

EPHI, National Data Management Center for health (NDMC) Quick update on COVID 19, 017

This update summarizes

Ethiopia's COVID-19 situation update

Global and regional burden of COVID 19

Urgently Needed Health Services

T cell immune responses in patients with COVID-19

Beyond finding a vaccine: evidence on willingness to be vaccinated against COVID 19

Reflection of the week: *the number of COVID-19 critical cases has increased by 65% just in a week time indicting the increasing demand on the health care.*

Ethiopia's COVID-19 situation update

As of August 06, 2020 there were a total of 20,336 COVID-19 cases and 356 deaths across the country. Compared to the cases and deaths reported a week ago, the cumulative case has increased by 18% and cumulative deaths by 26%. So far 8,598 cases have recovered from COVID-19 (Fig 1). Of the 11,565 active cases, 185 are critical showing a 65% increase in a week time. The total number of tests stands at 459,746, showing a 10% increase compared to last week.

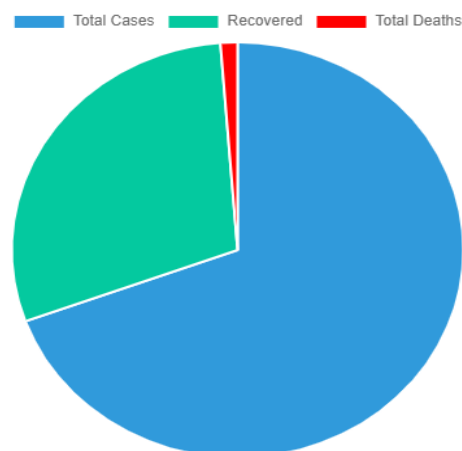


Fig. 1. Showing cumulative cases, recoveries and deaths (Source <https://www.covid19.et/covid-19/>)

EPHI and FMOH COVID 19 response highlights of the week

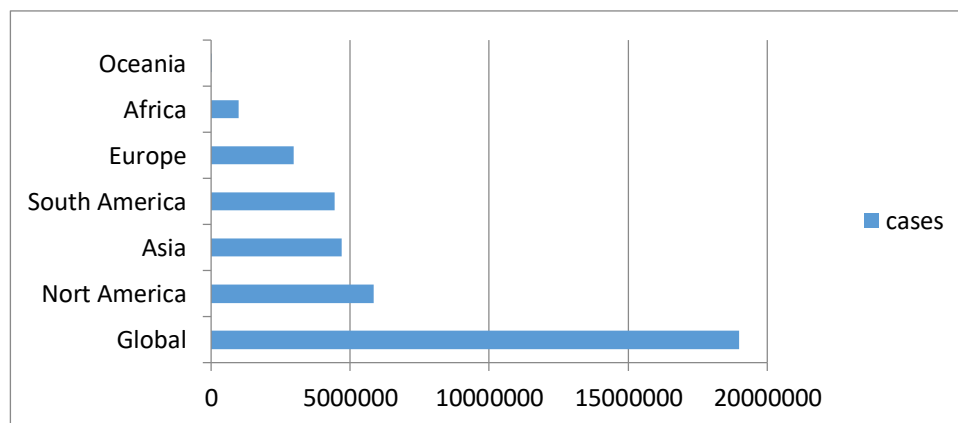
- Training on the role of Medias on COVID-19 prevention provided for Media Houses and Public Relation experts in Wolaita and Gamo Zones on August 04/2020.
- A five days TOT on Home-Based Isolation and Care for 21 HCWs from Addis Ababa city and sub-cities Health office started today August 04/2020.
- 500 Infrared Thermometers from EPSA sent to calibration at National Metrology Institute on August 03/2020.
- Of the total of 8,453 Health Extension Workers (HEWs) and supervisors enrolled to the Mobile based COVID-19 training, 6,646 completed the training from Addis Ababa, Afar, Amhara, Oromia, Tigray, SNNPR and Benishangul Gumuz Regions. Among these, 45 HEWs and their supervisors completed the training on August 2, 2020.

References

1. PUBLIC HEALTH EMERGENCY OPERATIONS CENTER (PHEOC), ETHIOPIA

Global and regional burden of COVID-19

- Globally the total number of cases has increased to 18,979,320 as of August 6, 2020. A total of 12,171,065 cases recovered and 711,250 people died since the beginning of the outbreak. Globally, in a week time, from 30 July to 6 August 2020, COVID-19 cases increased by 10.4% and deaths by 6.1%. North America is still leading in terms of cases followed by Asia and South America. However, still the number of deaths is North America and in Europe is higher than the rest of the world (Fig 2).



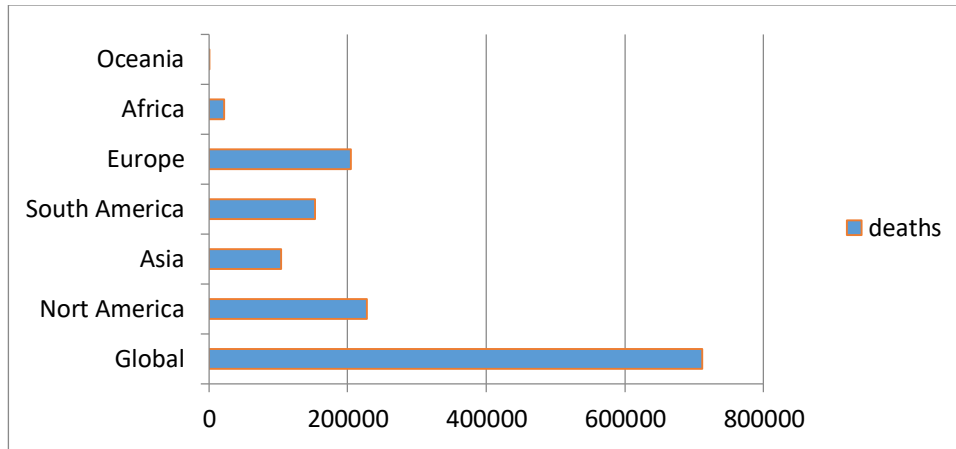


Fig 2. Global cases (top) and deaths (bottom) reported as of August 2020.

- In the USA, the increasing trend has continued. The country has recorded the highest number of cases (4,973,568 cases, 161,601 deaths) that accounts 26.2% of the total global cases and carried 22.7% of global deaths as of August 6, 2020.
- Brazil has continued reporting the second highest COVID-19 burden in the world following USA. The number of cases in Brazil has increased in a week time by 12% to 2,862,761 and deaths by 8.0% to 97,418.
- India has continued to record the third largest number of cases in the world. In a week time the cases have increased by 24% (from 1,584,384 to 1,964,536) and the deaths by 16.4% (from 35,003 to 40,739).
- Russia has continued reporting the highest number of cases in Europe, with 866,627 cases. The number of deaths in Russia increased by 4.5% of its case. In general the European countries have been recording low COVID-19 case burden. However, there has been an increase in daily case report compared to last week following summer holiday and lifting travel restrictions. For example, Spain (329,721 to 352,847 cases), UK (301,455 to 307,184 cases), Italy (246,776 to 248,803 cases), Germany (208,811 to 214,104 cases) and France (185,196 to 194,029 cases) showed a gradual increment from 30 July to 6 August, 2020.
- The share of Africa from the global COVID-19 pandemic has still been low (only 5.3% of the global cases and 3% of deaths as of August 6, 2020). However, within the continent the number of cases has increased by 11.4% in a week time (from 881,157 to 997,602 cases). Similarly, the total number of deaths in Africa has increased from 18,604 to 21,683, showing a 14.7% increase in a week time. Total recoveries stand at 677,208. South Africa ranked 5th worldwide in terms of cases and leading in the continent with 529,877 cases and 9,298 deaths. Egypt (94,875 cases, 4,930 deaths), Nigeria (44,890 cases, 927 deaths), Ghana (39,075 cases, 199 deaths), Algeria (33,055 cases, 1,261 deaths) and Morocco (28,500 cases,

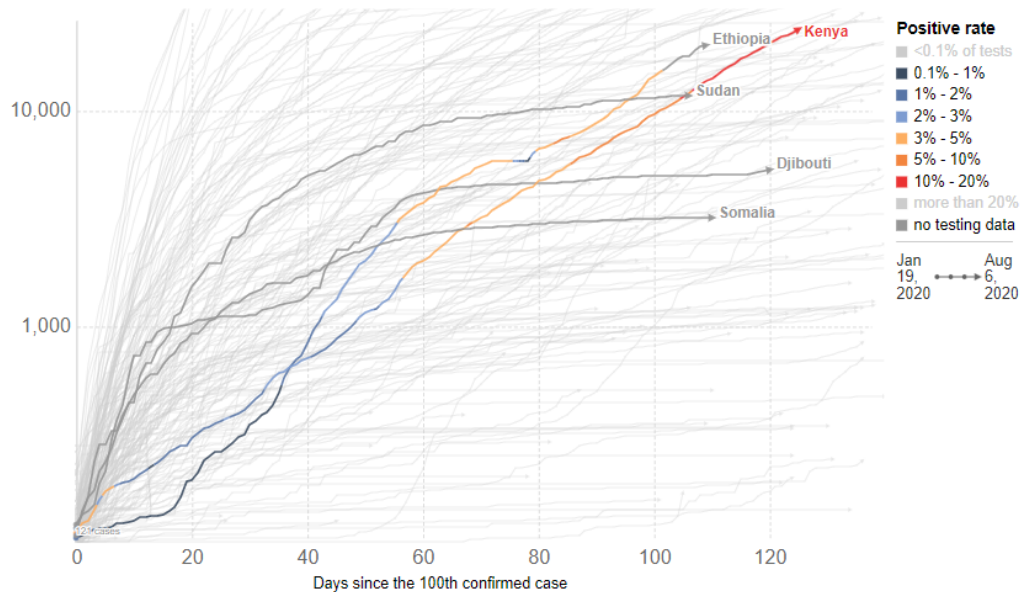
435 deaths) are the leading pack in reporting COVID-19 cases and deaths in Africa. (See table below).

Africa	July 30		August 6	
	Cases	Death	Cases	Deaths
South Africa	471,123	7,497	529,877	9,298
Egypt	93,356	4,728	94,875	4,930
Nigeria	42,208	873	44,890	927
Ghana	35,142	175	39,075	199
Algeria	29,229	1,186	33,055	1,261
Morocco	22,213	334	28,500	435

- In East African, COVID-19 cases and deaths have shown fast progress. In a week time, COVID-19 cases and deaths increased by 24.8% and 25.7% in Kenya and by 28.6% and 40.7% in Ethiopia respectively. As of August, Ethiopia and Kenya are the major drivers of the COVID 19 burden in east African. The epidemic appear plateauing in Sudan, showing an increase of only 2.5% cases and 5.2% deaths and 4.9% cases and 1.7% death increase in Djibouti and only 0.5% cases and non-increase in death in Somalia respectively in a week time.

Cumulative confirmed COVID-19 cases

The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.



Source: European CDC – Situation Update Worldwide – Last updated 6 August, 10:04 (London time), Official data collated by Our World in Data

Fig 2. Cumulative COVID 19 cases in East Africa

References

1. John Hopkins, Corona Virus Resources <https://coronavirus.jhu.edu/map.html>
2. Worldometer, Corona Virus <https://www.worldometers.info/coronavirus/>
3. Africa CDC: COVID 19 Surveillance; <https://au.int/covid19>

Urgently Needed Health Services

- Mental distress caused by COVID-19, affects people in all societies and various psychological problems are emerging progressively. The need for mental health care and psychological support is high during this time of COVID-19 more than ever before. The psychological impact of COVID-19 on patients, health care workers and the general population is enormous. Anxiety and depression are prevalent mental health problems which comprises 33% and 28% respectively. Patients with pre-existing medical conditions and COVID-19 infections are more anxious and more depressed than other population groups (1, 2).
- In a systematic review (1) the prevalence of anxiety was found to be about 56% among patients with pre-existing medical conditions while it was 55% among patients with COVID-19 infections. The prevalence rate of anxiety was similar in healthcare workers and the general population. The common risk factors were being women, being nurses, having lower socioeconomic status, having high risks of contracting COVID-19, and social isolation; whereas having sufficient medical resources, up-to-date and accurate information, and taking precautionary measures were found to be the protective factors.

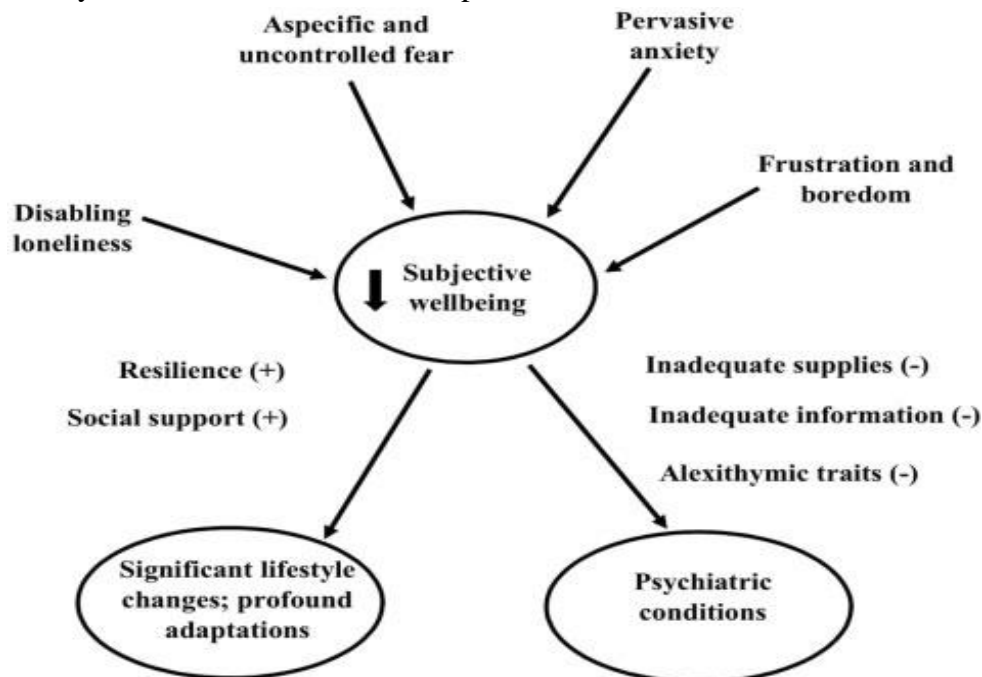


Fig. 3 Psychological reactions in the general population related to COVID-19 infection (source Ref# 2)

- In the general population there is often nonspecific and uncontrolled fears related to infections. This is one of the most frequent psychological reactions during pandemics. As depicted in the figure above, other psychological reactions include: pervasive anxiety, frustration and boredom and disabling loneliness which substantially affects wellbeing of

populations in a community. The figure also shows resilience and social support as protective factors resulting in life style changes and adaptations, while inadequate supplies, inadequate information and alexithymia ('no words for mood') are additional risk factors which may result in mental and psychological distress.

- In another study in Italy (3), distress and loneliness were key variables influencing the perceived psychological impact of Covid-19 outbreak on health, while empathy and coping style affected the perceived impact on the economy. The study emphasizes that there is an immediate need for consensus guidelines and healthcare policies to support interventions aimed to manage psychosocial distress and increase population resilience towards the imminent crisis.
- Generally, psychological interventions targeting high risk populations with heavy psychological distress are urgently needed (1-3). Therefore, primarily high risk population groups should be targeted for mental health and psychological interventions followed by others. Specific preventive strategies at the community level may include implementing effective communication and providing adequate psychological services.
- Health education needs to be enhanced using any available platforms and methods, social fear related to COVID-19 needs to be correctly addressed while stigma and discrimination need to be recognized as major challenges able to reinforce the feelings of uncertainty in a period of social crisis. Hospitals protocols linked to the early and effective management of psychological and mental health emergencies need to be implemented while healthcare professionals need to be supplied with adequate protective equipment and materials.
- Also efforts should be made by the scientific community to provide appropriate information to attenuate the impact of anxiety, frustration, and all the negative emotions which represent important barriers to better management of social crisis and psychological consequences related to the pandemic. Unmet psychological and mental health needs should be rapidly identified in a timely manner by the medical staff and make patients understand the risk of developing new symptoms or worsen a preexisting psychological or mental distress.

References:

1. M. Luo, et al. The psychological and mental impact of coronavirus disease 2019 (COVID- 19) on medical staff and general public – A systematic review and meta-analysis, *Psychiatry Research* 291 (2020) 113190
2. G Serafini, et al, The psychological impact of COVID-19 on the mental health in the general population *QJM: An International Journal of Medicine*, 1–7.
3. Cerami, C., et al. Covid-19 Outbreak In Italy: Are We Ready for the Psychosocial and the Economic Crisis? Baseline Findings From the PsyCovid Study. *Frontiers in Psychiatry*, | www.frontiersin.org. June 2020 | Volume 11 | Article 556

T cell immune responses in patients with COVID-19

- The role of T cells in the resolution or exacerbation of COVID-19, as well as their potential to provide long-term protection from reinfection with SARS-CoV-2, remains debated. Recent studies have highlighted various aspects of T cell responses to SARS-CoV-2 infection that are starting to enable some general concepts to emerge (2). Little is known about the immunology of individuals who are asymptomatic or individuals with mild disease who do not require hospitalization.
- Recent evidences have revealed important insights into the immune responses of patients who are hospitalized (2).
- Evidences have indicated that, adaptive immune responses, particularly of T cells have a prominent role in SARS-CoV-2 infection which is consistent with other viral infections.
- From global literatures, it remains unclear whether T cell responses are helpful or harmful in COVID-19, and the association between T cell responses (suboptimal, dysfunctional or excessive) with COVID 19 spectrum.
- There is an evidence about the association between lymphopenia with severe disease but is reversed when patients recover (3).
- Recent studies have suggested that SARS-CoV-2 infection has a preferential higher impact on CD8+ T cells (4).
- There is evidence of functional impairment and increased expression of activation and/or exhaustion markers by CD4+ T cells in patients with COVID-19 (Figure 1) (5).
- Researches have indicated higher proportion of IFN γ -producing T helper 1 (TH1)-like cells in patients with moderate disease than in patients with severe disease (Figure 1) (6). However, the role for T helper 2 (TH2) cell-type responses in severe COVID-19 is unclear, although patients with mild disease may have a normal TH2 cell response (Figure 1) (7).
- There are a growing evidence that indicate memory CD4+ T cells (100% of recovered) and CD8+ T cells (70% of recovered) production against multiple viral proteins (8).
- Evidences have suggested that most patients who are hospitalized seem to mount both CD8+ and CD4+ T cell responses, and evidence points to possible suboptimal, excessive or otherwise inappropriate T cell responses which may associate with severe disease (2)

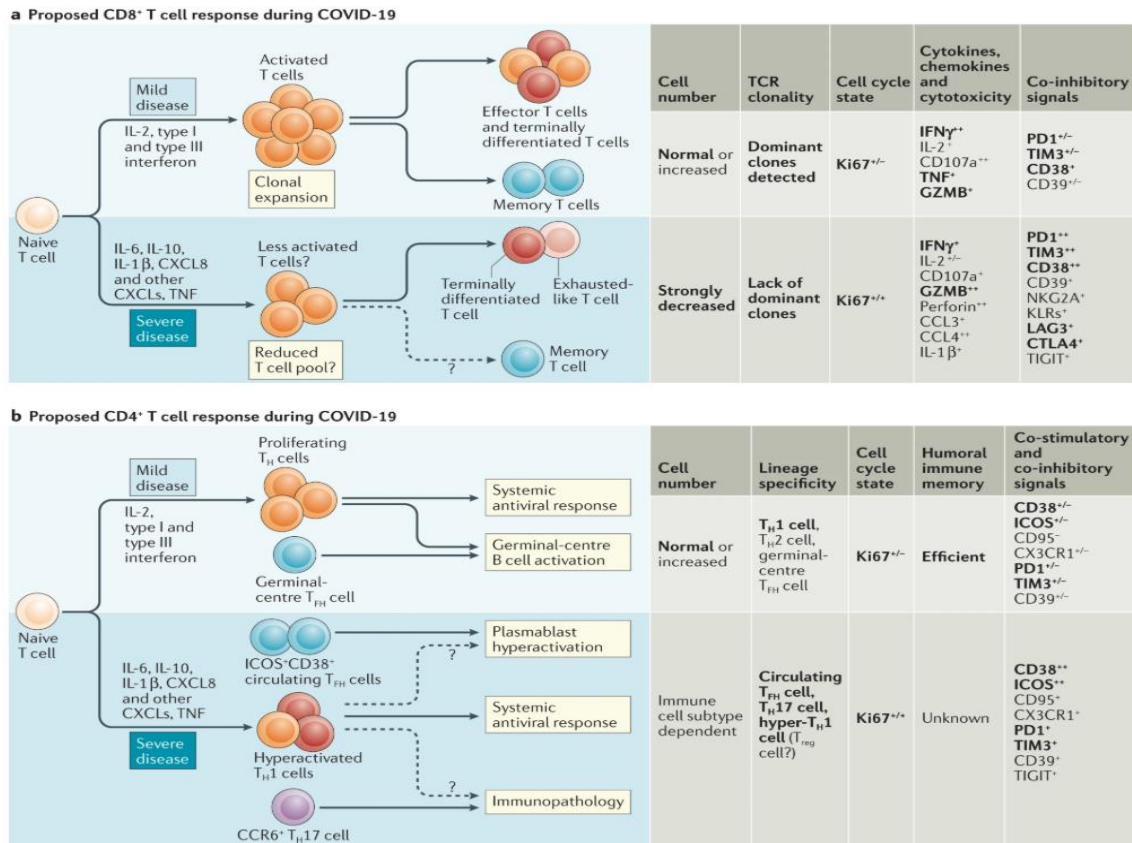


Figure 4. A proposed model of CD8⁺ T cell responses (a) and CD4⁺ T cell responses (b) during COVID-19 progression in mild versus severe disease. Tables show the immune parameters that have been reported to differ between mild and severe COVID-19. (<https://www.nature.com/articles/s41577-020-0402-6#citeas>)

References

- Chen, Z., John Wherry, E. T cell responses in patients with COVID-19. *Nat Rev Immunol* (2020). <https://doi.org/10.1038/s41577-020-0402-6>
- Kuri-Cervantes, L. et al. Comprehensive mapping of immune perturbations associated with severe COVID-19. *Sci. Immunol.* 5, eabd7114 (2020)
- Mathew, D. et al. Deep immune profiling of COVID-19 patients reveals distinct immunotypes with therapeutic implications. *Science* <https://doi.org/10.1126/science.abc8511> (2020).
- Diao, B. et al. Reduction and functional exhaustion of T cells in patients with coronavirus disease 2019 (COVID-19). *Front. Immunol.* 11, 827 (2020).
- Chen, G. et al. Clinical and immunological features of severe and moderate coronavirus disease 2019. *J. Clin. Invest.* 130, 2620–2629 (2020).
- Laing, A. G. et al. A consensus Covid-19 immune signature combines immuno-protection with discrete sepsis-like traits associated with poor prognosis. Preprint at medRxiv <https://doi.org/10.1101/2020.06.08.20125112> (2020)
- Grifoni, A. et al. Targets of T cell responses to SARS-CoV-2 coronavirus in humans with COVID-19 disease and unexposed individuals. *Cell* 181, 1489–1501.e15 (2020).

Beyond finding a vaccine: evidence on willingness to be vaccinated against COVID 19

- On April 26, the WHO counted seven COVID-19 candidate vaccines undergoing clinical evaluation phase and 82 more in the preclinical evaluation phase.
- While the focus of attention currently is on developing a vaccine against the Coronavirus SARS-CoV-2 to protect against the disease COVID-19, policy makers should prepare for the next challenge, which is uptake of the vaccine among the public. Having a vaccine does not automatically imply it will be used.
- Vaccination is widely recognized as an effective way to reduce or eliminate the burden of infectious diseases by health authorities and the medical community. However, its effectiveness also depends on the individual willingness to be vaccinated.
- Peoples' attitudes about vaccination against COVID-19 are investigated in an online survey among representative samples of the population in seven European countries.
- In total, 73.9% of the 7,664 participants from Denmark, France, Germany, Italy, Portugal, the Netherlands, and the UK stated that they would be willing to get vaccinated against COVID-19 if a vaccine would be available. 18.9% of respondents stated that they were not sure, and 7.2% stated that they do not want to get vaccinated.

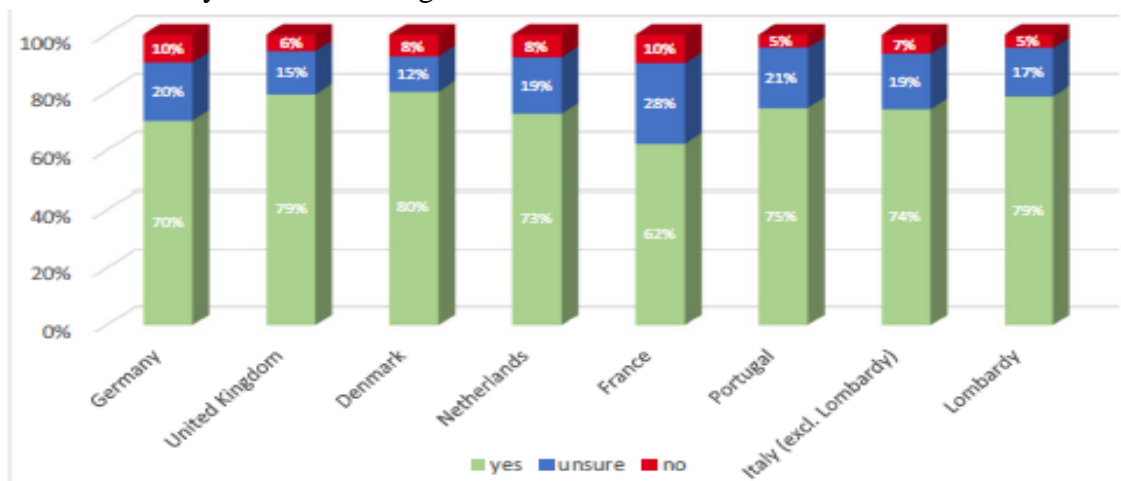


Fig 5: willingness to get vaccinated by country

- Higher proportion of men was willing to get vaccinated (77.94%) than women (70.15%). The willingness to be vaccinated is largest among men above the age of 55.
- Males who were unwilling to get vaccinated tended to be younger with the largest share of 12% among the 18–24 year olds.
- Respondents who were unsure about being vaccinated were asked about their main reasons. More than half (55%) said they were concerned about potential side effects of a vaccine, although this concern was more frequent among women (36%) than men (19%). Around

15% of respondents stated that a vaccine might not be safe, with no notable differences between genders.

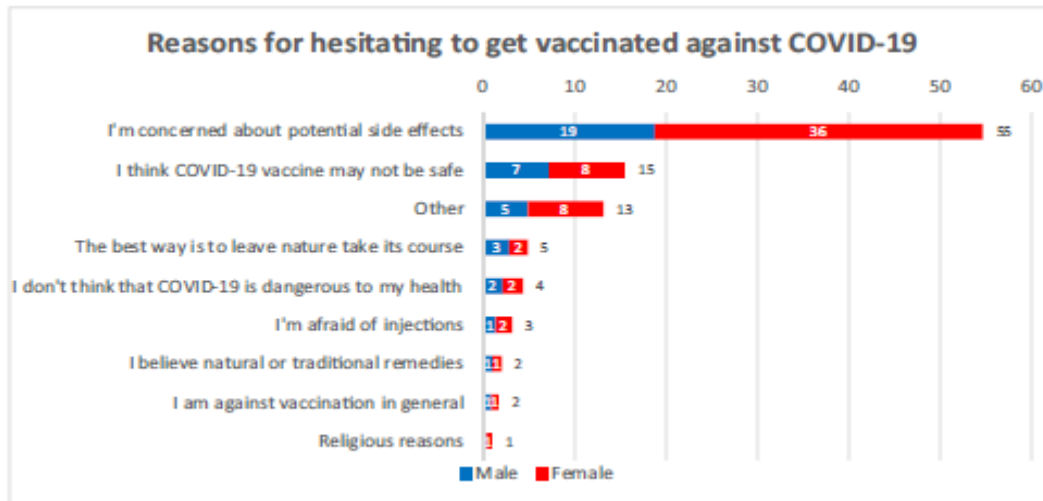


Fig 6: Reasons given by people who were unsure if they would like to be vaccinated against COVID-19 in percent, N = 1451

- A similar trend is seen regarding the most frequently mentioned reasons and the gender differences for the concerns about side effects among those who were not willing to get vaccinated.
- Notable gender differences could also be observed among those respondents who stated that they think COVID-19 is not dangerous to their health (11%), comprised of almost twice as many men (7%) than women (4%).
- Rejection of vaccination was more than twice as common among women (7%) than among men (3%). When looking at the open text answers of respondents who choose other reasons (11%), concerns were high about safety and conspiracy theories and a general rejection of vaccines.

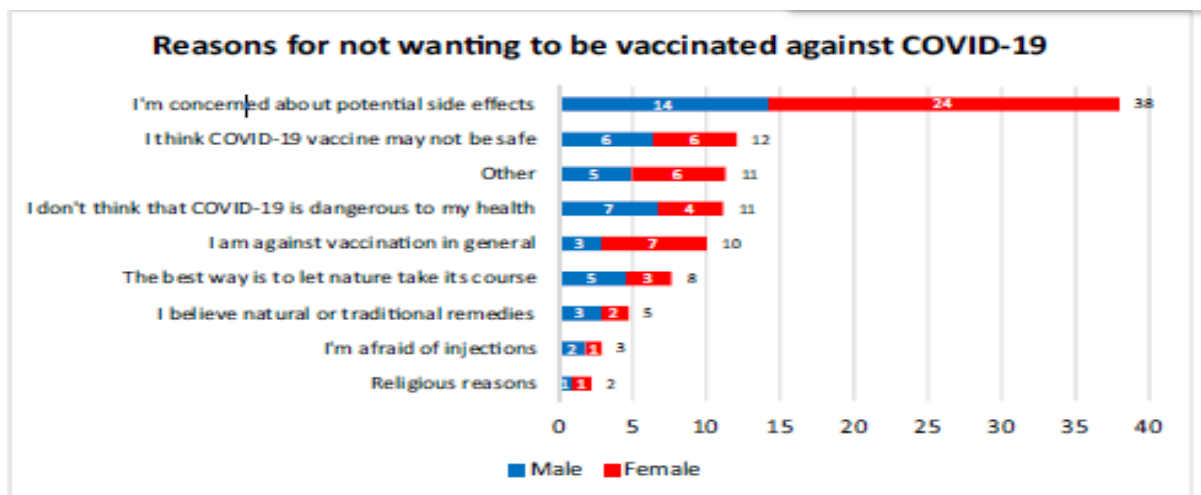


Fig 7: Reasons for not getting vaccinated against COVID-19 in percent, N = 548

- This finding highlights that while the current focus seems to be on developing a vaccine about ten times faster than usual, the public should also be reassured that any vaccine which becomes available that quickly is safe and effective. Otherwise, there is a risk to lose the public trust in the particular vaccine, and coronavirus vaccination altogether, potentially compromising herd immunity.

Reference

Neumann-Böhme, S., Varghese, N.E., Sabat, I. et al. Once we have it, will we use it? A European survey on willingness to be vaccinated against COVID-19. Eur J Health Econ (2020). <https://doi.org/10.1007/s10198-020-01208-6>

Prepared by : National Data Management Center for health (NDMC), Ethiopian Public Health Institute

 +251-0112305079

E-mail: ndmc.evidence@gmail.com

<https://www.ephi.gov.et>