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WELL-BEING EFFECTS OF NOVEL CORONAVIRUS PNEUMONIA (COVID -19): MODERATING ROLE OF AGE

Khatai Aliyev[a, b]

[a] UNEC Empirical Research Center,
Azerbaijan State University of Economics (UNEC)
Baku, Azerbaijan.
[b] Department of World Economy,
Baku Engineering University
Khirdalan, Azerbaijan.

ABSTRACT

Outbreak of novel coronavirus pneumonia (COVID -19) is a big threat to social and economic life throughout the world. Increasing number of cases and death as well as social isolation measures against diffusion of the pandemic are predicted to lower subjective well-being of individuals. Using survey data (n=2123, $Mean_{age}$=34.37, SD_{age}=11.26) integrated with daily COVID-19 outcomes, the research aims to identify well-being effects of pandemic among Azerbaijan population while considering moderating role of age. Empirical findings reveal significant negative well-being impact for youth which disappears in response to age increase. Meanwhile, the pandemic could have a larger well-being effect through economic effects like fall in perceived income adequacy. Public policy makers should consider direct and indirect well-being effects of COVID-19 over youth and people with lower perceived income adequacy.

Keywords: Well-being; life satisfaction; COVID-19; social isolation; age; perceived income adequacy.

INTRODUCTION

Since the outbreak of novel coronavirus pneumonia so called COVID -19 in the middle of December 2019 in Wuhan, China, and quick spread to countries all around the world *(see www.worldometers.info)*, governments have launched numerous restrictions due to control diffusion of the pneumonia. Such restrictions include banning public transport, movement restrictions as well as compulsory a 14-day quarantine period after travel (Wang et al., 2020; Li et al., 2020). Degree of movement restrictions has been increased over time, accompanied by declaring emergency all through the countries under serious COVID-19 threat. Lima et al. (2020) underline that the quarantine period has affected the psychological distress and disorder among those with having quarantine past which seems to remain for a long time even after quarantine period ends.

However, psychological impact of the pneumonia is widespread, among majority people whom work and life conditions are disrupted at some level (Bao et al., 2020; Cao et al., 2020; Duan and Zhu, 2020; Xiang et al., 2020) because of measures against diffusion of COVID-19. Due to human-to-human diffusion threat, it is predicted to increase health concerns of people, which typically result in lower life satisfaction (Pavot and Diener, 2008). A number of studies underline importance of psychological support to affected people (Jiang et al., 2020; Yao, Chen and Xu, 2020). Therefore, health and well-being effects of measures against COVID-19 should be understood in order to make better-informed decisions (Zhang et al., 2020).

On March 13, 2020, World Health Organization (WHO) declared that "COVID-19 can be characterized as a pandemic" (WHO, 2020). Mass media daily reports number of total infected people, new infections, total death and daily deaths in the world and by country and territory. Today, COVID-19 related news are a trend in the world and individuals receive a lot of information about the pandemic's results. Shelling with COVID-19 outcomes increases public awareness in one side, and enhance health concerns on another side. Meanwhile, life under quarantine measures also increases the usage of social media which is predicted to make people less satisfied (Brooks, 2015).

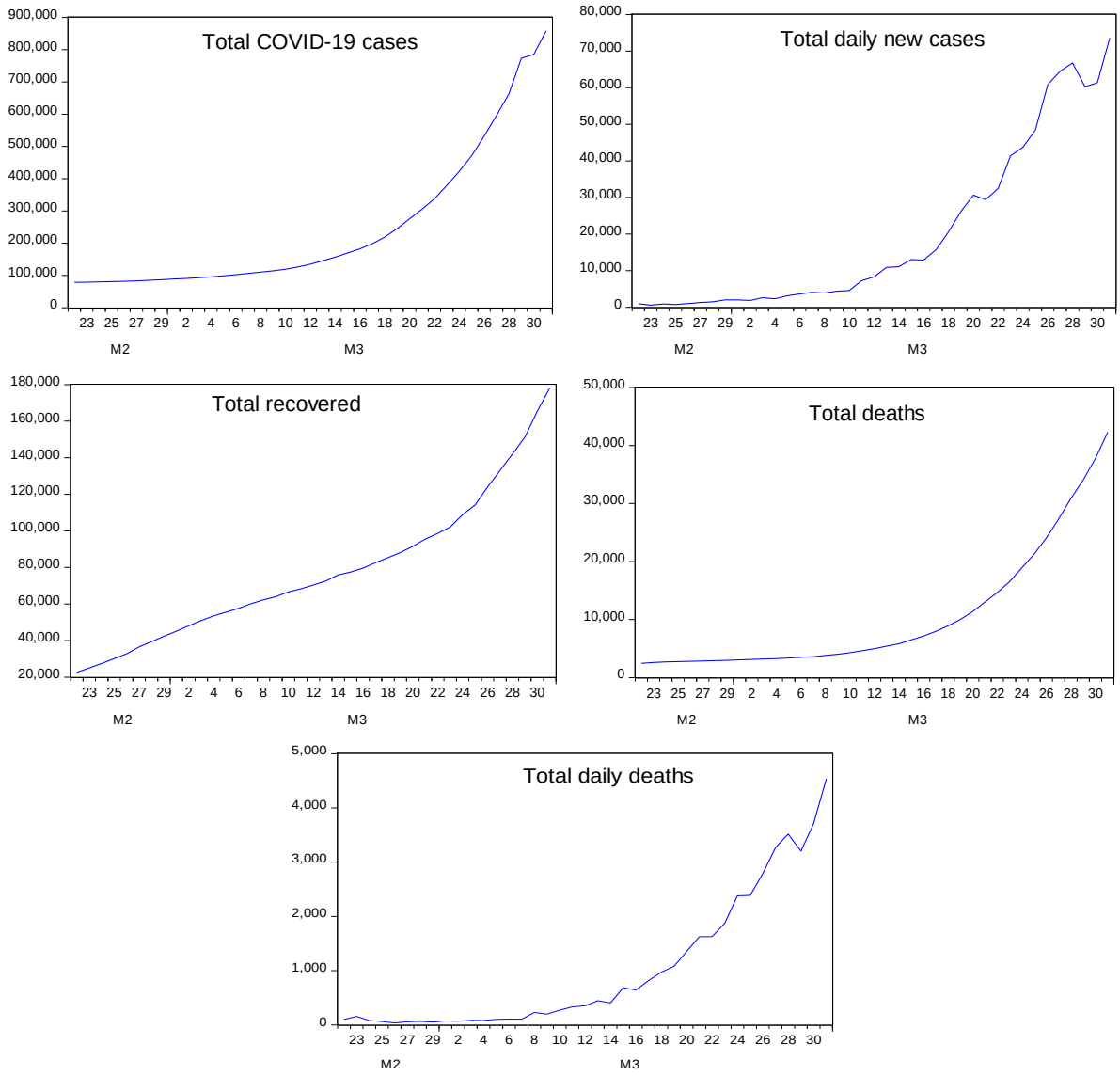
Current research aims to explore the effects of daily international and local COVID-19 outcomes (total / daily number of infected cases, deaths and recovered) on individual's subjective well-being while considering moderating role of respondents' age. It is proposed that world and country level COVID-19 outcomes increases health concerns of people and make them less happy. Challenges and stress are supposed to be as triggering factors for mental disorders like depression and anxiety (Dar et al., 2017). There are already COVID-19 suicide cases (Mamun and Griffiths, 2020; Goyal et al., 2020). Fear about COVID-19 among different socio-economic groups should be evaluated for better implementation of preventative programs (Pakpour and Griffiths, 2020). Considering age and life satisfaction association (see Cooper et al., 2011; Frijters and Beatton, 2012) and age distribution of infected cases and deaths in the world, we expect greater negative impact of COVID-19 outcomes on subjective well-being in response to age increase.

To examine well-being effects of COVID-19, Azerbaijan is selected as a target country of investigation. A social survey dataset collected during February 22 – March 31, 2020 is used (ASERC, 2020) and integrated with daily statistics of COVID-19 within a cross-sectional data framework. Individuals' subjective well-being is measured according to the Satisfaction With Life Scale (SWLS) methodology proposed by Diener et al. (1985). Research findings can be useful for policymakers to design policies overcome negative well-being effects of COVID-19.

1. BACKGROUND

Since outbreak of COVID-19, the diffusion process expanded sharply through the world. As of April 10, 2020, the coronavirus is found in 210 countries or territories with recorded total amount of more than 1.7 million infected cases, 102.8 thousand total deaths and approximately 378 thousand recoveries *(www.worldometers.info)*.

Figure 1: COVID-19 statistics in the world (February 22 – March 31, 2020)



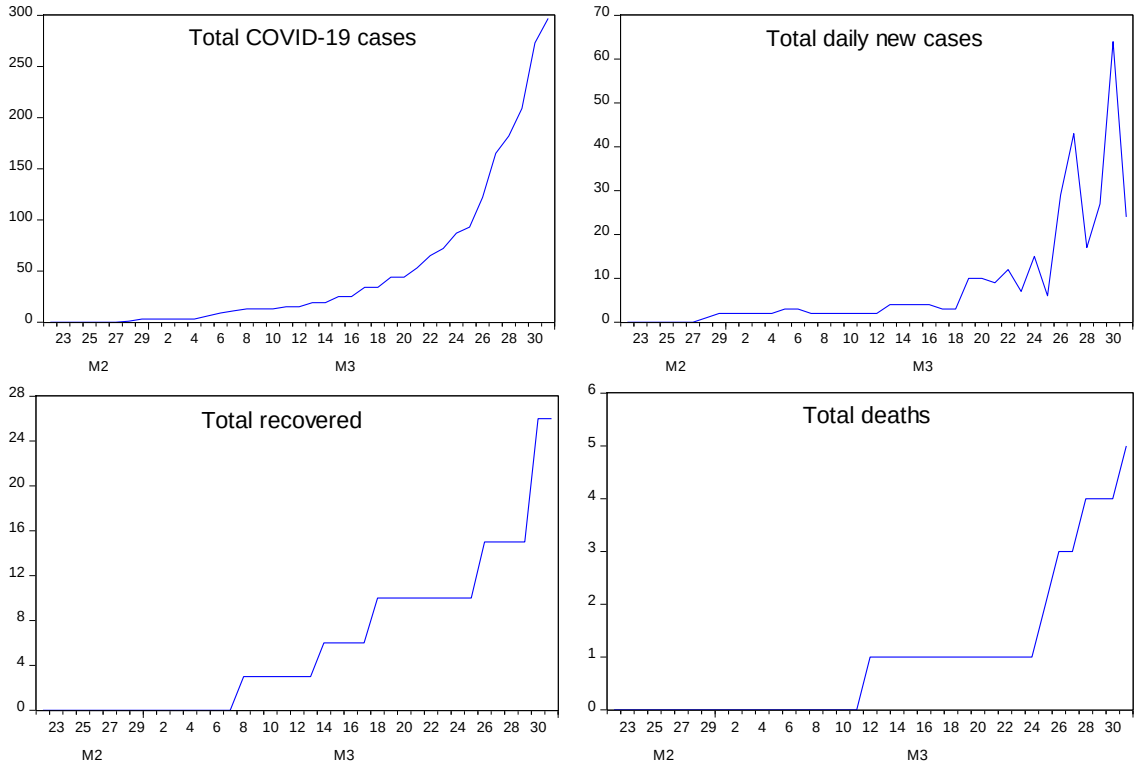
Source: *Author's own completion from www.worldometers.info data.*

Coronavirus concerns in Azerbaijan started in the second half of February, 2020 while the first COVID-19 infection and death case revealed on February, 28 and on March 12, respectively. Since 3 of March, all schools and higher education institutions are closed. Special quarantine regime has been applied since March 13, started with abandoning all ceremonies and movement restrictions afterwards. All measures against COVID-19 realized by the Task Force under Cabinet of Ministries of Azerbaijan Republic (TFCM). As of April 10, 2020, there are 991 revealed COVID-19 cases in the country with 10 total deaths and 159 recoveries (TFCM, 2020a).

It is noteworthy to overview international and country level COVID-19 outcomes during the period of investigation. Figure 1 present coronavirus related statistics in the world while statistics about Azerbaijan are given in Figure 2.

As observed, slope of the trends has increasing tendency, especially during the second half of March. Overall, as April 10, COVID-19 death rate in the world is 6.04% while total recovered consists of 22.2% of total infected cases. Up to April 10, death rate and the share of recovered cases in total is 1% and 16%, respectively.

Figure 2: COVID-19 statistics in Azerbaijan (February 22 – March 31, 2020)



Source: *Author's own completion from TFCM press releases.*

2. METHODOLOGY

2.1. Participants

Dataset for the research is obtained from Social Survey -4 conducted by ASERC (2020) during February 22 – March 31, 2020. A total of 2123 respondents (1092 males and 1031 females) participated in the study. Age of participants ranges from 17 to 83 ($Mean_{age} = 34.37, SD_{age} = 11.26$). Day-by-day classification of survey data is done in order to successfully integrate daily COVID-19 statistics to cross-sectional analyses framework. Data collection by ASERC (2020) was implemented online by using paid and unpaid social media facilities (Facebook, WhatsApp, and Instagram) due to coronavirus threat.

2.2. Hypotheses and Analytical Strategy

Subjective well-being effects of COVID-19 can be through (1) the health concerns due to increasing number of coronavirus cases, total deaths and number of recovered people in the world, and (2) health and socio-economic issues related concerns coming from coronavirus related statistics and social isolation measures within the country, Azerbaijan. Effects through the first channel are measured through the effects of daily World COVID-19 statistics over subjective well-being of individuals in Azerbaijan while controlling for a list of individual specific factors. Measuring the second channel happens in a similar way, through estimating the impact of internal COVID-19 outcomes on well-being of individuals. Note that the degree of social isolation has increased in response to increases in coronavirus statistics. Therefore, estimations for the second channel cover both health concerns and (partially) socio-economic issues related concerns.

Hypothesis 1

Increase in number of new cases and deaths is predicted to lower subjecting well-being of individuals while announcement of more recovered should trigger those to overcome health concerns partially and make them happier.

Hypothesis 2

Death rate of COVID-19 increases with age (Mahase, 2020). In this context, subjective well-being loss due to the increasing number of new cases and deaths is predicted to be higher as age increases. Age should have a moderating role in the relationship between COVID-19 outcomes and subjecting well-being of individuals.

Baseline model for empirical estimation is:

$$Ln(LS)_i = \beta_0 + \beta_1 * X_i + \beta_2 * X_i * age_i + \sum_{k=1}^{n} \gamma_k Z_{k,i} + u_i$$

Where, life satisfaction (LS_i) denotes subjective well-being of individuals. X_i represents the main independent variable (total cases in the world (WTC_i), total daily new cases in the world ($WTDC_i$), total recovered cases in the world (WTR_i), total deaths in the world (WTD_i), total daily deaths in the world ($WTDD_i$), total cases in Azerbaijan ($AzTC_i$), total daily new cases in Azerbaijan ($AzTDC_i$), total recovered cases in Azerbaijan ($AzTR_i$), and total deaths in Azerbaijan ($AzTD_i$). Note that natural logarithmic values of WTC_i, $WTDC_i$, WTR_i, WTD_i and $WTDD_i$ are used to estimate models. Due to having zero value in COVID-19 outcomes about Azerbaijan, semi-elasticity model is used. $X_i * age_i$ is the interaction term representing moderating effect of age. u_i covers all unobservable covariates.

$\sum_{k=1}^{n} \gamma_k Z_{k,i}$ is sum of all control variables including age of respondents (Age_i, Age_i^2), perceived income adequacy (PIA_i) gender status ($Gender_i$ – equals 1 if respondent is female, and 0 otherwise), educational attainment level ($School_i$, $College_i$, $Master_i$ and PhD_i while respondents with bachelor degree are left as comparison group), marital status ($Married_i$ and $Divorced_i$ while unmarried respondents are left as the base group), having any children (No_child_i – equals 1 if respondent has no child, 0 otherwise), religiosity level ($Religious_i$ -equals 1 if respondent considers himself/herself a religious person, 0 otherwise, and $NonBeliever_i$-equals 1 if respondent don't believe to religions, 0 otherwise, while believers (those who don't consider himself / herself religious person but believe in God) are left as the base group), and living area ($Baku_i$ – equals 1 if respondent lives in Baku (22.84% of population) city which is capital and largest city of the Republic, $Absheron_i$ – equals 1 if respondent lives in Absheron region (5.7% of population) which is very close to Baku while other regions are left as the base group), and $Lankaran_i$ – equals 1 if respondent lives in Lankaran region (9.4% of population, has border with Iran Islamic Republic). Note that population size in Baku and Absheron is significantly higher in reality due to large number of unregistered citizens. Therefore, controlling for these regional dummies matter in terms of population density. Perceived income adequacy (PIA_i) is measured on a seven-point scale ranging from $1 = totally\ not\ sufficient$ to $7 = totally\ sufficient$.

Measuring subjective well-being

To assess subjective well-being of individuals, SWLS methodology (Diener et al., 1985) is used which enables to evaluate respondents' satisfaction with their life and goal achievements on the basis of 5 different statements (see Pavot and Diener, 1993, p.172). The statements are: (1) In most ways, my life is close to my ideal, (2) the conditions of my life are excellent, (3) I am satisfied with my life, (4) so far I have gotten the important things I want in life, and (5) if I could live my life over, I would change almost nothing. All statements were measured on a seven-point scale ranging from $1 = totally\ disagree$ to $7 = totally\ agree$. Life satisfaction (LS) score is calculated as sum of response values to all statements, get values between 5 (if a respondent is *strongly disagree* with all statements) and 35 (if a respondent is *strongly agree* with all statements).

An individual is considered to be: extremely dissatisfied if $5 \leq LS \leq 9$, dissatisfied if $10 \leq LS \leq 14$, slightly dissatisfied if $15 \leq LS \leq 19$, neither dissatisfied nor satisfied (neutral) if $LS = 20$, slightly satisfied if $21 \leq LS \leq 25$, satisfied if $26 \leq LS \leq 30$, and extremely satisfied if $31 \leq LS \leq 35$. Cronbach's Alpha value is quite high ($\alpha = 0.85$) and confirms reliability of the scale.

3. RESULTS AND DISCUSSION

3.1. Preliminary analyses

Main descriptive statistics of all variables are tabulated in Table 1. Average life satisfaction of the sample falls to slightly dissatisfaction interval. Dissatisfaction in the society can be a sign of negative well-being effects of COVID-19. However, more detailed analysis is required to justify corresponding argument. Figure 3 and 4 display well-being change dynamics by gender status and age groups during the period of investigation.

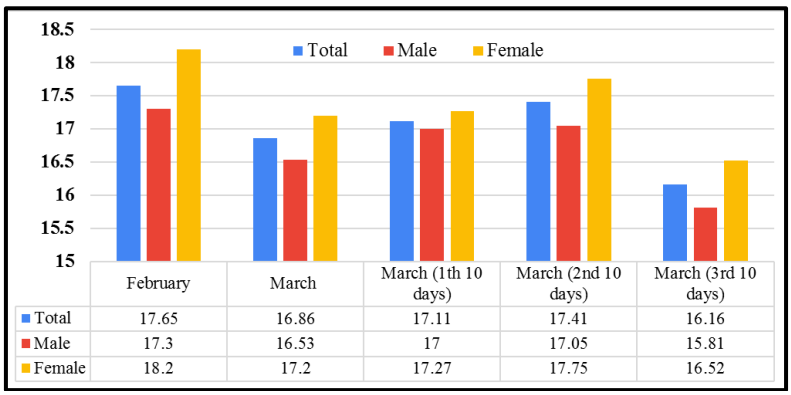
Table 1: Descriptive statistics of variables

Variables	No. of Obs.	Mean	Minimum	Maximum	Std. Dev.
LS_i	2118	17.06	5	35	6.854
WTC_i	2123	265354	78651	858361	231128
$WTDC_i$	2123	21868	554	73620	23396.8
WTR_i	2123	80246	22650	178117	41044
WTD_i	2123	11446	2460	42309	11357.1
$WTDD_i$	2123	1138.8	37	4535	1299.1
$AzTC_i$	2123	56.76	0	297	80.51
$AzTDC_i$	2123	9.09	0	64	14.08
$AzTR_i$	2123	5.79	0	26	6.70
$AzTD_i$	2123	1.12	0	5	1.39
Age_i	2122	34.37	17	83	11.26
PIA_i	2063	3.18	1	7	0.205
$Gender_i$	2123	0.486	0	1	0.499
$School_i$	2123	0.171	0	1	0.377
$College_i$	2123	0.119	0	1	0.324
$Bachelor\ (Ref.)$	2123	0.472	0	1	0.499
$Master_i$	2123	0.189	0	1	0.392
PhD_i	2123	0.047	0	1	0.212
$Unmarried\ (Ref.)$	2123	0.348	0	1	0.476
$Married_i$	2123	0.592	0	1	0.491
$Divorced_i$	2123	0.059	0	1	0.237
No_child_i	2123	0.405	0	1	0.491
$Religious_i$	2107	0.209	0	1	0.407
$Believer\ (Ref.)$	2107	0.642	0	1	0.479
$NonBeliever_i$	2107	0.149	0	1	0.356
$Baku_i$	2123	0.501	0	1	0.500
$Absheron_i$	2123	0.147	0	1	0.354
$Lankaran_i$	2123	0.046	0	1	0.209

Source: *Author's own creation*

To present better visualization of well-being change after coronavirus outbreak in Azerbaijan, we calculate average life satisfaction scores for February, March as a whole and each ten days of March.

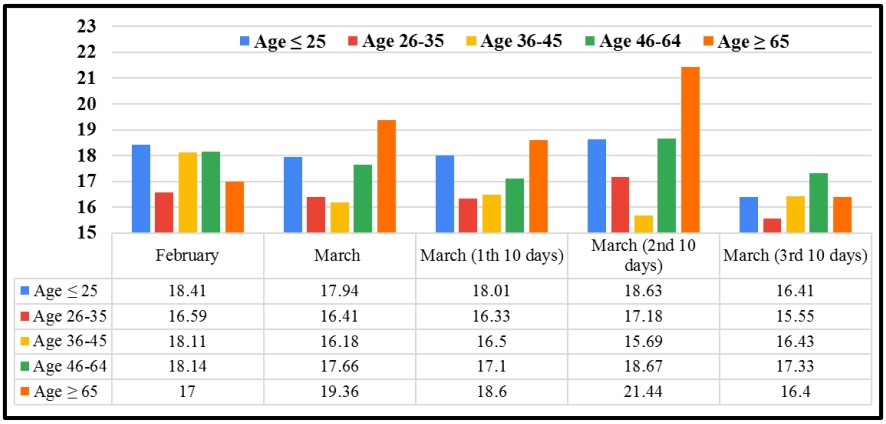
Figure 3: Well-being change during the period of investigation



	February	March	March (1th 10 days)	March (2nd 10 days)	March (3rd 10 days)
Total	17.65	16.86	17.11	17.41	16.16
Male	17.3	16.53	17	17.05	15.81
Female	18.2	17.2	17.27	17.75	16.52

Source: *Author's own creation*

Figure 4: Well-being change by age groups



	February	March	March (1th 10 days)	March (2nd 10 days)	March (3rd 10 days)
Age ≤ 25	18.41	17.94	18.01	18.63	16.41
Age 26-35	16.59	16.41	16.33	17.18	15.55
Age 36-45	18.11	16.18	16.5	15.69	16.43
Age 46-64	18.14	17.66	17.1	18.67	17.33
Age ≥ 65	17	19.36	18.6	21.44	16.4

Source: *Author's own creation*

Figure 3 display a decreasing average well-being trend across time. Compared to February, average life satisfaction has decreased 8.5% for whole sample, 8.6% for males and 9.3% for females. Upward trend during 2nd 10-day of March can be due to adaptation to initial quarantine measures like closing schools and higher education institutions and holiday aspires.

Note that there is approximately 1-week vacation due to national Novruz holiday during after March 20. However, TFCM put additional measures and restricted movements within and to out of the country, disrupted vacation plans at some level.

Meanwhile, increasing rate of new COVID-19 case within the country and in the world triggered stricter quarantine expectations among individuals. All these is predicted to lower individuals' well-being. Note that well-being loss in 3rd 10-day compared to 2nd 10-day is around 7-7.2%. Figure 4 represents well-being change across age groups during the period of investigation. Overall, we observe negative trend in dynamics for all age categories with exception of 2nd 10-day of March. Lowest satisfaction with life is recorded among age 26-35 group. Well-being loss in 3rd 10-day of March in comparison with Feburary is around 11% for $age \leq 25$, 6.3% for $26 \leq age \leq 35$, 9.3% for $36 \leq age \leq 45$, 4.5% for $46 \leq age \leq 64$ and 3.6% for $age \geq 65$. Older people ($age \geq 65$) have been affected in the 3rd 10-day (23.5% well-being fall) compared to 2nd 10-day. This is quite reasonable and mostly due to restrictions on their life outside.

Preliminary analyses allow to observe general trends, not causality. Therefore, estimating associations can be more informative to have an idea about well-being effects of COVID-19 outcomes in Azerbaijan.

3.2. Empirical analyses

Well-being effects of COVID-19 outcomes in the world and within the country – Azerbaijan are tabulated in Table 2 and 3, respectively. Empirical findings are mostly consistent with expectations and research hypothesis while there are some surprising results. Estimations reveal significant negative effects of all world and country level COVID-19 outcomes, including total number of recovered people, over individuals' well-being in Azerbaijan with moderation of age. Coefficients of COVID-19 variables and interaction terms are statistically significant at 95% confidence level. Seemingly, individuals perceive increasing number of total recovered people also as a confirmation of COVID-19 threat and face well-being loss. Reasoning can be insufficient attention to recovered people statistics by mass-media and continuous reporting negative side of the process like new cases and deaths. Probably, it is effective to keep people at homes to control diffusion of the virus.

Overall, well-being loss due to increase in COVID-19 outcomes depends on age of the respondent. Main unexpected empirical finding is about moderation role of age. Although significant moderating role is confirmed by empirical estimations, results are in contrary with research hypothesis. Coefficients of interaction terms are commonly positive meaning that negative well-being effect of COVID-19 outcomes disappear as age increases. The impact of total COVID-19 cases in the world disappear at

31-32 ages while new daily cases, total number of recovered people and deaths in the globe affects larger category up to age of 39-41. It is interesting that world daily death records lead decreasing well-being among those within age less than 35. Responsiveness to country level COVID-19 outcomes is also quite similar. Negative well-being effect of total number of cases and recovered people lasts until age of 33 while records of new cases and total deaths affect relatively more, up to age 40 and age 47, respectively.

Table 2: Well-being effects of world COVID-19 outcomes in Azerbaijan

Covariates	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
$Ln(WTC)_i$	-0.095**	-	-	-	-
$Ln(WTC)_i * Age_i$	0.003***	-	-	-	-
$lN(WTDC)_i$	-	-0.082**	-	-	-
$Ln(WTDC)_i * Age_i$	-	0.002***	-	-	-
$Ln(WTR)_i$	-	-	-0.117**	-	-
$Ln(WTR)_i * Age_i$	-	-	0.003**	-	-
$Ln(WTD)_i$	-	-	-	-0.082**	-
$Ln(WTD)_i * Age_i$	-	-	-	0.002***	-
$Ln(WTDD)_i$	-	-	-	-	-0.035*
$Ln(WTDD)_i * Age_i$	-	-	-	-	0.001**
Age_i	-0.058***	-0.046***	-0.062***	-0.046***	-0032***
Age_i^2	0.0003***	0.0003***	0.0003***	0.0003***	0.0003***
PIA_i	0.132***	0.132***	0.132***	0.132***	0.132***
$Gender_i$	0.040**	0.040**	0.040**	0.040**	0.039***
$School_i$	-0.116***	-0.116***	-0.115***	-0.116***	-0.117***
$College_i$	-0.067**	-0.067**	-0.067**	-0.067**	-0.068**
$Master_i$	-0.027	-0.027	-0.027	-0.027	-0.026
PhD_i	0.082**	0.082**	0.081**	0.082**	0.084**
$Married_i$	0.069*	0.069*	0.069*	0.068*	0.067*
$Divorced_i$	-0.066	-0.066	-0.066	-0.066	-0.067
No_child_i	-0.039	-0.039	-0.039	-0.039	-0.039
$Religious_i$	0.058***	0.058***	0.058***	0.058***	0.059***
$NonBeliever_i$	-0.089***	-0.089***	-0.089***	-0.089***	-0.088***
$Baku_i$	0.0169	0.0168	0.0169	0.0168	0.0165
$Absheron_i$	0.0026	0.0026	0.0032	0.0026	0.0033
$Lankaran_i$	0.0021	0.0022	0.0028	0.0022	0.0039
C	3.925***	3.496***	4.082***	3.496***	2.993***
Included Obs.	2050	2050	2050	2050	2050
R^2	0.319	0.319	0.318	0.319	0.318

*Note: Dependent variable is $Ln(LS)_i$. Estimation method: Ordinary Least Squares (OLS). ***, ** and * denote statistical significance at 1%, 5% and 10% level of significance, respectively.*
Source: *Author's own creation*

Table 3: Well-being effects of recorded COVID-19 outcomes within Azerbaijan

Covariates	Model (1)	Model (2)	Model (3)	Model (4)
$AzTC_i$	-0.001***	-	-	-
$AzTC_i * Age_i$	0.00003***	-	-	-
$AzTDC_i$	-	-0.008***	-	-
$AzTDC_i * Age_i$	-	0.0002***	-	-
$AzTR_i$	-	-	-0.010**	-
$AzTR_i * Age_i$	-	-	0.0003**	-
$AzTD_i$	-	-	-	-0.047**
$AzTD_i * Age_i$	-	-	-	0.001**
Age_i	-0.025***	-0.025***	-0.026***	-0.026***
Age_i^2	0.0003***	0.0003***	0.0003***	0.0003***
PIA_i	0.132***	0.131***	0.131***	0.132***
$Gender_i$	0.041**	0.040**	0.041**	0.041**
$School_i$	-0.116***	-0.113***	-0.114***	-0.118***
$College_i$	-0.066**	-0.065**	-0.066**	-0.0672**
$Master_i$	-0.028	-0.029	-0.028	-0.028

PhD_i	0.081**	0.077**	0.078*	0.083**
$Married_i$	0.066	0.069*	0.067*	0.067*
$Divorced_i$	-0.066	-0.059	-0.066	-0.067
No_child_i	-0.040	-0.039	-0.039	-0.039
$Religious_i$	0.058***	0.057***	0.058***	0.058***
$NonBeliever_i$	-0.089***	-0.090***	-0.089***	-0.087***
$Baku_i$	0.0169	0.0188	0.0182	0.0162
$Absheron_i$	0.0027	0.0029	0.0039	0.0029
$Lankaran_i$	0.0016	-0.0016	0.0039	0.0025
C	2.816***	2.823***	2.821***	2.820***
Included Obs.	2050	2050	2050	2050
R^2	0.319	0.321	0.318	0.318

*Note: Dependent variable is $Ln(LS)_i$. Estimation method: Ordinary Least Squares (OLS). ***, ** and * denote statistical significance at 1%, 5% and 10% level of significance, respectively.*
Source: *Author's own creation*

Social isolation measures to control diffusion of COVID-19 has certain economic and income effects for households. In this context, empirical findings display potential well-being loss due to pandemic, indirectly through disposable income loss. Change in perceived income adequacy can be used as a proxy of income loss for simulation. In all models, the impact of perceived income adequacy (PIA_i) is statistically ($p < 0.01$) and economically significant. One unit fall in PIA is predicted to cause 13.1% well-being loss. Note that higher PIA value implies greater sufficiency of income. Disposable income loss will push PIA score for individuals down, expected to result in significant well-being loss.

CONCLUSION AND DISCUSSION

Outbreak of COVID-19 in Wuhan, China has changed the situation dramatically in the world. Countries lockdown, adopt social isolation measures, put movement restrictions while uncertainty is still ongoing. Individuals are challenged by psychological distress and disorder (Lima et al., 2020), work and live conditions are disrupted (Bao et al., 2020; Cao et al., 2020; Duan and Zhu, 2020; Xiang et al., 2020). Apparently, the process and ongoing uncertainty predicted to increase health concerns and lower well-being of people.

There are numerous studies investigating psychological (Bao et al., 2020; Lima et al., 2020 among others) and potential economic effects using simulations (Atkeson,2020; Baldwin and Tomiura, 2020; McKibbin and Fernando, 2020; Bénassy-Quéré et al., 2020), well-being effects of COVID-19 has not been studied comprehensively. This research aims to fill the gap at some level and explore direct and indirect effects of COVID-19 outcomes over individuals' well-being in Azerbaijan.

Empirical results present evidence for negative well-being effects of pandemic results while the association is moderated by age. Youth are affected more while well-being impact of pandemic disappears at higher ages, in contrary to expectations. Logical reasoning of such an outcome can be numerous. First, use of social media can be a leading factor. Youth spend much more time in social media and follow / share COVID-19 records continuously, and being affected more. Second, youth has more socially active life on which measures against coronavirus diffusion has greater influence, in line with satisfied Brooks (2015). Contrary, older people have mostly work-family lifestyle. Third, older people are expected to consider the virus politically motivated and its impacts being exaggerated. There is greater probability to rely on conspiracy theories triggered by video and audio materials. Last but not least, it can be partially due to sampling bias. Data collection is carried out over social media where older people has less participation.

In any case, findings confirm negative well-being effects of COVID-19 among Azerbaijan population. According to State Statistical Committee of Azerbaijan Republic, 40% of population is within the age of 15-39 who faces well-being loss due to the pandemic. This is a major share for today with dominance of youth. If damaging impact would be deep and uninterrupted, psychological risk can be even larger than expectations.

Well-being effects of pandemic is not limited with this. The impact due to social isolation measures and decreasing economic transactions. Despite of positive impact of lockdown to control COVID-19 (Lau et al., 2020), it leads to a significant fall in economic activity (Piguillem and Shi, 2020) and increase in unemployment (Gangopadhyaya and Garrett, 2020; Yilmazkuday, 2020). Although economic effects of COVID-19 are not well-known due to limited available information, there are several studies, mostly rely on different scenarios (Atkeson,2020; Baldwin and Tomiura, 2020; McKibbin and Fernando, 2020; Bénassy-Quéré et al., 2020). Observations show that family-owned small businesses are especially affected (Lazzerini and Putoto, 2020). All these are predicted to end with disposable income fall of households. Change in perceived income adequacy coming from disposable income fall is expected to affect well-being at a greater margin. 13% well-being loss in response to 1-unit decrease in perceived income adequacy is very large.

Policy implications of the research is twofold. Firstly, information dissemination policy regarding the outcomes of COVID-19 should minimize triggering panic among the youth while special programs are required to increase awareness of older people about threat coming from the pandemic. Second, efficient use of economic and social policy tools is required to minimize effects of social isolation and lockdown over disposable income of households. Especially, those with very low income level should be in target, sufficient financial and psychological support should be provided. These measures are predicted to minimize negative well-being effects of the pandemic among Azerbaijan population.

Research findings can also be useful for other countries struggling with COVID-19. Employed methodology can be replicated. Understanding well-being effects is a crucial key for sustainable long-term welfare policies.

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