Impact of the coronavirus disease 2019 pandemic on the Palestinian family: A cross-sectional study

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Abstract

Introduction: The current study aims to understand and assess the consequences of the coronavirus disease 2019 pandemic on Palestinian families.

Methods: This online community-based cross-sectional descriptive study was conducted between 19 April 2020 and 5 June 2020, using a validated questionnaire. The questionnaire comprised of three sections: sociodemographic characteristics, living conditions, and impact of the coronavirus disease 2019 pandemic. A convenience sampling method was used to select participants.

Results: A total of 570 adults aged ⩾18 years participated in the study. Of them, 258 (45.3%), 120 (21%), and 192 (33.7%) were residing in the Gaza Strip, West Bank, and East Jerusalem, respectively. A large portion of participants (73.2%) reported that the containment measures of the coronavirus disease 2019 pandemic had caused an excessive burden on their families; 549 (96.3%) revealed that water supplies were not always available at home. However, paying attention to personal hygiene and home cleaning was more than usual before the announcement of the coronavirus disease 2019 pandemic. The mean times of going out of their homes have dropped significantly following the onset of the pandemic, \( p = 0.001 \) (95% confidence interval). In addition, 192 (33.7%) participants reported that they changed to working remotely from home with 66 (11.6%) having lost their employment.

Conclusion: The coronavirus disease 2019 pandemic was associated with an additional burden on the Palestinian families. Moreover, we suggest discussing the obtained results with local and national stakeholders to ensure that they know to improve their actions.

Keywords

Containment measures, coronavirus disease 2019 pandemic, family, impacts, Palestine

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Introduction

The coronavirus disease 2019 (COVID-19) quickly emerged, leaving governments and local institutions without solutions to ensure the continuity of citizens’ lifestyles while using broad measures to reduce disease transmission.1 There have been significant social, economic, and political consequences of the measures, particularly for more vulnerable communities and countries.2

The COVID-19 crisis hit the occupied Palestinian territory in early March 2020, when the first cases of the virus were confirmed. This triggered the declaration of a state of emergency by the Palestinian Prime Minister and the imposition of restrictions to contain the spread.3 According to the Palestinian Ministry of Health (MoH), since the onset of the pandemic, nearly 217,000 laboratory samples have been tested for COVID-19. The cumulative number of Palestinians who have contracted COVID-19 has been 13,938, with 82 fatalities.4
The new World Bank economic monitoring report highlights critical challenges facing the Palestinian economy. The economy may shrink by at least 7.6%, based on a gradual return to normality from the containment, and by up to 11% in the case of a slower recovery or further restrictions. Poverty is a significant factor affecting the health of Palestinians. Despite universal health care, access to health care can be prevented by travel costs, loss of revenue, and lack of information. Poverty influences access to decent housing, heating, food, clean water, and adequate sewerage, all of which have health consequences. Prior to the COVID-19 pandemic, more than a quarter of Palestinians lived below the poverty line, which is expected to increase to 30% in the West Bank and 64% in Gaza. Even more striking is the youth unemployment rate of 38%, well beyond the Middle East and North Africa’s regional average. Living in a particular area of the West Bank or Gaza influences a person’s chances of experiencing poverty or deprivation, along with all of its implications on health.\textsuperscript{5,6}

The Palestinian Authority’s fiscal situation is expected to become increasingly complicated due to a decline in revenues and a substantial increase in public spending on people’s medical, social, and economic needs. Even with reallocations of some expenditure, the financing gap could increase alarmingly, from an already high USD 800 million in 2019 to over USD 1.5 billion in 2020 to adequately address these needs. The economy’s potential remains confined by restrictions on the movement of people and goods.\textsuperscript{7} In addition, unless gender is integrated into national and institutional efforts to combat COVID-19 in Palestine, the pandemics’ socioeconomic impact will likely aggravate gender inequalities and women’s vulnerabilities, according to a new gender analysis by UN Women.\textsuperscript{8}

Therefore, this study aimed to understand and assess the consequences of the current COVID-19 pandemic on Palestinian families. It is imperative to take lessons from the current situation and ensure that local and national authorities improve their actions in future pandemics.

**Materials and methods**

**Study design, setting, and period**

The current online community-based cross-sectional descriptive study was conducted in the Palestinian territories, including, Gaza Strip, West Bank, and East Jerusalem, between 29 April 2020 and 5 June 2020.

**Tool of the study**

A structured online questionnaire (Supplemental material) was distributed through a social media platform (Facebook), the most commonly used social media platform in Palestine, to gather information about sociodemographic characteristics (10 items), living conditions (13 items), and the impact of the COVID-19 pandemic on families (14 items). The questionnaire was established based on the previous questionnaire developed by the University of Coimbra, Portugal, via the Health Geography Research Team at the Centre of Studies on Geography and Spatial Planning (CEGOT).\textsuperscript{9} The questionnaire’s content validity was checked by five specialists in the fields of public health, epidemiology, and biostatistics. To ensure the survey acceptability and consistency, an online pilot study on 45 participants was conducted and minor modifications made according to the results of the pilot study.

**Eligibility criteria**

Adults aged 18 years or over (both genders) residing in the Gaza Strip, West Bank, and East Jerusalem were asked to participate in this study. To ensure that participants were still living in these regions, they were asked to provide the housing governorate and the neighborhood’s name.

**Sample size and sampling**

Initially, we calculated the needed sample size for this study. The number of adults aged 18 years or over residing in the previously designated study areas was determined and estimated at 151,201 inhabitants.\textsuperscript{10,11} The representative sample size in the current study was determined using the following formula\textsuperscript{12}

\[
\text{Sample size } (n) = \frac{Z_{1-\alpha/2}^2 P (1-P)}{d^2} = \frac{(1.96)^2 (0.50)(1-0.50)}{(0.05)^2} = 384
\]

where \(Z_{1-\alpha/2}\) = standard normal variate (\(Z\) value is 1.96 for a 95% confidence level), \(P\) = response distribution (50%), and \(d\) = margin of error (5%).

As our study was online-based, a convenience sampling method was followed for data collection. Every eligible member of the study population had an equal chance of participating without considering the population number in each of the three study areas.

**Ethical consideration**

The study protocol was approved by the Helsinki Ethical Committee in the Gaza Strip, Palestine (Code: PHRC/HC/735/20). The participants were asked to approve their participation to proceed with the online survey. Informed consent for an Internet survey was also obtained from each participant. No monetary rewards were given for completing the questionnaire.
Data analysis

The Statistical Package for Social Science (IBM SPSS), version 20, was used for data analysis. The normality of data was checked using the Kolmogorov–Smirnov and the Shapiro–Wilk tests ($p > 0.05$). Descriptive statistics of frequency and percentage, and mean and standard deviation (SD) were performed for categorical and continuous variables, respectively. The independent-sample $t$-test was applied to investigate the differences between means. The chi-square test was used to examine the differences in the prevalence of different categorical variables. A $p$ value of less than 0.05 was considered statistically significant.

Results

Sociodemographic characteristics

There were 570 participants who completed the questionnaire. Table 1 presents the sociodemographic characteristics of the study participants by region. Of them, 258 (45.3%), 120 (21%), and 192 (33.7%) were residing in the Gaza Strip, West Bank, and East Jerusalem, respectively. The overall mean age of the participants was $35.4 \pm 9.5$ (SD). Approximately 321 (56.3%) of the study participants were males and a predominant number of participants were married (75.8%). In terms of employment status, 48 (8.4%) of the participants were unemployed. Moreover, many sociodemographic items showed statistically significant differences between the Gaza Strip, West Bank, and East Jerusalem at $p < 0.05$.

Living conditions

Table 2 shows the living conditions of the study participants’ families by region; 384 participants stated that their homes had an outdoor space, such as a balcony (43.2%) or garden (24.7%). More than half of the participants (58.9%) had no central heating or air conditioning system in their homes. The vast majority of the study participants (96.3%) reported that water supplies were not always available in the home during the period of the COVID-19 pandemic. Electricity was not available 24 h a day for 41.6% of the participants with 91.1% residing in the Gaza Strip. Approximately three-fourths of the participants (72.6%) had Internet access at home. Furthermore, several living condition items presented statistically significant differences between the Gaza Strip, West Bank, and East Jerusalem at $p < 0.05$.

The impact of the COVID-19 pandemic on households

Table 3 displays the impact of the COVID-19 pandemic on the participants’ families by region. Overall, following the pandemic’s onset, 73.2% of the participants reported that the containment measures of the COVID-19 pandemic had put an additional burden on their families. Only 9.5% of the participants mentioned that they traveled to another area or outside the country since the COVID-19 pandemic was announced.

Only 12.6% of the study participants reported that they had undergone COVID-19 testing with 1% having a positive result. A total of 32.1% of participants reported that they were subjected to quarantine following the onset of the pandemic such as physical distancing, obligatory home quarantine, and mandatory quarantine in a health care center. The overall mean period of quarantine per day was $9.8 \pm 18.9$ (SD), reflecting a short period of quarantine.

After the confinement measures, 33.7% of the participants revealed that they switched to working remotely from home with 11.6% having lost their employment. Approximately one-third (34.7%) continued to use the same mode of transportation as before the COVID-19 pandemic with 6.3% stopping the use of public transport, 7.9% used their private cars, 5.3% walking, and 0.5% decided by motorbike.

Concerning personal hygiene and home cleaning, after the announcement of the COVID-19 pandemic, only 1.6% of participants revealed less than usual before the pandemic, whereas 31.6% reported as usual before the pandemic and 66.8% indicated more than usual compared to pre-pandemic. When asked about interest in following the latest developments about the COVID-19 pandemic, 48.9%, 26.3%, and 24.7% of participants always answered, very often, and sometimes, respectively.

Discussion

To the best of our knowledge, the current study was one of the first studies to understand better and assess the consequences of the current COVID-19 pandemic on Palestinian households. Our study showed that approximately three-fourths of the study participants reported that the containment measures of the COVID-19 pandemic had caused an excessive burden on their families. It is worth mentioning that local Palestinian authorities have taken various measures to contain the COVID-19 spread, ranging from hygiene promotion activities to complete or partial lockdown of cities. The Palestinian Association Report for Improvement and Local Development discussed the socioeconomic impact of COVID-19 on the various sectors in Palestine. There was an increased burden on families due to the new tasks imposed on them, such as homeschooling their children and dealing with the challenges that women and men are encountering, such as after losing their employment. This pandemic is particularly challenging for women, specifically in the labor market.
The vast majority of the study participants revealed that potable water was not always available in the home during the period of the COVID-19 pandemic. Despite this, personal hygiene and home cleaning were important for participants, indicating the awareness and perception level of participants of the seriousness of COVID-19 and their level of worry and concern related to contracting the virus. Water and electricity shortages are common in Palestine and pre-COVID-19; it has been documented repeatedly how water and electrical power supplies were inadequate to meet Palestinian household’s needs, particularly in the Gaza Strip.16–19 These shortages worsened current COVID-19 as most electrical engines need fuel, which was not possible due to fuel import restrictions, which also affected water pumps. Interestingly, the majority of the population uses mobile Internet bands or 12 V stable power supply for wifi router, making wifi much more accessible than potable water or electricity.

The previous finding from the same population was in line with ours. Abuzerr and his colleagues reported that water and electrical power supplies were inadequate to meet the Palestinian family’s demand.16–19

Two-thirds of participants revealed that their homes had an external space such as a balcony or household garden. In recent years, several studies have highlighted how 20 to 25 min spent in a natural environment, such as balcony, terrace, private garden, and a shared garden, can positively influence people’s well-being, especially during COVID-19.20,21

### Table 1. Sociodemographic characteristics of the study participants by region.

| Variables                              | Total (n = 570) | Gaza Strip (n = 258) | West Bank (n = 120) | Jerusalem (n = 192) | p     |
|----------------------------------------|-----------------|----------------------|---------------------|---------------------|-------|
|                                        | n (%)           | n (%)                | n (%)               | n (%)               |       |
| **Age (years)**                        |                 |                      |                     |                     |       |
| Mean ± SD                              | 35.4 ± 9.5      | 37.0 ± 9.1           | 34.3 ± 10.8         | 34.0 ± 9.0          | 0.002 |
| **Gender**                             |                 |                      |                     |                     |       |
| Male                                   | 321 (56.3)      | 228 (88.4)           | 24 (20.0)           | 69 (35.9)           | 0.001 |
| Female                                 | 249 (43.7)      | 30 (11.6)            | 96 (80.0)           | 123 (64.1)          |       |
| **Marital status**                     |                 |                      |                     |                     |       |
| Single                                 | 129 (22.6)      | 42 (16.3)            | 42 (35.0)           | 45 (23.4)           | 0.001 |
| Married                                | 432 (75.8)      | 216 (83.7)           | 72 (60.0)           | 144 (75.0)          |       |
| Divorced                               | 9 (1.6)         | 0 (0.0)              | 6 (5.0)             | 3 (1.6)             |       |
| **Years of education**                 |                 |                      |                     |                     | 0.061 |
| Mean ± SD                              | 14.6 ± 5.7      | 15.0 ± 6.0           | 13.5 ± 6.9          | 14.6 ± 4.3          |       |
| **Employment status**                  |                 |                      |                     |                     |       |
| Unemployed                             | 48 (8.4)        | 21 (8.1)             | 9 (7.5)             | 18 (9.4)            |       |
| University student                     | 48 (8.4)        | 18 (7.0)             | 6 (5.0)             | 24 (12.5)           | 0.120 |
| Officera                               | 444 (77.9)      | 201 (77.9)           | 99 (82.5)           | 144 (75.0)          |       |
| Retired                                | 30 (5.3)        | 18 (7.0)             | 6 (5.0)             | 6 (3.1)             |       |
| **Nature of residence area**           |                 |                      |                     |                     | 0.010 |
| Rural                                  | 96 (16.8)       | 39 (15.1)            | 27 (22.5)           | 30 (15.6)           |       |
| Residential                            | 462 (81.1)      | 213 (82.6)           | 87 (72.5)           | 162 (84.4)          |       |
| Industrial                             | 12 (2.1)        | 6 (2.3)              | 6 (5.0)             | 0 (0.0)             |       |
| **Type of housing**                    |                 |                      |                     |                     | 0.001 |
| Separate apartment                     | 366 (64.2)      | 171 (66.3)           | 63 (52.5)           | 132 (68.8)          |       |
| Independent home or villa              | 195 (34.2)      | 87 (33.7)            | 57 (47.5)           | 51 (26.6)           |       |
| Converted carriage house or tent       | 9.0 (1.6)       | 0 (0.0)              | 0 (0.0)             | 9 (4.7)             |       |
| **Family size**                        |                 |                      |                     |                     | 0.001 |
| Mean ± SD                              | 6.9 ± 6.0       | 8.8 ± 8.2            | 5.4 ± 2.6           | 5.2 ± 1.9           |       |
| **Older persons over the age of 70 years at home** |                 |                      |                     |                     | 0.002 |
| Mean ± SD                              | 0.7 ± 5.9       | 0.3 ± 0.6            | 2.3 ± 12.8          | 0.1 ± 0.4           |       |
| **Persons under the age of 12 years at home** |                 |                      |                     |                     | 0.001 |
| Mean ± SD                              | 2.2 ± 2.7       | 3.1 ± 3.6            | 1.40 ± 1.4          | 1.43 ± 1.4          |       |

SD: standard deviation.

Data are expressed as means ± SD for continuous variables and as percentages for categorical variables. The differences between means were tested by using the independent-sample t-test. The chi-square test was used to examine the differences in the prevalence of different categorical variables. A p value of less than 0.05 was considered statistically significant.

*a Officer is a holder of public, civil, or military office.*

economic, demographics, and living and humanitarian conditions between the three regions.15

The vast majority of the study participants revealed that potable water was not always available in the home during the period of the COVID-19 pandemic. Despite this, personal hygiene and home cleaning were important for participants, indicating the awareness and perception level of participants of the seriousness of COVID-19 and their level of worry and concern related to contracting the virus. Water and electricity shortages are common in Palestine and pre-COVID-19; it has been documented repeatedly how water and electrical power supplies were inadequate to meet Palestinian household’s needs, particularly in the Gaza Strip.16–19 These shortages worsened current COVID-19 as most electrical engines need fuel, which was not possible due to fuel import restrictions, which also affected water pumps. Interestingly, the majority of the population uses mobile Internet bands or 12 V stable power supply for wifi router, making wifi much more accessible than potable water or electricity.

The previous finding from the same population was in line with ours. Abuzerr and his colleagues reported that water and electrical power supplies were inadequate to meet the Palestinian family’s demand.16–19

Two-thirds of participants revealed that their homes had an external space such as a balcony or household garden. In recent years, several studies have highlighted how 20 to 25 min spent in a natural environment, such as balcony, terrace, private garden, and a shared garden, can positively influence people’s well-being, especially during COVID-19.20,21
### Table 2. The living conditions of the study participants’ families by region.

| Variables                                           | Total (n = 570) | Gaza Strip (n = 258) | West Bank (n = 120) | Jerusalem (n = 192) | p     |
|-----------------------------------------------------|-----------------|----------------------|---------------------|---------------------|-------|
|                                                     | n (%)           | n (%)                | n (%)               | n (%)               |       |
| Presence of an external space                       |                 |                      |                     |                     |       |
| Yes                                                 | 384 (67.4)      | 153 (59.3)           | 90 (75.0)           | 141 (73.4)          | 0.001 |
| No                                                  | 186 (32.6)      | 105 (40.7)           | 30 (25.0)           | 51 (26.6)           |       |
| Type of outer space                                 |                 |                      |                     |                     |       |
| Balcony                                             | 246 (43.2)      | 108 (41.9)           | 60 (50.0)           | 78 (40.6)           | 0.001 |
| Household garden                                     | 141 (24.7)      | 48 (18.6)            | 30 (25.0)           | 63 (32.8)           |       |
| There is a central heating or air conditioning system|                 |                      |                     |                     |       |
| Yes                                                 | 228 (40.0)      | 57 (22.1)            | 66 (55.0)           | 105 (54.7)          | 0.001 |
| No                                                  | 336 (58.9)      | 201 (77.9)           | 51 (42.5)           | 84 (43.8)           |       |
| Don’t know                                          | 6 (1.1)         | 0 (0.0)              | 3 (2.5)             | 3 (1.6)             |       |
| Water is always available in the home               |                 |                      |                     |                     |       |
| Yes                                                 | 18 (3.2)        | 12 (4.7)             | 6 (5.0)             | 0 (0.0)             | 0.004 |
| No                                                  | 549 (96.3)      | 246 (95.3)           | 114 (95.0)          | 189 (98.4)          |       |
| Don’t know                                          | 3 (0.5)         | 0 (0.0)              | 0 (0.0)             | 3 (1.6)             |       |
| All rooms at home have windows or a ventilation system|                 |                      |                     |                     | 0.010 |
| Yes                                                 | 522 (91.6)      | 246 (95.3)           | 108 (90.0)          | 168 (87.5)          |       |
| No                                                  | 48 (8.4)        | 120 (4.7)            | 12 (10.0)           | 24 (12.5)           |       |
| Don’t know                                          | 0 (0.0)         | 0 (0.0)              | 0 (0.0)             | 0 (0.0)             |       |
| Natural light is enough to light the house on a sunny day |                 |                      |                     |                     | 0.058 |
| Yes                                                 | 456 (80.0)      | 213 (82.6)           | 99 (82.5)           | 144 (75.0)          |       |
| No                                                  | 111 (19.5)      | 45 (17.4)            | 21 (17.5)           | 45 (23.4)           |       |
| Don’t know                                          | 3 (0.5)         | 0 (0.0)              | 0 (0.0)             | 3 (1.6)             |       |
| Moisture or mold on the walls or ceiling of the house|                 |                      |                     |                     | 0.023 |
| Yes                                                 | 192 (33.7)      | 69 (26.7)            | 45 (37.5)           | 78 (40.6)           |       |
| No                                                  | 363 (63.7)      | 180 (69.8)           | 72 (60.0)           | 111 (57.8)          |       |
| Don’t know                                          | 15 (2.6)        | 9 (3.5)              | 3 (2.5)             | 3 (1.6)             |       |
| Hear noise coming from neighbors or the street      |                 |                      |                     |                     | 0.002 |
| Yes                                                 | 390 (68.4)      | 183 (70.9)           | 72 (60.0)           | 135 (70.3)          |       |
| No                                                  | 165 (28.9)      | 63 (24.4)            | 48 (40.0)           | 54 (28.1)           |       |
| Don’t know                                          | 15 (2.6)        | 12 (4.7)             | 0 (0.0)             | 3 (1.6)             |       |
| The electricity in the house is available 24 h a day |                 |                      |                     |                     | 0.001 |
| Yes                                                 | 330 (57.9)      | 42 (16.3)            | 111 (92.5)          | 177 (92.2)          |       |
| No                                                  | 237 (41.6)      | 216 (83.7)           | 9 (7.5)             | 12 (6.2)            |       |
| Don’t know                                          | 3 (0.5)         | 0 (0.0)              | 0 (0.0)             | 3 (1.6)             |       |
| Internet access is available at home 24 h a day     |                 |                      |                     |                     | 0.001 |
| Yes                                                 | 414 (72.6)      | 183 (70.9)           | 75 (62.5)           | 156 (81.2)          |       |
| No                                                  | 153 (26.8)      | 75 (29.1)            | 42 (35.0)           | 36 (18.8)           |       |
| Don’t know                                          | 3 (0.5)         | 0 (0.0)              | 3 (2.5)             | 0 (0.0)             |       |
| You have a smartphone in your home                  |                 |                      |                     |                     | 0.097 |
| Yes                                                 | 561 (98.4)      | 252.0 (97.7)         | 117 (97.5)          | 192 (100.0)         |       |
| No                                                  | 9 (1.6)         | 6 (2.3)              | 3 (2.5)             | 0 (0.0)             |       |
| Don’t know                                          | 0 (0.0)         | 0 (0.0)              | 0 (0.0)             | 0 (0.0)             |       |
| Computers and laptops are available at home for family students to benefit from distance learning programs | | | | | 0.001 |
| Yes                                                 | 384 (67.4)      | 153 (59.3)           | 84 (70.0)           | 147 (76.6)          |       |
| No                                                  | 174 (30.5)      | 102 (39.5)           | 36 (30.0)           | 36 (18.8)           |       |
| Don’t know                                          | 12 (2.1)        | 3 (1.2)              | 0 (0.0)             | 9 (4.7)             |       |
| TV is available at your home                         |                 |                      |                     |                     | 0.001 |
| Yes                                                 | 546 (95.8)      | 249 (96.5)           | 105 (87.5)          | 192 (100.0)         |       |
| No                                                  | 24 (4.2)        | 9 (3.5)              | 15 (12.5)           | 0 (0.0)             |       |
| Don’t know                                          | 0 (0.0)         | 0 (0.0)              | 0 (0.0)             | 0 (0.0)             |       |

Data are expressed as percentages for categorical variables. The chi-square test was used to examine the differences in the prevalence of different categorical variables. A p value of less than 0.05 was considered statistically significant.
Table 3. The impact of the COVID-19 pandemic on the participants’ families by region.

| Variables                                                                 | Total (n=570) | Gaza Strip (n=258) | West Bank (n=120) | Jerusalem (n=192) | p   |
|---------------------------------------------------------------------------|---------------|--------------------|-------------------|-------------------|-----|
|                                                                           | n (%)         | n (%)              | n (%)             | n (%)             |     |
| The containment measures of the COVID-19 pandemic have put an additional burden on your family |               |                    |                   |                   |     |
| Yes                                                                       | 417 (73.2)    | 189 (73.3)         | 84 (70.0)         | 144 (75.0)        | 0.051|
| No                                                                        | 138 (24.2)    | 63 (24.4)          | 36.0 (30.0)       | 39 (20.3)         |     |
| Don't know                                                                | 15 (2.6)      | 6 (2.3)            | 0 (0.0)           | 9 (4.7)           |     |
| Have you traveled to another area outside your country since the COVID-19 pandemic has announced |               |                    |                   |                   |     |
| Yes                                                                       | 54 (9.5)      | 33 (12.8)          | 15 (12.5)         | 6 (3.1)           | 0.001|
| No                                                                        | 516 (90.5)    | 225 (87.2)         | 105 (87.5)        | 186 (96.9)        |     |
| The reason for travel                                                     |               |                    |                   |                   |     |
| Business                                                                  | 21 (3.7)      | 15 (5.8)           | 3 (2.5)           | 3 (1.6)           | 0.001|
| Tourism                                                                   | 6 (1.1)       | 3 (1.2)            | 3 (2.5)           | 0 (0.0)           |     |
| Medical treatment                                                         | 6 (1.1)       | 6 (2.3)            | 0 (0.0)           | 0 (0.0)           |     |
| Family visit                                                              | 12 (2.1)      | 3 (1.2)            | 9 (7.5)           | 0 (0.0)           |     |
| For education                                                             | 9 (1.6)       | 6 (2.3)            | 0 (0.0)           | 3 (1.6)           |     |
| Mode of travel which was used                                             |               |                    |                   |                   |     |
| Plane                                                                     | 27 (4.7)      | 21 (8.1)           | 3 (2.5)           | 3 (1.6)           | 0.001|
| Cruise ship                                                               | 3 (0.5)       | 0 (0.0)            | 3 (2.5)           | 0 (0.0)           |     |
| Car                                                                       | 24 (4.2)      | 12 (4.7)           | 9 (7.5)           | 3 (1.6)           |     |
| Have you done a coronavirus detection test?                               |               |                    |                   |                   |     |
| Yes                                                                       | 72 (12.6)     | 15 (5.8)           | 6 (5.0)           | 51 (26.6)         | 0.001|
| No                                                                        | 498 (87.4)    | 243 (94.2)         | 114 (95.0)        | 141 (73.4)        |     |
| The result of the COVID-19 test                                           |               |                    |                   |                   |     |
| Positive                                                                  | 6 (1.1)       | 0 (0.0)            | 6 (3.1)           | 0 (0.0)           | 0.001|
| Negative                                                                  | 66 (11.6)     | 15 (5.8)           | 45 (3.4)          | 6 (5.0)           |     |
| Have you been subject to quarantine?                                      |               |                    |                   |                   |     |
| Yes                                                                       | 183 (32.1)    | 48 (18.6)          | 42 (35.0)         | 93 (48.4)         | 0.001|
| No                                                                        | 387 (67.9)    | 210 (81.4)         | 78 (65.0)         | 99 (51.6)         |     |
| Type of quarantine/isolation                                             |               |                    |                   |                   |     |
| Optional home quarantine (physical distancing)                            | 153 (26.8)    | 39 (15.1)          | 36 (30.0)         | 78 (40.6)         | 0.001|
| Obligatory home quarantine                                               | 27 (4.7)      | 6 (2.3)            | 6 (5.0)           | 15 (7.8)          |     |
| Mandatory quarantine in a health care center                              | 3 (0.5)       | 3 (1.2)            | 0 (0.0)           | 0 (0.0)           |     |
| Have your family members been quarantined with you?                      |               |                    |                   |                   |     |
| Yes                                                                       | 123 (21.6)    | 27 (10.5)          | 30 (25.0)         | 66 (34.4)         | 0.001|
| No                                                                        | 60 (10.5)     | 21 (8.1)           | 12 (10.0)         | 27 (14.1)         |     |
| No quarantine                                                             | 387 (67.9)    | 210 (81.4)         | 78 (65.0)         | 99 (51.6)         |     |
| The period of quarantine per day                                          |               |                    |                   |                   | 0.001|
| Mean ± SD                                                                 | 9.8 ± 18.9    | 6.5 ± 18.4         | 13.8 ± 23.6       | 11.8 ± 15.2       |     |

(Continued)
Typically, how many times did you go out of the house a week before and after the announcement of the COVID-19 pandemic for the following reasons (mean ± SD):

| Variables                                           | Total (n=570) | Gaza Strip (n=258) | West Bank (n=120) | Jerusalem (n=192) | p    |
|-----------------------------------------------------|---------------|--------------------|-------------------|-------------------|------|
| To buy commodities                                  |               |                    |                   |                   |      |
| Before                                              | 5.5 ± 4.4     | 5.9 ± 4.4          | 5.3 ± 4.0         | 5.1 ± 4.6         | 0.001|
| After                                               | 2.5 ± 2.7     | 2.9 ± 3.1          | 2.3 ± 1.8         | 2.2 ± 2.6         |      |
| To seek health care                                 |               |                    |                   |                   |      |
| Before                                              | 1.3 ± 2.1     | 0.9 ± 1.4          | 1.3 ± 1.1         | 1.9 ± 3.0         | 0.001|
| After                                               | 0.5 ± 1.5     | 0.3 ± 1.0          | 1.2 ± 2.7         | 0.5 ± 1.5         |      |
| For work                                            |               |                    |                   |                   |      |
| Before                                              | 4.7 ± 2.6     | 4.8 ± 2.9          | 4.9 ± 2.2         | 4.4 ± 2.4         | 0.001|
| After                                               | 2.3 ± 2.7     | 3.0 ± 2.9          | 2.2 ± 2.7         | 1.5 ± 2.4         |      |
| For hiking or physical activity                     |               |                    |                   |                   |      |
| Before                                              | 3.3 ± 5.7     | 2.7 ± 2.2          | 5.3 ± 11.7        | 2.9 ± 2.1         | 0.001|
| After                                               | 0.7 ± 1.6     | 0.8 ± 1.7          | 1.0 ± 1.9         | 0.4 ± 1.2         |      |
| To assist vulnerable or dependent persons            |               |                    |                   |                   |      |
| Before                                              | 1.5 ± 2.2     | 1.5 ± 2.4          | 1.6 ± 1.8         | 1.2 ± 2.1         | 0.001|
| After                                               | 0.7 ± 2.1     | 0.8 ± 2.5          | 0.9 ± 1.9         | 0.6 ± 1.5         |      |

What was the primary transportation mode you were using on your daily travel (to go to work/study/do other everyday activities) before the COVID-19 pandemic?

| Public transportation                               | 261 (45.8)    | 153 (59.3)         | 54 (45.0)         | 54 (28.1)         | 0.001|
| Private car                                         | 258 (45.3)    | 81 (31.4)          | 48 (40.0)         | 129 (67.2)        |      |
| Motorcycle                                          | 9 (1.6)       | 6 (2.3)            | 0 (0.0)           | 3 (1.6)           |      |
| Walk on the foot                                    | 42 (7.4)      | 18 (7.0)           | 18 (15.0)         | 6 (3.1)           |      |

With the COVID-19 pandemic, what changes have happened in the mode of your daily travel?

| I no longer move because I witched working/studying remotely from home | 192 (33.7) | 51 (19.8) | 54 (45.0) | 87 (45.3) | 0.001|
| I no longer move because I lost my job               | 66 (11.6)    | 18 (7.0)  | 12 (10.0) | 36 (18.8) |      |
| I continued to use the same mode of transportation as before | 198 (34.7) | 147 (57.0) | 9 (7.5) | 42 (21.9) |      |
| I decided to stop using public transportation        | 36 (6.3)     | 15 (5.8)  | 6 (5.0)  | 15 (7.8) |      |
| I decided to start using my private car              | 45 (7.9)     | 15 (5.8)  | 18 (15.0) | 12 (6.2) |      |
| I decided to start hopping on foot                   | 30 (5.3)     | 9 (3.5)   | 21 (17.5) | 0 (0.0) |      |
| I decided to start moving around with a motorbike    | 3 (0.5)      | 3 (1.2)   | 0 (0.0)  | 0 (0.0) |      |

Paying attention to personal hygiene and home cleaning after the announcement of the COVID-19 pandemic:

| Less than usual before the pandemic                 | 9 (1.6)       | 6 (2.3)   | 0 (0.0)  | 3 (1.6) | 0.004|
| As usual before the pandemic                        | 180 (31.6)    | 63 (24.4) | 51 (42.5) | 66 (34.4) |      |
| More than usual before the pandemic                 | 381 (66.8)    | 189 (73.3) | 69 (57.5) | 123 (64.1) |      |

Do you follow up on information updates about the COVID-19 pandemic?

| Always                                              | 279 (48.9)    | 123 (47.7) | 63 (52.5) | 93 (48.4) | 0.657|
| Very often                                          | 150 (26.3)    | 75 (29.1)  | 27 (22.5) | 48 (25.0) |      |
| Sometimes                                           | 141 (24.7)    | 60 (23.3)  | 30 (25.0) | 51 (26.6) |      |

COVID-19: coronavirus disease 2019; SD: standard deviation.
Data are expressed as means ± SD for continuous variables and as percentages for categorical variables. The differences between means were tested by using the independent-sample t-test. The chi-square test was used to examine the differences in the prevalence of different categorical variables. A p value of less than 0.05 was considered statistically significant.
The Palestinian health system’s response to the COVID-19 pandemic was comprehensively analyzed in the World Health Organization (WHO) report of the Occupied Palestinian Territory COVID-19 Response Plan.22

Our study also showed a reduction in participants’ movement and use of public transportation after the announcement of the COVID-19 pandemic. Since the mean times of going out of their homes before and after the announcement of the COVID-19 pandemic have dropped significantly at p < 0.05. These findings matched the results of community-based studies from different parts of the world, which indicated a positive attitude of the public toward social distancing, avoiding travel, and socializing.23–25

After the COVID-19 pandemic announcement, one-third of our study participants reported that they stopped commuting and switched to working remotely from home. This result confirms that the COVID-19 increases labor market inequalities as the pandemic’s economic consequences were more considerable for specific occupations. Individuals in professions working in proximity to others are more probably affected, while professions able to work remotely are less affected.26

About 11.6% of the study participants stopped moving because they lost their jobs. This result was consistent with the preliminary review carried out by Coibion et al. to characterize how labor markets are being affected by the COVID-19 pandemic. The study expected that job loss would be significantly larger than implied by new unemployment claims, and many of those losing jobs will not actively look to find new ones.27 In addition, the study conducted by Brynjolfsson et al. revealed that about 10.1% of the US population laid off or furloughed since the start of COVID-19.28 Furthermore, the deterioration of the family’s financial situation during the pandemic could be associated with some avoidance behaviors, which would worsen people’s mental health and lead to a more passive lifestyle.29,30 Around half of the study participants reported that they were always interested in following up on the latest updates of the COVID-19 pandemic, indicating that the COVID-19 pandemic may be stressful for the Palestinian people.

Limitations

Findings from our study should be interpreted with caution. A convenience sampling method was used, which has likely led to selection bias in our study population and also the generalizability of our findings.

Conclusion

Findings from this online cross-sectional study concluded that the COVID-19 pandemic was associated with an additional burden on Palestinian families; since the COVID-19 pandemic is still ongoing, other aspects have not been included in this study needed to be investigated in future studies. Therefore, we strongly recommend psychologists and social workers to play their crucial role in promoting the society member’s mental health during and after the pandemic.

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Author contributions

S.A., K.Z., and A.S. participated in idea conception, proposal development, design of the study, and data collection. A.H.B. and A.A. performed the statistical analysis and drafted the manuscript. A.A.D. and A.S. participated in the draft review. All authors have read and approved the final version of the document and agree with the authors’ order of presentation.

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Ethical approval

The study protocol was approved by the Helsinki Ethical Committee in the Gaza Strip, Palestine (Code: PHRC/HC/735/20).

Informed consent

The participants were asked to approve their participation to proceed with the online survey. Informed consent for an Internet survey was also obtained from each participant.

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Data availability

The data used to support the findings of this study are available from the corresponding author upon request.

Supplemental material

Supplemental material for this article is available online.

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