INTERNATIONAL JOURNAL OF TECHO-ENGINEERING

ISSN: 2057-5688

DATA ANALYSIS FOR UNDERSTANDING THE IMPACT OF COVID–19 VACCINATIONS ON THE SOCIETY

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Abstract: How do attitudes toward vaccination change over the course of a public health crisis? We report results from a longitudinal survey of United States residents during six months of the COVID-19 pandemic. Contrary to past research suggesting that the increased salience of a disease threat should improve attitudes toward vaccines, we observed a decrease in intentions of getting a COVID-19 vaccine when one becomes available. We further found a decline in general vaccine attitudes and intentions of getting the influenza vaccine. Analyses of heterogeneity indicated that this decline is driven by participants who identify as Republicans, who showed a negative trend in vaccine attitudes and intentions, whereas Democrats remained largely stable. Consistent with research on risk perception and behavior, those with less favorable attitudes toward a COVID-19 vaccination also perceived the virus to be less threatening. We provide suggestive evidence that differential exposure to media channels and social networks could explain the observed asymmetric polarization between self-identified Democrats and Republicans.

Keywords: COVID-19, Convolutional neural networks, single shot detector.

I. INTRODUCTION

Humanity has faced adverse effects ever since the deadly COVID-19 pandemic struck. From the time when the first corona virus case, the world has gone through various phases, as most activities came to a halt. In December 2019, there were cluster cases of pneumonia reported in Wuhan, China. After vivid research, the Chinese health authorities confirmed on 7th January 2020 that cases were associated with a new novel corona virus; SAR-CoV-2. On March 11th the same year, the World Health Organization announced the outbreak of the disease naming it a world's pandemic. Currently, the total number of infections lies at over

ISSN: 2057-5688

120,000,000 with over 2.7 million fatality cases reported this month [1]. Wearing masks, maintaining social distance among other precautions were enforced to manage the transmission of the virus [2]. In response to this pandemic, the medical and scientific fraternity are united in their efforts toward studying and understanding the biological aspects of COVID-19 and how best to deal with it. So far, these trials have provided insights regarding how one is infected, how it affects the cells, the response of the host immune system when fighting the illness, the groups of people at risk of getting infected, and the effectiveness and efficiency of various treatments procedures. This paper aims at adding knowledge of corona virus, its characteristics, and how it affects the human body. It also summarizes the current knowledge about the systemic immune response to the corona virus and possible immunotherapeutic approaches.

II. LITERATURE SURVEY

The corona virus disease 2019 (COVID-19) pandemic caused by the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) has resulted in over 192 million cases and 4.1 million deaths as of July 22, 2021. [1] This pandemic has brought along a massive burden in morbidity and mortality in the healthcare systems. Despite the implementation of stringent public health measures, there have been divesting effects in other sectors contributing to our economy. This has plunged the global economies toward deep recession and has racked up a debt of approximately 19.5 trillion USD. [2]

Immune protection in COVID-19 infection can be conceptualized as a spectrum wherein sterile immunity is at the end of positive spectrum. This is followed by transient infection (<3 days) and asymptomatic infection (~1 week). The negative spectrum of immune protection includes patients who are symptomatic, or hospitalized, or admitted to the intensive care unit for multiorgan support. The extreme end of the negative spectrum of immune protection is encompassed by case fatality. The vaccine will intervene prior to the viral insult and stabilize the population at the positive end of the spectrum of the immune protection. It will also prevent the perpetuating cycle of infection and reinjection via variants of SARS-CoV-2 virus in those who have achieved prior convalescence. One study by Dan *et al.* showed that in patients infected with COVID-19, immunological memory to SARS-CoV-2 remained intact

ISSN: 2057-5688

for up to 6 months. [3] Unfortunately, there is no long-term data on the duration of protected immunity against SARS-CoV-2 in patients after convalescence. Therefore, these patients may also require vaccination but the current priority for vaccination can be stretched relative to the unaffected population.

While the ideal goal of the COVID-19 vaccine roll-out is to instill global herd immunity; it is important to remember that this goal may never be reached. Furthermore, additional goals of vaccination may be to reduce mortality and stress on healthcare systems by reducing the cases of admitted patients. Various countries have already approved COVID-19 vaccines for human use, and more are expected to be licensed in the upcoming year. It is important that these vaccines are safe, efficacious, and can be deployed on a large scale. It is also prudent to eliminate the concerns of both the scientific and general community regarding its effectiveness, side-effects, and dosing strategies.

Historically, the process of vaccine manufacturing and clinical trials required approximately 10 years, but due to the burden of this disease, various observational studies were expedited so that all crucial information regarding the vaccine pharmacokinetics, pharmaco dynamics, dosing, efficacy, and adverse events can be collected within a short period of time. Furthermore, there is a need to provide a compilation of accredited and appraised scientific literature on each of these approved vaccines with an aim to instill public health knowledge and vaccine literacy to members of the scientific and general community. A section dedicated to COVID-19 vaccines and pregnancy is also included in the penultimate section of this review.

III. PROPOSED FEATURE ENHANCEMENT MODULE

This study investigated vaccine demand and hesitancy by assessing the intention to vaccinate against COVID-19 and willingness-to-pay. We found that a considerable proportion of the public in China has a definite intention to receive the COVID-19 vaccine; a higher proportion expressed a probable intention. Perceived benefits and barriers to vaccination (namely vaccine efficacy and adverse event concerns) of the health belief model constructs were significant predictors of COVID-19 vaccination intent. A substantial proportion was concerned about fake or faulty COVID-19 vaccines; however, this was not a

ISSN: 2057-5688

significant predictor of vaccination intention. The willingness-to-pay for the COVID-19 was determined and was found to be positively associated with income. Higher confidence in domestically-made COVID-19 vaccines was also found in this study. The preference for domestically-made over foreign-made COVID-19 vaccines indicates that a future COVID-19 vaccine developed by domestic companies will receive a favourable response from the public in society. The findings of this study provide useful guidance for tailored interventions to enhance the acceptance of a new COVID-19 vaccine once it is available. Promotional messages framing the benefit of vaccination and concerns about new vaccine safety to enhance vaccine uptake is warranted.

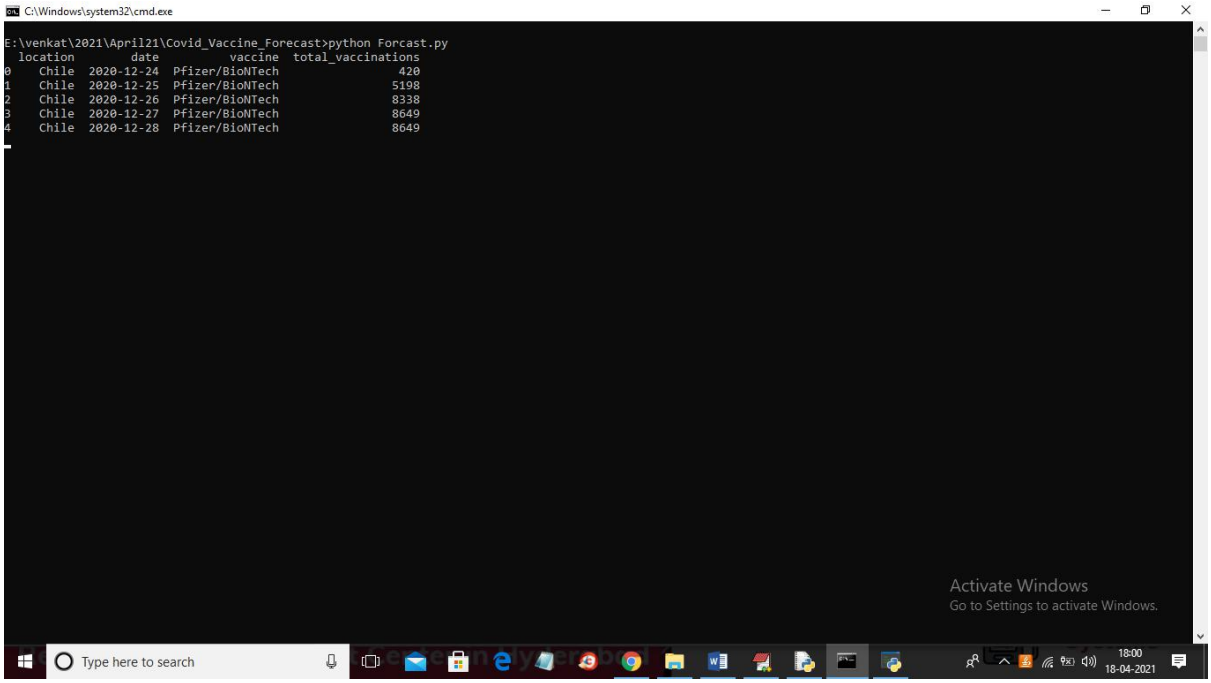
IV. METHODOLOGY

Assessments of risk are influenced by both cognitive evaluations (i.e., objective features of the situation such as probabilities of outcomes) and affective reactions, as well as by contextual factors (e.g., the information that is most available or salient at the time [2]). For example, research shows that media coverage plays a significant role in determining the extent to which we take threats seriously [3]. When individuals perceive heightened risk of a threat, they become more favourable toward interventions that mitigate that threat, including vaccination (for a meta-analysis on the effect of perceived risk on intentions and behaviours, see [4]). In the case of COVID-19, this would suggest more positive attitudes toward a vaccine and greater likelihood to get vaccinated. Indeed, research suggests that individuals should exhibit a greater interest in vaccinations during a pandemic because disease threat is more salient. Past efforts to improve vaccine attitudes have had limited success or even backfired; for example, messages refuting claims about the link between vaccines and autism, as well as messages featuring images of children who were sick with VPDs, had negative effects on vaccine attitudes among those who were already hesitant to vaccinate [16]. In contrast, messaging that increases disease threat salience has shown promise in reducing vaccine hesitancy [5], and there is evidence suggesting that increased threat salience for a particular disease may also increase intentions to vaccinate for other diseases [17]. Building on these findings, we expected to find an increase in pro-vaccine attitudes and in individuals' interest in a COVID-19 vaccine when the perceived threat of the COVID-19 virus increased.

ISSN: 2057-5688

V. RESULTS

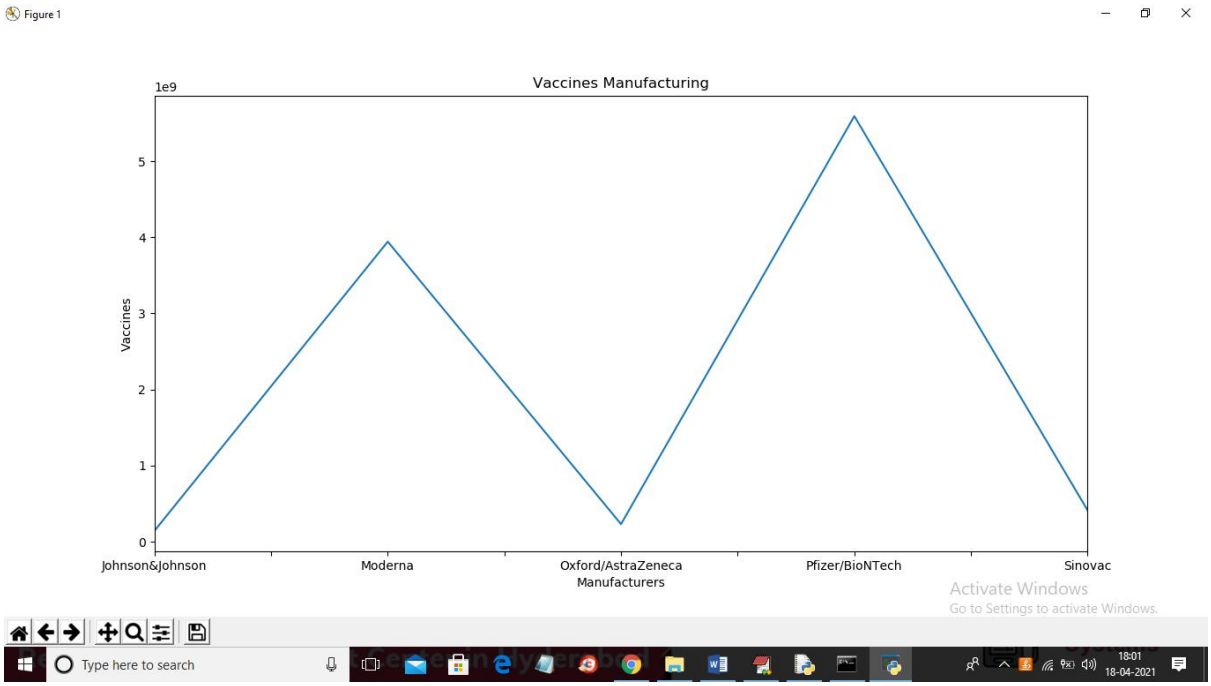
To run project double click on 'run.bat' file to get below screen as this project working on data analysis so it will generate more graphs so I developed code as console based application



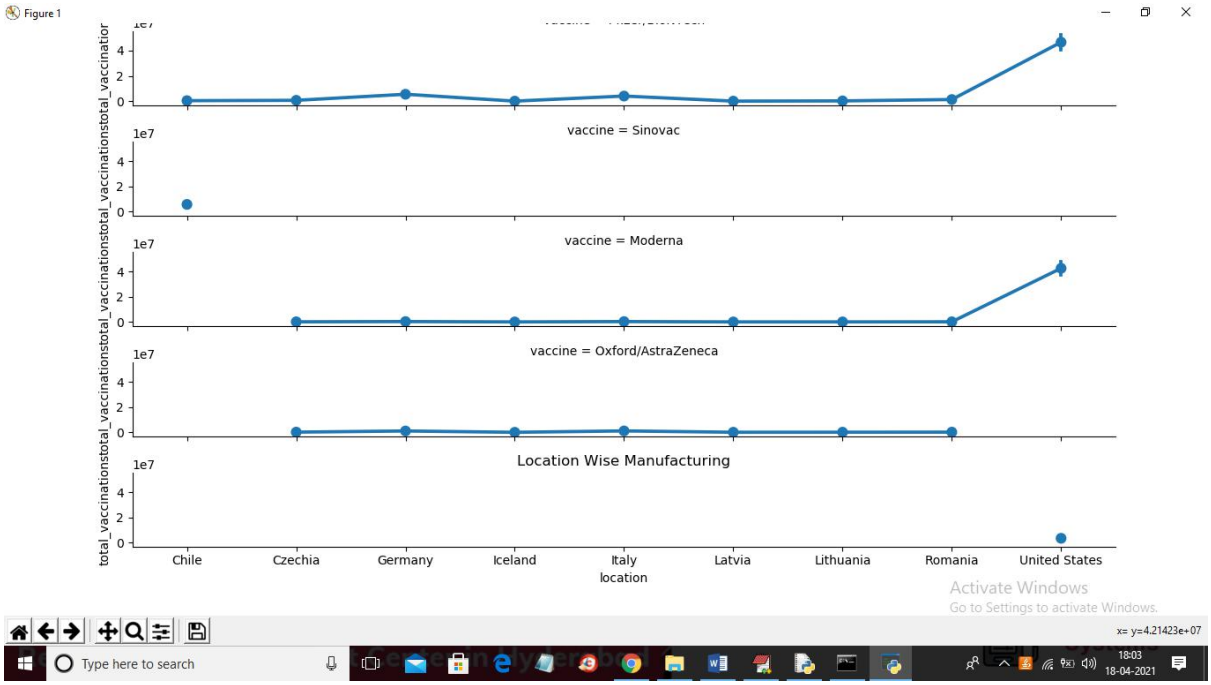
In above screen application starts accessing dataset and once it read all records then it will analyse all dataset to give below graph

INTERNATIONAL JOURNAL OF TECHO-ENGINEERING

ISSN: 2057-5688



In above graph x-axis represents vaccine manufacturer companies and y-axis represents count of manufacturing vaccines. There is huge manufacturing so we will get count in power exponents and in top graph we can see 1e9 as total manufacturing quantity and now closed above graph to get below graph



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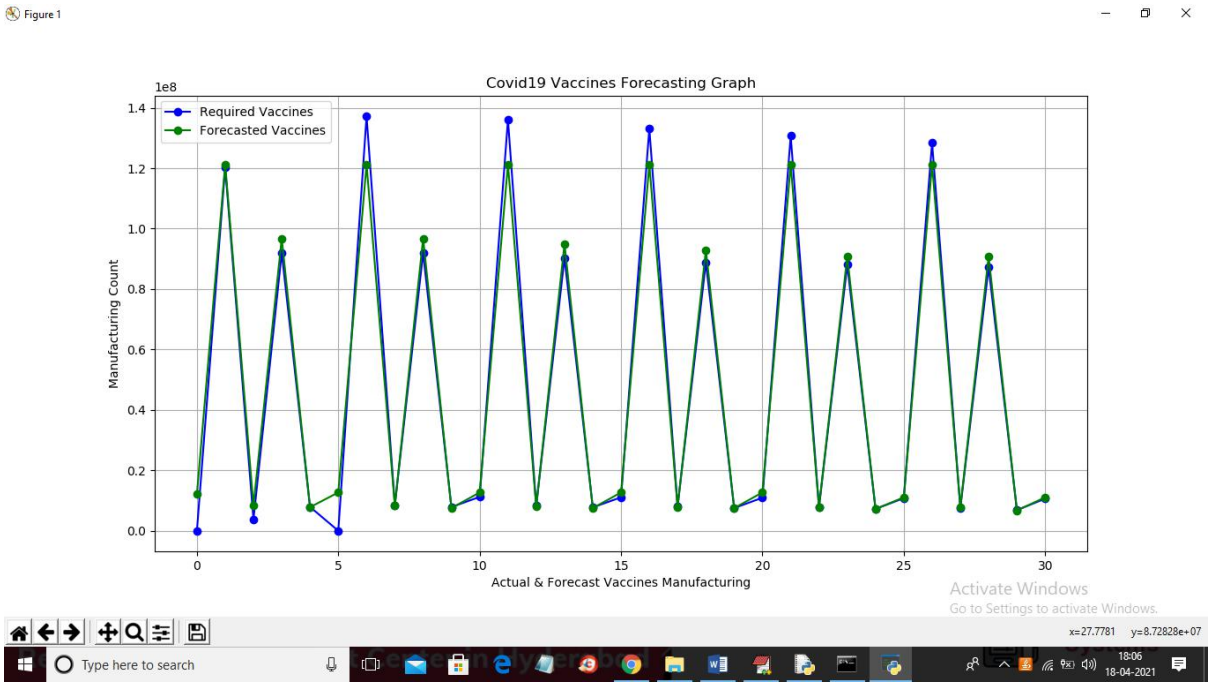
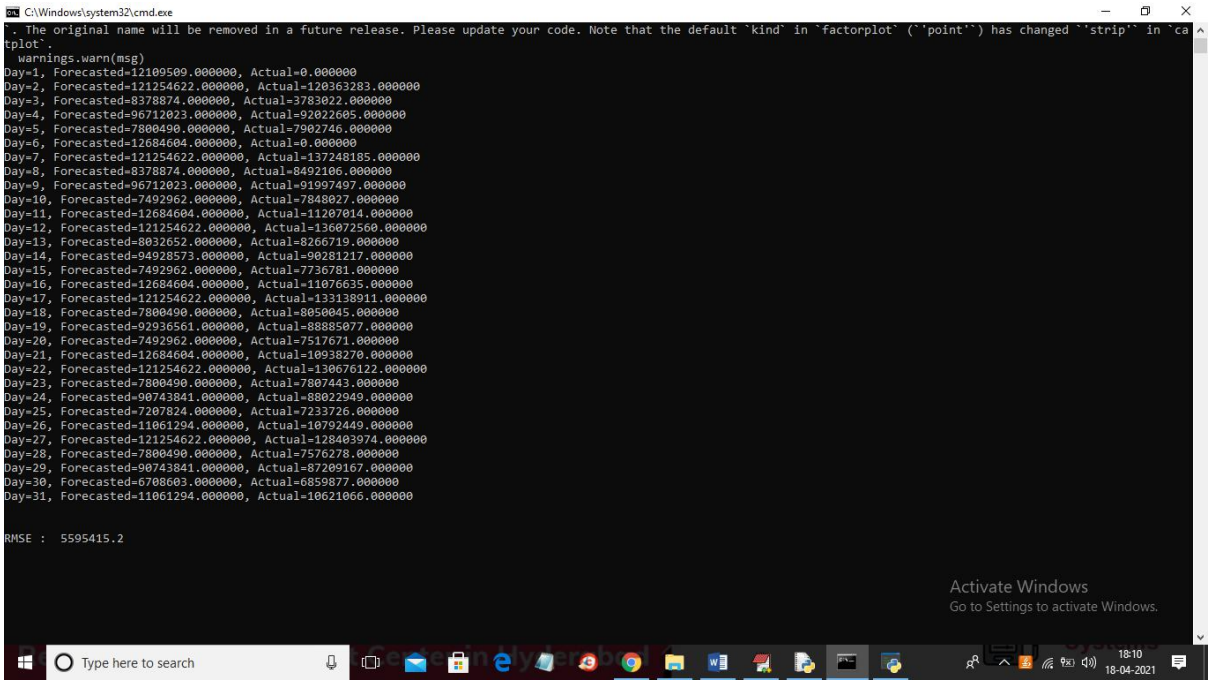
In above graph x-axis represents location/country names and y-axis represents vaccines manufacturing count for each country. In above graph each separate graph represents manufacturer making vaccines count for different countries. From above graph we can say that in UNITED STATES more vaccines are consuming and manufacturing. Now close above graph to get below forecasting result



In above graph x-axis represents forecasting for next 30 days and y-axis represents required count. In above graph blue line represents required/manufacturing vaccines and green line represents forecasted vaccines. In above graph we can see there is close difference between require and forecasted vaccines so manufacture will go in normal way. If there is huge difference in require and forecast values then manufacturer will increase making count. This forecast will impact society in having sufficient vaccines on particular day or time. In above graph on 5th day more vaccines require and company will adjust making as per forecasting. In below console we can see real values of actual/require and forecast vaccines

ISSN: 2057-5688



In above screen we can see actual/require and forecast vaccines for next 30 days. In above screen we can see little close difference between require and forecast vaccines.

CONCLUSION

The world is struggling to rise again after being hit by one of the most tragic pandemics ever witnessed. COVID-19, a severe acute respiratory syndrome, has led to the collapse of the economy at the same time impacting the world's health sector. With the virus comes a high rate of transmission, increased hospitalization, and death cases. Scientists, health departments, and various governments are working hand in hand to ensure that this disease is controlled.

REFERENCES

1. Rothan HA, Byrareddy SN. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. J Autoimmun. 2020;109:102433.

2. Khamsi R. If a coronavirus vaccine arrives, can the world make enough. Nature. 2020;580(7805):578-80.

ISSN: 2057-5688

3. Ricks D. Race for a coronavirus vaccine: thanks in part to institutional support, CanSino biologics, Moderna therapeutics, and other developers are exploring diverse approaches against SARS-CoV-2. Genet EngBiotechnol News. 2020;40(5):16-8.

4. Halim M, Halim A, Trivosa V. Analysis of Structure, Mechanism of Action and Efficacy of Potential and Ideal COVID-19 Treatments. J Health Care Res. 2020;1(3):197.

5. Li X, Ma X. Acute respiratory failure in COVID-19: is it “typical” ARDS?. Crit Care. 2020;24:1-5.

6. Halim M. Building Policies for Climate Changes: Lessons from COVID-19. J Clin Med Res. 2021;3(2):1-9.

7. Azkur AK, Akdis M, Azkur D, Sokolowska M, van de Veen W, Brüggen MC, et al. Immune response to SARS-CoV-2 and mechanisms of immunopathological changes in COVID-19. Allergy. 2020;75(7):1564-81.

8. Gao W, Tamin A, Soloff A, D'Aiuto L, Nwanegbo E, Robbins PD, et al. Effects of a SARS-associated coronavirus vaccine in monkeys. Lancet. 2003;362(9399):1895-6.

9. Zhou P, Li Z, Xie L, An D, Fan Y, Wang X, et al. Research progress and challenges to coronavirus vaccine development. J Med Virol. 2021;93(2):741-54.

10. Eyal N, Lipsitch M, Smith PG. Human challenge studies to accelerate coronavirus vaccine licensure. J Infect Dis. 2020;221(11):1752-6.

11. Meftahi GH, Jangravi Z, Sahraei H, Bahari Z. The possible pathophysiology mechanism of cytokine storm in elderly adults with COVID-19 infection: the contribution of “inflame-aging”. Inflamm Res. 2020;69(9):825-39.