Useful Words and Numbers about SARS – COV – 2

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The COVID – 19 pandemic already presents a grave social problem, because, among other things, it affects our daily lives and upsets behaviors and daily habits we took for granted.

By October 2020, more than one (1) million deaths by COVID – 19 were registered worldwide. This can be attributed to COVID – 19 on the one hand, but on the other, to the measures which have been taken. The disease shows great levels of stratification in respect with age, socioeconomic factors, but also various co-existing diseases (comorbidity). Many of the fatalities registered at the beginning of the pandemic were the result of poor "patient treatment, malfunctions of the health systems, hydroxychloroquine side effects, the staying of COVID – 19 patients in nursing homes, but also hospital-acquired infections. These fatalities could have been avoided with more careful management. Approximately 10% of the world's population may have already been infected by October 2020. The fatality rate ranges between 0.15 – 0.20% (0.03 – 0.04% in the group of <70-year-olds). 1, 2.

The above values display a variability related to geographical distribution, age, socioeconomic conditions, public health, health care, the enforced health measures, as well as the general image of the health landscape.

There is disagreement regarding the percentage of infections sufficient in the population as a whole, in order for the community to achieve "herd immunity". It has been reported that at least 60% of the world's population must contract COVID – 19. However, if population heterogeneity and pre-existing cross-immunity are taken into account, this number is likely to decrease significantly. According to one assumption, it is estimated that there will be 1.58 – 8.76 million deaths in the period 2020 – 2024 worldwide. This number, namely, represents 0.5 – 2.9% of total deaths worldwide for the above time frame. However, there are more favorable scenarios, if the people in the "at-risk groups" are protected, so that there are fewer infections than in the population as a whole. Naturally, fatalities will decrease if there is an effective vaccine or/and pharmaceutical treatments, and all necessary health measures are put in place. Another aspect that has to be considered is the interaction of COVID – 19 with influenza, an issue which will be analyzed below.

Notable differences have also been recorded regarding fatality among states, but also regions. Until October 2020, 66 countries registered less than one (1) fatality per 100,000 inhabitants, while seventeen (17) countries registered fifty (50) fatalities per 100,000 inhabitants. These differences are clearly connected to the spread of the virus, but also to the mortality overestimation/underestimation in various countries or regions.3

It is interesting to observe that the measures taken to prevent the COVID – 19 epidemic sometimes foster fatalities due to other causes (e.g., people with acute myocardial infarction, who did not visit the hospital for fear of the pandemic). The majority of these deaths, however, may be related to unemployment, the financial crisis, depression and social isolation.3

The data for these deaths are still being studied and evaluated. The is a possibility that the following paradox is at play: If the number of deaths resulting from the emergency measures is calculated, it may exceed the number of deaths caused by this virus. For example, the inaccurate implementation of TB elimination programs alone is expected to cause 1.4 million deaths in the next five(5) years, namely

between 2020 and 2024. Furthermore, the number of deaths due to hunger may be significant. These deaths, nevertheless, are still dependent on our ability to reduce the severity of these problems early on, by avoiding continuous lockdowns and other draconian measures.3,4.

Fatality due to COVID – 19 is characterized by great variability between children, on the one hand, and adults residing in nursing homes, on the other. The average age of deceased patients is related to life expectancy. In countries where income per capital and life expectancy are high, the average age of death by COVID – 19 is approximately 82 years for Germany, 84 for Italy, 81 for the United Kingdom and 77 for the U.S.A. For India, however, this number is significantly smaller due to lower life expectancy and low income per capita.

Within the same countries, differences can be detected among various minorities. In the U.S.A., the average age of death is 71 for Latino-American people and 72 for African American people and it is considerably lower than that of White-American people in the U.S., which is 81 years.3.

In the United Kingdom, the number of deaths caused by COVID – 19 among people coming from Pakistan and Bangladesh is five times higher than that of white people. These types of minorities are usually the recipients of lower income, lacking or non-existent health care and poor living conditions which do not allow for adequate protection.4,5.

The lifespan of a person dying from COVID – 19 apparently decreases 1 –17 years, on average, according to different statistics, depending on the life expectancy and the existing comorbidities.5.

In the pre-COVID era, people residing in nursing homes lived there for about 2 years before their death. Within the span of the pandemic, this number has dropped to 5 months.

Many of those one million deaths could have been prevented, if the health systems were better prepared, as mentioned, if caution was exercised in the use of hydroxychloroquine as well as assisted ventilation in ICU. Moreover, hospital-acquired infections and the co-habitation of COVID – 19 patients with other seniors in nursing homes led to more deaths. Let us hope that all or the majority of the above mistakes will not be repeated in the future.6.

The serological tests carried out show various infections across different states and regions, however, the actual number of cases is vastly different, according to the PCR tests. 40% of infections are completely asymptomatic and many more displayed mild symptoms and, hence, did not get tested. At the beginning of the pandemic, the underestimation of actual cases was lower by 50 to 100 times, understandably due to limited testing. The ratio of total and confirmed cases is decreasing as more tests are conducted. In the U.S.A., the underestimation during the summer of 2020 was 11 times lower than presently and in India it was 30 times lower. By the end of October 2020, 36 million cases had been registered. However, the actual number of cases is probably 20 times higher. 10% of the world's population has been infected by now, as the World Health Organization (W.H.O.) reports.7,8.

The Infection Fatability Rate (I.F.R.) ranges from 0.00% to 1.54%, according to 82 published studies. The average value for fatality was 0.23% for the general population and 0.05% for people under the age of 70. These values agree with data provided by W.H.O.8.

The average age of COVID – 19 patients was 15 – 20 years in Africa and 43 in the European Union.6.

The global average median age was 30 years. 9% are above 65, 50% are between 25 and 64 and 41% are younger than 25.6.

COVID – 19 fatality varies and depends mostly on the populations' age distribution, but also on the number of seniors residing in nursing homes, the socioeconomic conditions and the measures taken.

60% of the population in the urban areas of the Indies and South America have already been infected and this is also the case with groups of people, who are subjected to crowding, such as flight attendants etc. This percentage is useful, as mentioned, for the creation of population immunity, namely "herd immunity". However, in other epidemiological models, it looks like the sufficient percentage for herd immunity is lower and it is roughly around 43% or even lower at the level of 10 to 20%. Multiple Factor Analyses have proven that, pre-existing cellular immunity plays a distinctive role in immunizing a sample population at a percentage of 20– 50%. In light of this information, therefore, the number of people who must contract the disease in order for herd immunity to be achieved may be much smaller.9.

It is estimated that the pandemic will take 2 – 5 years to complete its cycle. However, some regions in the world have probably already gone through the full life cycle of the pandemic. Other communities have not been largely exposed to the virus and will be at risk for a long period until immunity through vaccination is achieved.

If 60% of the world's population is infected, then the expected fatalities, until the end of the pandemic, will reach 8,760,000. These numbers represent 2.9% of the total deaths worldwide for the period 2020 – 2024, as it has been highlighted. If 30% of the world's population is infected, then the number of fatalities will be 4,380,000, namely 1.6% of total deaths worldwide for the period 2020 – 2024. If action is taken to protect the "at-risk" groups, fatality could drop significantly, and deaths may be around 1,580,000.10.

If infections of high-risk groups are kept at 10%, then, even if 60% of the world's population is infected, it will only result in 1,760,000 deaths worldwide.

Until October 2020, the co-existence of COVID – 19 and influenza was uncharted territory. It appears the impact of influenza is smaller when the COVID – 19 pandemic is at its peak. If this is true, then it looks like influenza is "consumed" by the health measures taken against COVID – 19. Evidently SARS – COV – 2 and the influenza virus compete with one another to infect the same group of people. Following COVID – 19's absence, influenza is expected to result in the death of 2,500,000 people in 5 years, this number also includes 150,000 children under the age of 5. The determination of whether, following COVID – 19's absence, these number for the period 2020 – 2024 will appear decreased, is of particular interest. An optimistic perspective supports that influenza "retreats", when COVID – 19 appears, and that the total number of deaths from respiratory failure remain the same as the pre-COVID – 19 era.11.

We also have limited knowledge regarding the severity of re-infection from SARS – COV – 2. It seems that it does not increase mortality. But this remains to be evaluated.

In conclusion, I would like to emphasize that both COVID – 19 and the health measures taken to deal with the pandemic, may disrupt life, the economy, culture and society to a significant degree. Indeed, the devastating impact of the measures on mental health is now certain. A catastrophic disruption of social peace may occur, and we may observe chaotic phenomena, like riots, wars, revolutions, the occurrence of which may result in the depopulation of urban areas. The measures against the pandemic may drive a vast majority of people to starvation, unemployment and other unpleasant situations, which will cause the reemergence of other infectious diseases, such as tuberculosis, but also child diseases due to insufficient vaccination coverage. 12.

If we learn to live with COVID – 19 with discipline, and employ effective and targeted measures, we can minimize the undesirable effects of the pandemic.

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