

Article

Maintaining Quality of Life during the Pandemic: Managing Economic, Social, and Health Well-Being Amid the COVID-19 Crisis of Agricultural Entrepreneurs

Yi Cheng ¹, Muhammad Nadeem ² , Shamsheer ul Haq ^{3,*} , Kyalisiima Prisca ⁴, Babar Aziz ⁵ , Muhammad Imran ⁶ and Pomi Shahbaz ⁷ 

¹ School of Economics and Management, Shihezi, University, Shihezi 832000, China

² College of Economics and Management, Nanjing University of Aeronautics & Astronautics, Nanjing 210016, China

³ Department of Economics, Division of Management and Administrative Science, University of Education, Lahore 54770, Pakistan

⁴ Department of Banking and Finance, Faculty of Business and Management Science, Mountains of the Moon University, Fort Portal 837, Uganda

⁵ Department of Economics, Government College University, Lahore 54770, Pakistan

⁶ Department of Economics and Business & Management, University of Veterinary and Animal Sciences, Lahore 54000, Pakistan

⁷ Department of Agricultural Economic, Faculty of Agriculture, Ondokuz Mayıs University, 55270 Samsun, Turkey

* Correspondence: drshamsheer@ue.edu.pk



Citation: Cheng, Y.; Nadeem, M.; Haq, S.u.; Prisca, K.; Aziz, B.; Imran, M.; Shahbaz, P. Maintaining Quality of Life during the Pandemic: Managing Economic, Social, and Health Well-Being Amid the COVID-19 Crisis of Agricultural Entrepreneurs. *Sustainability* **2022**, *14*, 15597. <https://doi.org/10.3390/su142315597>

Academic Editors: Jian Wang, Lei Si and Wenbin Liu

Received: 5 November 2022

Accepted: 17 November 2022

Published: 23 November 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Abstract: Every sphere of life is being impacted by COVID-19, but little is known about how the pandemic is affecting agricultural entrepreneurs' quality of life in developing nations. Therefore, this study examined how COVID-19 affected agricultural entrepreneurs' quality of life by utilizing the data collected from 220 females and 1501 males through multistage purposive and random sampling methods. The dataset was analyzed using ordered logistic regression and principal component analysis. The study results indicated that female agricultural entrepreneurs' quality of life was more adversely affected than that of male agricultural entrepreneurs during COVID-19. The findings also showed that male and female agricultural entrepreneurs with a lower socioeconomic status were more severely impacted than male and female agricultural entrepreneurs with a higher socioeconomic status. More female agricultural entrepreneurs compared to males reported that the pandemic had a negative impact on their mental health. More than two-thirds of both male and female agricultural entrepreneurs reported that the pandemic had a negative impact on their ability to purchase both food and non-food items. Similar to this, a sizable majority of people of both sexes stated that COVID-19 had an impact on their ability to access medical facilities. The results also showed that COVID-19 had a greater impact on married agricultural entrepreneurs' quality of life than on single people. Therefore, a paradigm shift in agricultural policy is required for the pandemic response to account for COVID-19's various effects on different genders and socioeconomic groups in rural areas.

Keywords: COVID-19; quality of life; well-being; gender; agricultural entrepreneurs

1. Introduction

The World Health Organization (WHO) declared COVID-19 a global public health emergency on 30 January 2020, and soon after the WHO declaration, many countries in the world introduced different measures to curb the spread of the pandemic [1,2]. To contain the uncontrolled spread of the virus, many countries introduced lockdown measures, such as staying at home, the closure of businesses, schools, transport, places of worship, international travel restrictions, etc. Thus, COVID-19 has substantial impacts on every sphere of life.

Although certain measures are effective in controlling the spread of COVID-19, they might have negative impacts on many dimensions of human life. The negative impacts of COVID-19 are not limited to just physical health; rather, they pose a serious threat to the social, psychological, and mental health of the population [3]. It has been observed that in times of pandemic, individuals feel stressed and worried; they have fears of dying or falling ill, being socially excluded in quarantine, or losing their jobs [4]. Early research on the impacts of COVID-19 has suggested that government restrictions and disruptions in life have substantially and negatively affected the mental well-being of the population [5,6]. Ben and Lisa [7] documented a large decline in mental well-being during the COVID-19 outbreak in the United Kingdom. Similarly, a study conducted in China revealed that a significant proportion of the population has faced anxiety, depression, phobias, cognitive changes, avoidance, and compulsive behavior during lockdowns.

These negative effects of COVID-19 are profound and long-lasting; however, it is not clear who will be affected and to what extent. Experiences and evidence from past public health epidemics, such as SARS, showed that negative effects were more common among some groups [8]. An increased risk of suicide was more common among older adults following SARS in Hong Kong [9]. In the early days of the pandemic, researchers [10–12] predicted that COVID-19 would have differential health and economic impacts on different socioeconomic groups. Distress was associated with being younger and female during the lockdown in Spain [13]. Davillas and Jones [6] suggest that the effects on well-being have been felt unequally and have been mainly borne by women. Adams-Parssl et al. [5] reported that women from the UK and USA are more likely to lose a job and are less likely to work from home than men. Even if they are employed and able to work from home, women spend substantial time taking care of children and homeschooling. Chesley [14], Manzo, and Minello [15] pointed out that women bear a greater share of the care burden; they are responsible for the care of dependents (children and elders) in most societies. Historically, it has been observed that women on average provided 3.3 times more time for care compared to men at home [16]. The risk of domestic abuse also increases during times of crisis and social isolation [17,18]. Evidence from previous research shows that after natural disasters, men's income tends to recover faster than women's [19,20]. Many researchers [21,22] have concluded that during the COVID-19 pandemic, women took on a huge mental and physical workload and hence were at higher risk of paying a higher price than men.

The social, economic, and health impacts of COVID-19 and measures taken during a pandemic are increasingly popular among researchers. There is a continuous call for an examination of the impact of disease and lockdowns on different dimensions of human life. The gendered consequences of COVID-19 for agricultural entrepreneurs have not received much attention from the research community.

COVID-19 in Pakistan

The first-ever case of COVID-19 was reported in February 2020 and, since then, Pakistan has been in a state of COVID-19 emergency due to continuously increasing infections in the country. Following the direction of different international and national health committees, the government introduced several measures to control the spread of COVID-19. The increased number of cases and transmissions led to the application of intensified measures by the government. The complete lockdown was imposed nationally; businesses were closed, traveling was halted, movement was only allowed in case of emergency, places of worship were closed, and working from home was promoted to curb the spread of the virus. So far, Pakistan has faced three different waves of COVID-19: March–July 2020, November–December 2020, and March–May 2021. Keeping in view the economic consequences, which could be disastrous for a developing country such as Pakistan, the intensification of measures was low in the second and third; businesses were allowed to work on a certain day of the week and transport was allowed to operate with limited capacity. However, certain measures (school/university closure, 50% staff attendance

policy, social distancing, a ban on unnecessary outdoor movement, etc.) were in place. It has been established in this document that there are many physical, social, economic, and psychological implications of these measures. In Pakistan, few studies have examined the impact of COVID-19 and taken measures. Using a dataset of 1756 responses collected through an online survey, Khan et al. [23] examined the impact of COVID-19 on the psychological well-being of the general population in Pakistan. Another study by Dhahri et al. [24] investigated the psychological impact of COVID-19 on final-year medical students. They found that the preparation for exams of students has been negatively and substantially affected by anxiety and depression during the COVID-19 pandemic. Shoaib and Abdullah [25] found that social isolation, the cost of PPE, and loss of intimacy have a significant positive impact on the psychological problems of the population in Pakistan.

Pakistan is the sixth most populous country in the world, with a total population of 220 million, and more than one-third of its population is involved in agriculture activities for a livelihood. Moreover, the share of agriculture in the national economy is also higher than 20%. Pakistan is among those countries that have a large proportion of a young population. Approximately 64% of the population of the country consists of young people, of whom 29% are aged between 15 and 29 years. Young people and young women, in particular, face many restrictions to socioeconomic participation in Pakistan. Women make up 48% of the total population of Pakistan; on the other hand, just 25% of working-age women are part of the labor force, and more than two-fifths of these working women work in the agricultural sector [26,27]. Pakistan is placed third to last on the UNESCO gender parity index list. The limited range of jobs accepted by women, mobility issues, gender-based violence, and responsibilities in the household creates obstacles for the socioeconomic participation of women in Pakistan. Women in developing countries such as Pakistan are at a disadvantage compared to men and face much vulnerability [28]. In crises such as the COVID-19 pandemic, these inequalities between women and men intensify, and a large proportion of the female population has already been pushed into poverty. The performance of Pakistan was already very poor on many gender equality parameters; the spread of COVID-19 is posing a substantial risk to the few achievements that have been made in the recent past. Pakistani women have played a significant role in the fight against COVID-19. Women make up three-fourths of all employees in the country's health sector. Additionally, due to situations such as working from home and online schooling, their role as caregivers has become extremely important [29].

Research in Pakistan on impact evaluation is concentrated either on the medical population (medical students, front-line health workers, etc.) or on issues such as psychological dimensions. The QoL effects of COVID-19 have not received significant attention; moreover, the gendered consequences of the pandemic on agricultural entrepreneurs are nonexistent. This study aimed to determine the gender-based effects of COVID-19 on the QoL of agricultural entrepreneurs. The other objective of the study was to measure the gendered effects of COVID-19 on male and female agricultural entrepreneurs' QoL for important socioeconomic statuses and characteristics. The final objective of the study was to explore the factors determining the QoL of agricultural entrepreneurs during COVID-19.

This study is the first to explore the impact of the pandemic on the QoL of agricultural entrepreneurs in Pakistan, as well as around the world. It would contribute significantly to decision-making on maintaining agricultural entrepreneurs' QoL in order to meet social, economic, and health well-being goals during the current pandemic, as well as future emergencies. This research study significantly contributes to the growing scientific literature, which helps us understand, predict, and avoid potential negative consequences on agricultural entrepreneurs' social, economic, and health well-being caused by the COVID-19 crisis and similar economic and health crises that may arise again in the future. This study's potential beneficiaries include government departments and health practitioners, who are primarily responsible for ensuring healthy and sustainable human health.

2. Materials and Methods

2.1. Study Area and Sampling Procedure

Different researchers have used the term “agricultural entrepreneurship” differently in prior literature. Pindado and Sánchez [30] define agricultural entrepreneurs as owner-managers of agricultural businesses. Farmer entrepreneurs, according to Sippel [31], are those who run agricultural businesses. Seuneke et al. [32] used the term “agricultural entrepreneurs” to refer to those farmers who develop different farm businesses as a form of portfolio agricultural entrepreneurship. Therefore, agricultural entrepreneurs in this study are those farmers who are solely running their farm businesses alone or have diversified their farming portfolio. The target population for this study was the agricultural entrepreneurs residing in the Punjab province of Pakistan due to its largest contribution to the national gross domestic product among all provinces. Punjab is also the most populated province of Pakistan, where more than two-fifths of the population is engaged in agricultural activities for their livelihoods. This province is bestowed with fertile land, the best irrigation system, and suitable climatic conditions for growing various kinds of fields and horticultural crops. Moreover, the rise in prices of inputs disturbed crop cultivation in the province and the sale of farm products was also adversely affected due to the pandemic [33].

Multistage purposive and random sampling techniques were used to select the agricultural entrepreneurs in the chosen province. The Punjab province has been further divided into different agroecological zones, and three agroecological zones from the province were selected in the second stage. These were the mixed-cropping zone, the maize-wheat cropping zone, and the wheat cropping zone. Each cropping zone further consists of smaller administrative units called “districts.” In the third stage of sampling, two districts from each zone were selected randomly. In the fourth stage of sampling, two tehsils (English: counties) were selected from each district, and from each tehsil, two union councils were chosen randomly. In the fifth stage, three villages from each union council were selected. In the last stage of the sampling procedure, we randomly selected 24 agricultural entrepreneurs from the list that was obtained from each village head. The experienced team of enumerators, including both males and females, collected the data. In this way, data were collected from a total of 1728 agricultural entrepreneurs. From the total sample, the seven incomplete questionnaires were excluded from the analysis. The remaining sample size of the study included 220 female and 1501 male agricultural entrepreneurs, which were used for further study analysis. A similar sampling technique was adopted by Shahbaz et al. [34] and Abid et al. [35] in their studies.

2.2. Measuring Quality of Life (QoL)

QoL can be measured either through an objective approach (which measures QoL through economic indicators) or a subjective approach (which measures QoL through individual actions and opinions). Moreover, the objective approach concerns the material conditions that majorly affect the objective settings of the people in geographical and cultural survivals, and incorporates features related to the status of the individuals, including economic status, health, welfare, education, and living conditions. Siddiqui [36] and Zorondo-Rodríguez et al. [37] used this approach to measure QoL, in which they considered many objects available in human life. The associated drawback of this approach was that it could not explain the concerns and feelings of the people attached to the living conditions. Therefore, the subjective approach could be applicable where the feelings and concerns of the people also lead to attaining a good QoL. This approach paved the way to measure the various perceptions regarding the conditions of an individual’s life [38,39].

Based on the benefits associated with the subjective approach, the current study used this approach to measure QoL. This approach was well suited to capture the impact of COVID-19 on QoL because the agricultural entrepreneur’s perception regarding their change in QoL during the COVID-19 pandemic can easily be captured through the adoption

of a five-point Likert scale. To capture the impact of the COVID-19 pandemic on QoL, we selected the different indicators that were more likely to be affected due to COVID-19.

The indicator-based measurement of QoL is widely accepted due to its mediating role between conceptualization and measurement. Moreover, indicators also contribute to knowledge accumulation and assist in policy development aimed at improving QoL [40,41]. The selection of indicators should not be compromised due to their applicability in different regions and cultures. The indicators should be able to explain the context of the dimensions of QoL under consideration. The indicator should be applied locally because the attributes related to the dimension of QoL may vary across cultures and regions. Moreover, indicators should be applicable at the same scale, which means the indicator used to measure the QoL of people at the local level should be reliable and valid because the indicator used at the national level may not be applicable at the local level [42,43].

In prior literature, many objective and subjective indicators were used to measure QoL, such as education, satisfaction with education facilities [44,45], health state and public transport [46], satisfaction with health status [47], per capita annual income [48], job security [49], environment [50], recreation and leisure, access to groceries stores, and access to public transport [51].

For the selection of the indicators in the current study, we adopted the cultural consensus theory to select the indicators because it was believed that the responses collected from the agricultural entrepreneurs, who belong to different cultures, would be best to capture the impact of COVID-19 on their QoL. Moreover, the respondents' responses to any indicator will be based on the local culture, environment, and area settings. Since the area's setting was also very important, it was also essential to assess the impact of COVID-19 on QoL based on the gender of agricultural entrepreneurs. COVID-19 disrupted the input and output supply of agricultural products and their markets. Consequently, based on the study objectives, the possible indicators that most comprehensively explained the change in QoL of agricultural entrepreneurs during COVID-19 were selected.

To achieve the objectives of the study, a total of 33 items were determined by considering the earlier work in the subject, specific socioeconomic characteristics of the agricultural entrepreneurs, and the opinions of subject matter experts. All items were measured on a five-point Likert scale and were factor analyzed, with the extraction and rotation methods being principal component analysis (PCA). It resulted in a total of twenty-two items through rotation and convergence in five iterations. The remaining 11 items did not go well with these 22 items, and henceforth these items were not considered for further analysis.

The factor analysis resulted in three different components, which were named "economic well-being," "health well-being," and "social well-being." The first dimension had six different statements that directly explained the economic well-being of the respondents. These indicators are intended to measure the effect of COVID-19 on livelihood, income, wealth, food purchasing power, non-food purchasing power, and job opportunities. The selected indicators were widely used in previous studies to measure an economic aspect of QoL, but some studies used them as objective indicators and others used them as subjective indicators [48,49]. Moreover, numerous studies can be found on the socioeconomic consequences of the COVID-19 pandemic. Pak et al. [52] reported a significant reduction in income and employment, and Nicola et al. [53] stated that COVID-19 increased job losses and limited farming activities due to the low functional markets of agricultural inputs and outputs. Moreover, travel restrictions significantly affected the food supply during COVID-19 and also limited personal mobility, which collectively affected the buying behavior of the community and changed the demand for daily food and non-food commodities. Moreover, COVID-19-induced market and labor supply shocks also caused inflation of different commodities. These disturbances affected the income and livelihood sources, which directly affected the purchasing power of the people.

The second dimension, "Health Wellbeing," contained four different indicators that described the COVID-19 impact on the health status of the respondents. Health status is one of the most important indicators to measure QoL because it contributes positively to

happiness and healthy life [54]. Moreover, a good health status contributes positively to life satisfaction [55], which makes the QoL better. Ihsan and Aziz [39] and Haq et al. [51] used health status as an indicator to measure QoL.

The third dimension, “Social Wellbeing,” described COVID-19’s impact on respondents’ associations, which was measured by 12 different indicators. These indicators include the interaction and connection with friends, family members, relatives, colleagues, participation in social events and volunteer activities, balance in work and social life, and access to different social facilities such as banks, health, the marketplace, places of worship, and transportation. Good connection and interaction among the social agents of human life contribute positively to QoL. Kemp and Bateham [56] described the positive relationship between social involvement and QoL. Moreover, Burckhardt and Anderson [57] also considered socializing in terms of relationships with friends and family members, including spouses, siblings, and parents. Ihsan and Aziz [39] and Haq et al. [51] also used these indicators for measuring QoL. Transportation also plays a vital role in the QoL of humans by facilitating their mobility, but transportation services were badly affected during COVID-19. Many countries limited transportation facilities by closing not only international borders but also by restricting transport entries from one city to another. Banister and Bowling [58] describe that easy access to personal and local transport also contributes positively to QoL.

The QoL index was developed by considering the five-point Likert scale answers; the lowest scale score was 22 ($=22 \times 1$), and the highest score of the index was 110 ($=22 \times 5$). The agricultural entrepreneurs were divided into three different groups based on the frequency distribution of their QoL index scores. The agricultural entrepreneurs who had QoL index scores less than 50 were named low-affected agricultural entrepreneurs (19.87%), those with QoL index scores between 51 and 75 were categorized as moderately affected agricultural entrepreneurs (56.88%), and those with QoL index scores greater than 75 (23.25%) were grouped as highly affected agricultural entrepreneurs. This categorization was used as a dependent variable to determine the factors affecting the QoL of agricultural entrepreneurs in an ordered probit model. Low-affected agricultural entrepreneurs were assigned “0,” moderately affected agricultural entrepreneurs were assigned “1,” and highly affected agricultural entrepreneurs were assigned “2” to develop the dependent variable for the ordered probit model that was presented as:

$$y^* = \beta' xi + \varepsilon, \varepsilon \sim N(0, 1)$$

$$y = 0 \text{ if } y^* \leq 0$$

$$y = 1 \text{ if } 0 < y^* \leq \mu_1$$

$$y = 2 \text{ if } \mu_1 < y^* \leq \mu_2$$

where, y^* is the dependent variable which describes the probability of agricultural entrepreneurs belonging to the QoL category; β' depicts the vector of coefficients; xi is the vector of independent variables; ε is a vector of normally distributed error terms $[0, 1]$; y shows the observed dependent variable as the probability of agricultural entrepreneurs’ QoL being highly affected; and μ is the cut-off point which specifies the level of inclination of an agricultural entrepreneur to belong to highly affected QoL group. It explains whether there is a natural ordering among the three categories of the dependent variable. Moreover, a univariate statistical model was used to compare the effect of COVID-19 on the QoL of respondents for important socioeconomic characteristics for gendered differences of an agricultural entrepreneur. A similar method was used by Haq et al. [59] in their study to measure sustainable agriculture perception.

3. Results

3.1. Background of the Participants

Female agricultural entrepreneurs were younger as compared to male agricultural entrepreneurs (Table 1). Male agricultural entrepreneurs had a higher education level and a larger family size than female agricultural entrepreneurs. Moreover, female participants had more children compared to male participants. More than half of the male and female participants were unmarried. A large majority of female and male agricultural

entrepreneurs were engaged in a single activity for their livelihood. One-half of the females and one-third of the males' other family members were working in public sector institutions as salaried employees. Family members of male agricultural entrepreneurs were working as self-employed, and livestock rearers were almost twice as likely as family members of females to engage in the same working activities for their livelihoods. More female family members were working as wage workers compared to males. The majority of the females and males belonged to the low-income group. Almost one-third of the males and females belonged to the medium-income group. Males in the high-income group were twice as likely as females in the same income group.

Table 1. The socioeconomic and demographic background of agricultural entrepreneurs by gender.

Socioeconomic Characteristics	Male Agricultural Entrepreneurs	Female Agricultural Entrepreneurs
	Mean	Mean
Age (Years)	35.37 (9.13)	32.54 * (6.92)
Education (Years)	11.27 (2.18)	10.06 ** (1.68)
Family size (Number)	7.74 (2.74)	6.34 ** (1.94)
Children (Number)	0.33 (0.55)	0.58 * (0.46)
Marital status (1 = Unmarried, 0 = Married)	0.58	0.51 *
Landholding (1 = large, 0 = small)	0.56	0.45
The secondary source of income (1 = Yes, 0 = No)	0.31	0.13 *
Livelihood source of other family members		
Wages (1 = Yes, 0 = Otherwise)	0.15	0.22 **
Public employment (1 = Yes, 0 = Otherwise)	0.33	0.51 *
Self-employment (1 = Yes, 0 = Otherwise)	0.25	0.13 *
Livestock (1 = Yes, 0 = Otherwise)	0.27	0.14 *
Monthly income (PKR)		
Low-income group (<50,000) (1 = Yes, 0 = Otherwise)	0.47	0.59 *
Medium income group ($\geq 50,000$ and $\leq 100,000$) (1 = Yes, 0 = Otherwise)	0.32	0.31
High income group ($>100,000$) (1 = Yes, 0 = Otherwise)	0.21	0.10 *

*, and ** significant differences at 1% and 5%, respectively. The values in parentheses are standard deviations for respective variables. Note: The *t*-test and chi-square test were used to estimate the statistical difference between the socioeconomic characteristics of male and female agricultural entrepreneurs.

3.2. Impact of COVID-19 on the QoL of Agricultural Entrepreneurs

The queries related to the COVID-19 implications on the QoL of the male and female agricultural entrepreneurs depicted that their economic, social, and health well-being were affected during the pandemic (Table 2). A large majority of the males and females revealed that COVID-19 had affected their livelihood sources and income. However, more females compared to males revealed the impact of COVID-19 on their livelihood and income. Similarly, more than half of the males and females also indicated that their wealth was affected by the COVID-19 pandemic. More than two-thirds of the males and females stated that their purchasing power for food and non-food commodities was affected during the pandemic. A large minority of the females and males revealed that job opportunities were not affected by COVID-19.

Almost two-thirds of the males and females indicated that COVID-19 had affected their physical health status. More females than males mentioned that their mental health status was affected by the pandemic. More females than males revealed the effect of COVID-19 on their spiritual health. Half of the males and one-third of the females expressed that their intellectual health was affected due to COVID-19.

Table 2. Impact of COVID-19 on the QoL of agricultural entrepreneurs.

QoL Indicators	Changes in QoL due to COVID-19									
	Male Agricultural Entrepreneurs					Female Agricultural Entrepreneurs				
	SDA	DA	N	A	SA	SDA	DA	N	A	SA
Economic well-being										
Livelihood source	7.00	8.50	9.00	29.50	46.00	14.00	10.00	10.00	10.67	55.33
Income	12.00	10.50	9.00	20.00	48.50	10.00	15.33	20.00	18.67	41.00
Wealth	10.00	18.00	12.50	39.50	20.00	15.33	20.00	13.67	27.00	24.00
Food purchasing power	9.00	6.00	5.00	25.00	55.00	7.00	16.67	10.00	16.00	50.33
Non-food purchasing power	7.00	7.00	9.00	19.00	56.00	10.67	17.33	0.00	12.00	60.00
Job opportunities	17.50	15.50	13.00	17.00	37.00	6.00	20.67	17.33	12.00	44.00
Health well-being										
Physical health status	7.50	7.00	21.00	54.50	10.00	10.00	9.33	16.00	43.33	21.33
Mental health status	6.50	11.50	12.00	19.50	50.50	9.33	22.00	22.67	25.33	20.67
Spiritual health status	6.00	28.50	0.00	30.50	35.00	0.00	8.00	5.33	40.67	46.00
Intellectual health status	20.00	17.00	30.00	13.00	20.00	25.00	20.50	4.50	30.00	20.00
Social well-being										
Connection with family members	30.50	36.50	10.50	16.50	6.00	20.67	56.67	14.00	8.67	0.00
Connection with friends	11.00	29.50	15.00	29.00	15.50	14.67	33.33	20.00	28.00	4.00
Connection with relatives	12.00	34.50	5.00	25.00	23.50	17.00	32.67	4.33	14.67	31.33
Connection with colleagues	14.50	31.00	18.00	9.00	27.50	19.33	41.33	5.33	11.33	22.67
Participation in voluntary activities	3.00	0.20	27.50	27.50	40.00	0.00	4.00	43.33	32.67	20.00
Participation in social events	5.00	6.00	14.50	25.50	49.00	10.00	11.33	20.67	33.33	24.67
Work and life balance	14.00	7.00	0.00	43.00	36.00	2.00	2.50	4.50	48.33	42.67
Access to market	17.50	5.50	22.00	16.50	38.50	7.33	29.33	0.00	18.00	45.33
Access to transport	13.00	17.50	7.00	37.00	25.50	0.00	7.33	9.33	49.33	34.00
Access to health facilities	0.00	0.00	21.00	44.00	35.00	0.00	0.00	0.00	53.33	46.67
Access to bank facilities	20.50	30.50	7.00	30.33	11.67	12.00	15.67	16.33	20.50	35.50
Access to worship place	33.00	14.50	8.00	22.00	22.50	42.67	7.00	5.67	21.33	23.33

SDA = Strongly disagree, DA = Disagree, N = Neutral, A = Agree, SA = Strongly agree.

The majority of the males and females stated that COVID-19 did not affect their connection with their family members. More females than males pointed out that COVID-19 had affected their connection with their friends. Almost one-half of the males and females asserted that COVID-19 had affected their relationships with their relatives. Similarly, more than one-third of the males and females stated that their relationships with their colleagues were also affected by the COVID-19 pandemic. More than two-thirds of the males and more than half of the females revealed that the pandemic had affected their participation in societal voluntary activities. More males compared to females indicated the effect of COVID-19 on their participation in social events (marriages, birthday parties, funerals, etc.) More females than males stated that COVID-19 had affected their work and life balance.

A large proportion of male and female agricultural entrepreneurs also stated that COVID-19 affected their access to markets, transportation, and health facilities. More than 43% of the males and females asserted that COVID-19 had affected their access to their worship place.

3.3. QoL Index by Important Socioeconomic Characteristics Based on Gender of Agricultural Entrepreneurs

Table 3 reveals the QoL index by important socioeconomic characteristics based on the gender of the agricultural entrepreneurs. The outcomes revealed that despite having the same socioeconomic characteristics, the QoL of females was affected more than that of

males during COVID-19. For example, the QoL of older females was affected more than that of older males due to COVID-19. Similarly, the QoL of younger females was also more affected than that of younger males due to the pandemic. High-educated males' QoL was less affected than that of high-educated females. The QoL of males with low education levels was also less affected compared to females with lower education levels. Married and unmarried females' QoL was more affected than that of married and unmarried males, respectively, during the pandemic period. The QoL of males with large and small families was less affected compared to females with large and small families, respectively.

Table 3. The QoL index by important socioeconomic characteristics of agricultural entrepreneurs based on gender.

Socioeconomic Categories	Female Agricultural Entrepreneurs	Male Agricultural Entrepreneurs
By age ^c		
Older	69 ^a	65 ^{*a}
Younger	59 ^b	53 ^{*b}
By education ^c		
High	58 ^a	55 ^{*a}
Low	74 ^b	61 ^{*b}
By marital status		
Married	66 ^a	63 ^{*a}
Unmarried	63 ^a	54 ^{*b}
By family size ^c		
Large	68 ^a	60 ^{*a}
Small	60 ^b	56 ^{*a}
By land holding		
Large	61 ^a	54 ^{*a}
Small	67 ^b	63 ^{*b}
By monthly income ^c		
Low	72 ^a	60 ^{*a}
High	56 ^b	57 ^a

^c The average of the sample was used as a cut point to divide the sample into two groups. * Shows a row-wise statistical difference at 1%. ^{a, b} The unlike characters show a statistical difference within the column. Note: A mixed-design ANOVA (between-subject factors and within-subject factors) was used to analyze the QoL differences during COVID-19 for different socioeconomic characteristics and the gender of agricultural entrepreneurs.

Moreover, the QoL of males and females with low socioeconomic statuses, such as low income and a low level of education, was affected more during COVID-19 than that of males and females, respectively, with high socioeconomic characteristics. For example, the QoL of females and males with a high level of education was affected less during COVID-19 than that of females and males, respectively, with a low level of education. Similarly, females with lower income levels were affected more by COVID-19 compared to females with higher income levels. The QoL of older females and males was more affected during COVID-19 than that of younger females and males, respectively. The QoL of females with large families was affected more than that of females with small families.

3.4. Determinants of the QoL Effect during COVID-19

Table 4 shows the factors determining the effect of COVID-19 on the QoL of participants. The QoL of male agricultural entrepreneurs relative to female agricultural entrepreneurs was likely to be affected less by the pandemic. A positive relationship between age and the QoL effect of the people indicated that a one-year increase in the age of participants was likely to increase the effect of COVID-19 on the QoL. Similarly, the negative association of education with the QoL effect revealed that a one-year increase in the education level of the people was likely to decrease the effect of COVID-19 on their QoL. There was a positive relationship between family size and the QoL effect, which showed

that one person's increase in family size was likely to increase the effect of COVID-19 on the QoL of the people.

Table 4. Determinants of QoL during COVID-19.

Explanatory Variables	Coefficient	Odds Ratios
Gender (1 = Male agricultural entrepreneurs, 0 = Female agricultural entrepreneurs)	−0.62 * (0.21)	0.54
Age (Years)	0.05 * (0.01)	1.05
Education (Years)	−1.31 * (0.09)	0.27
Marital status (1 = Unmarried, 0 = Married)	0.26 (0.19)	1.29
Family size (Number)	0.72 * (0.06)	2.05
Children (Number)	0.24 (0.21)	1.27
Landholding (1 = large, 0 = small)	−0.53 ** (0.19)	0.59
Secondary source of income (1 = Yes, 0 = No)	−1.36 (0.50)	0.26
Livelihood source of other family members ^a		
Wages	0.35 * (0.06)	1.42
Livestock	0.42 * (0.10)	1.52
Self-employment	1.60 * (0.29)	4.95
Monthly income (PKR) ^b		
Low-income quantile	0.70 * (0.26)	2.01
Medium income quantile $\geq 50,000$ and $\leq 10,000$)	0.29 * (0.09)	1.33
Log-likelihood		−252.54
LR chi2		1411.71
Prob > chi2		0.00
Pseudo R2		0.7365

*, and ** significant differences at 1% and 5%, respectively. ^a = base category public employed, ^b = base category high-income quantile.

A one-year increase in the age of agricultural entrepreneurs increases the probability of COVID-19 impacts on QoL by 1.05 times. On the other hand, a one-year increase in the education of agricultural entrepreneurs decreases the likelihood of COVID-19's impact on QoL by 0.27 times. Similarly, a one-member increase in the family size of agricultural entrepreneurs increases the probability of COVID-19 impacts on QoL by 2.05 times. Male agricultural entrepreneurs' QoL was 0.54 times less likely to be impacted by COVID-19 than females. The QoL of agricultural entrepreneurs with large landholdings was 0.59 times less likely to be affected compared to small agricultural entrepreneurs with small landholdings. The QoL of the agricultural entrepreneurs, whose other family members were engaged in livestock and self-employed activities, was likely to be affected more compared to the agricultural entrepreneurs whose other family members were working in public sector institutions for their livelihood. There was a negative relationship between increasing monthly income and the effect of COVID-19 on agricultural entrepreneurs' QoL. The QoL of the agricultural entrepreneurs belonging to the low- and medium-income groups was, respectively, 2.01 and 1.33 times more likely to be affected than that of agricultural entrepreneurs in the high-income group.

4. Discussion

Financial, health, and social repercussions of the COVID-19 pandemic on humanity are being compared to environmental catastrophes, political turmoil, terrorism, and revolutions [60,61], yet the precise degree to which the COVID-19 pandemic is affecting the QoL of people in developing countries is largely unknown. Gender affects the QoL of people [62]. Therefore, this study examined the implications of COVID-19 on the QoL of people based on gender.

More female agricultural entrepreneurs, relative to male agri-entrepreneurs, expressed the effect of COVID-19 on their livelihoods and income. The results are in line with the expectations of most international organizations and researchers who predicted that COVID-19 will affect different segments of society unequally, and women will be affected

more economically and socially [63,64]. These findings agree with Dang and Nguyen [65], who also reported that more females were likely to lose income and their jobs due to COVID-19. The results related to the effect of COVID-19 on mental health fall in line with Jacques-Aviñó et al. [66], who described that COVID-19 affected the mental health of females more than males. The results fall in line with the previous study by Kowal et al. [67], who found that unmarried people face lower stress than married people during COVID-19. Almost two-thirds of the females and males indicated the effect of COVID-19 on their physical health. This may be because of the micro and macro lockdowns imposed in the country, which may have halted their daily physical activities and dietary choices, affecting their physical health. Jiménez-Pavón et al. [68] also reported that non-pharmaceutical measures encourage physical inactivity and greater reliance on processed food which may affect the physical health of people. Studies have shown a link between poor physical activity and health status (physical and mental) [69,70]. Public health measures taken to curb the spread of COVID-19 worldwide have affected interpersonal relationships [71]. A large minority of the males and females in this study also stated that their relationship was affected by their family members, friends, relatives, and colleagues during COVID-19. COVID-19 also affected access to basic facilities such as health, banking, and transportation all over the world. A large majority of the males and females also asserted that COVID-19 had affected their access to health and transportation. This may be because transportation was suspended in the country and borders were closed to control COVID-19. Moreover, the major focus of the government was handling COVID-19 patients, which may have resulted in lower attention toward other patients and health facilities. The other reason may be the reluctance of both doctors and patients to have physical examinations due to the risk of contracting COVID-19, which may have affected access to health facilities.

Due to COVID-19, the QoL of females was affected more than that of males. Etheridge and Spanting [7] also stated that COVID-19 affected males and females disproportionately, and females have been affected more compared to males. They further indicated that the decline in the QoL of females was twice as great as the decline in the QoL of males during the pandemic. Madgavkar et al. [72] also described that females were more vulnerable to COVID-19 implications due to existing gender gaps in society. Gender gaps have widened during the pandemic in Pakistan, which is ranked 153 out of 156 on the gender equality index [73]. The results related to family size and the QoL effect of COVID-19 corroborate with Tran et al. [74], who also reported that the well-being of people living in large families was likely to decrease more than that of people living in small families during COVID-19. The results related to the COVID-19 effect on QoL concerning socioeconomic status are in line with the previous study conducted by Rahman et al. [75], who also depicted that people with a lower socioeconomic status were affected more during COVID-19 than people with a higher socioeconomic status. This may be because people with a higher socioeconomic status have better access to healthcare facilities, a healthy diet, and knowledge [76]. Likewise, Jalan and Ravallion [77] also described that people with a higher socioeconomic status have a higher capacity to sustain external shocks such as COVID-19. The QoL of married males and females was affected more than that of unmarried people. The reason may be that married people may have more financial responsibilities for the family and children, leading to increased stress and anxiety, and decreasing their overall QoL. The QoL of urban households was affected more than that of rural households due to the pandemic. This may be because urban people, relative to rural people, faced more stringent measures to curb the spread of the pandemic in the country. Haq et al. [78] also stated that people residing in rural areas were affected less by COVID-19 measures.

This study has some limitations that need to be taken into account. First, the cross-sectional nature of the data precludes the development of a causal link between agricultural entrepreneurs' sociodemographic characteristics and their QoL during the pandemic. Other studies can extend this research by gathering large amounts of longitudinal data. Second, the data were gathered entirely from agricultural entrepreneurs in Pakistan. If agricultural entrepreneurs from other countries had been involved in this study, comparisons across

countries would have been possible, which would add value to the findings. The other limitation of the study is the generalizability of its results. Because this study uses only agricultural entrepreneurs as study subjects, the findings cannot be generalized to the entire population of the country. Moreover, the lack of knowledge about the QoL of agricultural entrepreneurs before COVID-19 to compare it with hinders the value of this study in assessing the actual effect of COVID-19 on QoL. Despite all these weaknesses, this research provides important information on the impacts of COVID-19 on the QoL of life of agricultural entrepreneurs.

5. Conclusions and Policy Recommendations

In conclusion, this study showed that the QoL of female agricultural entrepreneurs, relative to male agricultural entrepreneurs, was more affected by COVID-19. Moreover, it also depicted that the QoL of agricultural entrepreneurs with a low socioeconomic status was affected more than the QoL of people with a high socioeconomic status.

This study has many policy implications. Firstly, the response to the pandemic needs a paradigm shift in agricultural policy, requiring strategies that take into account the differing implications of COVID-19 on different genders. The response to the pandemic should account for the gendered differences in economic, social, and health QoL given the large gendered gaps prevailing in Pakistan. For this reason, women's participation should be ensured in COVID-19 planning and policy formulation. Secondly, public policy interventions, especially social security programs and health programs, should be initiated, giving more attention to poor agricultural entrepreneurs and females to address the implications of COVID-19 on their QoL. Moreover, the study can contribute to the development of more effective policies and response measures to minimize the impacts of such future pandemics on vulnerable segments of society in developing countries, as well as in Pakistan.

This study also provides important implications for health experts who emphasize maintaining QoL during the pandemic. This study suggests that more attention should be given to agricultural entrepreneurs with significant predictors that increase their vulnerability to poorer QoL, such as female sex, small landholdings, a lower education level, and insufficient monthly income. Most importantly, this study helps health practitioners cope with any emergency that might arise in the future.

Author Contributions: Conceptualization, M.N., P.S. and B.A.; methodology, P.S. and S.u.H.; software, Y.C., M.I. and K.P.; validation, P.S., S.u.H. and M.I.; formal analysis, M.N.; investigation, M.N., M.I. and S.u.H.; resources, B.A.; data curation, P.S. and S.u.H.; writing—original draft preparation, P.S., S.u.H., B.A. and M.I.; writing—review and editing, Y.C., S.u.H., P.S. and M.I.; visualization, B.A. and M.N.; supervision, B.A., S.u.H. and P.S.; project administration, P.S. and S.u.H.; funding acquisition, Y.C. and K.P. All authors have read and agreed to the published version of the manuscript.

Funding: This work was supported by National Social Science Fund of China [grant number 18AGL028].

Institutional Review Board Statement: The study was approved by the institutional review board of the University of Education Lahore (UE/S&T/2020/536).

Informed Consent Statement: Informed consent was duly received from participants.

Data Availability Statement: The data can be obtained from the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Sarwar, A.; Imran, M. Prioritizing Infection Prevention and Control Activities for SARS-CoV-2 (COVID-19): A Multi-Criteria Decision-Analysis Method. *J. Heal. Leadersh.* **2021**, *13*, 77–84. [[CrossRef](#)] [[PubMed](#)]
2. Kickbusch, I.; Leung, G.M.; Bhutta, Z.A.; Matsoso, M.P.; Ihekweazu, C.; and Abbasi, K. COVID-19: How a virus is turning the Sarwar upside down. *BMJ* **2020**, *369*, 1336. [[CrossRef](#)] [[PubMed](#)]

3. Banerjee, D. The COVID-19 outbreak: Crucial role the psychiatrists can play. *Asian J. Psychiatry* **2020**, *50*, 102014. [[CrossRef](#)] [[PubMed](#)]
4. IFRC. 2021. Available online: <https://media.ifrc.org/ifrc/> (accessed on 12 July 2022).
5. Adams-Prassl, A.; Teodora, B.; Marta, G.; Christopher, R. Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys. *J. Public Econ.* **2020**, *189*, 104245. [[CrossRef](#)]
6. Davillas, A.; Jones, A.M. *The COVID-19 Pandemic and Its Impact on Inequality of Opportunity in Psychological Distress in the UK*; Global Labor Organization: Geneva, Switzerland, 2020.
7. Etheridge, B.; Spantig, L. *The Gender Gap in Mental Well-Being during the COVID-19 Outbreak: Evidence from the UK*; ISER Working Paper Series No. 2020-08; Institute for Social and Economic Research: Colchester, UK, 2020.
8. Holmes, E.A.; O'Connor, R.C.; Perry, V.H.; Tracey, I.; Wessely, S.; Arseneault, L.; Ballard, C.; Christensen, H.; Silver, R.C.; Everall, I.; et al. Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. *Lancet Psychiatry* **2020**, *7*, 547–560. [[CrossRef](#)] [[PubMed](#)]
9. Yip, P.S.; Cheung, Y.T.; Chau, P.H.; Law, Y.W. The impact of epidemic outbreak: The case of severe acute respiratory syndrome (SARS) and suicide among older adults in Hong Kong. *Crisis* **2010**, *31*, 86–92. [[CrossRef](#)] [[PubMed](#)]
10. Alon, T.; Doepke, M.; Olmstead-Rumsey, J.; Tertilt, M. *The Impact of COVID-19 on Gender Equality*; No. w26947; National Bureau of Economic Research: Cambridge, MA, USA, 2020.
11. Benzeval, M.; Burton, J.; Crossley, T.F.; Fisher, P.; Jäckle, A.; Low, H.; Read, B. *The Idiosyncratic Impact of an Aggregate Shock: The Distributional Consequences of COVID-19*; IFS: Stockholm, Sweden, 2020.
12. Dingel, J.I.; Neiman, B. How many jobs can be done at home? *J. Public Econ.* **2020**, *189*, 104235. [[CrossRef](#)] [[PubMed](#)]
13. Losada-Balta, A.; Jiménez-Gonzalo, L.; Gallego-Alberto, L.; Pedroso-Chaparro, M.D.S.; Fernandes-Pires, J.; Márquez-González, M. We're staying at home. Association of self-perceptions of aging, personal and family resources and loneliness with psychological distress during the lockdown period of COVID-19. *J. Gerontol. B Psychol. Sci. Soc. Sci.* **2020**, *76*, e10–e16. [[CrossRef](#)]
14. Chesley, N. What does it mean to be a “breadwinner” mother? *J. Fam. Issues* **2017**, *38*, 2594–2619. [[CrossRef](#)]
15. Manzo LK, C.; Minello, A. Mothers, childcare duties, and remote working under COVID-19 lockdown in Italy: Cultivating communities of care. *Dialogues Hum. Geogr.* **2020**, *10*, 120–123. [[CrossRef](#)]
16. Addati, L.; Cattaneo, U.; Esquivel, V.; Valarino, I. Care Work and Care Jobs for the Future of Decent Work. 2018. Available online: https://www.ilo.org/wcmsp5/groups/public/-dgreports/-dcomm/-publ/documents/publication/wcms_633135.pdf (accessed on 23 August 2021).
17. Peterman, A.; Potts, A.; O'Donnell, M.; Thompson, K.; Shah, N.; Oertelt-Prigione, S.; van Gelder, N. *Pandemics and Violence against Women and Children*; Center for Global Development Working Paper 528; Centre for Global Development: Washington, DC, 2020.
18. Usher, K.; Bhullar, N.; Durkin, J.; Gyamfi, N.; Jackson, D. Family violence and COVID-19: Increased vulnerability and reduced options for support. *Int. J. Ment. Health Nurs.* **2020**, *29*, 549–552. [[CrossRef](#)] [[PubMed](#)]
19. Bradshaw, S. Socio-Economic Impacts of Natural Disasters: A gender Analysis. 2004. United Nations Economic Commission for Latin America and the Caribbean, no. 33. Available online: <https://www.cepal.org/en/publications/5596-socio-economic-impacts-natural-disasters-gender-analysis> (accessed on 23 May 2022).
20. Neumayer, E.; Plümpert, T. The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002. *Ann. Assoc. Am. Geogr.* **2007**, *97*, 551–566. [[CrossRef](#)]
21. Blaskó, Z.; Papadimitriou, E.; Manca, A.R. How Will the COVID-19 Crisis Affect Existing Gender Divides in Europe? Publications Office of the European Union: Luxembourg, 2020.
22. Wenham, C.; Smith, J.; Morgan, R.; Group, G. COVID-19: The gendered impacts of the outbreak. *Lancet* **2020**, *395*, 846–848. [[CrossRef](#)] [[PubMed](#)]
23. Khan, A.K.; Lodhi, F.S.; Rabbani, U.; Ahmed, Z.; Abrar, S.; Arshad, S.; Irum, S.; Khan, M.I. Impact of Coronavirus Disease (COVID-19) Pandemic on Psychological Well-Being of the Pakistani General Population. *Front. Psychiatry* **2020**, *11*, 564364. [[CrossRef](#)] [[PubMed](#)]
24. Dhahri, A.A.; Arain, S.Y.; Memon, A.M.; Rao, A. The psychological impact of COVID-19 on medical education of final year students in Pakistan: A cross-sectional study. *Ann. Med. Surg.* **2020**, *60*, 445–450. [[CrossRef](#)]
25. Shoaib, M.; Abdullah, F. COVID-19 backlash: Psycho-social impacts of outbreak in Pakistan. *Health Educ.* **2021**, *121*, 265–274. [[CrossRef](#)]
26. World Bank. 2019. Available online: <https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS?locations=PK> (accessed on 23 May 2022).
27. OXFAM. If a Woman Does a Job, She Can Support Her Family as Well. 2019. Available online: <https://oxfamlibrary.openrepository.com/bitstream/handle/10546/620925/rr-community-discussions-gender-roles-pakistan-081019en.pdf;jsessionid=F7FD05485B39A9E9F18F52B11608EAAA?sequence=1> (accessed on 23 May 2022).
28. Imran, M.; Ozcatalbas, O. Determinants of household cooking fuels and their impact on women's health in rural Pakistan. *Env. Sci. Poll. Res.* **2021**, *27*, 23849–23861. [[CrossRef](#)]
29. IGC. Has COVID-19 Exacerbated Gender Inequalities in Pakistan? 2021. Available online: <https://www.theigc.org/blog/has-covid-19-exacerbated-gender-inequalities-in-pakistan/> (accessed on 23 June 2022).
30. Pindado, E.; Sánchez, M. Researching the entrepreneurial behaviour of new and existing ventures in European agriculture. *Small Bus. Econ.* **2017**, *49*, 421–444. [[CrossRef](#)]

31. Sippel, S.R. Breaking ground: Multi-family farm entrepreneurs in Moroccan export agriculture. *J. Rural. Stud.* **2016**, *45*, 279–291. [CrossRef]
32. Seuneke, P.; Lans, T.; Wiskerke, J.S. Moving beyond entrepreneurial skills: Key factors driving entrepreneurial learning in multifunctional agriculture. *J. Rural. Stud.* **2013**, *32*, 208–219. [CrossRef]
33. Yamano, T.; Sato, N.; Arif, B.W. *COVID-19 Impact on Farm Households in Punjab, Pakistan: Analysis of Data from a Cross-Sectional Survey*; Asian Development Bank: Mandaluyong, Philippines, 2020.
34. Shahbaz, P.; Boz, I.; Haq, S.U. Determinants of crop diversification in mixed cropping zone of Punjab Pakistan. *Direct Res. J. Agric. Food Sci.* **2017**, *5*, 360–366.
35. Abid, M.; Scheffran, J.; Schneider, U.A.; Ashfaq, M. Farmers' perceptions and adaptation strategies to climate change and their determinants: The case of Punjab province, Pakistan. *Earth Syst. Dyn.* **2015**, *6*, 225–243. [CrossRef]
36. Siddiqui, R. *Income, Public Social Services, and Capability Development: A Cross-District Analysis of Pakistan*; No. 2008: 43; Pakistan Institute of Development Economics: Islamabad, Pakistan, 2008.
37. Zorondo-Rodríguez, F.; Gómez-Baggethun, E.; Demps, K.; Ariza-Montobbio, P.; García, C.; Reyes-García, V. What defines quality of life? The gap between public policies and locally defined indicators among residents of Kodagu, Karnataka (India). *Soc. Indic. Res.* **2012**, *115*, 441–456. [CrossRef]
38. Ihsan, N.; Aziz, B. A multidimensional analysis of quality of life: Pakistan's context. *Soc. Indic. Res.* **2019**, *142*, 201–227. [CrossRef]
39. Van Praag, B.M.; Frijters, P.; Ferrer-i-Carbonell, A. The anatomy of subjective well-being. *J. Econ. Behav. Organ.* **2003**, *51*, 29–49. [CrossRef]
40. Hagerty, M.R.; Cummins, R.; Ferriss, A.L.; Land, K.; Michalos, A.C.; Peterson, M.; Sharpe, A.; Sirgy, J.; Vogel, J. Quality of life indexes for national policy: Review and agenda for research. *Bull. Sociol. Methodol./Bull. De Méthodologie Sociol.* **2001**, *71*, 58–78. [CrossRef]
41. Dluhy, M.; Swartz, N. Connecting knowledge and policy: The promise of community indicators in the United States. *Soc. Indic. Res.* **2006**, *79*, 1–23. [CrossRef]
42. Swain, D.; Hollar, D. Measuring progress: Community indicators and the quality of life. *Int. J. Public Adm.* **2003**, *26*, 789–814. [CrossRef]
43. Costanza, R.; Fisher, B.; Ali, S.; Beer, C.; Bond, L.; Boumans, R.; Danigelis, N.L.; Dickinson, J.; Elliott, C.; Farley, J.; et al. Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecol. Econ.* **2007**, *61*, 267–276. [CrossRef]
44. Haq, H. *Measuring Human Wellbeing in Pakistan: Objective Versus Subjective Indicators*; MPRA Paper, 38968; University Library of Munich: Munich, Germany, 2009.
45. Liao, P.S. Parallels between objective indicators and subjective perceptions of quality of life: A study of metropolitan and county areas in Taiwan. *Soc. Indic. Res.* **2009**, *91*, 99–114. [CrossRef]
46. Kingdon, G.G.; Knight, J. Subjective well-being poverty vs. income poverty and capabilities poverty? *J. Dev. Stud.* **2006**, *42*, 1199–1224. [CrossRef]
47. Türksever, A.N.E.; Atalik, G. Possibilities and limitations for the measurement of the quality of life in urban areas. *Soc. Indic. Res.* **2001**, *53*, 163–187. [CrossRef]
48. Li, L.; Young, D.; Wei, H.; Zhang, Y.; Zheng, Y.; Xiao, S.; Wang, X.; Chen, X. The relationship between objective life status and subjective life satisfaction with quality of life. *Behav. Med.* **1998**, *23*, 149–159. [CrossRef] [PubMed]
49. Helliwell, J.; Layard, R.; Sachs, J. World Happiness Report. 2013. Available online: http://unsdsn.org/wp-content/uploads/2014/02/WorldHappinessReport2013_online.pdf (accessed on 21 May 2022).
50. Rahman, T.; Mittelhammer, R.C.; Wandschneider, P.R. Measuring quality of life across countries: A multiple indicators and multiple causes approach. *J. Socio-Econ.* **2011**, *40*, 43–52. [CrossRef]
51. Haq, R.; Ahmed, A.; Shafique, S. Variation in the quality of life within Punjab: Evidence from MICS, 2007–2008. *Pak. Dev. Rev.* **2010**, *49*, 863–879.
52. Pak, A.; Adegboye, O.A.; Adegunle, A.I.; Rahman, K.M.; McBryde, E.S.; Eisen, D.P. Economic consequences of the COVID-19 outbreak: The need for epidemic preparedness. *Front. Public Health* **2020**, *8*, 241. [CrossRef]
53. Nicola, M.; Alsafi, Z.; Sohrabi, C.; Kerwan, A.; Al-Jabir, A.; Iosifidis, C. The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *Int. J. Surg.* **2020**, *78*, 185–193. [CrossRef]
54. Ahn, N.; García, J.R.; Jimeno, J.F. *The Impact of Unemployment on Individual Well-Being in the EU*; Working Paper, 29; European Network of Economic Policy Research Institutes: Belgium, Handle, 2004.
55. Selim, S. Life satisfaction and happiness in Turkey. *Soc. Indic. Res.* **2008**, *88*, 531–562. [CrossRef]
56. Kemp, B.; Bateham, A. The role of distress and social involvement in quality of life among people with spinal cord injury. *Top. Spinal Cord Inj. Rehabil.* **2010**, *16*, 72–80. [CrossRef]
57. Burckhardt, C.S.; Anderson, K.L. The Quality of Life Scale (QOLS): Reliability, validity, and utilization. *Health Qual. Life Outcomes* **2003**, *1*, 1–7.
58. Banister, D.; Bowling, A. Quality of life for the elderly: The transport dimension. *Transp. Policy* **2004**, *11*, 105–115. [CrossRef]
59. Ul Haq, S.; Boz, I.; Shahbaz, P. Measuring Tea Farmers' Perceptions of Sustainable Agriculture and Factors Affecting This Perception in Rize Province of Turkey. *J. Agric. Sci. Technol.* **2022**, *24*, 1043–1056.
60. Baker, S.R.; Bloom, N.; Davis, S.J.; Terry, S.J. *COVID-Induced Economic Uncertainty*; NBER Working Paper 26983; National Bureau of Economic Research: Cambridge, MA, USA, 2020.

61. Morganstein, J.C.; Ursano, R.J. Ecological disasters and mentalhealth: Causes, consequences, and interventions. *Front. Psychia-Try* **2020**, *11*, 1. [[CrossRef](#)] [[PubMed](#)]
62. Mroczek, D.K.; Kolarz, C.M. The effect of age on positive and negative affect: A developmental perspective on happiness. *J. Personal. Soc. Psychol.* **1998**, *75*, 1333–1349. [[CrossRef](#)] [[PubMed](#)]
63. Kalaylıoğlu, Y.; Öztürk, A.M.; Eker, G.B. *The Economic and Social Impact of COVID-19 on Women and Men: Rapid Gender Assessment of COVID-19 Implications in Turkey*; UN Women: New York, NY, USA, 2020.
64. UN. Policy Brief: The Impact of COVID-19 on Women. 2020. Available online: <https://www.unwomen.org/-media/headquarters/attachments/sections/library/publications/2020/policy-brief-the-impact-of-covid-19-on-women-en.pdf?la=en&vs=1406> (accessed on 23 May 2022).
65. Dang, H.A.H.; Nguyen, C.V. Gender inequality during the COVID-19 pandemic: Income, expenditure, savings, and job loss. *World Dev.* **2021**, *140*, 105296. [[CrossRef](#)]
66. Jacques-Aviñó, C.; López-Jiménez, T.; Medina-Perucha, L.; De Bont, J.; Gonçalves, A.Q.; Duarte-Salles, T.; Berenguera, A. Gender-based approach on the social impact and mental health in Spain during COVID-19 lockdown: A cross-sectional study. *BMJ Open* **2020**, *10*, e044617. [[CrossRef](#)]
67. Kowal, M.; Coll-Martin, T.; Ikizer, G.; Rasmussen, J.; Eichel, K.; Studzińska, A.; Koszałkowska, K.; Karwowski, M.; Najmussaib, A.; Pankowski, D.; et al. Who is the Most Stressed During the COVID-19 Pandemic? Data From 26 Countries and Areas. *Applied psychology. Health Well-Being* **2020**, *12*, 946–966. [[CrossRef](#)]
68. Jiménez-Pavón, D.; Carbonell-Baeza, A.; Lavie, C.J. Physical exercise as therapy to fight against the mental and physical consequences of COVID-19 quarantine: Special focus in older people. *Prog. Cardiovasc. Dis.* **2020**, *63*, 386–388. [[CrossRef](#)]
69. Haapala, E.A.; Vaisto, J.; Lintu, N. Physical activity and sedentary time in relation to academic achievement in children. *J. Sci. Med. Sport* **2017**, *20*, 583–589. [[CrossRef](#)]
70. Korczak, D.J.; Madigan, S.; Colasanto, M. Children’s physical activity and depression: A meta-analysis. *Pediatrics* **2017**, *139*. [[CrossRef](#)]
71. Saladino, V.; Algeri, D.; Auriemma, V. The psychological and social impact of COVID-19: New perspectives of well-being. *Front. Psychol.* **2020**, *11*, 2550. [[CrossRef](#)] [[PubMed](#)]
72. Madgavkar, A.; White, O.; Krishnan, M.; Mahajan, D.; Azcue, X. *COVID-19 and Gender Equality: Countering the Regressive Effects*; McKinsey Global Institute: Washington, DC, USA, 2020.
73. Ahmed, A. Gender Gap in Pakistan Widens Further. 2021. Available online: <https://www.dawn.com/news/1615763> (accessed on 21 August 2021).
74. Tran, B.X.; Nguyen, H.T.; Le, H.T.; Latkin, C.A.; Pham, H.Q.; Vu, L.G.; Le, X.T.T.; Nguyen, T.T.; Pham, Q.T.; Ta, N.T.K.; et al. Impact of COVID-19 on economic well-being and quality of life of the Vietnamese during the National social distancing. *Front. Psychol.* **2020**, *11*, 565153. [[CrossRef](#)] [[PubMed](#)]
75. Islam, M.M.; Alharthi, M. Impact of COVID-19 on the Quality of Life of Households in Saudi Arabia. *Int. J. Environ. Res. Public Health* **2022**, *19*, 1538. [[CrossRef](#)] [[PubMed](#)]
76. Adler, N.E.; Snibbe, A.C. The role of psychosocial processes in explaining the gradient between socioeconomic status and health. *Curr. Dir. Psychol. Sci.* **2003**, *12*, 119–123. [[CrossRef](#)]
77. Jalan, J.; Ravallion, M. Transient poverty in postreform rural China. *J. Comp. Econ.* **1998**, *26*, 338–357. [[CrossRef](#)]
78. Haq, S.U.; Shahbaz, P.; Boz, I. Knowledge, behavior and precautionary measures related to COVID-19 pandemic among the general public of Punjab province, Pakistan. *J. Infect. Dev. Ctries.* **2020**, *14*, 823–835. [[CrossRef](#)] [[PubMed](#)]