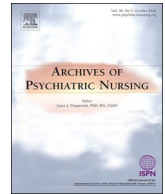




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Effect of Covid-19 pandemic on mental health among Albanian people residing in the country and abroad – Implications for mental care

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ABSTRACT

Background: Coronavirus disease caused by the novel coronavirus Covid-19 is a current worldwide outbreak. The use of quarantine and isolation proved effective in containing the spread of infection.

Objectives: The purpose of this cross-sectional study was to assess the mental health of Albanian people residing in the country and abroad during the quarantine period for the Covid-19 pandemic.

Design: This study was carried out from 25th March – 20th April 2020 through a web survey shared on social networks. The goal was to reach at least the minimum sample size for cross-sectional studies. The Patient Health Questionnaire (PHQ-9) was used to assess mental health. Chi-square (χ^2) and Fisher –Exact test were used to assess the statistical significance among variables. P values ≤ 0.05 were considered statistically significant.

Results: 715 participants were included in the final analyses (78.41% females and 21.53% males). Most were residents in Albania (80.41%) and the others resided mainly in Italy (6.89%), Greece (3.51%), Germany (2.43%), Kosovo (1.62%) and the UK (1.69%). Statistical association was found between gender, country of residency and measures taken. Summary score of PHQ-9 items was 6.4662. The total score of depression classification shows that 31.82% and 12.90% of participants have respectively mild and moderate depression. Female participants showed the highest score for some items of PHQ-9, $p \leq 0.05$.

Conclusions: Findings suggest that health care professionals should recognize and address mental health problems associated with Covid-19 especially in vulnerable groups. Acting in a timely and proper manner is essential in preventing these problems from becoming chronic.

Introduction

Coronavirus disease caused by the novel coronavirus Covid-19 is a current worldwide outbreak. Globally, as of 2:00 am CEST, 26 April 2020, there have been 2,810,325 confirmed cases of COVID-19, including 193,825 deaths, reported to World Health Organization (WHO) (WHO, 2020a; World Health Organization, 2020). Due to the situation WHO declared the state of pandemic on 30 January 2020 (WHO, 2020b; World Health Organization, 2020). Coronaviruses are positive-sense RNA viruses and based on their genomic structure they are divided into four main subgroups. Until December of 2019, when a cluster of pneumonia cases in Wuhan City, Hubei Province, China were identified as Covid-19, only six types of coronaviruses were known to infect humans (Wu et al., 2020). Covid-19 created the biggest worldwide public health emergency (Biswas et al., 2020) since the SARS (Severe Acute Respiratory Syndrome) epidemic (Hung, 2003). For

many countries, especially developed ones, dealing with infectious diseases, mostly already extinct, would be a test in itself. And in the context of a lack of sufficient evidence the public health authorities suggested quarantine as a measure to prevent the spread of infection (Bensimon and Upshur, 2007). Quarantine (a 40-day period) is a mandatory way to isolate people with infectious diseases. It is considered the basis of a multifaceted strategy for combating infectious diseases. In modern times, especially during the SARS epidemic the use of quarantine and other measures such as border controls, contact tracing, and surveillance proved effective in containing the spread of infection (Choi, Heilemann, Fauer, & Mead, 2020). Isolation and monitoring are effective control measures to contain the risk of spreading the novel coronavirus infection (Khan et al., 2020) and an effective quarantine seems to determine the trend of spreading of the Covid-19 epidemic (Tang et al., 2020). To stop the spread of Covid-19 Albanian authorities implemented strict measures initially with the

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closure of educational institutions on March 10 followed by the total lockdown of activities other than food markets and pharmacies on March 12. Other European countries such as Italy, Greece, Germany, United Kingdom (UK), etc. had also started implementing the national lockdown measures. A rapid review of literature found that longer quarantine duration is associated with several stressors such as frustration, boredom, post-traumatic stress, confusion and anger. The same study suggests that authorities extend quarantine only for as long as needed by providing people with the necessary information (Brooks et al., 2020). In addition a recent study stresses the fact that the coronavirus pandemic may bring a mental health pandemic and therefore health care practitioners should be prepared to address problems in a timely and effective manner (Choi, Heilemann, Fauer, & Mead, 2020). The first two cases of Covid-19 in Albania were confirmed on March 9, 2020, while the number of total positive to Covid-19 of March 19th was 64 (Musabelliu, 2020). Actually Albania counts 2662 Covid-19 cases and 69 deaths (Elflein, 2020a). The first cases in Albania with Covid-19 has had a history of traveling with Italy. In addition, Italy was the first European country to face with Covid-19 pandemic approximately 35 thousand deaths caused by Covid-19 mostly in the region of Lombardy (SRD, 2020). Therefore, the numbers of Albanian people residing abroad are higher among two neighboring countries respectively Italy and Greece and less in Germany and other European countries (IOM, 2020). While Germany accounts 196,717 Covid-19 cases and 9064 deaths and Greece accounts for 3458 cases and 192 deaths. Also, the United Kingdom includes one of the most severely affected countries with 283,757 cases and 43,995 deaths (Elflein, 2020b).

Although there is a lack of evidence on the mental health effect of coronavirus in the general population due to its novel, researchers suggest paying attention to these factors (Santos, 2020). In addition, the pandemic and the quarantine may have a negative impact on the mental health of general population associated with increased of psychiatric symptoms (Vincenzo et al., 2020). Therefore, studies show that pandemics in general such as SARS (Lau et al., 2006) and Ebola outbreak (Van Bortel et al., 2016) also fostered negative impacts on the people's mental health since it was evidenced an increased level of stress among women, older and less educated people. While symptoms of anxiety and depression was common among survivors and individuals affected by Ebola as well as fear one year of Ebola responses (Cénat et al., 2020; Jalloh et al., 2018).

Even though the COVID-19 pandemic is still ongoing there is not sufficient evidence on its impact in the mental health of general population. As even the few studies that have been done emphasize the importance of studying the mental effect of the pandemic in larger populations (Zhang and Ma, 2020). Also in Albania relevant scientific studies on Covid-19 are lacking.

Using the Patient Health Questionnaire PHQ – 9 diagnostic tool for common mental disorders especially depressive disorders and their severity (Kroenke et al., 2001), this study aims to assess the mental state of Albanian people residing in the country and abroad during the Covid-19 pandemic as well as to contribute filling the scientific gap.

Method

Study design, timeframe and study population

This cross-sectional study took place in the context of the Covid-19 pandemic. It was carried out from 25th March – 20th April 2020 through a web survey shared on social networks such as Facebook and Instagram. Through the survey Albanians residing within the country and abroad were asked to become part of the study by completing the anonymous questionnaire.

Procedure

An initial call to participate in the survey was posted on the study

author's social media, where the study objective and procedure were explained. The second call was posted a week later. The goal was to reach at least the minimum sample size for cross-sectional studies. Each participant could complete the questionnaire only once.

Questionnaire

Patient Health Questionnaire (PHQ-9) was used to collect the data. The PHQ-9 is a tool that is used for quick depression assessment (Levis et al., 2019). In addition, studies suggest the increase of use of PHQ-9 in primary care and in low income countries for the early detection of depression in population (Brown et al., 2020; Kohrt et al., 2016). It consists of 9 item or problems scored by 0-Not at all, 1-Several days, 2-More than half the days, and 4-Nearly every day. Based on the total score of items the Depression Severity is classified as Minimal (1–4), Mild (5–9), Moderate (10–14), moderately severe (15–19) and Severe (20–27). A section for socio-demographic data as well as questions regarding concerns and measures taken to prevent the spread of Covid-19 infection were added. The questionnaire was created using Google Forms. Since the PHQ-9 is used to assess the mental health of the population as part of the Basic Medical Control for Albanian Citizens, its validation into Albanian is not needed.

Data analysis

The data was analyzed using EpiInfo™ 7 software version 7.1.3.10. Descriptive statistics were reported such as frequency, percentage and mean scores. Cross tabulations were used to analyze the relationship between the dependent (concerns, measures and PHQ-9 items), and independent variables (demographic characteristics of the participants). Chi-square (χ^2) and Fisher –Exact test were used to assess the statistical significance among variables. *P* values ≤ 0.05 were considered statistically significant.

Ethical considerations

The study was carried out in accordance with the ethical principles of the Helsinki Declaration. By completing the questionnaire voluntarily all respondents gave their informed consent to participate in the study.

Results

Study participants' characteristics

The questionnaire was filled by 752 people in total but in the final analysis due to incomplete questions only 715 were included (response rate 95.00%, 78.41% females, $n = 561$ and 21.53% males, $n = 154$). Most were residents in Albania (80.41%) and the others resided mainly in Italy (6.89%), Greece (3.51%), Germany (2.43%), Kosovo (1.62%) and the UK (1.69%). The majority of participants were employed (70.15%), Table 1.

Satisfaction and concerns of the study participants for the measures taken to prevent the spread of Covid-19

Table 2 shows the satisfaction and concerns of the study participants for the measures taken to prevent the spread of Covid-19. Statistical association was found between gender and measures taken. Male participants are less satisfied ($p = 0.007674733$) and are worried that they are still going to work ($p = 0.000000177$). In addition significant statistical association was found between the country of residency and the measures taken to prevent the spread of the Covid-19 infection. UK residents were less satisfied with the measures taken ($p = 0.0001$) and that they would continue to go to work regardless of the situation ($p = 0.045$). For the other variables regarding measures taken no

Table 1
Socio-demographic participant's characteristics.

Characteristics	Frequency (%)	Wilson 95% [LCL-UCL]
Age (years)		
21–30	359 (48.84)	[45.25–52.45]
31–40	188 (25.58)	[22.56–28.85]
41–50	123 (16.73)	[14.21–19.60]
51–60	42 (5.71)	[4.26–7.63]
61–70	18 (2.45)	[1.55–3.84]
> 70	5 (0.68)	[0.29–1.58]
Gender	561 (78.47)	
Female	154 (21.53)	[76.02–81.89]
Male		[18.11–23.98]
Residence	595 80.41	
Albania	51 (6.89)	[77.39–83.11]
Italy	26 (3.51)	[5.28–8.95]
Greece	18 (2.43)	[2.41–5.10]
Germany	11 (1.49)	[1.54–3.81]
UK	12 (1.62)	[0.83–2.64]
Kosovo	8 (1.08)	[0.93–2.81]
USA	2 (0.27)	[0.55–2.12]
France	1 (0.14)	[0.07–0.98]
Austria	1 (0.14)	[0.02–0.76]
Sweden	15 (2.03)	[0.02–0.76]
Other		[1.23–3.32]
Employment status	517 (70.15)	
Employed	171 (23.20)	[66.75–73.34]
Not employed	44 (5.97)	[20.30–26.38]
Homemaker	5 (0.68)	[4.48–7.92]
Retired		[0.29–1.58]

Legend: LCL; UCL = lower and upper confidence limits.

Table 2
Questions about concerns and the measures taken for Covid-19 pandemic.

Questions	Yes N (%)	No N (%)	P value*	P value**
As a result of the situation created by Covid-19 do you continue to go to work?	221 (30.11)	513 (69.89)	0.000000177	0.045
Are you satisfied with the measures taken to prevent the spread of Covid-19?	651 (87.97)	89 (12.03)	0.007674733	0.0001
Do you think COVID-19 can cause health problems?	516 (69.82)	223 (30.18)	0.373	0.3562
Do you think quarantine causes health problems?	232 (31.35)	508 (68.65)	0.769	0.673
Are you worried about the health of your family members because of Covid-19?	674 (91.33)	64 (8.67)	0.146	0.7205

* Association between gender and measures taken.

** Association between country of residence and measures taken.

statistical association was found between gender and country of residency, $p > 0.05$.

Mean scores and \pm SD (Standard Deviation) of the PHQ-9 item, depression classification and association between gender

Table 3 shows the mean scores and \pm SD (Standard Deviation) of the PHQ-9 items. Summary score of PHQ-9 items is 6.4662. The total score of depression classification shows that 47.74% of participants have minimal depression, 31.82% of participants in the study have mild depression, 12.90% have moderate depression, 4.80% have moderately severe depression and 2.74% have severe depression.

Table 4 shows the response to each one of the PHQ-9 items and the

statistical association between gender. The items “Little interest or pleasure in doing things”, “Feeling down, depressed, or hopeless”, “Feeling tired or having little energy” and “Poor appetite or overeating” are statistically significant, Chi-square (χ^2) and p values respectively ($\chi^2 = 7.7344$; $p = 0.0518$, $\chi^2 = 22.3006$; $p = 0.0001$, $\chi^2 = 22.3006$; $p = 0.0001$, $\chi^2 = 20.366$; $p = 0.0001$). Female participants have the highest score for these items.

Discussion

Our results suggest that among 715 participants (78.41% females and 21.53% males) in the study, just two weeks after quarantine started in Albania where most of the participants were residing (80.41%), 47.74% of them express minimal depression, 31.82% express mild depression, and 12.90% express moderate depression. While the total mean scores of the PHQ-9 items was 6.4662. In addition the data began to be collected minimally two weeks after the start of quarantine, so they also met the PHQ-9 criterion that assesses the mental state of participants in the past two weeks. The results are similar to a study carried out in Albania among family members of university students where 22.8% and 15.6% of them showed respectively mild and moderate depression (Mechili et al., 2020).

If we refer to the study in China for the psychological effects of Covid-19 it is observed that depression which referred moderate to severe symptoms is lower in our study, 16.5% vs 12.90%. It is also noted that female participants have the highest score for some items of PHQ-9, $p = 0.0518$, $p = 0.0001$, $p = 0.0001$, Table 4. These results do not differ from the study in China where the male gender was significantly associated with lower scores of psychological impact of quarantine (Wang et al., 2020). Our results suggest that the female gender should be considered as the vulnerable group for mental health during the Covid-19 epidemic.

Table 1 shows that most of participants were employed (70.15%) and due to the coronavirus outbreak stopped working (69.89%). Statistical association was found between gender, country of residence and this variable, $p = 0.000000177$ and $p = 0.045$, Table 2. Despite the satisfaction (87.97%) with the measures taken for the prevention of spread of Covid-19, statistical association was found between gender, country of residence and this variable, $p = 0.0076$ and $p = 0.0001$. Males and people residing in UK were more dissatisfied with the measures taken and the fact that they had stopped working. 31.35% of the participants reported that quarantine could cause health problems and no correlation was found with country of residence. In contrast a recent study done in the UK found that the rates of depression and anxiety were higher in the end of the week that the lockdown began. Also the study states that people with pre-existing health and mental health conditions are more vulnerable (Bentall et al., 2020).

In addition, Table 2 suggests that most of the participants in the study have referred that the Covid-19 pandemic can cause health problems and that they are concerned about the health of their family members. The results are in coherence with the result of the review study which suggests that the Covid-19 pandemic leads not only to stress, depression and sleep disorders but also to concerns related to daily life activity, the economy and health in general (Torales, O'Higgins, Castaldelli-Maia, & Ventriglio, 2020).

In Table 4 we see that 34.83% of participants have experienced sleep disorders for several days, and no statistical association was identified between the gender, $p = 0.1142$. The results are consistent with the review study of mental health and Covid-19 where depression and anxiety were associated with sleep disorders (Rajkumar, 2020). If we refer to Table 1, we see that the study participants belong to young age groups since 48.84% of them are 21–30 years old 25.58% are 31–40 years old and 16.73% belong to the 41–50 age group. As the age can be a risk factor associated with social isolation and older people are more at risk (Wu and Sheng, 2020) this may explain the higher percentage of minimal depression (47.74%) referred to in our study. But

Table 3Mean scores and \pm SD of the PHQ-9 items.

Item	Mean	± SD	
Over the last 2 weeks, how often have you been bothered by any of the following problems?			
1. Little interest or pleasure in doing things?	1.0574	0.8756	
2. Feeling down, depressed, or hopeless?	0.907	0.8807	
3. Trouble falling or staying asleep, or sleeping too much?	0.828	0.9555	
4. Feeling tired or having little energy?	0.907	0.8807	
5. Poor appetite or overeating?	0.9733	0.9982	
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down?	0.5227	0.8556	
7. Trouble concentrating on things, such as reading the newspaper or watching television?	0.6229	0.8758	
8. Moving or speaking so slowly that other people could have noticed? Or so fidgety or restless that you have been moving a lot more than usual?	0.4902	0.7722	
9. Thoughts that you would be better off dead, or thoughts of hurting yourself in some way?	0.1577	0.538	
Sum score	6.4662	7.6323	
Depression classification			
Total score	Depression classification	Frequency	Percentage
0–4	Minimal depression	348	47.74%
5–9	Mild depression	232	31.82%
10–14	Moderate depression	94	12.90%
15–19	Moderately severe depression	35	4.80%
20–27	Severe depression	20	2.74%

our results are in contrast with the study in UK which found that younger people were associated with high rates of anxiety and depression (Bentall et al., 2020).

Despite the fact that the largest percentage (65.86%) of study participants do not have thoughts of hurting themselves in any way, and the mean score of PHQ-9 for this item is 0.1577, in Table 3 we show that 43 participants had thoughts about self-harm for several days. This fact must be taken into account after referring to a study which found that suicide risk during Covid-19 pandemic is higher in particular among older adults (Gunnell et al., 2020).

For some items of PHQ-9 gender differences with strong statistical links were found. Table 4 shows that the items “Little interest or pleasure in doing things”, “Feeling down, depressed, or hopeless”, “Feeling tired or having little energy” and “Poor appetite or overeating” are statistically significant, p values respectively $p = 0.0518$, $p = 0.0001$, $p = 0.0001$, $p = 0.0001$. Previous studies have shown that there is a unique link between anxiety, stress and binge eating in particular in women (Rosenbaum & White, 2015). A link between depression symptoms and binge eating disorder in women was also found in other studies (Peterson et al., 2012). In addition to the statistical relationship with gender for some items of PHQ-9, 14.85% of participants refer that more

than half the days have little interest or pleasure in doing things (14.85%), feeling down, depressed or hopeless (11.69%) and feeling tired or having little energy (11.69%) while 9.51% of participants report sleeping disorders, Table 4. The results are in accordance with other studies were the prevalence of depressive symptoms were higher in young people (Huang and Zhao, 2020) since our study participants mostly were in the age group 21–40 years. In response of depressive symptoms found in the general population, many countries, especially China, have begun to implement interdisciplinary interventions and strategies to address them (Dong and Bouey, 2020).

Limitations

The web cross-sectional and self-reporting type of the study gave some limitations. The first limitation relates to gender differences in the participation. Females had higher prevalence as they use social networks more. The second limitation is related to age, as the study was dominated by younger age groups. Young people use social networks and technology more, compared to the elderly. Also a larger sample is needed with a longer period of time between pre- and post-implementation of the lockdown. This would lead to more reliable results.

Table 4

Statistical association between gender and the PHQ-9 items.

Item	0 Not at all N (%)	1 Several days N (%)	2 More than half the days N (%)	3 Nearly every day N (%)	Chi-square χ^2	P value
Over the last 2 weeks, how often have you been bothered by any of the following problems?						
1. Little interest or pleasure in doing things?	191(26.75)	354(49.58)	106(14.85)	63(8.82)	7.7344	0.0518
2. Feeling down, depressed, or hopeless?	257(36.20)	316(44.51)	83(11.69)	54(7.61)	22.3006	0.0001
3. Trouble falling or staying asleep, or sleeping too much?	329(46.01)	249(34.83)	68(9.51)	69(9.65)	5.9471	0.1142
4. Feeling tired or having little energy?	257(36.20)	316(44.51)	83(11.69)	54(7.61)	22.300	0.0001
5. Poor appetite or overeating?	285(40.03)	240(33.71)	108(15.17)	79(11.10)	20.366	0.0001
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down?	465(65.86)	(21.95)	44(6.23)	42(5.95)	2.7621	0.4298
7. Trouble concentrating on things, such as reading the newspaper or watching television?	417(58.90)	179(25.28)	74(10.45)	38(5.37)	2.1721	0.5375
8. Moving or speaking so slowly that other people could have noticed? Or so fidgety or restless that you have been moving a lot more than usual?	461(64.75)	178(25.00)	48 (6.74)	25(3.51)	7.253	0.0643
9. Thoughts that you would be better off dead, or thoughts of hurting yourself in some way?	634(90.06)	43(6.11)	13(1.85)	14(1.99)	2.0248	0.5673

But despite the limitations, the study remains unique in terms of purpose and sample population. It may be one of the first studies in Albania to address the mental health problems associated with Covid-19. In addition, the study can serve as a reference for researchers and health professionals.

Implications and recommendations

Recognition of mental health problems during the Covid-19 pandemic can be achieved through raising awareness among health care professionals since they are in daily contact with different groups of the population. In addition, they have the possibility to detect and address the different mental health disorders in time through quick and a cost-effective screening tools (Kroenke et al., 2001) (Levis et al., 2019). While valid group comparisons between sex, age, education level, socioeconomic status, marital status, and residence area can be made using PHQ-9 in the general population, as these studies suggest (Villarreal-Zegarra et al., 2019) (Martin et al., 2006). Since the Covid-19 outbreak is a unique and unprecedented scenario for people of all ages, WHO emphasizes to take into consideration the mental health and psychosocial effects during the Covid-19 outbreak (WHO, 2020). In addition timely mental health care the during Covid-19 pandemic is urgently needed (Xiang et al., 2020).

Conclusions

The study found that the mental health of Albanian people residing in the country and abroad was affected by the quarantine as a result of the Covid-19 pandemic, since mild depression level was evidenced in a significant percentage of the studies participants. Women and the elderly were more vulnerable as they had a higher tendency for depressive disorders. Recognizing and addressing the mental health problems associated with Covid-19 in a timely manner by all health care professionals especially in vulnerable groups, is essential so that these problems do not turn chronic.

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Author contributions

FK and EAM conceived the study and determined the methodology. All the authors give their contribution in data collection. FK, JJ, ES and HS drafted the manuscript. All authors revised and gave final approval before submission.

Declaration of competing interest

The authors declare no conflicts of interest with the research or writing of this paper.

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