Depression and socio-economic factors related to coronavirus disease 2019 pandemic on Ghor Al-Safi /Al-Karak / Jordan residents: A community- based cross-sectional study.

Samah M. Shehata[1,2*], Ghadeer M. AlManaseer[3], Amal Muhammad Jameel[3], Sondus W. AlMalahmeh[3], Rami K. AlEmoush[3], Nesrin Riad Mwafi[4,5], Ibrahim F. Kharboush[6].

[1] Chest department, Faculty of Medicine, Zagazig University, Egypt
[2] Internal medicine department, Faculty of Medicine, Mut'ah University, Jordan
[3] Medical student, Faculty of Medicine, Mut'ah University, Jordan
[4] Department of biochemistry and molecular biology, Faculty of Medicine, Mut'ah University, Jordan.
[5]Dean of Faculty of Allied Medical Sciences, Mut'ah University, Jordan
[6] Health Institute of Public Health, Alexandria University, Egypt.
Email: sama7she7ata78@gmail.com

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Abstract

Objective: Since the beginning of the coronavirus disease of 2019 (COVID-19) pandemic, it was such a tough time for everyone including the physical, social, financial, and mental aspects. The situation is difficult mainly for people in rural areas with a low income. The current study aimed to identify the prevalence and severity of depression and the socioeconomic status of Ghor al-Safi residents and compare those infected by severe acute respiratory syndrome coronavirus 2 (SARS-cov2) and non-infected participants during the COVID-19 lockdown. **Material and Methods:** A cross-sectional study was conducted in Ghor al-Safi (Al-Karak, Jordan) using a google form questionnaire. The current study included 285 participants who were classified into two groups: Group of participants previously infected by SARS-cov2 (135 participants) and another group of participants never infected (150 participants). The followings were assessed for both groups: Demographic data, socio-economic and depression. **Results:** The mean age of the overall studied participants was 35.5 (±12.8) years. About 21.1% of participants had comorbidities. The depressive symptoms were assessed using Patient Health Questionnaire-9**.** About 57.2% of all participants had some degree of depression. The infected group had a significantly higher mean depression score than the non-infected group (p=0.02). Nearly,31.9% of the participants lost their jobs. The presence of co morbidity, getting infected with SARS-cov2 once and twice were significant predictors of the impact of COVID-2019 pandemic on financial status. **Conclusion:** About half of Ghor al-Safi participants were infected by SARS-cov2. This was associated with some degree of depression and financial difficulties.

Keywords: COVID-19; Depression; Financial status; Ghor al-Safi**;** Lockdown.

Introduction

Corona Virus Disease- 19 (COVID-19) is the novel corona virus which reported as a new strain in China, Wuhan city in December 2019. Then it spread rapidly across the borders of China and infected more than 210 countries in the world **[1].**

Worldwide, as reported by World Health Organization (WHO), on 15 July 2022, the number of confirmed cases of COVID-19 was 557,917,904, and the number of deaths was 6,358,899 deaths [**2]**. In Jordan, from 3 January 2020 to 15 July 2022, the number of confirmed cases of COVID-19 was 1,702,661 with 14,069 deaths, according to WHO report [**3].** Since the beginning of the COVID19 pandemic, people started to lose their jobs and their lives started to get worse in all aspects. As known, after a while there was a quarantine on the whole world, it was such a bad time for everyone including the physical, social, financial, and mental aspects. The situation is difficult for people who already have a good life, what about people in rural areas who, most of them, have a low income [**4]?**

People all over the world are coping with a pandemic of uncertainty and terror, which can make people feel even more stressed and worried, this can lead to mental diseases. A large Jordanian study reflected various mental health issues during the COVID-19 pandemic. This study revealed that the epidemic caused moderate to severe depression, anxiety and stress in many Jordanians **[5].** Ghor El Safi is recognized as one of Jordan's poorest districts where the percentage of households with unstable income and the number of unemployed people is the highest. It is located in the Southern Jordan Valley (it is the lowest place on Earth, 400 m below sea level) [6]. No studies were previously done concerning the financial status and the prevalence of depression among Ghor al Safi population during COVID-19 pandemic.

The current study aimed to identify the prevalence and severity of depression and the socioeconomic status of Ghor al-Safi residents and compare those infected by severe acute respiratory syndrome coronavirus 2 (SARS-cov2) and non-infected participants during the COVID-19 lockdown Also, it aimed to detect the different predictors affecting the depression and socioeconomic status of all participants.

Materials and Methods

Study design and participants

It is a cross-sectional community-based study which was conducted in Ghor al-Safi region, Al-Karak city, Jordan. Data were collected in the period between December 2021 and March 2022 after approval of the ethics committee of the faculty of medicine, Mut'ah University, Jordan (Reference number: 271221/27-12-2021).

Ghor Al-Safi population number was about 6688 people in 2015. Its population is mostly working in farming **[7].**

A questionnaire was designed on the google form that consists of 6 sections in the following arrangement: (consent, sociodemographic, previous history of SARS-Cov2 infection, vaccination history, depression assessment, and socioeconomic part). Data was collected through a face-to-face interview. We created a campaign in Ghor al-Safi. Our group visited that area 2 times (the first visit was in December 2021 and the second one was in March 2022) under the full support and help from Ghor al-Safi Health Center members. All protective measures were followed to avoid COVID-19 transmission (All team members received at least two doses of COVID-19 vaccine, a safe distance was kept from others, the interview was achieved outdoors, protective masks were used, and hands were kept clean by using gloves and disinfectants).

Openepi was used to calculate the sample size and to select the random sample of houses. Using confidence level of 90%, power 80% and an expected frequency of depression of 50% (unknown), the minimum required sample size is 271.

The sample was chosen by a simple random method from the list of houses provided by the local authority of Ghor al-Safi. All the family members who fulfilled the inclusion criteria were included in the study.

The inclusion criteria of the current study were: (1) Participant's Age equal or greater than 18 years. (2) Agreeing to participate in the study. (3) Having full capacity to answer questions.

The exclusion criteria: 1) Refuse to participate in the research. 2) Incomplete data in the questionnaire.

The current study sample size was 285 participants. The data was collected by interview questionnaire using laptops, tablets, or mobile phones. Starting with explaining our research idea, then informed written consent was taken from each participant.

The used questionnaire included the followings:

a) Socio-demographic data: sex, age, marital status, family size, associated comorbidities, and body mass index (BMI) (a person's weight in kilograms divided by the square of height in meters) was calculated **[8].**

b) Socio-economic part: (educational status, job sector before lockdown, Participants' financial status and children education). Also, different predictors that affected the Participants' financial status during the pandemic were described.

c) Patient health questionnaire: the Tunisian Arabic version of the Patient health questionnaire-9 (PHQ-9) was used to measure the prevalence and severity of depression [**9].** It is a self-report scale that is utilized as a screening tool to estimate the degree of depression severity. It consists of 9 items, each of them having (0-3) scores; with (0) indicating not at all and (3) indicating nearly every day. Depression Severity score: None (0-4), mild (5-9), moderate (10-14), moderately severe (15-19) and severe (20-27) [**10].** The PHQ-9 (The Tunisian version) was detected to have good validity and internal reliability (Cronbach's alpha = 0.84) [**11].**

d) History of previous SARS-CO2 infection and vaccination status: frequency of infection, method of covid-19 diagnosis, vaccine type and number of doses received were recorded.

Statistical Analysis

Statistics were identified by using means/medians and standard deviations (SD) for continuous variables and compared using a t-test, or a Mann-Whitney U test if the variables were not normally distributed. Normality was observed via histograms and QQ plots and confirmed with a Shapiro-Wilk test. Categorical variables were summarized using frequencies and percentages, and chi-square test was used for associations. If cell counts were less than 5, a Fisher's exact test was used. We carried out logistic and linear regression analysis to identify the predictors for financial status affection and depression scores respectively. Financial status was summed into 2 factors; not affected or affected. For each outcome, we have included factors such as gender, age group, type of job before COVID-19, parent's educational status, having a comorbidity, body mass index (BMI), and the number of times infected with COVID-19. For the linear regression analysis, odds ratios (ORs) were used to quantify independent factors with 95% confidence intervals. A two-sided p-value of 0.05 was considered statistically significant. All statistical analyses were done using R statistical language, version 4.0.5, Vienna, Austria.

Results

The total sample size collected in the current study was 285 residents in Ghor al-Safi. Females composed 53.7% of the sample, and the mean (±SD) age was 35.5 (±12.8) years. More than half of participants lived with more than 5 members in their families (51.6%), and 70.9% of them were married. The participants' mean body mass index (BMI) was 26.7 (±5.18) kg/m^2. Sixty (21.1%) participants had reported some comorbidities including diabetes mellitus, hypertension, vitamin D deficiency, and others. Participants who had COVID-19 infection represented 47.4% of the total sample, while those who never had the infection represented 52.6% of the total sample. There were some differences in patients' characteristics between the infected and the non-infected groups (**Table 1**); the infected group had a slightly higher percentage of males, however statistically insignificant. They were also older in age (mean difference [MD] = 4.9 years, p = 0.001), more likely to be married (82.2% vs. 60.7%, p < 0.001), had a higher mean BMI (MD = 1.3, p = 0.041) and had a higher rate of comorbidities (32.6% vs. 10.7%, p < 0.001) than the non-infected group.

Regarding the SARS-COv2 infection history and how it was diagnosed: Most participants from the infected group got infected only once (81.5%), and the remaining was infected more than once. Most participants claim being diagnosed by a doctor (43.7%), others by a random examination (29.6%), or after being in contact with a person who has been recently diagnosed with COVID-19 (26.7%) (**Data Not shown**).

Most participants were vaccinated against COVID-19 (89.1%) and the type of vaccination was either BioNTech/Pfizer (49.5%), Sinopharm (32.3%), or AstraZeneca (7.4%). The majority were vaccinated with 2 doses (72.3%), 11.9% of participants have taken an additional booster dose, and 4.9% were vaccinated with only 1 dose (**Table 2**).

The magnitude of depressive symptoms was assessed using PHQ-9 questionnaire **(Table 3).** Out of the total sample (n = 285), 42.8% had no depression at all. The remaining 57.2% had some degree of depression; the degrees were mild (**27**.4%), moderate (18.9%), moderately severe (6.3%), and severe (4.6%), but without significant difference between both groups (p 0.065). While the mean PHQ score was statistically significant higher in the infected group than the non-infected group (p = 0.02)

Before COVID-19, 37.5% of participants had no job, the others worked either in a governmental sector (33.0%), a private sector (16.1%), or a free work (13.3%). Most participants' jobs were not affected by the pandemic (59.3%), 31.9% of them lost their jobs, and 8.8% got affected but they were compensated by the government (**Table 4**). Participants who got infected were more likely to have a job (74.8% vs. 51.3%, $p < 0.001$), be educated (62.2% vs. 46%, p 0.004), and to have a need to bring a private tutor for their children (56.3% vs. 42%, p 0.006) than non-infected participants. The participants' financial status during and after the pandemic was statistically non-significant between infected and non-infected participants.

We investigated the predictors that affected the financial status among all participants (n=285). In the logistic regression analysis, having a comorbidity was a significant independent factor (OR = 1.43, 95% CI: 1.24 to 1.65, $p < 0.001$). Also, getting infected with COVID-19 once (OR = 1.20, 95% CI: 1.07 to 1.35, p 0.002) and twice (OR = 1.35, 95% CI: 1.10 to 1.66, p 0.005) were significant predictors of financial status affection. Age, gender, type of work before the pandemic, number of people in the same house, and BMI all were insignificant predictors of financial status affection (**Figure 1**).

We have also analyzed whether any of the factors affected depression scores using the linear regression analysis, but none of them were statistically significant (**Figure 2**).

Table 1. Participants' characteristics for both SARS-cov2 infected and non-infected groups

	Infected (N=135)	Non-infected (N=150)	p-value	Overall (N=285)
Gender				
Female	65 (48.1%)	88 (58.7%)	0.097	153 (53.7%)
Male	70 (51.9%)	62 (41.3%)		132 (46.3%)
Age (years)				
Mean (S.D.)	38.0 (12.3)	33.1 (12.8)	0.001	35.5 (12.8)
Number of people at the same house?				
≤ 5	60 (44.4%)	78 (52%)	0.267	138 (48.4%)
> 5	75 (55.6%)	72 (48.0%)		147 (51.6%)
Marital status				
Married	111 (82.2%)	91 (60.7%)	<0.001	202 (70.9%)
Single	24 (17.8%)	59 (39.3%)		83 (29.1%)
Age group				
25-34	34 (25.2%)	34 (22.7%)	<0.001	68 (23.9%)
35-44	46 (34.1%)	27 (18.0%)		73 (25.6%)
Above 44	36 (26.7%)	34 (22.7%)		70 (24.6%)
Under 25	19 (14.1%)	55 (36.7%)		74 (26.0%)
BMI (kg/m^2)				
Mean (S.D.)	27.4 (5.39)	26.1 (4.92)	0.041	26.7 (5.18)
Median [Min, Max]	26.5 [18.0, 45.0]	26.0 [15.5, 38.1]		26.0 [15.5, 45.0]
Comorbidities	44 (32.6%)	16 (10.7%)	<0.001	60 (21.1%)
COPD	4 (3.0%)	0 (0%)	-	4 (1.4%)
Asthma	2 (1.5%)	0 (0%)	-	2 (0.7%)
Vitamin D deficiency	11 (8.1%)	5 (3.3%)	0.132	16 (5.6%)
Hyperlipidemia	6 (4.4%)	3 (2.0%)	0.316	9 (3.2%)
Systemic hypertension	9 (6.7%)	4 (2.7%)	0.154	13 (4.6%)
Diabetes mellitus	13 (9.6%)	6 (4.0%)	0.096	19 (6.7%)

S.D.= Standard deviation, BMI = Body mass index, COPD = Chronic obstructive pulmonary disease.

Table 2. COVID-19 vaccination status for both SARS-cov2 infected and non-infected groups

	Infected (N=135)	Non-infected (N=150)	p-value	Overall (N=285)
Were you vaccinated against COVID-19?				
Yes	123 (91.1%)	131 (87.3%)	0.405	254 (89.1%)
No	12 (8.9%)	19 (12.7%)		31 (10.9%)
If you were vaccinated, which one of these vaccines you got?				
AstraZeneca	16 (11.9%)	5 (3.3%)		21 (7.4%)
BioNTech/Pfizer	53 (39.3%)	88 (58.7%)	<0.001	141 (49.5%)
SINOPHARM	54 (40.0%)	38 (25.3%)		92 (32.3%)
If you were vaccinated, how many doses you received?				
1 dose	6 (4.4%)	8 (5.3%)		14 (4.9%)
2 doses	96 (71.1%)	110 (73.3%)	0.238	206 (72.3%)
2 doses + 1 booster doses	21 (15.6%)	13 (8.7%)		34 (11.9%)

COVID-19 = Coronavirus Disease 2019, SARS-cov2 = severe acute respiratory syndrome coronavirus 2.

Table 3. Prevalence of depression and its severity according to (PHQ-9 questionnaire) for both SARS-cov2 infected and non-infected groups.

	Infected (N=135)	Non-infected (N=150)	*P*-value	Overall (N=285)
Depression (PHQ9)				
No depression	51(37.8%)	71 (47.4%)		122 (42.8%)
Mild	41 (30.4%)	37 (24.7%)	0.065	78 (27.4%)
Moderate	22 (16.3%)	32 (21.3%)		54 (18.9%)
Moderately severe	13 (9.6%)	5 (3.3%)		18 (6.3%)
Severe	8 (5.9%)	5 (3.3%)		13 (4.6%)
Mean (S.D.)	7.54 (6.22)	5.89 (5.64)		6.67 (5.97)
Median [Min, Max]	6.00 [0, 24.0]	5.00 [0, 27.0]	0.02	5.00 [0, 27.0]

PHQ9 = Patient Health Questionnaire-9, S.D. = Standard deviation.

Table 4. The socioeconomic status of both SARS-cov2 infected and non-infected groups during COVID-19 pandemic.

	Infected (N=135)	Non-infected (N=150)	p-value	Overall (N=285)
Your job before covid-19 lockdown				
No job	34 (25.2%)	73 (48.7%)	<0.001	107 (37.5%)
Governmental sector	55 (40.7%)	39 (26.0%)		94 (33.0%)
Private sector	26 (19.3%)	20 (13.3%)		46 (16.1%)
Free work	20 (14.8%)	18 (12.0%)		38 (13.3%)
Your financial status during and after				
Not affected	77 (57.0%)	92 (61.3%)	0.605	169 (59.3%)
Lost my job and getting worse	44 (32.6%)	47 (31.3%)		91 (31.9%)
Affected but l got some governmental compensation	14 (10.4%)	11 (7.3%)		25 (8.8%)
Educational status				
Educated	84 (62.2%)	69 (46%)	0.004	153 (53.7%)
Not educated	51 (37.8%)	81 (54%)		132 (46.3%)
Children Studying hours during school weeks during the pandemic closures				
Mean (SD)	2.09 (1.72)	1.92 (1.87)	0.495	2.00 (1.80)
Median [Min, Max]	2.00 [0, 5.00]	1.00 [0, 5.00]		2.00 [0, 5.00]
Did you need to put your children in a private tutor?				
Yes	76 (56.3%)	63 (42%)	0.006	139 (48.2%)
No	59 (43.7%)	87 (58%)		146 (51.2%)

S.D. = Standard deviation.

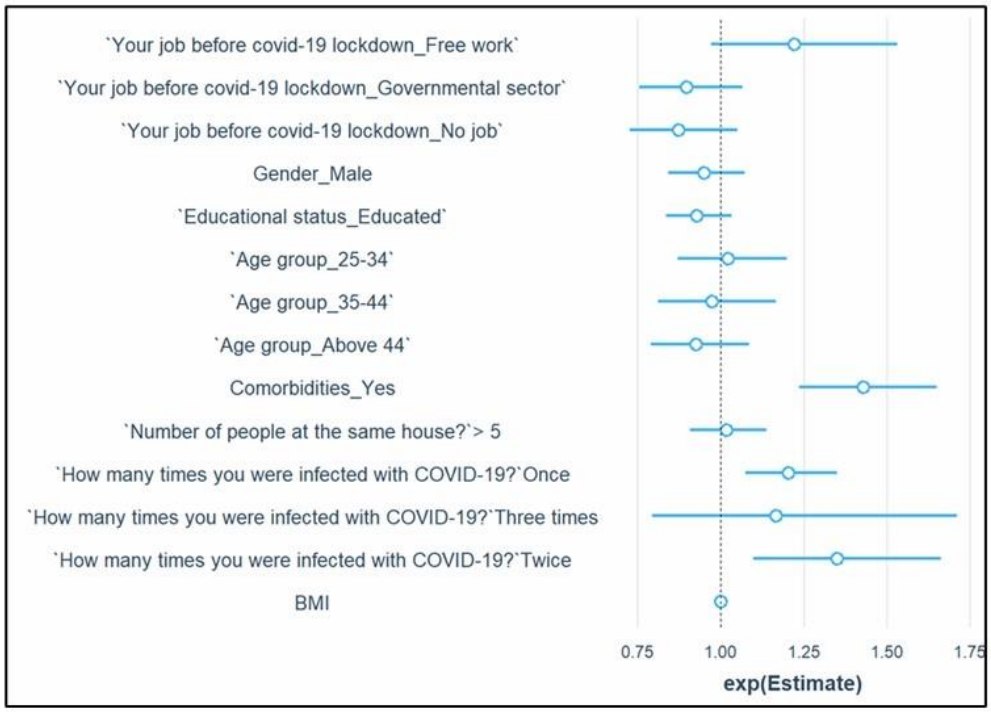

Figure 1. Logistic regression analysis identifying the predictors affecting the financial status among all participants.

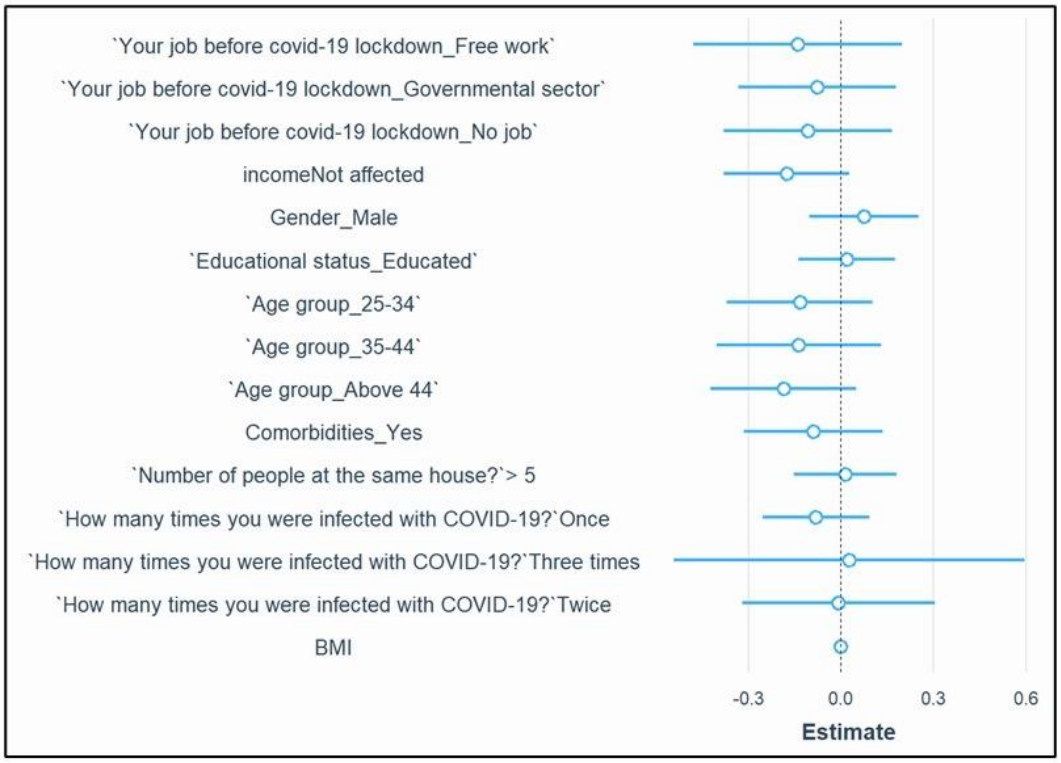

Figure 2. Linear regression analysis identifying the predictors of depression scores among all participants.

Discussion

The current study main objectives were to identify both the financial and psychological effects of COVID-19 pandemic on residents of Ghor al-Safi / Al-Karak/ Jordan which is very low-income region in south Jordan. Moreover, the history of previous SARS-COv2 infection and vaccination status were identified as it was the first study that assessed the COVID-19 in this region.

The Mean age of SARS-Cov2 infected subjects in Ghor al-Safi region was 38 ± 12.3 years with significant difference in comparison with non-infected group who had younger age (*P* 0.001) with 51.9% of infected subjects were males **(Table 1).** Similarly, a previous cross-sectional study showed a close mean age of 35.68 ± (13.7) years and (64.8%) were male [**12]. Aisyah et al. [13] Indonesian study** shows that the SARS-CoV-2 cases confirmed by RT-PCR were more common in males between 31 to 45 years old which was like other studies age groups [**14-16].** As we know, the transmission of SARS-COv2 is highly prevalent among the working age group that has more outdoor activities and face-to-face contact with others.

In the current study, the mean BMI of infected subjects was 27.4±5.39 kg/m^2 which was statistically higher than BMI of the non-infected group (*P* = 0.04) **(Table 1).** It agreed with **Yates et al [17]** who found that overweight and obese patients were at a higher risk for infection by the SARS-CoV-2. Also, **Gao et al. [18]** found a mean BMI of 26.78 kg/m^2 among hospitalized COVID-19 patients and a higher risk of admission to the hospital, ICU admission and death were recorded with any unit increase above a BMI of 23 kg/m². The mechanism by which the COVID-19 disease may be aggravated among overweight or obese individuals needs more explanation. **Ziegler et al. [19]** reported that angiotensin-converting enzyme 2 (ACE2) enhances the SARS-CoV-2 entry inside the cells. The human visceral and subcutaneous adipose tissue show higher expression of the ACE2 gene than in human lung tissue [**20]**, so excess adipose tissue may increase the liability for infection by SARS-CoV-2 and its severity in COVID-19 patients. Moreover, research detected that the ability of the immune system to overcome SARS-CoV-2 as a new virus is disrupted by obesity [**21].**

In the current study, about 32.6% of infected subjects had associated co-morbidities with very high significant difference in comparison with non-infected subjects (*P* <0.001). The prevalent comorbidities among Ghor al-Safi SARS-COv2 infected people were COPD (3%), hyperlipidaemia (4.4%), hypertension (6.7%), Vitamin D deficiency (8.1%), diabetes (9.6%), and asthma (1.5%) **(Table 1)**. A previous literature review **Bajgain et al. [22]** stated that one or more comorbidities are more common between COVID-19 participants (57.7% had comorbidity vs 42.3% without comorbidity) depending on data from many large COVID-19 centres. Moreover, the comorbidities that were detected in the latter study were COPD 7.5%, hypertension 27.4%, cardiovascular disease 8.9%, and DM 17.4%. The latter study had more prevalent co morbidities than our study due to involvement of many COVID-19 epicentres with diverse cultural, social, and racial environments.

In our study we found that 81.5% was infected once and the remaining was infected more than once (**Data not shown)**. We think that frequent infection by SARS-COv2 was low in our study as most of the recruited individuals were vaccinated (89.1%) or may be underdiagnosis of the reinfection due to asymptomatic cases or negligence for seeking medical advice.

Our research revealed that about 89.1% (n=285) of the study sample in Ghor al-Safi were vaccinated against COVID-19 **(Table 2)**. In contrast with other studies that found a strong direct relation between high-income countries and the availability of COVID-19 vaccines all over the world [**23]**. The low-middle income countries are estimated to have a lower coverage of the immunization [**24]**. In this research Jordan "lower middle-income country''break the previous data especially in one of its poorest regions which is Ghor al-Safi in South of Jordan, this may reflect the early availability of the vaccine in a wide range in Jordan, the impact of citizens acceptance globally also the variation of this acceptance inside the same country regardless their educational level [**25]**.

Regarding the economic impact of COVID-19 on the respondents of the current study, about 31.9% of the participants lost their jobs **(Table 4).** This finding is in accordance with other studies: In India (45.6%) [**26]** and G7 countries (31%) [**27]**. However, **Tran et al. [28]** found a higher percent of about (66.9%) of participants in Vietnam reporting a decrease in family income due to COVID-19. The discrepancy could be

due to the difference in method of data collection as **Tran et al. [28]** used an online survey which may have some disadvantages as probable self-reporting bias and inaccurate supervision of data collection may lead to much data homogeneity.

By studying the predictors that affected the financial status, we found that presence of comorbidity and being infected with COVID-19 once or twice were significant predictors of financial status affection. While the type of work before the pandemic was insignificant predictors of financial status affection **(Figure 1).** On the other hand, **Tran et al. [28]** the family income of people with undergraduate degrees, working in non-healthcare sectors, and having contracts for a definite period, all of them faced low income due to COVID-19. This difference between the two studies may be related to the nature of Ghor al-Safi economic status which is characterized by already poor income for all people regardless of level of education or the employment status both before and after COVID-19 pandemic.

COVID-19 lock-down and strict quarantine measures to restrict the spread of infection have a negative psychological impact which in turn affects the usual daily activities of the general population. In the current study, the infected group had a significantly higher mean depression score than the non-infected group (p 0.02) and about 57.2% of the overall participants had some degree of depression ranging from mild to severe degrees using Patient Health Questionnaire (PHQ-9) for depression **(Table 3). In China**, the prevalence of depression, was 48.3% which assessed by The Chinese version of WHO-Five Well-Being Index (WHO-5) [**29]**. An Indian study used DASS-21 (Depression, Anxiety and Stress scales) among 1000 respondents and detected 38.90% prevalence of depression [**30]**. **Also, Ahmed etal. [31]** study which included 1,074 participants, they found that 37.1 % were having different degrees of depression which assessed by using Beck depression inventory-edition II (BDI-II). **Mazza etal. [32] (**an Italian study) identified 32.7% prevalence of depression among their participants. The prevalence of depression in other European studies: **Sønderskov et al**. [**33]** using WHO-5 scale and **Shevlin et al. [34]** using PHQ-9 scale were 25.4% and 22.1% respectively.

The previous studies reported highly heterogeneous values of depression prevalence during COVID-19 lockdown period which may be due to different sample sizes ranging from 1000 to 4872 participants in the other studies with different measuring scales of depression used by different studies. The current study showed the higher prevalence of depression in comparison with other studies which may be explained by our smaller sample size (285 participants) which was collected face to face, not online sample as the previous studies [**29-34]**. Moreover, our study was conducted in a low socio-economic region in Jordan. The disadvantages of online surveys were introduction of selection biases; like younger age and highly educated people oversampling [**35]**. Moreover, our study was conducted in between December 2021 and March 2022 after 2 years of COVID pandemic start, while other studies were conducted in 2020, so in the present study, assessment of depression was done at nearly different stages of the pandemic.

The major explanation for the increase in depression is the stress induced by the social isolation which leads to restriction in people's ability to work, Loneliness, fear of infection, sequalae of COVID-19 disease and death for oneself and for relatives and financial sufferings.

Many studies reported the presence of a relation between higher depression rate and many variables in the general community during COVID-19 lockdown period. Examples of these variables were: suspicion symptoms of COVID [**36]**, contact with a COVID infected individual [**32,37]**, presence of high rates of COVID-19 case fatality in the same residential regions [**31]**, and/or presence of chronic diseases [**32,34,35]**. Moreover, higher depression rates were detected to be closely related to younger ages [**29,31,34]**. Younger people may be more worried about careers, future changes of jobs, and economic catastrophe [**30]** .However, in the present study, we have also analyzed whether any of the factors (presence of comorbidity, previous infection with COVID-19, Age, gender, type of work before the pandemic, number of people in the same house, and BMI) affected depression scores, but none of them were statistically significant **(Figure 2).**

Conclusion

In conclusion about half of Ghor al-Safi participants were infected by SARS-COv2. This was associated with some degree of depression and financial difficulties.

Recommendation

The results of our study can be a guide to the development of more effective strategies to reduce the impact of future pandemics in low-income regions in Jordan and other countries.

-Public health interventions should be achieved to release the psychological impacts of this pandemic and for relieving the economic sufferings of the most affected populations.

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Conflict of interest

The authors declare that there is no conflict of interest.

Abbreviations: COVID-19: Coronavirus Disease 2019; SARS-COV2: Severe acute respiratory syndrome coronavirus 2; PHQ: Patient Health Questionnaire; BMI: Body mass index; ACE: Angiotensin converting enzyme; COPD: chronic obstructive pulmonary disease; DM: Diabetes mellitus; RT-PCR: Reverse transcription polymerase chain reaction; SD: Standard deviation; OR: Odds ratio; WHO: World health organization; DASS: Depression, Anxiety and Stress scales; BDI-II: Beck depression inventory-edition II

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