1 = 77.1 \text{ year}

…But in the end it turned out that an additional minor correction is necessary. This correction is needed due to the fact that in the DIC group there were 55% men and this 55% concerns all infected ones and not only victims of Covid-19 (it is shown/proven in Part 2). Let’s look into the data for 2019 [3-p.45-49]: all deaths: 2854,838 (male: 1473.823, female: 1381,015) so there are a bit more men. But after deducting all unintentional injuries, suicides, assaults and legal interventions we have: 2614.50 and males: 1307.97 = males have exactly a 50.0% share. On wonder.cdc.gov –‘Underlying Cause of Death’ we can group results simultaneously by: ‘x-Year Age Groups’, ‘Gender’, ‘Injury Intent’ …and select at point 4: 2019. It lets us calculate the average age of male and female decedents that died due to “aging” (what means with injury-like events and infant mortality eliminated). We receive 74.06 years and 78.65 years respectively, but these are not very precise values because we use a simpler method operating on ‘Ten-year groups’ plus we do not know here by how much deducting injuries changes an average age of death in a subgroup; however it matters little as we calculate in the same unperfect way values for both men and next women and we are interested only in their more or less precise relation. [To get very precise values we should select ‘Single-Year Ages’, and so give much more time for it].

\[
(74.06 + 78.65)/2 = 76.36
\]

\[
74.06 \times 0.55 + 78.65 \times 0.45 = 40.73 + 35.39 = 76.12
\]

\[
76.12 / 76.36 = 0.9969
\]

\[
77.10 \times 0.9969 = 76.86
\]

Thus we finally take rounded 76.85 year as the value for the CTIWCD group. This value means that if in the DIC group there were Zero real Covid-19 deaths then all simply were those that died in 2020 due to “aging” and so the average age of a decedent in the DIC group should then be about 76.85 year.
b) Since people from the “deaths involving Covid-19” group were allegedly killed by Covid-19 (accelerated deaths), it means that without its ‘intervention’ these people should still live. Thus, we calculate the average further life expectancy for the people from the whole DIC group if they were alive, and (initially) if were of the standard health status. We plot their age-of-death structure plus shares of women and men on the ‘actuarial Life Table’ [2]. At the start we base on median values from age-subgroups and then taking into account weights of those age-subgroups we calculate the preliminary result for the whole group. The very careful calculations give the result of 12.25 year, but it must be then adjusted up because the average age of death in the DIC group was 76.1 (not >76.7 -as it would be if to base calculations on the medians of the age-subgroups) -what gives 12.70 year; and has also to be revised upwards because our group consists of those who could not die (if to be included into the group) because of fully external causes. For each mentioned category we must calculate the still existing, after forming by the deceased the “deaths involving Covid-19” group, potential length-of-life diminishing effect (X). However, weights of age-subgroups of the DIC group must be first converted as a medium age an injury could act on a person from the DIC group is, on average, his/her actual age plus half of further ‘life expectancy’. Simplified average LEs for subgroups and its average age (a median one minus about 0.65*) plus half of the difference (= a middle age a fatal injury could act) are given below (/LEs are corrected by the shares of sexes in the DIC group, following wonder.cdc.gov).

//*The 0.65 value is from our earlier assessment how lower from a subgroup –median in ‘life table’ must lay, on average, the average of an age-subgroup of the DIC group../

the 01-14 subgroup = N  and  N
the 15-24 subgroup = 58.35 and 49.95
the 25-34 subgroup = 49.45 and 54.65
the 35-44 subgroup = 40.15 and 60.00
the 45-54 subgroup = 30.75 and 65.75
the 55-64 subgroup = 22.75 and 71.50
the 65-74 subgroup = 15.40 and 77.80
the 75-84 subgroup = 9.00 and 85.15
the 85++ subgroup = 4.60 and 92.30 [+6]

/For the 0-14 subgroup there are not necessary any calculations because it will always give 0.01% to the <45 and 0.01% to the 45-54 subgroups of the converted ones./

…We receive the following converted shares for the age-subgroups: <45, 45-54, 55-64, 65-74, 75-84, 85>: 0.01%, 0.49%, 4.09%, 17.76%, 32.18%, 45.46%

We can see that persons from a major/older age-subgroup of the 55-74 age-range mostly fall into a neighbor-subgroup, those of the 85++ age-range move down within the same age-subgroup and only those from a subgroup of the 01-54 age-range (which have small shares in the DIC group) make considerable moves down; so we can receive, with converted weights, good estimations from the equation below. For example, there are people in the DIC which could otherwise be important in number victims of lethal ‘Poisoning’.
The estimate is the sum of the partial values (Xn) for different age ranges (including 75++ too):

\[
1.0 \times [LE + Xn \times (Sn /SN) / (Cn /CN)] - 0.023 \times (Pn /PN) \times LEn = LE
\]

\[
Xn \times (Sn /SN) / (Cn /CN) = 0.023 \times (Pn /PN) \times LEn
\]

\[
Xn = LEn \times 0.023^* \times (Pn /PN) \times (Cn /CN) / (Sn /SN)
\]

Xn - the potential ‘length of life’-diminishing effect for an ‘n’ age-range in the “deaths involving Covid-19” (DIC) group
Pn - the number of Poisoning victims in an ‘n’ age range, PN - the number of all Poisoning victims (in the year)
Cn, SN - the same as above (C) but in the whole society (no conversions here) [6]
LEn - life expectancy (average) of a victim from an ‘n’ age range or at least life expectancy at its average age
LE - at birth life expectancy

\[
0.023 = 2.3\% - \text{share of deaths from ‘Poisoning’ in all deaths in a year (/we assume it to be stable with an age-structure)}
\]

/*Please look also at the corresponding note in the -c- sub-part./

We could repeat the calculations with every of the mentioned (in the -a- part) categories; all needed data concerning age ranges of victims of different types of injury are in tables and charts of [https://injuryfacts.nsc.org](https://injuryfacts.nsc.org) and also of the CDC [3-p.40-41]. But to speed up calculations sums of different injuries, for an age-range, can be done.

Sums of victims of different injuries are as follows (in the given above age-subgroups), in thousands [3]:

101.25, 33.53, 34.73, 22.73, 21.70, 26.37

The exemplary calculation (the 75-84 age-subgroup):

\[
X(75-84) = 9.0 \times 0.0842 \times (21.70 / 240.31) \times 0.3218 \times 0.048 = 0.46
\]

All the results are: 0.00, 0.01, 0.09, 0.23, 0.46, 0.95; and their sum is: 1.74 (year)

The converted age-subgroups seem to a bit increase the final result. It could be so because there are less old people than young ones in the society; many people are not so lucky to live for very long and so to have any chance to die from an injury at a very advanced age, mainly from ‘Falls’ that then strongly dominate. On the contrary, if we assume that Covid-19 killed everyone from the 2020-DIC group it means e.g. that every person of that group at age 80 should otherwise live for almost the next 10 years (without deducted injuries!) [2], hugely above both AD and LE (death rate for injuries is by much increased at a very advanced age).

…The total rounded 14.45 value is the one with the assumption that people killed by Covid-19 were (just before getting infected) of the standard, for their age-structure, health status (and that virtually all of the DIC group were Covid-19 victims). …The above value will help to receive an approximate result but not to get the most precise final result of the whole analysis, it will quickly help to answer the question if a share of genuine Covid-19 deaths in the DIC group can be very high or, on the contrary, only (very) low; if the preliminary result turns out to be low we will divide the DIC group into two subgroups -one that should contain all real Covid-19 deaths and the second
one containing only those that died in 2020 due to “aging”, with the first subgroup of a calculated/reduced average age of decedents and so of an increased average further life expectancy.

...What about the state of health factor? [The share of people without a chronic condition drops to its minimum at age 75, and next, at age 85 this share is the same (not falling more), according to the Canadian data (CHLI.ca 2011); it can be assumed that having any chronic condition is not necessary to die at a very advanced age. There are studies [7,8] according to which people who do not abuse alcohol + do not smoke + are physically active + eat healthy live on average 9-10 years longer than the US average is, being free, in a majority, of chronic conditions. A similar effect was signaled in other developed countries [9,10].] ... The CDC revised the average number of underlying conditions to 4.0 for 94% with conditions in the ‘deaths involving Covid-19 group.

But heterogeneity in included in different observations conditions means that the real number must be, in fact, yet something higher. However our previous assumptions must be revised. -The small % of condition-free ones in the ‘deaths involving Covid-19’ group is nothing extraordinary with taking into account conditions like hypertension and obesity which are at present very common in the U.S. [11,12,13]; especially the prevalence of hypertension (not yet on the 2008-CCW list) is record-high amongst older people. Additionally, in fact, people with 0 conditions have life expectancy, on average, only by very little bigger than people with 1 condition [14]. ... But what should the average state of health of people of a real-Covid-19-deaths-subgroup (of the whole DIC group) be, just before these people got infected, comparing to the U.S. society cluster of the same age-structure (whatever this structure is)? The DIC group is really huge, so the average health status could not be noticeably better in that subgroup, but it could be worse due to killing by Covid-19 more often weaker ones of infected persons. ... If a person has a few conditions (of the 2008 Chronic Condition Warehouse list) then what matters much for life expectancy is a pure number of conditions, the leading causes of chronic disease death give some differences in life expectancy at age 67, but the differences considerably diminish with morbidity and/or with increasing age [14].

... According to the British data guideline [15] the crude % - increase in multimorbid patients is stable from age >55 till <85 years (at age 45-55 a bit slower; slower at age 85+ too). Another document, concerning the U.S., suggests the prevalence both of 2-4 and of 5+ (summary) conditions rising in a close to linear way from those forming a group at age 50-64 to those forming a group at age 75-84 [16]. We have just calculated that the based on subgroup-medians preliminary value concerning life expectancy for the DIC group is 12.25 year (and the based on subgroup-medians preliminary value concerning average age =76.75). However with any dispersion a lower age adds more than a higher age takes from the average (LE). If to calculate this value, from a life table [2], purely for single 76.75 year (taking into account the shares of sexes in the DIC group) we receive 11.00 years, so the difference is noticeable (R1 = 11.00 /12.25 = 0.90). The potentially increased, by a limited value, average number of 2008-CCW-conditions (3.5 vs. 3.0, if 3.0 was the norm for a statistical 75-year-older) would have less negative effect on life expectancy to having the same initial and then the same increased number by everyone (the theoretical 3.5, because practically a person cannot have 3.5 conditions, but 3 or 4), in the proportion 7.6 to 10.0 (R2) for 75-year-old ones (the data on the basis of ‘Table 1’ and ‘Table 2’ [14]) = 0.532 vs. 0.70 year; and 0.532 /R1 = 0.591 (but those of the DIC group died at an average age slightly higher = 76.10 year). We finally take the rounded up 0.60 year as the value (D) by which the increased number of 2008-CCW-conditions would have its negative effect on life expectancy at an average age of 76.10 year (of really
killed by Covid-19 ones). -0.60 is only an example as it serves to prove that in fact any increased number of conditions cannot have an important impact on the final result of the whole analysis (/please continue reading).

The result is based on 21 conditions of the 2008-CCW list so in fact describes the negative impact of increasing the average number of conditions from >3.0 to >3.5 by >0.5 (it should be more like 0.7-0.8 as nowadays there are meaningfully more CCW-like conditions than on the 2008-CCW list)./

If there was any ‘D value’ we would have to calculate:

\[ 12.70 - D = ALE1 \]
\[ ALE1 + 1.75 \times ALE1 / 12.70 = ALE \]

/ALE – adjusted further life expectancy, keeping the health-proportion/

/1.75 is a small value so we assume here that injuries have (at an advanced age) a proportional to further life expectancy negative impact./

The 2020-DIC group is huge (= 363 thousands as given in early January 2021 by the CDC)), the health status of persons soon killed by Covid-19 (just before they got infected), should have been, on average, only:

a) similar to …or

b) worse than that of the comparative group

/The comparative group is the U.S. society cluster of the same, like of this group, age-structure (whatever it is)./ /

…Let’s assume (for a while) the D value to be Zero (it means we assume, for a while, the health status of persons soon killed by Covid-19 to be, on average, identical to that of the comparative group), so we take the value of 12.70 + 1.75 = 14.45 years for the further analysis. …But why, for example, for the age of 76 a still alive person should live, on average, for over 11 more years (without deducted injuries yet) [2]? Because some people die being (much) younger, and a person aged 76 is the one who is quite lucky to still live. Those who died much younger lower the average ‘length of life’ and the still living will increase it. The average ‘length of life’ and the average ‘summary length of life expected at a given age’ are equal only at birth.

c) What are the conclusions so far and what next?

–If 100% of people of the official DIC group (of died in 2020) were those that died in 2020 due to “aging”, that is if there were no real deaths caused by Covid-19 in that group, the average age of death in that group would be 76.85 years. …The worst state of health is not any age but it is only strongly (with advancing age) correlated. Some people have their worst health status (pre-deadly/deadly) at age 90 or more while at the same time some people have their worst possible health status at age 60 or less. Real Covid-19 deaths can only make people die yet earlier/younger, regardless of whether one would otherwise die at age 95 or 60.

–At the same time, if Covid-19 killed all persons of the official “deaths involving Covid-19” group then it would mean that without the virus ‘intervention’ all of them should be still alive, for about the next 14.45* years, on average! It would also mean that each individual genuine Covid-19 related death shortened its victim personal life, on average, by 14.45 years [*with our temporary assumption of the health status of persons soon killed by Covid-19 (just before they got infected) to be, on average, identical (or just very similar) to that of the comparative group].

/It is nonsensical to believe that Covid-19, at quite typical for people to die ages (=with a very similar to normal age-structure of deaths) chooses to infect and kill stronger/strongest ones, who would otherwise live to an average age of 90.55 years (!)
what means, in general, Covid-19 to be hugely less able to kill (accelerate deaths of) people otherwise supposed to live as long as the expected average (after eliminating reasons of death other than “aging”) in the U.S. is and those that are the weakest ones (in the sense that their lives are much shorter than the average in the U.S. is).

-Persons from the DIC group died at an average age of about 76.10 not of 76.85, so there is the 0.75-year loophole (if to take exactly 76.10 and 76.85) caused probably by lethal effects of Covid-19.

…The average contribution of a single individual genuine Covid-19 related death to the size of this loophole/gap is as follows:

\[
\frac{[14.45 - (AAADP - ADC)] \times 1}{N}
\]

‘/N’ is the size of the entire group = 363,000/LEWII

/If virtually all of the 2020-DIC group were killed by Covid-19 then Covid-19 would have had shortened its victims' life, on average, by 14.45 years (in a variant with the standard health status), but it should not be related to the average age of death in the given 2020 year in the CTINI group (ADC), as it must be related to the expected and adjusted (by eliminating reasons of death other than “aging”) average ‘length of life’ of those people at all (AAADP), so not in any given year. The ADC is meaningfully lower than AAADP due to immigration of younger people and other demographic processes (the growing population) and because e.g. the deduction of ‘Falls’ decreases ADC, but increases AAADP (the total increase due to eliminating reasons of death other than ‘aging’ is distinctly bigger in AAADP than in ADC …what is presented below in the essay)./

LEWIIfmS (used next) means at-birth life expectancy = 78.75 [2] but next without negative impacts of injuries and infant mortality (calculated below) and additionally diminished by one of elements plus increased by the other one (both are minor ones: ‘f’ and ‘m’), and also corrected by taking into account the shares of sexes (= minus 0.25 year) -as there were 55% men in the DIC group. LEWIIfmS is a close approximation of AAADP:

The negative impact of infant mortality on the average at-birth life expectancy is 0.56 year [2]. Without injuries (not to repeat them): 0.56 x 69 /73 = 0.53. We can additionally diminish the value due to the symbolic 0.01% share of the 0.0–1.0 age-subgroup in the DIC group, 0.53 x (69 - 1) /69 = 0.52

The negative impacts of different injuries on the average at-birth life expectancy we can count with the estimator (the example for ‘Poisoning’):

\[
1.0 \times (78.75 + P) - 0.023 \times LEa = 78.75
\]

\[
78.75 + P - 0.023 \times 37.54 = 78.75
\]

\[
P = 0.023 \times 37.54 = 0.8634
\]

/*The imputed 0.023 value assumes that the share of deaths from an injury (‘Poisoning’ in this example) in all deaths in a year [e.g. 3] is similar to the share of people dying at all from that injury. The assumption* saves much of our time when only delicately changes the result; AD is only a bit lower than LE, and when looking at all injuries together it seems, at first glance, that more people die at an younger age, but it is in a very big part due to the fact that there are less old people as not everybody is so lucky to die at an advanced age; there really is a transient decline, but in the end the highest rate of death due to injuries appears to be at age 80+ (‘Falls’ hugely dominate amongst deadly injuries at a very advanced age). The same assumption(*) was applied in Part 1b for the ‘X’ value, when in the final equation (please look at the next page) they both diminish each other and so should in a majority eliminate potential small imperfections.\*/

/LEa -life expectancy at age 43.5 years (43.5 = the average age of a victim of lethal poisoning) [2]/
All the results for injuries are (the order the same like in the -a- part):

\[0.85 + 0.55 + 0.45 + 0.30 + 0.15 + 0.10 + 0.15** = 2.70\]

Looking historically (the U.S.) at-birth LE reached 70 years in 1962, reached 75 years in 1989 and reached the result as high as 78 years already in 2007 [17]. After 1960, the largest increase in LE occurred between 1970 and 1980, it is attributed to decrease in cardiovascular mortality and infectious diseases, and to the effectiveness of prevention programs related to smoking, alcohol consumption and promotion of physical activity [18; the CDC]. However decedents of the DIC group had been lucky and none of them had died much earlier so any worse in the past (as LE has been smaller but growing) medical or environmental factor (e.g. cardiovascular disease, infection, smoking) did not kill them! But it is known that e.g. even very past tabaco smoking has some actual negative effect, so worse environmental or behavioral factors or worse than actual medical treatment, even if acted on persons many years ago, should have at least a limited/small negative effect on expected total ‘lengths of life’ of actually mostly old people too (and that is the only possible way these factors could still act on the DIC group). We subjectively take the influence of this factor (‘f’) as -0.5 year (it will be explained more later in the text).

The equation would be (the 25-34 subgroup’ example):

\[
1.0 \times (\text{LEWIIf} + \text{Sn}) - (A - B) \times 49.70^* = \text{LEWIIf}
\]

/\text{Sn} – the revision for the age-range; A – adjusted share from a life table; B – adjusted against LE share of the DIC subgroup
/\text{*49.70 – average life expectancy for this age-subgroup, adjusted for shares of sexes in the DIC subgroup}/

…The expected summary value is very small when receiving ‘A’ and ‘B’ values for all subgroups time-consuming and complicated, so let’s do it much easier - the value of: 76.50 (the average age of death, in the year, with excluded injury-like events and infant mortality) corresponds with LEWIIf which is: 78.75 + 2.70 + 0.52 - 0.5 = 81.47, …thus the value of: 77.10 should correspond with about: 81.47 x (77.10 /76.50) = 82.11, …and 82.11 - 81.47 = 0.64; …so ‘m’ is about +0.64.

…Thus we can estimate the average contribution* of a single genuine Covid-19 death to the 0.75-year-gap*:

\[
[14.45 - (\text{LEWIIfmS} - 76.85)] x 1 /N = [14.45 - (81.85 - 76.85)] x 1 /N = 9.45 x 1 /N
\]

/* preliminary

The total Covid-19 contribution to the size of the gap cannot be more than the gap itself is. Let’s count.

\[C \times 9.45 /N = 0.75\]

/\text{C}’ is the number of real/genuine Covid-19 related deaths, in thousands/

\[C = 0.75 \times (N /9.45) = 28.81\]

\[C /N = 0.75 /9.45 = 0.0794 (= 7.9\%)/\text{C/N}’ –the share of real Covid-19 related deaths in the “deaths involving Covid-19” group in the U.S./
If the first of the additional elements (‘f’), which is difficult to quickly assess it precisely (to assess precisely it needs a separate long analysis), turns out to be of more than assumed only 0.5 year effect, then the final % result could only drop, but not much, if to increase the deduction hugely by as much as 0.5 year more. Partially in a more detailed way:

\[
\{14.45 - \left[ 78.75 + 3.22 - 0.5 - 0.5 + (80.97 \times 77.10 / 76.50 - 80.97) - 0.26 - 76.85 \right] \times 1 / N = 9.95 \times 1 / N \\
C = 0.75 \times (N / 0.95) = 27.36 \\
C/N = 0.75 / 0.95 = 0.0754 (= 7.5\%)
\]

Thus, the 2020-DIC group is based on a fiction with incorporating into that group plenty of people whose death had nothing to do with Covid-19. This group was formed by selecting from the society, in a huge majority, people that were already dying or were of sure very soon getting into a dying-state and who would die whatsoever in the same or close to identical time even without Covid-19. Why? Because if they were not already about to die (= not picked out from already ‘dying ones’) then the chance for a statistical man to die within the same year is very low, e.g. only 1.5% (= 3.0 / 2) for a statistical 75-year-old person [2], and it is not possible that Covid-19 killed in 2020 titans who would otherwise live, on average, for over 90 years, when the average age of a person being in his/her worst possible (terminal) state of health was under 77 years in 2020 in the United States, while Covid-19 should be a death accelerator. …And even if there were counted as Covid-19 victims those in a terminal state whose lives were really shortened (what is more like guessing) by Covid-19 by a few weeks it was a big mistake too, because then we could also claim that e.g. 90-100% of people die in the U.S. due to watching tv, as if people were not watching tv they would most probably make walks and do exercises much more often, would be stronger and so would live, on average, by some weeks (or maybe even months) longer. …However we still do not know the most precise final result (the preliminary result is an approximation). What next, will be explained in Part 2.

……

But what would the preliminary result be if the health status of people killed by Covid-19 (soon before they got infected) was worse (e.g. the average number of conditions was bigger) than that of the comparative group? If the average number of conditions (of the 2008-CCW list) was higher by 0.5 then (please go back and read about it 3-4 pages earlier) then according to our example ALE would not be 14.45 but lower.

\[ 12.70 - 0.60 = 12.10 = ALE_1 \]
\[ 12.10 + 1.75 \times 12.10 / 12.70 = 13.77 = ALE \]

However LEWIImSn must be then adjusted down also, to keep the health-proportion (R3):

\[
(76.10 + 12.10 + 1.75 \times 12.10 / 12.70) / (76.10 + 12.70 + 1.75) = 89.87 / 90.55 = 0.9925 - by multiplying: ‘x 0.9925’, \]
\[
…81.85 \times 0.9925 = 81.24
\]

To be most precise we should not assume that the health status of people killed by Covid-19 (soon before they got infected) was worse (e.g. the average number of conditions was bigger) than that of the comparative group. If the average number of conditions (of the 2008-CCW list) was higher by 0.5 then (please go back and read about it 3-4 pages earlier) then according to our example ALE would not be 14.45 but lower.

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\[
…81.85 \times 0.9925 = 81.24
\]

To be most precise we should not assume that injuries have a perfectly proportional to life expectancy negative impacts, however such an assumption cannot noticeably influence the result when the total impact of injuries is only 2.70 year and at the same time R3 is as high as 0.9925, so this 2.70 is being changed by a micro-value. …Treating separately such a small value like ‘f’ is also of no sense as could help avoid an inaccuracy a couple or a few times less than 0.01 year.
\[
[13.77 - (81.24 - 76.85)] \times 1 /N = 9.38 \times 1 /N \\
C = 0.75 \times (N /9.38) = 29.02 \\
C /N = 0.0800 \text{ (instead of 0.0794)}
\]

…Thus, the result would be higher, but with negligible difference between this result and the previous one.

But what if only a limited % of the group (let’s say 10 %) has hugely increased its average number of conditions (ANC), e.g. by 5 of the 2008-CCW ones to reach 8, on average, in that subgroup, and if including the whole list of conditions then to meaningfully exceed 10, on average; would there be a big change to the ‘D value’ with assumed a much smaller increase (by 0.5 of 2008-CCW here) but evenly dispersed virtually within the whole group? Not at all. We can estimate with the tables [14] to see that the ‘D value’ would be higher, but slightly, with the ratio of meaningfully under <1.1 to 1.0.

Part 2

How many of the U.S. official DIC group could have had their date of death accelerated -the next step

a) We already know that a share of genuine Covid-19 deaths in the official DIC group could be only small. So those* that were not real Covid-19 victims should have formed a major subgroup with, on average, the same (close to identical) age (76.85) and health status (deadly/pre-deadly) like those of the CTIWCD group, because they(*) were simply a part of those who died in 2020 due to previously existing (not Covid-19) causes (= ”aging”); only those really killed by Covid-19 otherwise would not have died then, but in the future! …It means that, to receive a more precise result, we should not assume the DIC group to be one group of an average decent-age =76.10 year and that the further LE for killed by Covid-19 was corresponding with that value (but that it was higher), but we should divide the DIC group into two subgroups (one containing also all real Covid-19 deaths and one with purely/only non-Covid-19 deaths), with a different average age of decedents. So if to separate e.g. only 20% of the DIC group (and all real Covid-19 deaths should be in that subgroup), then the rest of the DIC group must have the average age of a decedent equal ADC and so the average age of death in the first of the subgroups should be only: ADcs = (76.10 - 0.80 x ADC) /0.2, ‘the loophole’ for this subgroup: ADC - [(76.10 - 0.80 x ADC) /0.2] and further LE must be bigger too. What will the result be? Will separating subgroups increase or decrease the preliminary result? Let’s check it.

The average age in the subgroup containing also real Covid-19 deaths (ADcs) would be:

\[
ADcs = (76.10 - 0.80 x ADC) /0.2 = 380.5 - 4 x 76.85 = 73.10
\]

b + c) If to assume only 20% of the DIC group having its average age of death lower than 76.85 (to increase ‘the loophole’ in the subgroup), ‘the loophole’ for the subgroup rises to: 76.85 - 73.10 = 3.75 years. …We must also recalculate further LE because the average age of death in that subgroup is now only 73.1 years (not 76.1 years) so further LE must be bigger. From a life table [2] and taking into account the shares of sexes we get the result for the age 73.1 = 6.889 + 6.502 = 13.39. However we already know that with an age dispersion the result concerning further LE if calculated only for an average age is a bit lower than the real value. The ratio of
results (R1) is 0.90 for the DIC group. This time the average age is lower (= 73.1) when the ratio is slowly growing with a falling average age; the difference between the average ages (76.1 vs. 73.1) is very limited so we just take R1 to be 0.91 this time (a confirmation if this value is a perfect one we leave to volunteers with lots of free time).

\[
13.39 \times 0.91 = 12.14; \ldots 14.71 + ‘X-factor’ = 16.40 \text{ (further LE)}
\]

/We receive ‘X-factor’ quicker this time, checking changes when shifting shares of age-subgroups./

For the previously assumed ‘f’ to be -0.5 year it should be now limited by a mini-value for an average age 73.10 (as it is a bit lower than 76.10), but as it should be a value a little under 0.05* year we do not give our time for it, but just delicately increase LEWIIfmS from 81.85 to 81.90 by rounded 0.05 (taking also into the account that the changed a bit ‘f’ forces ‘m’ to be changed too -which much be increased by a little under +0.0025-year*).

/*explanations are available on request/\]

\[
[16.40 - (\text{LEWIIfmS} - 76.85)] \times 1 /\text{Ns} = [16.40 - (81.90 - 76.85)] \times 1 /\text{Ns} = 11.35 \times 1 /\text{Ns}
\]

C x 11.35 /N x 0.2 = 3.75

C = 3.75 x (N x 0.2) /11.35 = 23.99

C /N = 0.0661 = 6.6%

/’Ns’ - the size of the subgroup; Ns = 0.2 x N/

…and we receive the result for the whole DIC group not 7.9% but yet a little lower = with separating subgroups the result does not rise but falls a little. So we can see that the final result cannot be even 7.9% but only under 6% (since we must further limit the 20%-subgroup into a yet smaller one and calculate the result once more); previously, we limited the initial group by 80% and next we must limit the 20%-subgroup by about its 64%.

Thus, if the health status of persons soon killed by Covid-19 was (just before they got infected), on average, identical to that of the comparative group, then only under 6% of those of the official DIC group died from Covid-19 complicity and all the rest were already dying (were on their irrevocable course to very soon death) and would have died in the same, or very close to identical, time anyway, also without the Covid-19 infection, because their deaths resulted only from the normal age structure of death in the United States and from causes/conditions already existing before Covid-19, creating the actual average age of death in 2020. [It is however possible, strictly conditionally, that some of the rest (of the major subgroup) had their deaths accelerated by some days or weeks (by months much less probably*), but their number would have to be low if not to result in a noticeable overstatement of the impact, already incorporated in the just calculated number of deaths, on the final result (visible in yearly statistics). The result is the maximal one (up to little over 20 thousands here), with the assumption of any part of those <95% not having their deaths accelerated at all –it can be explained more on request (= the factor of “skips” of some death-dates just through the border between the years, from 2021 to 2020, producing a hidden, although very small, overestimate of the result).]

/*In fact, a number of more than very slightly accelerated deaths, but under 1 year, had to be very small because dying (or even a terminal state from a given moment rarely lasts for as long as for a few months more and Covid-19 had to start to accompany almost exclusively persons (of the <95%-subgroup) already dying (of absolutely sure soon death). It had to be so because, in the U.S. society, the general risk of dying within a current year is very low, e.g. it is only 3%
if a person is at age 75, what can be seen in a life table [2]; in reality we must take, for our considerations, even a yet shorter period and it is, on average, only 0.5 year (and so more like 1.5% than 3% in this example) because far not everyone was born on January 1st as a life table assumes. It means that in the U.S. society there are very few (of those who are not already dying) whose lives can be shortened (by a new disease) only by some months and so their earlier deaths can be hidden in yearly statistics (= and so not to be already included into our “<6%” result; …but in fact it should give only additional about: 0.015 x 0.06 / (1 - 0.015) = 0.0009, so the final result should be corrected up by about 0.1% …of course a better sub-analysis should be made, based on the age-structure, not assuming everyone is 75 years old, if someone is interested in a very precise estimation of this additional mini-value).

…However, if the health status of persons of the DIC group was, on average, worse than that of the comparative group, the final result would increase, but by a negligible value (what is proven some pages earlier); the reason of it is given in the Discussion.

......

Positive results of testing against Covid-19 must happen a bit more often (in %) in men that women. Just have a look:

\[ 0.1 x M + 0.9 x 50 = 55 \]

If the mentioned 55% was the result only of genuine Covid-19 deaths (and was not concerning all infected ones) then in a selected 10%-subgroup with real Covid-19 deaths there would have to be 100% men in it. It cannot be even assumed that amongst infected ones the share of men was e.g. 53% (a bit lower than 55%) as in a selected 10%-subgroup there would have to be 73% men in it = still too high to assume it to be any rational supposition.

/It can be added that a 10-years-average (2009 - 2019) age of supposed flu victims (the ‘CDC flu tables’) is by 4 years lower than that of the DIC group./

......

And now we go back to our CTIWCD group to explain it in more details, as it was mentioned in the Part 1a. In a year there are people that die due to natural causes (= “aging”) and so, in 2019, e.g. for every 25 persons that died at age 65-74 there were 6 persons that died at age 45-55; all of them, regardless their age, just earlier were in their terminal states (= with worst possible health status). Real Covid-19 deaths must form a group being a straight derivative of the CTIWCD group what means that the DIC group (if statistically big) should be formed of subgroups with shares bigger that those of the CTIWCD subgroups (with the exception of the last and open 85+ summary range, of course, as the sum of all shares is always 100%).

Let’ look at the already known equation:

\[ \text{[LEn} - (\text{LEWIIfmS} - \text{ADC}) \] x 1 /Ns

The difference between LEWIIfmS and ADC is a positive value and additionally by much smaller than the result of: LEn - (LEWIIfmS - 76.85). It means that if in the CTIWCD group there were Zero real Covid-19 deaths its average age would be 76.85 years (ADC), but every real Covid-19 death, replacing a no-Covid-19 death in a subgroup composed of Ns people, diminishes the average age of a decedent by:

\[ \text{[LEn} - (\text{LEWIIfmS} - 76.85)] \] x 1 /Ns, on average.

…About the CTIWCD construction – initially the DIC group was adjusted to the upper value of ’75.95 plus the sum of final revisions itself’; the 2020-DIC group has lowered shares of lower age-subgroups (please go back to the table on Page 5) with relative differences being biggest in the lowest subgroups. Because the DIC group
is huge such differences must be mainly a result of structural (not accidental) reasons. One could ask: why we cannot assume the average age in the CTIWCD group to be deliberately higher and so to increase the calculated % of genuine Covid-19 deaths in the DIC group? The answer is: because there is only one more factor that can potentially result in a not close to Zero increase in the average age of the CTIWCD group. This factor is age groups illness-rates of Covid-19 in the U.S. society. So we should know what its age-structure would be if in a group there were only those who died in the given year naturally due to “aging” but were additionally positively tested for Covid-19 or had symptoms of Covid-19 (but were not killed by Covid-19); would there be any difference? If there were relatively less persons in younger age-subgroups then the average age (of CTIWCD) would increase, but if there were relatively less persons in older age-subgroups then the average age would decrease. …After the end of 2020 it turned out that both infection-rates and symptomatic-illness-rates did not increased, but decreased with advancing age (with the exception of children and adolescents) [19]! In children and adolescents (at age from 0 to just under 18) both infection-rates and symptomatic-illness-rates were also lower; it should help to explain the highest deficits of shares to be in the lowest subgroups of the 2020-DIC group, as solely potentially some of congenital anomalies (deaths) could not have resulted in so big deficits. So, younger age-subgroups of the 18++ age-range, also (but less) the 50-64 age-subgroup, were characterized by higher rates, when compared to the 65+ age-subgroup, but also when compared to children and adolescents [19]; the main reason of that most probably are higher ACE2 receptor expression levels in younger adults (at age from 20 to 60) [20]. When being in a terminal state the difference between younger and old adults could diminish, as any higher social activity (younger adults) then by much decreases, but it would not be possible to reverse the situation.

…Thus, there should not be taken the average age of the 2020-CTIWCD group as yet higher, because it is not possible to present that factors of infection-rates and symptomatic-illness-rates could have given a bigger increasing effect than that small one already incorporated, which is in the DIC group the most seen as a weight-deficit of age-subgroups containing children and adolescents.

The ‘intrinsic loop’

Some of patients with other diseases are not provided with immediate help because access to treatment for the diseases that most contribute to deaths (cardiology, oncology and lung diseases) has worsened with the pandemic. Some of hospital clinics have been even closed due to revealed Covid-19 outbreaks; a part of non-emergency surgeries has been suspended. Some of people have been afraid to go to a specialist or to the hospital because of their apprehension of becoming Covid-19 infected there (panic). Covering the face with a mask enables the creation of a dangerous concentration of microorganisms and a statistical mask user probably do not change it often enough to limit that problem; besides, masks decrease O2- and increase CO2-concentrations under it. Staying at home means limited physical activity what is negative for overall health. The role of these factors should be growing over time and they should be the real main reason of an increase (year-over-year) in the number of deaths.
**Influenza and Pneumonia**

The flu reported numbers of fatal cases, even up to 90%, diminished in the world in the year 2020. That fact was already visible in the very beginning of the Covid-19 appearance [21]. Maybe a number of the flu cases was treated as Covid-19 in that year due to limited reliability of the tests (?), or maybe there is another explanation. Comparative joint counting of Covid-19, influenza and pneumonia-without-Covid-19 lethal cases is necessary because when looking at the CDC data: “Deaths involving coronavirus disease” we can see that virtually all cases of “Deaths involving Covid-19 and Pneumonia” are further claimed to be Covid-19 lethal victims. Also, in the UK when influenza, pneumonia and Covid-19 were on a Medical Certificate Cause of Death (MCCD) together, without a postmortem, then almost 96% of these deaths were counted as Covid-19 deaths, according to the analysis [22].

**Discussion**

In the U.S., over 62%, about 48%, 34%, 23% and 15% of persons aged 67+ have, respectively, 3+, 4+, 5+, 6+ and seven or more conditions of the CCW list (of included in 2008), and only >2% have ten or more [14]; but the prevalence of 2+, 3+ and 4+ chronic conditions (not fully of 2008-CCW but the key proportions for aged 65+: 4+ vs. 3+ vs. 2+ are fairly similar) is approximately: 2.4 times, five times and close to ten times, respectively, greater at age 65+ than at age 20-44; at the same time, when comparing to a group of 45-64 years of age, this prevalence is approximately 1.3, 1.6 and 2.1 times, respectively, greater at age over 65 [23]. Some useful info adds the rand.org study: “Multiple Chronic Conditions in the United States” also [24].

The number of chronic conditions and life expectancy are strongly correlated; the average number of chronic conditions would have to be ≥10.0! (of 2008-CCW ones) to diminish life expectancy to 80 years for a still alive 75-year-old US woman, what means shortening the remaining life to five years; at the same time a 75-year-old woman with “only” 5.0 chronic conditions should live, on average, to the age of 87 [14], what is by one year shorter than the average for a 75-year-old woman in the US. The marginal decline in life expectancy increases with an additional chronic condition when the number of conditions is low, but this decline starts with low values -first conditions sum up to a much less effect on life expectancy than the next conditions do; at the same time the leading causes of chronic disease death give some differences in life expectancy at age 67, but the differences considerably diminish with morbidity and/or with increasing age [14] The clear relationship between the number of comorbidities and life expectancy has been discovered also by other authors [25]. …What concerns different possibly mortal chronic conditions, a vast majority of them have a similar very advanced average age of a decedent; that age is considerably lower only due to the following conditions: HIV (<60 y.), malignant neoplasm of cervix uteri (<60- y.), obesity and chronic liver diseases (>60 y.) [3-p.39-40]. And what concerns Covid-19 it is said that it can cause even acute strokes and acute myocardial infarctions itself [e.g. 26,27]. …However the fact about the DIC group is that the average age in that group is fixed and it is as high as 76.1 year; this fact is the reason that assuming health status of people soon killed by Covid-19 (just before they got infected) to be worse than that of the comparative group can only minimally change the final result, as the fixed average age blocks bigger changes when ADC is frozen too.

…In 2020 it was often enough to have only a positive PCR test result 1 month prior to the death to become an official Covid-19 victim; it was highly irrational. But including only those of dying who have appropriate
symptoms of the infection - would change not much. If a person dies with Covid-19 it does not mechanically mean that Covid-19 kills him. Assuming in advance that a person is a victim of Covid-19 only because has died with Covid-19 (or with a positive PCR test result) is almost as pointless as saying that if someone wearing glasses died then wearing glasses killed him [it would not be fully correct even with smallpox, such an assumption would be correct only if people were immortal unless infected with Covid-19].

…People even at an advanced age, like at 75 years have, on average, considerable ‘life-strength’ that allows them to live for over 12 more years (on average) [2]. But Covid-19 starts to accompany also people with totally collapsed ‘life-strength’ who are already dying. There are a few millions of people in their terminal states (dying) in the U.S. yearly, and there should be a meaningfully increased % of positively tested for Covid-19 or with symptoms of the infection in that group mainly because their health-state has been a bit earlier already collapsing and their immune system too. They form a big number of fictious Covid-19 victims, however the main reasons are highly irrational assumptions mentioned above.

Conclusions

a) The ‘ex post’ analysis is necessary to discover the real number of deaths due to Covid-19.

b) The official number of ‘Covid-19 deaths’ is mainly the result of the double counting of those who would die whatsoever in the same (or very close to identical) time, also without the Covid-19 infection, because Covid-19 started to accompany people already being in their terminal states …or even where there was not any infection but only positive PCR test results. So in the US in the year 2020 there were not 363,000 ‘deaths involving Covid-19’ but only up to a bit over 20,000 of that. The rest of the deaths should be treated as wrongly attributed to Covid-19.

c) Little excessive deaths year-over-year can be due to Covid-19. Main reasons of excessive deaths most likely are:

- some of patients’ fear of going to a specialist or to the hospital (panic)
- the worsened access to treatment for diseases other than Covid-19
- ‘deaths of despair’.

d) Comparative joint counting of Covid-19 + influenza + pneumonia-without-Covid-19 lethal cases is necessary.

e) Covid-19 in 2020 (taking into account the simultaneous very strong disappearance of the flu) was not able to made itself a meaningful net increase in the number of yearly deaths. So at the same time it means that disappearing of Covid-19 should not have a meaningful diminishing effect on the number of yearly deaths (+ the flu should then recover).

f) The analysis for the year 2020 is most informative; later analyses should incorporate stronger negative effects mainly of the ‘intrinsic loop’ but also health troubles produced by the vaccines plus those due to mutations of Covid-19 - if forced by the vaccines.

Conflict Of Interest

There is no conflict of interest.
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