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 in the U.S. METHODS: The ideas for solutions are original, mathematical – logical; there were used constructed equations; a few riddles had to be solved. Calculations are in some places somewhat simplified, to chase calculations. There were used the CDC, NSC, SSA and other agencies/institutions' databases. FINDINGS: Under 10% of those reported as Covid-19 victims, in the U.S. in 2020, died from Covid-19 complicity. A vast majority of those forming the 2020- official "Deaths involving coronavirus" group would have died in the same or in a very close to identical time anyway (also without Covid-19) because their deaths resulted from the normal age-structure of deaths in the United States, and from causes already existing before Covid-19, creating the expected average age of death actual in the given year (due to not-Covid-19 causes). 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 (or in a very close to identical) time even without Covid-19. The 2020-DIC group's construction is based on very irrational mechanical assumptions, resulting in natural 2020-deaths being not removed from it; none mechanically built group can consist of only genuine victims of a new killing factor. The 'ex post' analysis is necessary to discover the real number of deaths due to Covid-19. FUNDING: None.

Introduction

It seems there is no correct essay analyzing the real number of Covid-19 victims 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 overall weakness of the organism); these conditions' sources are in the body itself or a condition's 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 overall weakness of the organism /age). Infant mortality is another quite important group of causes of death. The key fact to remember

is that the number of chronic conditions and life expectancy are very strongly correlated too. The aim of this paper is to propose 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. There were estimated both the average age of death that 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 who died in 2020 naturally due to "aging" in it, and those who really died due to Covid-19 or due to other extraordinary causes (otherwise expected to live longer) were excluded, and the average further life expectancy for supposed Covid-19 victims. There were used constructed equations. The calculations widely used the CDC, NSC, SSA and other agencies/institutions' databases. To understand the procedures of calculations and what the consequences are a reader should follow the resolving and explanations given below. Calculations are in some places somewhat simplified, if the simplification matters only very little both to the final result and to a partial result, to chase calculations, because the method presentation is the main aim of the article, while sometimes not all very precise input data were available.

Detailed Procedure & Results

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) increased the distance to life expectancy in the U.S. (LE = 78.75 for 2019 [2]). On the site wonder.cdc.gov –'Underlying Cause of Death' we can get data concerning decedents grouped by 'Single-Year Ages' 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 [3]. …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 calculated by entering www.wonder.cdc.gov –'Underlying Cause of Death' and asking for the data: 'Single-Year Ages' + '2020' + 'U00-U99'. -The calculated result is 76.58 year, but with a bit lower 351 thousands of cases included there. /Previously, in older Versions, we made a mistake as e.g. age 75 in the table means age from 75 to '76 minus one day', so 0.5 must be added giving 76.58, not 76.08./

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 due to "aging" and so genuine Covid-19 related deaths were excluded (*called from now the CTIWCD group). The already taken, assuming Covid-19 absence, average age of death in the U.S. 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 [although rare exceptions have been reported], thus the average age of death for our group (CTIWCD) must exclude the impact of injuries in their broad meaning. We can enter 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 still not available then)
-Intentional self-harm (suicides): 48344
-Assaults: 18830

Going deeper into it (data for 2018, imported in February 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

The approximate results for separate categories: 'Poisoning', 'Suicides', 'Moto-vehicle crashes', 'Assaults', 'Drowning + Choking + Fires/Smoke + Mechanical suffocation' (all are trifles), and one important category with the average age of a victim (= 80.0 years) meaningfully higher than the average age of death in the society in the year = 'Falls', would be:

0.70, 0.45, 0.40, 0.25, 0.10, -0.10 (/the equation is on the next page)

There are additional minor causes of fatal 'preventable injuries' (Accidents) with their total share of 9% in it (Injuryfacts), but their age structure is not given there; however (0.70 + 0.40 + 0.1 – 0.1) x (9/91) is about 0.1.

But the data for 2019 [4], available from a bit later date, show the number of injury-deaths increased by 2.3 % (vs. 2018), when the total number of deaths increased only by 0.55%, and the summary calculation based on the average age of death in 2019 due to any injury (52.0 years) gives a little higher result:

(1 - 0.0842) x (AD + I) + 0.0842* x 52 = AD

0.9158 x 73.77 + 0.9158 x I + 4.3784 = 73.77

67.5586 + 0.9158 x I = 69.3916

I = 1.833 /0.9158 = 2.00

/*It is the share of deaths due to injuries (unintentional ones + suicides + assaults + legal interventions) [4]. For 2020 we assume the av. age should be very similar (it should be increased only minimally, most of injuries are fairly age-specific), but the trend in the number could continue, so we will take 2.05 for 2020.

And here we have shares of age-subgroups in the DIC group vs. shares in all deaths (2019), in brackets there are shares after excluding injuries:

the 00-01 subgroup shares: 0.01% vs. 0.73% (0.74% after the correction)

the 01-14 subgroup shares: 0.02% vs. 0.32% (0.20% after the correction)
[9.17 /2854.84 and (9.17 - 3.82) /2614.49]

the 15-24 subgroup shares: 0.14% vs. 1.04% (0.27% after the correction)
[29.78 /2854.84 and (29.78 - 22.59) /2614.49]

the 25-34 subgroup shares: 0.64% vs. 2.07% (0.81% after the correction)
[59.18 /2854.84 and (59.18 - 38.12) /2614.49]

the 35-44 subgroup shares: 1.73% vs. 2.91% (1.83% after the correction)
[82.99 /2854.84 and (82.99 - 35.19) /2614.49]

the 45-54 subgroup shares: 4.84% vs. 5.62% (4.85% after the correction)
[160.39 /2854.84 and (160.3 - 33.53) /2614.49]

the 55-64 subgroup shares: 12.00% vs. 13.13% (13.01% after the correction)
[374.94 /2854.84 and (374.94 - 34.75) /2614.49]

the 65-74 subgroup shares: 21.74% vs. 19.46% (20.38% after the correction)
[555.56 /2854.84 and (555.56 - 22.73) /2614.49

the 75-84 subgroup shares: 27.66% vs. 24.10% (25.49% after the correction)
[688.03 /2854.84 and (688.03 - 21.70) /2614.49

…and the 85+ subgroups: 31.22% vs. (32.42% -already corrected)

There are still factors that will noticeably revise upwards the average age of death for our group, 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 [4] = 0.01% vs. 0.73%). But the second value we must adjust to shares without classical injuries. It gives: 0.74%

{1- [(0.0074 - 0.0001)/(1 - 0.0074 + 0.0001)]} x (WI + I) + [(0.0074 - 0.0001)/(1 - 0.0074 + 0.0001)] x 0.5 = WI

0.9926 x 75.79 + 0.9926 x I + 0.0037 = 75.79

75.2292 + 0.9926 x I = 75.7863

I = 0.5568 /0.9926 = 0.561

/WI - the value after increasing AD by deducting the negative impact of 'injuries'

Shares of age-subgroups in the DIC group vs. shares in all deaths (2019) after excluding injuries and 73/74 of 'infant mortality':

the 00-01 subgroup shares: 0.01% vs. 0.01%
the 01-14 subgroup shares: 0.02% vs. 0.20%
the 15-24 subgroup shares: 0.14% vs. 0.27%
the 25-34 subgroup shares: 0.64% vs. 0.82%
the 35-44 subgroup shares: 1.73% vs. 1.84%
the 45-54 subgroup shares: 4.84% vs. 4.89%
the 55-64 subgroup shares: 12.00% vs. 13.11%
the 65-74 subgroup shares: 21.74% vs. 20.53%
the 75-84 subgroup shares: 27.66% vs. 25.68%
…and the 85+ subgroups: 31.22% vs. 32.66%

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

[There is nothing extraordinary in the 85 age-subgroup to have a little diminished share in the DIC subgroup. The most important corrective factor should be ACE2 receptor expression level, and ACE2 receptor expression levels should decrease at a very advanced age, please continue reading.]

…There are also deaths due to crash-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 (CTIWCD), because those deaths should concern mostly old people and in a worse, on average, than the age-standard health-state and so seeking for intensive care. Additionally, opinions about their number are extremely different one from another. There could be up to a few tens of thousands of such deaths yearly (but unofficially, if to make use of extreme and rather loose opinions), but on the other hand there are opinions that the official data are more objective and there are only 5 thousands of deadly 'complications of medical and surgical care' yearly [4-p.41], so of a crash-like type there should probably be 1-2 thousands. We estimate its impact to be from Zero to 0.20 year, and we subjectively take 0.1 year for the further analysis.

..But an additional down-correction for our group for 2020 turns out to be necessary. This correction is needed due to the fact that in the DIC group there were 55.0% men and this 55% concerns all infected ones

(or with the symptomatic illness) and not only victims of Covid-19; the hormonal systems are suspected to be the reason. 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 the whole DIC group) 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.

… Let's look into the data for 2019 [4-p.45-49]: all deaths: 2854,838 (male: 1473.823, female: 1381,015) so there are slightly 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; although there are by 6-7 thousands more injuries when compared to "[4]"). We receive 74.06 years and 78.65 years respectively, but these are not very precise values, because we use our method based on 'Ten-year groups', however it matters little as we calculate in the same 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 one should select 'Single-Year Ages', and so give more time for it with simple calculations.]

(74.06 + 78.65) /2 = 76.36

74.06 x 0.55 + 78.65 x 0.45 = 40.73 + 35.39 = 76.12

76.12 /76.36 = 0.9969 …and thus for our so far result:

(74.00 + 2.05 + 0.56 + 0.1) x 0.9969 = 76.71 x 0.9969 = 76.47

…without including the next (= the last) factor yet.

After excluding injuries and 73/74 of 'infant mortality' shares of lower age-subgroups are still smaller in the DIC group than in the comparative group. The main reason is age-groups illness-rates of Covid-19 in the U.S. society. So we should know by how much the average age would be yet higher, 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). …This time we are lucky; with the average age of the DIC group revised up from 76.08 to 76.58 (/explained earlier in the essay) this age whether with or without the changed shares of lower age-subgroups is almost identical to that of the initial 2020-comparative group (without changed shares the average age of the initial 2020- comparative group is a bit lower: 76.47 vs. 76.58), while raw changes of shares of the 01++ age-range of the DIC group, to make it similar to those of the 2019- comparative group, give only a 0.29-year deduction. Thus we do not have to do any time-consuming and complicated analysis. In the initial step we want to check if it can be the truth that 100% (or not much less) of the 2020-DIC group were genuine Covid-19 deaths. With such an initial assumption we cannot assume, in the first step, shares of real Covid-19 deaths to be in some of bordered age-subgroups smaller/higher

than in other age-subgroups, as we would also have (at the start) to diminish the DIC group to an importantly smaller subgroup being the reference. …We take the initial ISD (/ISD = 'impact of share-deficits in the 01++ age-range on the average age of death') for the CTIWCD group as 0.20 year, because the difference concerning average ages of the biggest and open 85+ age-range is 0.23 (lower in the DIC group - wonder.cdc.gov) while the CTIWCD group for 2020 has, before including this final factor, by 0.14 year higher average age than that of the 2019-comparative group (for CTIWCD we have additionally added 0.1 year -crash-like medical errors, but then adjusted it by shares of men and women), so the difference concerning average ages of the 85+ age-range should be yet a little bigger (and it is a small up-correcting factor).

Here is the explanation of the limitation concerning the initial ISD:

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 increase, but decreased with advancing age (with the exception of children and adolescents) [6]! In children and adolescents (at age from 0 to just under 18) both infection-rates and symptomatic-illness-rates were much lower too; it should help to explain the highest relative deficits of shares to be in the lowest subgroups of the 2020-DIC group. So, younger age-subgroups of the 18++ age-range, also (but less) the 50-64 age-subgroup, were characterized by considerably higher rates, when compared with the 65+ age-subgroup and when compared with children and adolescents [6]. The most important reason seems to be higher ACE2 receptor expression levels in younger adults (at age 20 to 60) [7]. Age-dependent ACE2 gene expression in nasal epithelium was found to be the lowest in children (of age up to 10 years), higher in adolescents and the highest in adults of age 25 – 60 [8], further aging was associated with decline in levels of ACE2 expression in multiple tissues [9] -it is confirmed by a majority of other sources concerning humans.
For those already being in a terminal state the difference in illness-rates between younger and old adults should diminish (any difference in social activity then strongly decreases, however at the same time the difference in the average state of health between e.g. a 55-year-old one and a 80-year-old one strongly decreases too, because the usual difference does not concern those in their terminal state at all), but it would not be possible to visibly reverse the situation.
It is not possible to present that factors of infection-rates and symptomatic-illness-rates could have given a noticeably bigger increasing effect than that small one already incorporated, which is in the DIC group the most and sharply seen as relative weight-deficits of age-subgroups containing children and adolescents.
…The internal structure of the DIC group suggests that the mentioned factors sum up to a more like neutralizing impact on the standard differences in illness-rates between younger adults and those at age 60+. The decisive tip is also the narrowed 01-10 age-range's share deficit (in the DIC group vs. the comparative group for 2019) with the stronger than 90-% deprivation; the deprivation seems like an exhausted one (hardly any space left) and even a yet bigger general shares-changes, resulting among others in an additional 2.5%-deprivation rise in the 01-10 age-range, could increase the basic ISD only by up to 0.01 year. [In the January-2021 CDC data shares in 35-44 and 45-54 age-subgroups were slightly higher in the DIC group.]

…It all means that if in the official 2020-DIC group there were only people who died in 2020 naturally due to "aging", their average age of death would be about 76.67 year (or perchance only little higher). [It is not the most precise result, maybe 76.65 or 76.70 would be better, as we have not used any time-consuming method to receive the initial ISD, but it matters little, because in the first step we want only to prove that assuming 100% of the 2020-DIC group were real Covid-19 deaths with the average age as high as 76.58 is a nonsense.]

{If we had a huge subgroup of decedents (in a 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 a similar to all deaths age-state-of-health then no new killing factor (disease) could be common exclusively in that subgroup; any new and common killer should have considerably diminished the average age of death (for an infection, after adjusting by infection-rates and symptomatic-illness-rates, and by shares of sexes)! Covid-19 cannot omit the rest and choose to infect and kill stronger/strongest ones of an age-subgroup and by this way show similar shares of decedent-age-subgroups; to fully understand the question please continue reading the essay.}

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 people from the whole 2020-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 'actuarial Life Table' [2]. At the start we base on median values of 10-year age-subgroups and then taking into account weights of these subgroups (in the DC group) we calculate the preliminary result for the whole group. The very careful calculations give the result of 12.25 (LEa), but the based on medians average age would be 76.75, not 76.58, so LEa must be corrected up to 12.35 …Then the result 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 injury-length-of-life diminishing effect (X).
…W calculate the X-value in a direct way, basing on a life table and death rates on which this life table is built [4-p.42+]. It is not necessary to take into account the 0-14 age-range as its share in the DIC group is only 0.03% and it would have to die 1/3 of it to change the share to 0.02%, so we assume this 0.03% would survive to enter the 15-24 age-subgroup.

Death rates for age-subgroups: <1, 1-4, 5–14, 15–24, 25–34, 35–44, 45–54, 55–64, 65–74, 75–84, 85+ [4-p.42+]
DRX: 553.0, 23.3, 13.4, 69.7, 128.8, 199.2, 392.4, 883.3, 1764.6, 4308.3, 13228.6
DRI: 40.5, 9.1, 5.7, 52.8, 83.0, 84.6, 82.0, 81.8, 72.2, 135.8, 399.1 (/both per 100,000 population)
/DRX – general death rates; DRI – death rates for all injuries (unintentional + suicides + assaults + legal interventions)/

We first move from a lower age-subgroup of the DIC group to a neighbor higher age-subgroup and check what % of people should survive to become average representatives of a higher subgroup [2]; those already being in a higher subgroup plus future newcomers give the total share of those at risk to die due to an injury at that age.

the total share for the 15-24 subgroup = 0.17%
the share of males in this DIC-subgroup: 62%
0.9855 x 0.62 + 0.9943 x 0.38 = 0.989 [2]

the total share for the 25-34 subgroup = 0.64 + (0.17 x 0.989) = 0.81%
the initial share of males: 65%, the corrected share: 64%
0.6266 + 0.356 = 0.983

the total share for the 35-44 subgroup = 1.73 + (0.81 x 0.983) = 2.53%
the initial share of males: 67%, the corrected share: 66%
0.638 + 0.333 = 0.9715*

the total share for the 45-54 subgroup = 4.84 + (2.53 x 0.9715) = 7.30%
the initial share of males: 67%, the corrected share: 67%]
0.622 + 0.315 = 0.937*

the total share for the 55-64 subgroup = 12.0 + (0.937 x 7.30) = 18.84%
the initial share of males: 64%, the corrected share: 65%
0.554 + 0.318 = 0.872*

the total share for the 65-74 subgroup = 21.74 + (0.872 x 18.84) = 38.17%
the initial share of males: 62%, the corrected share: 63%
0.443 + 0.290 = 0.733*

the total share for the 75-84 subgroup = 27.66 + (0.733 x 38.17) = 55.64%
the initial share of males: 56%, the corrected share: 59.5%
0.184+ 0.142 = 0.326

the total share for the 85+ subgroup = 31.22 + (0.326 x 55.64) = 49.36%;
the initial share of males: 42%, the corrected share: 48%

/*the share of people of this subgroup that should survive to become standard representatives of the next age-subgroup/

…For a man at age 85+ (not just entering this age-range but at the average age of it) there is, on average, about 4.3 years at risk to be killed by a fatal injury [2]. Comparing the rather general data [10] with Injuryfacts we can see that DRI further speeds up, so we subjectively take the average DRI for the remaining 4.2 years as 500. The approximate impact of injuries we can find after the calculation by the simplified way (in this method one factor a little overestimates, however another one counteracts underestimating the result if DRI is strongly growing, so in the 75-84 age-subgroup –more explanations on a request).

(1 - 0.005)^4.2 = 0.995^4.2 = 0,9792 (the share of lucky ones, no fatal injury)

…It means that later about 2.08% of them should be lost due to injuries. 2.08% out of 49.36% is 1.03%. But what are, on average, the lost years? We take half of further LE = 4.2 x 0.5 = 2.1 (on average). The approximate preliminary negative impact of injuries on further LE we can calculate in the way:

2.1 x 0.0208 x 0.4936 = 0.0216 (the value is so small mainly because of the very small further LE)

…And now the rest of the age-subgroups:

the 75-85 age-subgroup:
DRI = 135.8 [after the correction: 267.5*]
(1 - 0.00267)^(6.545 + 4.86) = 0.99733^11.4 = 0,970
6.6** x 0.03 x 0.5564 = 0.087

the 65-74 age-subgroup:
DRI = 72.2 [after the correction: 103.6*]
(1 - 0.00104)^10 = 0.999^10 = 0.990
12.2^ x 0.01 x 0.339*** = 0.041

the 55-64 age-subgroup
DRI = 81.8 [after the correction: 77]
(1 - 0.00077)^10 = 0.99923^10 = 0.992
19.10 x 0.008 x 0.1779= 0.027

the 45-54 age-subgroup:
DRI = 82.0
(1 - 0.00082)^10 = 0.99918^10 = 0.992
26.75 x 0.008 x 0.071 = 0.015

the 35-44 age-subgroup:
DRI = 84.6
(1 - 0.00085)^10 = 0.99915 ^10 = 0.991
35.45 x 0.009 x 0.0250 = 0.008

/*The correction is needed as with moving from this age-subgroup (with aging) to the neighbor older age-subgroup the DRI rises./ [/^ -exponentiation/]

/**LEn (average) at age of 75-84 age-subgroup is 9 years, but people at age of the subgroup are to be under the process of aging and the next age-subgroup has LEn = 4.2, so the number of years a fatal injury would, on average, cut off is about 6.6. …LEn are corrected by the shares of sexes in the DIC subgroups/

//***Shares at this place are those total ones for the DIC-subgroups, but next reduced to these people that should be also alive when half of the process of changing (with aging) a lower age-subgroup into an older subgroup is done [2]. –It means the middle state (time) on the way of the process./

the 25-34 age-subgroup
DRI = 83.0
(1 - 0.00083)^10 = 0.99917 ^10 = 0.992
44.80 x 0.008 x 0.0080 = 0.003

The sum of preliminary values = 0.204 year (with added assumed 0.001 for the <25 age-subgroup). The final summary value should additionally include crash-like medical errors and infinite geometric series (it is explained later in the essay), but they together do not give an increase that lets receive noticeably more than 0.25 in total (due to their negligible impact calculations are not presented).

…The total rounded 12.60 value (12.35 + 0.25) 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).
[If we fully switched to the wonder.cdc for-2020-data we would receive 12.53 (12.18 + 0.1 + 00.25).]

……
What about the state of health factor? The share of people without a major chronic condition drops to its minimum at age 75, and next, at age 85, this share is the same (not falling more), according to Canadian surveys (!); it can be assumed that having any chronic condition is not necessary to die at a very advanced age. /There are studies [11,12] 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 U.S. average is, in a majority being free of chronic conditions, but their share is very small and diminishing; a similar effect was signaled in other developed countries [13,14]./ …The CDC has 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 the small % of condition-free ones in the 'deaths involving Covid-19' group is nothing extraordinary (for the age-structure of this group) with taking into account also conditions like hypertension and obesity which are at present very common in the U.S. [15,16,17]; especially the prevalence of hypertension (not yet on the 2008-CCW list, obesity not either) is record-high amongst older people. Additionally, in fact, people with 0 conditions have life expectancy, on average, by only little bigger than people with 1 condition [18]. …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, when compared with a society cluster of alive ones with the same age-structure (whatever this structure is)? The DIC group is really huge, so that average health status (and so strongly correlated with it number of chronic conditions) should not be noticeably better, but it should be worse (and the number of conditions meaningfully increased) due to easier killing by Covid-19 weaker ones of infected persons! …If a person has a few conditions (of the 2008 Chronic Condition Warehouse list) then what matters very much to life expectancy is that 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 [18]. …According to the British data guideline [19] 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 [20]. …We have just calculated that the based on medians (of 10-year age-subgroups in a life table) value concerning further life expectancy for the DIC group is 12.25 year (and the based on single ages corresponding to these medians, if for an age-subgroup take this age, value concerning average age is 76.75). However with a dispersion a lower age adds more than a higher age takes from the average (LE). If to check this value, from a life table [2], purely for single 76.75 year (also here taking into account the shares of sexes in the DIC group) we receive 11.0 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 (3.75 vs. 3.25, if 3.25 was the norm for a group of 75-year-olders) would have less negative effect on further life expectancy to having the same initial and then the same increased number by everyone (the theoretical 3.25 and 3.75, because practically a person can have 3 or 4 conditions), 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' [18]) = 0.532 vs. 0.70 year; and 0.532 /R1 = 0.591. We finally take the rounded 0.60 year as the value (D) by which the increased by 0.5 number of 2008-CCW-conditions would have its approximate average negative effect on life expectancy of really killed by Covid-19 ones, if their average age was around 75. [The norm for a group of alive ones with that of the DIC group age-dispersion is about 3.5, when solely for 75-year-old ones is higher, because younger ones diminish the average more than older ones increase it (please read the Discussion too).]

/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 >3.25 to >3.75 by >0.5 (it should be more like 0.7-0.8 as nowadays there are counted meaningfully more CCW-like conditions than those that are on the 2008-CCW list)./

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

12.35 - D = ALE1

ALE1 + 0.25 x ALE1 /12.35 = ALE

/ALE – adjusted further life expectancy/

/0.25 is a very small value so we assume here that injuries have (at a much advanced age) a proportional to further life expectancy negative impact./

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

a) similar to (the theoretical variant)…or

b) worse than that of the comparative group (the expected variant)

/The comparative group is the U.S. society cluster of alive ones, with the same, like the DIC group, age-structure./

…Let's assume (for a while) the D value to be Zero (it means we assume, for a while, the pre-infectious 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 12.35 + 0.25 = 12.60 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 those 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 about 76.67 years (or theoretically only little higher). …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 (deadly) at age 85 while at the same time some people have their worst possible health status at age 60 or less; there are just simply much more (by %) people who get into their terminal state being at an advanced age than those being at a younger age (it is the result of a person’s individual features); so an 80-year-old dying one was not healthier-stronger than a 50-year-old dying one, real Covid-19 deaths can only make people die yet earlier/younger, regardless of whether one would otherwise die at age 90 or 45.

-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 the next about 12.60* years on average! It would also mean that each individual genuine Covid-19 related death shortened its victim personal life, on average, by about 12.60 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 (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 similar to normal age-structure of deaths) picked up to infect and kill much stronger ones, who would otherwise live to an average age of over 89 years (!) …what means, in general, Covid-19 to be hugely less able to infect and kill (accelerate deaths of) the weakest ones (= whose life is expected to be much shorter). …Please read also the Discussion part./

-Persons from the DIC group died at an average age of 76.58 not of about 76.67 and so the loophole is 0.09 year. The 0.09-year gap could be caused by lethal effects of Covid-19.

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

[LEa - (AAADP - ADC)] x 1 /N

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

/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 about 12.60 years (in our variant with the standard health status), but it should not be directly related to the average age of death in the given 2020 year in the CTIWCD group (ADC), as it must be related to the expected and adjusted for that (DIC) group (by eliminating reasons of death other than “aging”) average ‘length of life’ at all (AAADP), so not in any given year. ADC is meaningfully lower than AAADP due to demographic processes. AAADP concerns the value that should be, if the DIC group was not distorted by unreal Covid-19 deaths that happened in 2020./

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 rather minor ones: ‘f’ and ‘m’), and also corrected in the end 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 influence of injuries on at birth LE:

1.0 x (78.75 + In) - Pn x LEn = 78.75

78.75 + In = 78.75 + Pn x LEn

In = Pn x LEn

/LEn - further life expectancy (average) of a potential victim if avoided the death, due to any kind of injury, at age within n-age-range/

/Pn – the share of people (of all born ones) expected to die due to an injury at age within n-age-range/

To be most accurate we should calculate for every single age separately, but with an assumed constant in an age-subgroup DRI we can calculate for age-subgroups, using weighted LEn, and then with 'DRI x 10' (not 10 only in the 0-1-4 and the last age-subgroups), average size in an age-subgroup (as a better measure) -for the share. …But we can also use a yet simpler look at an individual; the results for different age-subgroups are not received in the same like for the X-value way, because we do not look here from the same point of view –this time of people going through subgroups, from its beginnings):

<1: 0.00041 x (78.75 - 0.5) = 0.032

1-4: [1 - (1 - 0.000091*)^4] x 0.9938 x 76.2 = 0.028

5-14: [1 - (1 - 0.000057)^10] x 0.9929 x 69.3 = 0.039

15-24: [1 - (1 - 0.000528)^10] x 0.9898** x 59.5 = 0.310

25-34: [1 - (1 - 0.000830)^10] x 0.9798 x 50.0 = 0.405

35-44: [1 - (1 - 0.000846)^10] x 0.9643 x 40.8 = 0.332

45-54: [1 - (1 - 0.000820)^10] x 0.9390 x 31.7 = 0.243

55-64: [1 - (1 - 0.000818)^10] x 0.8845 x 23.3 = 0.168

65-74: [1 - (1 - 0.000722)^10] x 0.7793 x 15.7 = 0.088

75-84: [1 - (1 - 0.001360)^10] x 0.5813 x 9.1*** = 0.072

85+: [1 - (1 - 0.003991)^6.5] x 0.1929 x 4.0 = 0.020

/*DRI; **the share of born ones expected to still live at age of this age-range (the value for its middle) [2]/

/***further life expectancy (average) of a potential victim if avoided the death due to an injury (LEn); it should be here like that, about what you can ask the authors./

/^ -exponentiation/

The preliminary sum of negative impacts of injuries on at-birth LE is: 1.737 year, with added crash-like preventable medical errors it should be about 1.85 year.

The preliminary sum of negative impacts of injuries on LE is the preliminary one, as there are imputed (as LEn) cutoffs from the current further-LE; next at-birth LE appears to be initially increased by about 1.85 year, so it means that injuries should, in fact, cut off a more or less proportionally increased number of years …but it will increase LE again. So it looks like geometric series (infinite).

And so:

1.85 /78.75 = 0.02349
a /(1 - r) = 0.02349/(1 - 0.02349) = 0.0241
0.0241 x 78.75 = 1.90 (= the final result)

The preliminary impact of infant mortality on the average at-birth life expectancy, if there are already no injuries, is [2,4]:

0.0056 x (19.392 /20.921) x (78.75 + 1.90 - 0.5) = 0.00519 x 80.15 = 0.416
(so the final impact must be higher only by a micro-value)
/'x (19.392 /20.921)' – to avoid repeating injuries

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 [21]. 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 [22; 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 treatments, 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 (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 (if to assume 'f' to be yet stronger, the final result of the analysis could only drop). …The second additional element ('m') is an equivalent of "missed risks" (corresponding to weight-deficits of lower age-subgroups in the 2020-DIC group, but excluding that of the 0-1 age-subgroup -infant mortality).

The preliminary revision for an age-range (Sn) would be (the example for the 25-34 subgroup):

1.0 x (LEWIIf + Sn) - (A - B) x 49.70* = LEWIIf
/A -adjusted share of people expected to die in the age-subgroup (based on a life table); B -adjusted against LE share of people in the DIC age-subgroup/
/*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, while receiving 'A' and 'B' values for all subgroups complicated and much time-consuming, so let's do it much easier. The average age of death, in the year, with excluded injury-like events and infant mortality, corresponds to LEWIIf; but the demographic factor (growing population) is most important, what we can see by the example of deducting deaths of infants having a stronger effect on ADC (>0.5 year) than on at-birth LE (>0.4 year), and by the example of injuries (with a stronger effect on ADC than on at-birth-LE too !), so 'm' should be at least minimally smaller than the basic ISD (0.20 year).

…The only one thing that could potentially a bit increase 'm' is the question if respiratory viral infection are characterized by an atypical age-structure of lethal victims (by lower shares of deaths amongst younger people than usual shares amongst dying from "aging" -as defined in Introduction). While amongst all deaths (with excluded injuries and 'infant mortality') in the society there is a small % of deaths at young ages (e.g. in the age-range 01-50) then what about infections? If infections were not characterized by a clearly bigger % (adjusted by illness rates) then considering 'm' to increase would be possible. Data concerning influenza are more objective, than worthless ones concerning Covid-19 (it is explained in Discussion in details). Let's look at data presented by the CDC, first at the documents titled: "Deaths: Final Data for 2017/2018/2019" (three documents). Those dying due to 'aging' had the following shares in age-ranges 01-45 and 01-55: 3.1% and 8.3% (2017 -page 34+), 3.1% and 8.1% (2018 -page 36+), 3.1% and 7.95% (2019 -page 39+), so for the age-range 01-50 it should be expected up to 5%, as deaths "speed up" within the age-subgroup. We can go to www.wonder.cdc.gov -'Underlying Cause of Death' and ask for the data: '5-Year Age Groups' + 'Injury Intent' + '2019' to check that in 2019 this share was 4.8% (the age-range 01-50). …And next let's look at the CDC page titled "Disease Burden of Flu", the data are (shares of deaths at age under 50), for seasons 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020 accordingly:

15.2%, 6.0%, 7.6%, 9.4%, 3.5%, 8.7%, 4.2%, 5.4%, 7.1%, 12.2%.

So, the share is from 3.5% to 15.2% (years 2010-2020), on average 7.9% (with excluded extremes: 7.5%) = by much higher than 4.8 %, and because deaths due to the flu usually are overestimated too, although only moderately/slightly, what can be shown by another analysis concerning the flu, we can suppose that in certain years, when e.g. the share was 3.5% or 4.2%, correcting the average age down would increase those shares. …Symptomatic illnesses do not complicate it, because shares for the age-range <50 years are about identical (= a little over 60%) to the share of people at age under 50 in the whole U.S society [10]. …If Covid-19 was more powerful than the flu, the share of victims at age under 50 (/corrected by illness rates) should be rather yet bigger. …Thus, nothing points that 'm' ('missed risks') could be increased more.

…So we already know the DIC group is built on fictions (please check the next page for detailed explanations), LEa is 12.60, but LEWIIfmS is 80.50, while 76.58 is by far more than: 80.50 - 12.60, and for '80.50 - 12.60' LEa would be meaningfully bigger. …But let's ignore, for a while, this discrepancy:

the average contribution* of a single Covid-19 death to the 0.09-year gap*:

[12.60 - (LEWIIfmS - 76.67)] x 1 /N = [12.60 - (80.50 - 76.67)] x 1 /N = 8.77 x 1 /N

/* "unreal" ones

The total contribution of Covid-19 deaths to the size of the gap cannot be more than the gap is. Let's continue.

C x 8.77 /N = 0.09

/'C' is the number of real/genuine Covid-19 related deaths, in thousands/

C = 0.09 x (N /8.77) = 3.73

C /N = 0.09 /8.77 = 0.01026 (= 1.03%)

/'C/N' –the share of supposed real Covid-19 related deaths in the "deaths involving Covid-19" group in the U.S./

Now about how to read the above ”result”. It is not a real result. It is the starting point of the analysis, proving that the official data (“100% of the DIC group are real Covid-19 victims with the average age 76.58”) is a nonsense. The analysis must be looked at as at the process of/with increasing correctness, until the equilibrium point is reached. If we have supposed LEa = 12.60, but LEWIIfmS must be not more than 80.50 then one can ask why we do use the average Covid-19 victims' age as about 68 years quickly at the start (?). It is not used because any meaningful lowering the average age requires LEa to be changed (= LEa to go immediately up !) and the DIC group to be strongly reduced to a subgroup being the reference (= to not use N equal 363K, but N1 being several times smaller, we will show it soon). As you will see later, a little higher ISD is still acceptable, but theoretical applying it to the record from the previous page would give the “result” only up to 10%; however the increased ISD should not be applied to the above record, because it is connected with the duty of reducing the average age of real Covid-19 victims. The equilibrium point is the situation when the sum of a current average age and average LEa is equal timely-LEWIIfmS. Whatever the ‘initial “result” ‘ is (e.g. even only 1%) we could still look for the final result as a high value -by assuming a much worse than age-normal health-status; unfortunately the average number of chronic conditions is not visibly higher at all in the DIC group as a whole (against alive ones with the same age-structure), so reaching the equilibrium for N is impossible, and even if the number of conditions and the health-status were not correlated (/in fact they are strongly correlated) there would not be possible to reach the equilibrium point for any assumed very high average age of genuine Covid-19 victims, what you will see by the example of the average age equal 73, for which reaching the equilibrium point is still hardly possible. …In the basic record LEWIIfmS cannot be higher than 80.50; we cannot assume that Covid-19 chooses to kill much stronger people with an average expected ‘length of life’ of 89 years; besides, further LE (LEa) corresponds to at-birth LE, so for an average ‘length of life’ of 89 years, LEa for still alive at an average age of 76.5 ones would not be 12.6 (on average), but about 20 years.

……

But what would the ‘preliminary “result” ’ be if the health status of people killed by Covid-19 (soon before they got infected) was, on average, a bit worse (and so the average number of conditions was a bit bigger) than that of the comparative group? If the average number of conditions (of the 2008-CCW list) was higher by 0.5 (please go back and read about it some pages earlier; we cannot assume a bigger increase, as the number of conditions is not visibly increased in the DIC group) then according to our example ALE would not be 12.50 but lower.

12.35 - 0.60 = 11.75 = ALE1

11.75 + 0.25 x 11.75 /12.35 = 11.99 = ALE

However LEWIIfmS must be then adjusted down:

(76.58 + 11.75 + 0.25 x 11.75/12.35) /(76.58 + 12.35 + 0.25) = 88.57 /89.18 = 0.9932 (R3) -by multiplying: ‘x 0.9932’, …80.50 x 0.9932 = 79.95*

/* A potential distortion of R3 when referred to LEWIIfmS, if we have only very little diminished LEa, can have only a minimal increasing influence on the result. The stronger diminished LEa, the stronger distortion could be expected; so not for so high R3./

To be most precise we should not also assume that injuries have a perfectly proportional to life expectancy negative impact, however such an assumption cannot noticeably influence the result with the total impact of injuries only 1.90 year and at the same time R3 as high as 0.993, so this 1.90 being changed by a mini-value. …Treating separately such a small value like 'f' is also of very little sense as could help avoid an inaccuracy a couple or a few times less than 0.01 year.

[11.99 - (79.95 - 76.67)] x 1 /N = 8.71 x 1 /N
C = 0.09 x (N /8.71) = 3.75
C /N = 0.01033 (instead of 0.01026)

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

But what if only a limited % of the group (let's say 10 %) had hugely increased its average number of conditions (ANC), e.g. by 5 of the 2008-CCW ones to overpass 8, on average, in that subgroup, and if including the whole list of chronic conditions then to meaningfully exceed 10 on average; would there be a big change to the 'D value' with assumed the much smaller increase (by 0.5 of 2008-CCW ones here) but dispersed within virtually the whole group? Not at all. We can estimate with the tables [18] to see that the 'D value' would be higher, but slightly, with the ratio of importantly under 1.1 to 1.0.

/Potential differences concerning the prevalence of different-separate chronic conditions can very little influence any result, what can be checked by entering into the main record LE-data assuming extreme theoretical variants e.g. 50% of the DIC group having Alzheimer, the diminishing effect of which on further LE is stronger than that of other conditions [DuGoff].
/Hopes to increase any initial "result" by assuming a yet higher prevalence in the DIC group of a chronic condition of a considerable lower average age of death (e.g. obesity, although the number of deaths attributed to it is very small -concerns mainly extreme obesity) are empty ones; this condition would have to be correlated with illness rates (as if the increased prevalence would be invisible in the DIC group as a whole then could be important only in a separated very small subgroup -like few %), what would simultaneously shorten ADC making 'the loophole' diminish more and so the result./

……

Thus, the 2020-DIC group is based on a fiction with incorporating into that group plenty of people whose death had nothing or little to do with Covid-19. This group was formed by selecting from the society, in a vast majority, people that were already dying 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 Covid-19 killed in 2020 titans* (*as with the small 'm' -missed risks) who would otherwise live, on average, 89 years (and so would die at least 12 years later), when the average age of a person being in his/her worst possible (terminal) state of health (with excluded deaths due to injuries and infant mortality, and adjusted by illness rates and the shares of sexes) would be about 77 years in 2020 in the United States, while Covid-19 should be a death accelerator. …And if there were some people already in a 'dying-state' whose lives were really shortened by Covid-19 by a few weeks (what for an observer is more like guessing) then counting them as Covid-19 victims 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 television, as if people were not watching tv they would most probably make walks and do exercises much more often, would be a bit stronger and so would live, on average, some weeks (or maybe even months) longer. [Neither watching tv nor Covid-19 are triggers for those deaths to happen.]. The reasons of excess deaths were quite different and are listed later in the essay. …However we still do not know the real final result. What next, is explained further in the essay.

How many of the U.S. official DIC group could have had their date of death accelerated –Next Steps

Even without the analysis we should suspect the official average age is too high as for real Covid-19 victims: with a high number of chronic conditions (and this number should be importantly increased amongst genuine Covid-19 victims) it matters very little for further life expectancy of an individual if an actual age is 75 or only 67 instead [DuGoff: 18, Table2] and simultaneously there are quite few very old people in the growing U.S. population (those at age >80 have a 3.7%-share and those at age 70-79, with its majority at age 70-74, have only a 7%-share [10]. …Unreal Covid-19 deaths increase the average age in the DIC group, because their average age is very high.

After the 'preliminary step' we know that we have to go down with the average age of supposed Covid-19 victims, but jumping quickly under 70 is not a rational option. The best way is to use an intermediary step first.

We should look for the 'equilibrium point' by two simultaneous actions: by lowering the average age and by assuming a worse than age-normal health-status. This health-status must have been, on average, worse in real Covid-19 victims, because like aging also the worsened, for any specific age, health-state should make a person easier to be killed by the virus. The number of chronic conditions is a good indicator of it, because an importantly increased number usually reflects the much worsened health-state, what can be seen e.g. by the fact that a smaller number of conditions has a very-disproportionally small negative impact on life expectancy [18].

…People* that were not real Covid-19 victims should have formed a major subgroup with the same, on average, age (ADC) and health status (deadly/pre-deadly) like those of the CTIWCD group, because they(*) were simply a part of those who died in 2020 naturally due to previously existing (not Covid-19) causes (= "aging"); while those really killed by Covid-19 otherwise would not have died then, but in the future! It means we should not assume the DIC group to be one group with an average decent-age of 76.58 and that further LE was corresponding to that value, 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 let's check if for a subgroup of genuine Covid-19 victims with the average age equal 73 we can achieve the 'equilibrium point'. …Unfortunately, as you will see it soon, even 20% of assumed real Covid-19 victims is still too much to be possible.

$$76.58 = 73 \times C/N + ADC \times (1 - C/N)$$

…for C/N = 0.2 (= 20%) we must deduct from the DIC group 20% of it with the average age of 73 (and then to adjust shares of age-subgroups of the rest by dividing by 0.8), what in turn requires to recalculate ISD [it is enough to check the effect of this deduction on the average age of the rest of the DIC group, and the difference will be a very close approximation of the increase in ISD, because 76.58 is very similar to 76.67] which increases by 0.80.

(76.58 - 0.8 x ADC) /0.2 = 382.9 - 4 x (76.67 + 0.80) = 73

Let's check if the 'equilibrium point' is achievable: …We must first recalculate further LE for the age-average health-status, because it must be now bigger. From a life table [2, for 2019] and taking into account the shares of sexes we get the result for the age 73 = 6.9245 + 6.534 = 13.4585. However we already know that with the normal for the DIC group age-dispersion the result concerning further LE if calculated only for an average age is importantly lower than the real value, when an average age is a very advanced one (/otherwise this factor is of a much less importance). The previous ratio of results (R1) is 0.90. This time the average age is lower when the ratio is slowly growing with moving up in a life table; the difference between the average ages (73.0 vs. 76.75) is quite limited so we just take R1 to be 0.91 (taking also into account that the dispersion slightly diminishes solely due to the falling average age). A confirmation if this value is a perfect one we leave to volunteers, but there are very little chances to beat 0.91.

13.4585 /0.91 = 14.79; …14.79 + 'X-value'(>0.25) = 15.05 (further LE)

For the previously assumed 'f' to be -0.5 year it should be now limited by a mini-value for an average age of 73.00 (not 76.58), but as it should be a value about 0.05 year (/it takes into account both age-related regenerative abilities and years a person has lived in times of distinctly smaller LE/) we do not give much of our time for it, but just delicately increase LEWIIfmS from 80.50 to 80.55.

…For the 'provisional result' (/with the age-normal health-state) the sum:

73.0 + 15.05 = 88.05 …is by far more than 80.55 (timely-LEWIIfmS)

…But after a strong reduction of the DIC group into a 20%-subgroup we can already check if the equilibrium point could be reached with an assumed worse health-status.

…We can assume 'ADcs + LEa' and LEWIIfmS changing proportionally down only for very small increases in the average number of chronic conditions, but for big increases the sum ADcs+LEa should fall disproportionately strong versus the falling expected 'length of life' (LEWIIfmS). That is because to a very high number of conditions at a very advanced age leads a much lower number at a young age, while low numbers influence LEa very-disproportionally little [18] and, in general, chronic conditions most probably are, on average, disproportionately less deadly for younger people. So, if we assume the average age 73 years, with the corrected age-dispersion, then only having 15++ of CCW-like conditions per person could let try to achieve the equilibrium point (please check the Discussion why the 2008-year data must be adjusted up); however 15+ conditions per person mean a yet higher average, like most probably 20 conditions. 73 is the age

between 67 and 75 studied by DuGoff et al. We could decrease, with such a huge number of conditions, the average LEa not stronger than to just under 5 years = LEa1 [DuGoff: 18 -Table2]. Thus:

(ADcs + LEa1) /(ADcs + LEa) = <78.0 /88.05 = 0.88

We can only guess (/missing data) how disproportionately higher this Ratio should be for falling LEWIIfmS. However only with this R looking like too high one (…to be possible): 0.97

80.55 x 0.97 = 78.1335

78.1335 - (73 + 5) = +0.1335 year

…the equilibrium point: ADcs+ LEa1 = timely-LEWIIfmS …could be reached. So, for the result of 20% and with the average age 73 the subgroup of genuine Covid-19 deaths would have to have the average number of chronic CCW-like conditions about 20 (/but R as high as 0.97 looks like impossible); unfortunately the average number of chronic conditions like 20 in this subgroup would make this number to grow in the DIC group (as a whole) by 3 conditions above the number for a similar group, but without real Covid-19 deaths, while in the 2020-DIC group any increase is not visible!

…So let's try with the average age yet lower. … Let's start again with assumed 20% of genuine Covid-19 victims. The recalculated (in a similar way as previously) ISD must rise hugely by 2.31 year.

(76.58 - 0.8 x ADC) /0.2 = 382.9 - 4 x (76.67 + 2.31) = 67

…For ADcs = 67, for the standard health-status further LE (LEa) would be about [2 -2019]:
9.1685 + 8.595 = 17.7635. …17.7635 /0.93 = 19.10 [0.93 is the actualized R1], 19.10 + 'X-value'(0.30) = 19.40; the adjusted LEWIIfmS (for assumed Covid-19 victims) would be 80.65.

…It would be now enough to limit LEa to 9 years for the age 67 (what means only slightly under ½), for what the average number of conditions increased by adjusted-5 would be enough (/please remember that data in Table2 -DuGoff are based on the year 2008 when there were only 21 conditions on the list, only lately increased to 30, and please remember that the age-dispersion lowers the average number as the norm, so in total the increase must be adjusted up to 5; please read the Discussion too). It should make the average number in the subgroup equal 9 (nine) chronic conditions.

(ADcs + LEa1) /(ADcs + LEa) = (67 + 9) /(67 + 19.4) = 0.88

…with this time R = 0.94 for LEWIIfmS (/meaningfully lower than previously) being enough:

80.65 x 0.94 = 75.811

75.811 - (67 + 9) = -0.189 year (-0.189 year is quite close to 0)

The average number of chronic conditions increased by 5 in the subgroup would make this number to grow in the DIC group (as a whole) not by 3, but by 1 condition this time, what still seems to be too high to be hidden (in the DIC group as a whole the number looks like even a little decreased one, but it can be explained by a bit of heterogeneity in included in different observations conditions).

Unfortunately, this time ADC for the remaining 80% of the DIC group (having most probably the not increased average number of conditions) is too high, due to ISD increased to about 2.5 year, what is a few times too big to be possible to be reached, because there are limitations forced by the illness-rates! (-please make simulations on the tables from the early part of essay). We have already studied in the essay that "it would not be possible to visibly reverse the situation" for those already being in a terminal state (concerns illness-rates), and beating by ISD 1.0 year is hardly possible even with circus "gymnastics" on shares of age-subgroups. …So we should limit the subgroup's size to about 7% at most.

It all means the share of real Covid-19 deaths in the DIC group was under 10% …however the whole share of importantly accelerated deaths could have been meaningfully higher, but it must have already been people killed not by the infection! Only other reasons than the infection can give:

ADcs+ LEa1 = timely-LEWIIfmS

…with a strongly higher than 67 average age …because LEWIIfmS for the infection is blocked by the known/expected 'missed risks' ('m'), while for other causes may have been not-blocked (= LEWIIfmS considerably higher) if other causes killed very disproportionally (= selectively) oldest people. This cause could have been an inappropriate treatment/drug used on oldest ones; maybe overuse of respirators, or one of factor mentioned in the next part titled "*The intrinsic loop".* …In general, there should be, in the 2020-DIC group, also deaths caused by other reasons (/one of these reasons should have been Remdesivir [23], denial of antibiotics to treat the resulting bacterial pneumonia -maybe too/).

Thus, few 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 infection, because their deaths resulted from the normal age-structure of death in the United State and from causes/conditions already existing before Covid-19, creating the actual expected average age of death in 2020, due to not-Covid-19 causes; …or some of them were killed by reasons other than Covid-19. [It is however possible (conditionally) that some of the rest (of the major subgroup) had their deaths accelerated by some days or weeks (by months less probably*)]

/*In fact, a number of more than very slightly accelerated deaths, but under 1 year, had to be very small because dying (or a terminal state) from a statistical-given moment usually does not last for as long as for a few months more and Covid-19 had to start to accompany mainly persons 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 0.9% if a person is at age 70, what can be seen in a life table [2] (far not everyone was born on January 1st as a life table assumes, so a 0.5-year period must be taken, and so the risk is 0.9% instead of 1.8%). 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 result; …but in fact it could give not more than the additional: 0.009 x 0.07 /(1 - 0.009) = 0.0064, so the final result would be corrected by under 0.1% …of course a better sub-analysis should be made, based on the age-structure, not assuming everyone is 70 years old, if someone is interested in a very precise estimation of this additional mini-value)./

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); big stress can be deadly itself. 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. If these factors had an important effect already in 2020 (= early) they would a bit reduce ADC and the final result of the whole analysis. [/These factors are not taken into account in our analysis for 2020.]

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 pandemic [24], while there was not social distancing yet. 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 [25].

Discussion

In the U.S. 77%, over 62%, about 48%, 34%, 23% and 15% of persons aged 67+ have, respectively, 2+,3+, 4+, 5+, 6+ and seven or more conditions of the 2008-CCW list, and only 2.3% have ten or more [18]; but the prevalence of 2+, 3+ and 4+ chronic conditions (not quite 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 [26]. Some useful info add rand.org studies concerning chronic conditions in the United States too..

The number of chronic conditions and life expectancy are strongly correlated; the average number of chronic conditions would have to be $\geq$ 10.0 (!) of 2008-CCW one, what means at least 15 of whichever CCW-like conditions as e.g. only on the CCW list their number increased from 21 in 2008 to 30 at present (the added conditions do not seem to have, on average, an importantly different prevalence to that of the older conditions), to diminish life expectancy to a little under 80 years for a still alive 75-year-old U.S. woman,

what means shortening the remaining life to just under five years; at the same time a 75-year-old woman with "only" 5.0 chronic conditions (of 2008-CCW ones) should live, on average, to the age of a bit over 87 [18], what is <1 year shorter than the average for a still alive 75-year-old woman in the U.S. 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 [18]. The clear relationship between the number of comorbidities and life expectancy has been discovered also by other authors [27]. …What concerns different possibly mortal chronic conditions, a vast majority of them has a similar much advanced average age of a decedent; that age is considerably lower only due to the very few conditions: HIV (<60 y.), malignant neoplasm of cervix uteri (-60- y.), obesity and chronic liver diseases (>60 y.) [4-p.39-40] …while the numbers of deaths due to them are very small. And what about Covid-19 -it is said that it can cause even acute strokes and acute myocardial infarctions itself [e.g. 28,29]. However the fact about the DIC group is that the average number of chronic conditions is not visibly increased against a statistically big group of alive ones with the same age-structure.

…One can ask if the number of chronic conditions is a very good indicator of an overall state of the organism. It should be a really good indicator, because an importantly increased number usually reflects the much worsened health-state, what can be seen e.g. by the fact that a smaller number of conditions has a very-disproportionally small negative impact on life expectancy [18]!

…In 2020 it was very often enough to have only a positive PCR test result 1-2 month prior to the death to become an official Covid-19 victim; it was highly irrational. Sometimes even a positive PCR test result was not required, as the WHO suggested "suspecting Covid-19" to be enough to place it on the death certificate. But including only those of dying who have appropriate symptoms of the infection (and even simultaneously with a positive PCR test result) -would change very little. 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 only with a positive PCR test result, which can be false positive) is almost as pointless as saying that if someone wearing glasses died then wearing glasses killed him [it would not be 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 started to accompany also people with totally collapsed 'life-strength' who were already dying. Their health-state even earlier has already been collapsing and their immune system too, so they much easier have got infected and hardly have fought infections. They formed a big number of unreal Covid-19 victims.

[Solely the number of chronic conditions confirms the above result; if for all persons of the 2020-DIC group it was not their natural time to die, then Covid-19 should have actively shortened their lives. E.g. at age 75 a group of still alive 75-year-old ones with single conditions and with some conditions should be considerably more difficult (on average) to be killed by an infection than a group of much weaker 75-year-old ones with over 10 or with over 15 conditions. So, <u>for a statistically big group of mostly real victims of the infection there should be the importantly increased (against the comparative group) average number of conditions (/while any increase</u>

is not visible in the official „deaths involving coronavirus" group -DIC)! And what concerns a statistically big group of false victims of the infection -it should also have a very high and similar, to those naturally dying in the same year due to "aging" (after adjusting by infection-rates and symptomatic-illness-rates, and by shares of sexes), average age of a decedent, and the official DIC group is even fairly close to that.]

…As it was mentioned, there could/should have been (in the DIC group) also some people being, before getting infected, already in a terminal state and whose lives were next really shortened by Covid-19 by a few weeks, however assuming their number is much like guessing and hard to prove without autopsies. Counting them as Covid-19 victims would be in our opinion a major mistake also because Covid-19 could not have been any trigger for the deaths to happen [and there is an extreme difference if a person would otherwise live for the next years (a fairly good number of them) or for the next some weeks]; apart from that such deaths usually (in a vast majority) should be invisible from the point of view of yearly statistics (/after a year more -about none would be visible vs. 2019, if a number of victims in 2021 was similar to that in 2020). We should also remember that a terminal state gives hardly any comfort of life, while often gives pain.

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 infection, where Covid-19 started to accompany people already being in a 'dying state' or even where there was not any infection but only a positive PCR test result. So in the US in the year 2020 there were not 363,000 real 'deaths involving Covid-19', but only up to 30,000 of that. The rest of the deaths should be, in our opinion, treated as wrongly attributed to Covid-19.

c) A very limited number of excess deaths (year-over-year) was due to Covid-19. Main reasons of excess deaths most likely should have been:

-the worsened access to treatment for diseases other than Covid-19

-some of patients' fear of going to a specialist or to the hospital (panic)

-'deaths of despair'

-big stress.

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

e) Covid-19 could not have made itself a meaningful net increase in the number of deaths. With Covid-19 disappearing most probably the flu should be recovering.

f) The analysis for the year 2020 is most informative; later analyses could incorporate yet stronger negative effects of the 'intrinsic loop', but also of the vaccines and of mutations of Covid-19 -if forced by the vaccines.

g) If deaths of those of the official 2020-DIC group had, in a vast majority nothing to do with Covid-19 (as the result of fully irrational mechanical assumptions) or Covid-19 could have accelerated a part of those deaths by some weeks -vaccinations could never be effective for those of this vast majority (>90%).

Conflict Of Interest

There is no conflict of interest.

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