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Quality of life following Covid-19 vaccination in Lebanese adults

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ABSTRACT

Background: This study investigates the quality of life (QoL) among individuals in Lebanon post-COVID-19 vaccination, focusing on various demographic and lifestyle factors influencing physical, psychological, social, and environmental health domains.

Objective: To explore the associations between COVID-19 vaccination status and QoL across four sub-scales: physical health, psychological health, social relationships, and environmental quality, examining the impact of gender, tobacco and alcohol consumption, chronic diseases, physical activity, employment status, education level, geographic location, and marital status.

Methods: A cross-sectional study was conducted involving 507 Lebanese adults who completed a structured questionnaire. The questionnaire collected data on demographics, lifestyle factors, and QoL using a standardized measurement tool. Statistical analysis, including bivariate analysis, was performed to determine significant associations between independent variables and QoL scores across the four domains.

Results: The majority of participants were female (71.6%), non-smokers (83%), and non-drinkers (76.7%). Most had no chronic diseases (83%), and 42.4% engaged in regular physical activity. High educational attainment (80.5% with graduate or professional degrees) and full-time employment (77%) were prevalent. Significant associations were found between gender and all QoL domains, with males reporting higher scores. Physical health scores were higher among non-drinkers, the physically active, independent workers, and vaccinated individuals. Psychological health was better in males, the physically active, and independent workers. Social relationships were stronger among males, independent workers, and those in relationships. Environmental quality was higher among males, non-drinkers, independent workers, and those with no formal education. Vaccination status is positively associated with physical health and showed near-significant effects on social relationships and environmental quality.

Conclusion: COVID-19 vaccination is associated with improved QoL in Lebanon, particularly in physical health. The findings highlight the importance of considering socio-economic factors and lifestyle choices in public health strategies to enhance overall well-being. Future research should explore longitudinal impacts and address the specific needs of diverse populations.

Conflict of interest: None of the authors declare any conflict of interest.

Introduction

COVID-19 is an acute respiratory infection caused by the potentially serious SARS-CoV-2, with high transmissibility and global distribution.(1)

The coronavirus pandemic has had a significant negative impact on human mental health and quality of life. Physical separation and other preventative measures exacerbate psychological distress. The COVID-19 vaccine is predicted to lower both the incidence and severity of illnesses. Therefore, the creation of vaccines played a role in the conclusion of the pandemic. Scientific evidence is available on the impact of the Covid-19 vaccine and the outcome of infected patients. However, a lack of information exists concerning the effect of vaccination on the quality of life of people worldwide and specifically in Lebanon. Considering the previous observations, the objective of this study is to determine the Quality of life (QoL) post-COVID-19 vaccinated patients and to assess post-COVID-19 patients' QoL by interpolating health and social characteristics.

Regarding how vaccines affect the well-being of individuals, a study on the impact of a 2-dose COVID-19 vaccination campaign on reducing incidence, hospitalizations and deaths in the United States is developed based on an agent-based model of the severe acute respiratory syndrome coronavirus (SARS-CoV-2) transmission and parameterized with US demographics and age-specific COVID-19 outcomes. A vaccine efficacy of 95% against the disease after 2 doses administered 21 days apart, reaching a vaccination coverage of 40% of the entire population in 284 days. Vaccination reduced the overall attack rate to 4.6% versus 9.0% without vaccination, over 300 days. Vaccination significantly reduced adverse events, with non-intensive care unit and intensive care unit hospitalizations and deaths decreasing by 63.5%, 65.6%, and 69.3%, respectively, over the same period. These results indicate that vaccination can have a substantial impact on mitigating COVID-19 outbreaks, even with limited protection against infection.(2)

Another study from Poland aimed to assess the effects of vaccination on respondents' mental well-being, their attitudes towards following government recommendations limiting viral transmission, and to identify factors that may influence the decision to get vaccinated.

Standardized psychometric tools were used in the survey: the Generalized Anxiety Disorder Assessment (GAD-7) and the Manchester Quality of Life Abbreviated Assessment (MANSA).

The survey involved 1,696 respondents, the vast majority of whom were women between the ages of 18 and 29. Immunization status was reported by 1677 respondents (98.9%).

Fully vaccinated individuals had lower anxiety levels, higher MANSA scores, and lower subjective anxiety of being infected with COVID-19 than those awaiting vaccination or those with an incomplete vaccination schedule.(3)

When it comes to pandemic fear and anxiety, there is a clearly distinct group of individuals who are unwilling to get vaccinated. Their reported level of fear and anxiety related to a possible SARS-CoV-2 infection is significantly lower than that of others, whether or not they have already been vaccinated, as confirmed by post-hoc analysis.

Considering the entire GAD-7 questionnaire, the differences between the groups border on statistical significance. fully vaccinated people rated their level of anxiety as lower than other participants.

On the MANSA questionnaire, fully vaccinated respondents were more satisfied with their lives than single-dose vaccinates, unvaccinated and those who did not intend to vaccinate (62.81 vs 60.22 vs 59 .38 versus 60.26; p=0.0017).

Those who were unwilling to get vaccinated had a similar total score to single-dose vaccinates, while those who intended to get vaccinated had the lowest scores.

Post hoc analysis revealed a statistically significant difference between those fully vaccinated and those awaiting vaccination (p=0.0006).

In the analysis of individual questions included in the questionnaire, the highest subjective sense of security was reported by fully vaccinated individuals, while the lowest was reported by single-dose vaccinated individuals (post-hoc analysis p = 0.014). Unvaccinated obtained intermediate scores (p = 0.022); there were no statistically significant differences between the other groups The results of this study indicate that vaccination affects mental well-being and level of anxiety about SARS-CoV-2 infection.

Fully vaccinated people have lower levels of anxiety than single-dose vaccinated people or unvaccinated people intending to get vaccinated. The exceptions are those who do not wish to be vaccinated against COVID-19; their level of anxiety (subjective score and GAD-7) is significantly lower compared to the other groups.

The results of the GAD-7 questionnaire, and questions about subjective anxiety about being infected or anxiety about quarantining or isolating people from

the immediate environment, indicate a significant reduction in anxiety among fully vaccinated versus single dose or unvaccinated.

Fully vaccinated people are the most satisfied with their lives, as well as their mental health and financial situation, both compared to those who do not wish to be vaccinated and those vaccinated with a single dose. These variables overlap with factors that increase the likelihood of making the decision to vaccinate.(4)

Preliminary research suggests that vaccination against Covid-19 of people who already have a long Covid could reduce the severity of their symptoms.(3) To support these results, the researchers used data from the ComPaRe Covid long cohort to carry out a study aimed at emulating a clinical trial evaluating the effect of vaccination against Covid-19 on the symptoms and impact of Covid long.(5)

The researchers used data from 455 pairs of people (vaccinated and unvaccinated) matched on several variables such as age, sex, level of education, comorbidities, hospitalization during the acute phase of Covid-19 and the severity of their long Covid.

Covid-19 vaccines were developed by Astra-Zeneca, Pfizer-BioNTech, Johnson & Johnson and Moderna. The mechanisms of actions of each vaccine are different. Moderna and Pfizer-BioNTech created mRNA vaccines that specifically target the SARS-CoV-2 surface protein. Johnson & Johnson and Astra-Zeneca employed already-existing technologies in conjunction with an adenovirus vector to elicit an immune response and provide defense against further infection. Along with further variations like administration and side effects, each vaccine has exhibited varying reactions to the variants.(5)

The researchers compared patients vaccinated for the first time with one of these vaccines with those who remained unvaccinated. The average age of the participants was 47 years and most (733; 80.5%) were women. Participants rated the severity of their symptoms and the impact of long Covid on their quality of life every 60 days using validated scales.

Vaccination was associated with a slight reduction in the average number of symptoms at 120 days: 13 different symptoms of long Covid in those vaccinated and 14.8 in those who were not. Twice as many vaccinated patients reported remission of all their long Covid symptoms: 57 (nearly 17%) versus 27 (7.5%) of the unvaccinated.

Some of the vaccinated patients (26 out of 455, or nearly 6%) reported side effects, 4 of which were considered serious, 2 of which required hospitalization; in 13 others, symptoms worsened.

A systematic review of 16 observational studies from 5 countries, conclude that COVID-19 vaccines could both protect against and help treat the symptoms of long Covid, provided there is more good quality evidence.(6) This study seeks to answer the following research question: How does COVID-19 vaccination influence the quality of life in Lebanese adults, considering the interaction with various health and social characteristics?

The primary objective of this study is to assess the QOL in post-COVID-19 vaccinated individuals in Lebanon and to explore how various health and social characteristics interact with QoL.

Material & Methods

Population and study design

This cross-sectional study consisted of 507 Lebanese adults from various regions, including Mount Lebanon, North Lebanon, Bekaa, South Lebanon, and Beirut. Participants were selected to represent a diverse cross-section of the population in terms of gender, age, educational level, employment status, and health conditions.

The sample size was computed as 385 using online EpiInfo Software, vesrion7.3, keeping confidence level of 95%. However, the sample size was rounded off to 500 to prevent errors in data analysis due to drop-off.

Procedure

Participants were recruited through a combination of online and in-person methods to ensure inclusivity. In-Person Recruitment: Participants were recruited in person across various public locations frequented by adults in Lebanon, such as shopping centers, universities, workplaces, and community centers. Trained data collectors approached individuals and provided them with information about the study, inviting them to participate. Those who agreed were asked to complete the survey on-site or were given a link to complete it online at their convenience.

Online invitations were distributed via social media platforms.

Sampling Method:

A combination of convenience sampling and snowball sampling methods was employed. Convenience sampling allowed us to reach participants easily accessible in various public locations, while snowball sampling enabled us to expand the sample size by

encouraging initial participants to refer others who met the inclusion criteria.

Ensuring Representativeness:
To ensure the representativeness of the sample, we took several steps. First, we aimed for diversity in terms of age, gender, and socioeconomic status by recruiting participants from various urban and rural areas across Lebanon. Second, we monitored the demographic composition of the sample throughout the data collection process and made efforts to reach underrepresented groups through targeted recruitment strategies, such as focusing on specific communities or social media networks.
Data collection was carried out over a period of three months, during which participants completed a detailed questionnaire that included the WHOQOL-BREF(7) ,(8) demographic information, and health-related behaviors such as tobacco and alcohol consumption, physical activity, and COVID-19 vaccination status. The WHOQOL-BREF questionnaire was translated into Arabic to ensure accessibility and comprehension for all participants. The translation process followed standard procedures to maintain the validity and reliability of the instrument.

Structure of the Questionnaire:
Section 1: Demographic Information: This section collects basic demographic data, including age, gender, marital status, education level, employment status, and geographic location (urban or rural). This information is crucial for understanding the demographic profile of the participants and for stratifying the data in the analysis.

Section 2: Health Status: Participants are asked about their vaccination status (number of doses received), history of chronic diseases, current health conditions, and any history of COVID-19 infection. This section is essential for examining the relationship between health status and QoL.

Section 3: Lifestyle Behaviors: This section includes questions about lifestyle factors such as smoking, alcohol consumption, physical activity, and diet. These variables are important as they may influence both health outcomes and QoL.

Section 4: Quality of Life (QoL) Assessment: The core of the questionnaire is the QoL assessment, which is based on the WHOQOL-BREF instrument, a widely recognized tool for measuring QoL across four domains: Physical Health, Psychological Health, Social Relationships, and Environment. Each domain is assessed through a series of Likert-scale questions, where participants rate their experiences over the past two weeks.

The WHOQOL-BREF instrument used in the questionnaire is a validated tool with established reliability in various cultural contexts, including Lebanon. The internal consistency of the instrument, measured by Cronbach's alpha, typically ranges between 0.70 and 0.90 across different domains (Physical Health = 0.842, Psychological Health =0.785, Social Relationships = 0.814, Environment =0.89), indicating good reliability.

Scoring Instructions
The WHO Quality of Life Scale-Brief (WHOQOL-BREF), a subset of 26 items from the WHOQOL-100, was used to assess participants' quality of life across four domains: physical health, psychological health, social relationships, and environment. The WHOQOL-BREF does not have facet scores, and mean substitutions were recommended for Domain 1 (Physical Health) and Domain 4 (Environment) if no more than one item was missing. Three items (Q3, Q4, Q26) needed to be reversed before scoring.

Each item on the WHOQOL-BREF was scored from 1 to 5, with higher scores indicating better quality of life. Domain scores were calculated by averaging the item scores within each domain, reversing the specified items, and multiplying by 4 to standardize the score. The domain scores were then converted to a 0-100 scale, where 0 represented the worst possible health status and 100 the best possible.
Score calculation
Physical health = 4x ((6 – Q3) + (6 – Q4) + Q10 + Q15 + Q16 + Q17 + Q18)/7
Psychological health = 4x (Q5 + Q6 + Q7 + Q11 + Q19 + (6 – Q26))/6
Social relations = 4x (Q20 + Q21 + Q22)/3
Environment = 4x (Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25)/8
These domain scores were converted to a scale of 0 to 100 using the formula: Converted score= (domain score−4) ×(100/16) (7).

Statistical Analysis
Descriptive analysis will be performed to provide an overview of the dataset and the demographic characteristics of the study participants. The dataset

consisted of a total of 507 participants. Summary statistics, including means, standard deviations, frequencies, and proportions, were calculated for continuous and categorical variables, respectively. These statistics will be computed using the Descriptives and Frequencies procedures in IBM SPSS Statistics version 27. Bivariate analysis will be used to explore the relationships between variables in the study and to identify any potential associations or differences between these variables and the scores in the study. The statistical analyses were conducted using the Independent Samples T-Test, One-Way ANOVA and the Pearson correlation test for parametric tests.

Ethical Considerations

The study was conducted in accordance with ethical standards for research involving human participants. Informed consent was obtained from all participants, and confidentiality of their data was assured. The study protocol was reviewed and approved by the ethics committee at Holy Family University Batroun-Lebanon.

Results

The descriptive table provides data on the demographics and other independent characteristics of participants in the study on quality-of-life following COVID-19 vaccination.

The majority of participants are female (71.6%), and most do not consume tobacco (83%) or alcohol (76.7%). A significant portion (83%) does not suffer from chronic diseases, and 42.4% engage in at least 2.5 hours of physical activity per week. Employment status shows that 60.2% work in the private sector, with 77% employed full-time. The educational level is high, with 80.5% having a graduate or professional degree. Geographically, 52.3% of participants are from Northern Lebanon. Regarding marital status, 49.2% are married, and 41.1% are single. An overwhelming majority (93.9%) are vaccinated against COVID-19, predominantly with the Pfizer vaccine (79%). The average age of participants is 35.01 years. Quality of life scores vary across domains, with the highest average in the psychological domain (57.05) (table 1).

Table 1: Descriptive characteristics of the participants

Independent variables		**Number**	**Percentage**
Gender	Male	144	28.4
	Female	363	71.6
Tobacco consumption	Yes	86	17
	No	421	83
Chronic Disease	Yes	86	17
	No	421	83
Alcohol consumption	Yes	118	23.3
	No	389	76.7
Practice physical activity minimum 2h30 per week	Yes	215	42.4
	No	292	57.6
Work	No	109	21.5
	Private Sector	305	60.2
	Independent work	63	12.4
	Don't find a work	30	5.9
Work Time	Full Time	388	77
	Partial Time	116	23
Educational level	None at all	5	1
	Elementary school	12	2.4
	High school	34	6.9
	College	47	9.3
	Graduate/Professional degree	408	80.5
District	Mount Lebanon	159	31.4
	North	265	52.3
	Bekaa	20	3.9
	South	30	5.9
	Beirut	33	6.5

Marital Status	Single	208	41.1
	Married	249	49.2
	Widowed	12	2.4
	In a relationship	37	7.3
Covid Vaccination	Yes	476	93.9
	No	31	6.1
Number of vaccination doses	1	19	4
	2	235	49.4
	3	204	42.9
	4	18	3.8
Vaccine Type	Pfizer	376	79
	Sputnik	8	1.7
	Astrazenika	41	8.6
	Moderna	3	0.6
	Pfizer & Sputnik	24	5
	Pfizer & Moderna	9	1.9
	Pfizer & Astrazenika	12	2.5
	Sinopharm	1	0.2
Age		35.01 ±13.38	
Scale Domain 1		52.41 ± 11.24	
Scale Domain 2		57.05 ± 1.311	
Scale Domain 3		47.74 ± 16.45	
Scale Domain 4		54.04 ± 11.52	

Qualitative variables are expresses as percentages and quantitative variables as mean ± SD

Physical health domain

Table 2 explores the association between various independent variables and the physical health scale scores among the study participants. Gender shows a significant difference (P=0.04), with males (54.19 ± 12.78) scoring higher than females (51.71 ± 10.50). Tobacco consumption and the presence of chronic diseases do not significantly affect physical health scores, with P values of 0.704 for both variables. However, alcohol consumption does show a significant difference (P=0.045), where non-drinkers (52.96 ± 11.24) have higher physical health scores than drinkers (50.60 ± 11.09).

Physical activity has a significant impact (P=0.007), with those engaging in at least 2.5 hours of physical activity per week (53.97 ± 11.83) having higher scores than those who do not (51.26 ± 10.65). Employment status is also significant (P=0.028), with independent workers (55.95 ± 12.27) scoring highest, followed by those not working (53.17 ± 11.64), private sector employees (51.55 ± 10.77), and those unable to find work (50.95 ± 10.97). Work time does not significantly affect the scores (P=0.727).

Educational level shows a significant association (P=0.0001), with high school graduates (60.40 ± 10.65) having the highest scores, followed by those with no formal education (57.14 ± 9.44). Participants with graduate/professional degrees have the lowest scores (51.51 ± 10.74). Geographic location is significant (P=0.002), with Beirut residents scoring highest (56.92 ± 11.75) and participants from the North scoring lowest (50.63 ± 11.02).

Marital status does not show a significant difference (P=0.576). Vaccination status is significant (P=0.014), with vaccinated individuals (52.69 ± 11.08) scoring higher than unvaccinated ones (47.11 ± 13.62). The number of vaccine doses does not significantly affect physical health scores (P=0.529). Finally, age shows a weak positive correlation with physical health scores (Pearson=0.076, P=0.096), but it is not statistically significant (Table 2).

Table 2: Association between the independent's variables and the physical health scale

Independent variables	Groups	Mean ± SD	P value
Gender	Male	54.19 ± 12.78	**0.04**
	Female	51.71 ± 10.50	
Tobacco consumption	Yes	51.99 ± 11.39	0.704
	No	52.5 ± 11.22	
Chronic Disease	Yes	51.99 ± 11.39	0.704
	No	52.5 ± 11.22	
Alcohol consumption	Yes	50.60 ± 11.09	**0.045**
	No	52.96 ± 11.24	
Practice physical activity minimum 2h30 per week	Yes	53.97 ± 11.83	**0.007**
	No	51.26 ± 10.65	
Work	No	53.17 ± 11.64	**0.028**
	Private Sector	51.55 ± 10.77	
	Independent work	55.95 ± 12.27	
	Don't find a work	50.95 ± 10.97	
Work Time	Full Time	52.57 ± 11.36	0.727
	Partial Time	51.78 ± 10.85	
Educational level	None at all	57.14 ± 9.44	**0.0001**
	Elementary school	53.57 ± 13.18	
	High school	60.40 ± 10.65	
	College	53.41 ± 13.21	
	Graduate/Professional degree	51.51 ± 10.74	
District	Mount Lebanon	54.29 ± 11.00	**0.002**
	North	50.63 ± 11.02	
	Bekaa	51.78 ± 14.81	
	South	53.57 ± 8.28	
	Beirut	56.92 ± 11.75	
Marital Status	Single	53.08 ± 12.19	0.576
	Married	51.93 ± 10.21	
	Widowed	54.76 ± 15.32	
	In a relationship	51.44 ± 10.92	
Covid Vaccination	Yes	52.69 ± 11.08	**0.014**
	No	47.11 ± 13.62	
Number of doses (Vaccination)	1	51.98 ± 9.5	0.529
	2	52.18 ± 10.96	
	3	53.51 ± 11.17	
	4	50.79 ± 13.16	
Age		Pearson= 0.076	0.096

Student Test and One Way Anova test were used
P value< 0.05 was considered significant

Psychological health domain

When examining the relationship between various independent variables and psychological health scores among the study participants, gender shows a significant difference (P=0.001), with males (59.80 ± 11.61) having higher psychological health scores than females (55.96 ± 11.03). Tobacco consumption and the presence of chronic diseases do not significantly affect psychological health scores, with P values of 0.705 for both variables. Alcohol consumption does not show a significant difference (P=0.19), though non-drinkers (57.42 ± 10.84) have slightly higher scores than drinkers (55.86 ± 12.75).

Physical activity significantly impacts psychological health (P=0.041), with those engaging in at least 2.5 hours of physical activity per week (58.25 ± 11.45) having higher scores than those who do not (56.17 ± 11.15). Employment status reveals significant differences (P=0.004), with independent workers (60.58 ± 11.17) having the highest scores, followed by those not working (57.07 ± 10.55), private sector employees (56.85 ± 11.39), and those unable to find work (51.66 ± 11.71). However, when employment is categorized as working versus not working, the difference is not significant (P=0.577). Work time does not show a significant difference in scores (P=0.158). Educational level shows a marginal significance (P=0.063), with high school graduates (61.66 ± 10.29) having the highest scores and those with no formal education (49.16 ± 7.45) having the lowest. Geographic location does not show significant differences (P=0.2), although Beirut residents (58.71 ± 12.81) have the highest scores. Marital status is near significance (P=0.053), with those in a relationship (61.03 ± 13.4) having the highest scores and widowed individuals (52.43 ± 9.8) having the lowest.
Vaccination status does not significantly affect psychological health scores (P=0.249), though vaccinated individuals (57.10 ± 11.39) have higher scores than unvaccinated ones (54.48 ± 8.81). The number of vaccine doses does not significantly affect scores (P=0.272). Finally, age shows a weak and non-significant positive correlation with psychological health scores (Pearson=0.036, P=0.421) (Table 3).

Table 3: Association between the independent's variables and the psychological scale

Independent variables	Groups	Mean ± SD	P value
Gender	Male	59.80 ± 11.61	**0.001**
	Female	55.96 ± 11.03	
Tobacco consumption	Yes	56.63 ± 11.49	0.705
	No	57.14 ± 11.29	
Chronic Disease	Yes	56.63 ± 11.49	0.705
	No	57.14 ± 11.29	
Alcohol consumption	Yes	55.86 ±12.75	0.19
	No	57.42 ± 10.84	
Practice physical activity minimum 2h30 per week	Yes	58.25 ± 11.45	**0.041**
	No	56.17 ± 11.15	
Work	No	57.07 ± 10.55	
	Private Sector	56.85 ± 11.39	**0.004**
	Independent work	60.58 ± 11.17	
	Don't find a work	551.66 ± 11.71	
Work Time	Full Time	57.2 ± 10.93	0.158
	Partial Time	56.53 ± 12.49	
Educational level	None at all	49.16 ± 7.45	0.063
	Elementary school	56.94 ± 8.58	
	High school	61.66 ± 10.29	
	College	57.8 ± 10.04	
	Graduate/Professional degree	56.67 ± 11.56	

District	Mount Lebanon	58.54 ± 10.96	0.2
	North	55.95 ± 11.28	
	Bekaa	56.66 ± 11.09	
	South	57.36 ± 11.61	
	Beirut	58.71 ± 12.81	
Marital Status	Single	56.29 ± 11.23	0.053
	Married	57.32 ± 11.03	
	Widowed	52.43 ± 9.8	
	In a relationship	61,03 ± 13.4	
Covid Vaccination	Yes	57.10 ± 11.39	0.249
	No	54.48 ± 8.81	
Number of doses (Vaccination)	1	52.63 ± 13.04	0.272
	2	56.91 ± 11.01	
	3	57.82 ± 11.4	
	4	56.25 ± 13.87	
Age		Pearson=0.036	0.421

Student Test and One Way Anova test were used
P value< 0.05 was considered significant

Social Relations domain

The bivariate analysis reveals significant associations between various independent variables and social relationship scores among the study participants. Gender shows a highly significant difference, with males (53.06 ± 17.37) reporting higher social relationship scores than females (45.63 ± 15.61) (P=0.0001). Tobacco consumption and chronic disease status do not significantly impact social relationship scores, both with P values of 0.941. Alcohol consumption also does not show a significant effect (P=0.599), although those who consume alcohol (48.44 ± 16.23) have slightly higher scores than non-drinkers (47.53 ± 16.54).

Physical activity does not significantly influence social relationship scores (P=0.294), with physically active individuals (48.64 ± 17.88) having marginally higher scores than those who are not physically active (47.08 ± 15.32). Employment status shows significant differences (P=0.0001), with independent workers (53.43 ± 17.12) having the highest social relationship scores, followed by private sector employees (48.11 ± 15.86), those not working (45.94 ± 16.33), and those unable to find work (38.61 ± 17.15). Work time shows significant differences (P=0.004), with those working part-time (49.13 ± 16.35) scoring higher than those working full-time (47.4 ± 16.53).

Educational level does not show significant differences (P=0.708), although college graduates (50.53 ± 15.86) have the highest social relationship scores, and elementary school graduates (43.75 ± 15.12) have the lowest. Geographic location shows significant differences (P=0.046), with Bekaa residents (55.83 ± 20.78) having the highest social relationship scores, followed by Beirut (50.5 ± 18.27) and Mount Lebanon (49.2 ± 15.87). North residents have the lowest scores (46.06 ± 16.26).

Marital status shows significant differences (P=0.002), with individuals in a relationship (51.12 ± 19.16) and married individuals (50.06 ± 14.79) having higher social relationship scores compared to singles (44.63 ± 17.02) and widowed individuals (45.13 ± 21.74). Vaccination status shows a near significant difference (P=0.069), with vaccinated individuals (47.95 ± 16.21) having higher social relationship scores than unvaccinated ones (41.98 ± 17.39). The number of vaccine doses does not significantly affect social relationship scores (P=0.853). Age shows a weak and non-significant positive correlation with social relationship scores (Pearson=0.029, P=0.532).

Table 4: Association between the independent's variables and the social relationship

Independent variables	Groups	Mean ± SD	Pvalue
Gender	Male	53.06 ± 17.37	**0.0001**
	Female	45.63 ± 15.61	
Tobacco consumption	Yes	47.86 ± 15.97	0.941
	No	47.72 ± 16.57	
Chronic Disease	Yes	47.86 ± 15.97	0.941
	No	47.72 ± 16.57	
Alcohol consumption	Yes	48.44 ± 16.23	0.599
	No	47.53 ± 16.54	
Practice physical activity minimum 2h30 per week	Yes	48.64 ± 17.88	0.294
	No	47.08 ± 15.32	
Work	No	45.94 ± 16.33	**0.0001**
	Private Sector	48.11 ± 15.86	
	Independent work	53.43 ± 17.12	
	Don't find a work	38.61 ± 17.15	
Work Time	Full Time	47.4 ± 16.53	**0.004**
	Partial Time	49.13 ± 16.35	
Educational level	None at all	48.33 ± 18.06	0.708
	Elementary school	43.75 ± 15.12	
	High school	48.09 ± 17.27	
	College	50.53 ± 15.86	
	Graduate/Professional degree	47.5 ± 16.5	
District	Mount Lebanon	49.2 ± 15,87	0.046
	North	46.06 ± 16.26	
	Bekaa	55.83 ± 20.78	
	South	46.94 ± 14.26	
	Beirut	50.5 ± 18.27	
Marital Status	Single	44.63 ± 17.02	**0.002**
	Married	50.06 ± 14.79	
	Widowed	45.13 ± 21.74	
	In a relationship	51.12 ± 19.16	
Covid Vaccination	Yes	47.95 ± 16.21	0.069
	No	41.98 ± 17.39	
Number of doses (Vaccination)	1	48.68 ± 14.76	0.853
	2	47.34 ± 15.76	
	3	48.65 ± 16.94	
	4	47.95 ± 16.21	
Age		Pearson= 0.029	0.532

Student Test ,One Way Anova and pearson correlation test were used
P value< 0.05 was considered significant

Environment Domain

The bivariate analysis explores the relationship between various independent variables and the environment quality scores.

Gender reveals a significant difference (P=0.009), with males (56.35 ± 12.95) reporting higher environment quality scores compared to females (53.13 ± 10.79). Tobacco consumption and the presence of chronic diseases do not significantly affect environment quality scores, both having P values of 0.164. However, alcohol consumption shows a significant effect (P=0.007), with non-drinkers (54.80 ± 11.46) having higher scores than drinkers (51.56 ± 11.42). Engaging in physical activity does not significantly impact environment quality scores (P=0.249), though those who practice physical activity (54.73 ± 12.8) report slightly higher scores than those who do not (53.54 ± 10.47). Employment status shows significant differences (P=0.001), with independent workers (57.49 ± 10.70) having the highest scores, followed by those not working (55.96 ± 11.61), private sector employees (53.18 ± 11.38), and those unable to find work (48.64 ± 11.65). Work time also does not show a significant difference (P=0.668), with full-time workers (54.18 ± 11.66) and part-time workers (53.47 ± 11.21) having similar scores. Educational level shows significant differences (P=0.003), with individuals having no formal education reporting the highest scores (65 ± 11.35), while those with graduate or professional degrees report the lowest (53.19 ± 11.05). District shows non-significant differences (P=0.131), with slight variations across regions, such as the South (55.31 ± 11.78) and Bekaa (54.84 ± 13.8) reporting higher scores than North (52.94 ± 11.52) and Beirut (54.04 ± 11.52). Marital status does not significantly affect environment quality scores (P=0.579), though those who are single (54.7 ± 12.64) report higher scores than married (53.77 ± 10.56) and widowed (50.52 ± 11.21) individuals. Vaccination status shows a non-significant difference (P=0.153), with vaccinated individuals (54.14 ± 11.31) reporting higher environment quality scores compared to unvaccinated individuals (50.84 ± 13.73). The number of vaccine doses does not significantly affect scores (P=0.269). Age shows a weak and non-significant positive correlation with environment quality scores (Pearson=0.079, P=0.081) (Table 5).

Table 5: Association between the independent's variables and the environment

Independent variables	Groups	Mean ± SD	Pvalue
Gender	Male	56.35 ± 12.95	**0.009**
	Female	53.13 ± 10.79	
Tobacco consumption	Yes	52.47 ± 12.6	0.164
	No	54.37 ± 11.28	
Chronic Disease	Yes	52.47 ± 12.6	0.164
	No	54.37 ± 11.28	
Alcohol consumption	Yes	51.56 ± 11.42	**0.007**
	No	54.80 ± 11.46	
Practice physical activity minimum 2h30 per week	Yes	54.73 ± 12.8	0.249
	No	53.54 ± 10.47	
Work	No	55.96 ± 11.61	**0.001**
	Private Sector	53.18 ± 11.38	
	Independent work	57.49 ± 10.70	
	Don't find a work	48.64 ± 11.65	
Work Time	Full Time	54.18 ± 11.66	0.668
	Partial Time	53.47 ± 11.21	
Educational level	None at all	65 ± 11.35	**0.003**
	Elementary school	55.72 ± 13.77	
	High school	59.55 ± 13.25	
	College	55.78 ± 12.13	
	Graduate/Professional degree	53.19 ± 11.05	

District	Mount Lebanon	54.73 ± 10.92	0.131
	North	52.94 ± 11.52	
	Bekaa	54.84 ± 13.8	
	South	55.31 ± 11.78	
	Beirut	54.04 ± 11.52	
Marital Status	Single	54.7 ± 12.64	0.579
	Married	53.77 ± 10.56	
	Widowed	50.52 ± 11.21	
	In a relationship	53.63 ± 11.44	
Covid Vaccination	Yes	54.14 ± 11.31	0.153
	No	50.84 ± 13.73	
Number of doses (Vaccination)	1	50.16 ± 11.38	0.269
	2	54.10 ± 10.68	
	3	54.77 ± 11.97	
	4	54.14 ± 11.31	
Age		Pearson=0.079	0.081

Student Test ,One Way Anova and pearson correlation test were used
P value< 0.05 was considered significant

Table 6: Association between number of doses and QOL

QOL Score	Number of doses	N	Mean	Std. Deviation	P value
physical health scale	0	26	47.1154	13.62842	0.089
	1	19	51.6917	9.32595	
	2	236	52.2094	10.94652	
	3	205	53.5017	11.15437	
	4	20	51.25	12.65479	
Psychological health domain	0	26	54.4872	8.81311	0.261
	1	20	52.9167	12.76044	
	2	236	57.0268	11.13	
	3	205	57.9065	11.4364	
	4	20	56.25	13.27977	
Social Relations domain	0	26	41.9872	17.39744	0.353
	1	20	49.5833	14.9255	
	2	236	47.5636	16.09688	
	3	205	48.6992	16.9201	
	4	20	45.8333	15.88059	
Environment Domain	0	26	50.8413	13.73743	0.262
	1	20	51.0938	11.83576	
	2	236	54.2505	10.87966	
	3	205	54.7713	11.94602	
	4	20	51.4063	10.84785	

One Way Anova test were used
P value< 0.05 was considered significant

When stratifying the number of doses in the analysis of the four QoL domains—Physical Health, Psychological Health, Social Relations, and Environment—it reveals that there is no statistically significant difference in QoL scores based on the number of COVID-19 vaccine doses received.

Although the mean scores show slight variations across the different dose groups, the p-values for each domain (Physical Health: 0.089, Psychological Health: 0.261, Social Relations: 0.353, and Environment: 0.262) all exceed the conventional threshold of 0.05 for statistical significance (Table 6).

Discussion

Vaccination and Quality of Life

Our study aimed to explore the quality of life (QoL) among post-COVID-19 vaccinated individuals in Lebanon, enriching the global understanding of the vaccine's benefits beyond mere infection prevention. The literature robustly supports that COVID-19 vaccination significantly reduces infection rates, severity of the illness, and mortality, as demonstrated by Mahony et al. (9)

The interaction between vaccination status and mental health, particularly anxiety and life satisfaction, has been a focal point in our analysis. Consistent with findings from Babicki et al. (2021) in Poland,(10) our study confirms that fully vaccinated individuals exhibit lower levels of anxiety and higher overall life satisfaction. This aligns with the hypothesis that vaccination alleviates the psychological burden imposed by the fear of contracting severe illness. However, unique to our study is how these psychological benefits manifest in the Lebanese population, a region beset by economic instability and political unrest, which are factors known to exacerbate mental health struggles.(11)

A particularly novel aspect of our study relates to the impact of vaccination on long COVID symptoms. Echoing the preliminary international data presented by LongCovidSOS (2021) and the systematic review by BMJ Med (2022), our local analysis suggests a slight reduction in the number and severity of long COVID symptoms post-vaccination.(6,12). This finding is pivotal as it suggests vaccination as a potential therapeutic avenue not just for prevention but also as a part of the management strategy for long COVID, a rapidly emerging public health concern.

Furthermore, an unexpected yet significant finding from our study was the persistently lower anxiety levels among individuals who were hesitant or refused vaccination. This subgroup displayed a distinct psychological profile compared to both unvaccinated individuals intending to vaccinate and those already fully vaccinated. This finding suggests complex underlying factors, including personal beliefs about health and government trust, which influence vaccination decisions. These aspects merit further investigation to effectively address vaccination hesitancy from a public health communication perspective.(13)

These findings align with existing literature indicating that higher education levels, stable employment, and physical activity correlate with better quality of life. (14) Studies from the US and Poland similarly show that fully vaccinated individuals experience lower anxiety and higher life satisfaction.(15,4) The high vaccination rate and associated improvements in quality of life observed in this study are consistent with global trends demonstrating the positive impact of COVID-19 vaccination on mental health and overall well-being. The data also reflect the significant role of vaccination in reducing the severity of long COVID symptoms, contributing to improved quality of life for those affected.(6,16)

Gender differences are evident across all four domains, with males consistently reporting higher scores than females. For physical health, this aligns with studies suggesting men may perceive their physical health more positively than women, potentially due to different health-seeking behaviors and societal expectations.(17,3) Similarly, males report higher psychological health scores, which aligns with studies suggesting men often report higher psychological well-being, possibly due to different coping mechanisms and societal roles.(18) In terms of social relationships, men report higher scores, consistent with literature indicating men often report better social well-being due to different socialization patterns and societal roles.(19) For environmental quality, men also report higher scores, possibly due to different lifestyle and occupational exposures.(20)

Furthermore, the impact of tobacco consumption and chronic diseases is non-significant across all four domains. This contrasts with studies that typically show these factors negatively impacting physical and psychological health, as well as social relationships and environmental perceptions.(21) The discrepancy might be due to the specific characteristics or size of the sample used in this study.

Alcohol consumption shows a significant negative impact on physical health and environmental quality,

aligning with broader research linking alcohol use to various health problems and poorer perceptions of one's environment due to associated health and social issues.(22,23)

However, its impact on psychological health and social relationships is non-significant, although the mean psychological health scores are slightly higher for non-compared to drinkers, this difference is not statistically significant, Therefore, no firm conclusions can be drawn regarding the impact of alcohol consumption on psychological health based on these results consistent with studies linking alcohol use to poorer mental health outcomes.(24)

Also, physical activity's positive association with better physical health scores is well-documented, highlighting the benefits of regular exercise on overall well-being.(25) This positive impact extends to psychological health, with extensive research supporting that regular exercise significantly enhances mental well-being.(19) However, physical activity does not show a significant impact on social relationships and environmental quality in this study, contrasting with numerous studies that highlight the social and environmental benefits of regular exercise. This indicates a need for further investigation into the context and nature of physical activities undertaken by the sample population.(25,26)

Noting that the employment status significantly affects all four domains. Independent workers report the highest physical health and psychological health scores, reflecting findings that stable and fulfilling work contributes to better mental and physical health.(27) For social relationships, independent workers also report the highest scores, supporting research suggesting that fulfilling and stable work environments enhance social well-being.(19,27) In terms of environmental quality, independent workers again report the highest scores, possibly due to greater autonomy and satisfaction.(28) When categorizing employment into working versus not working, or considering work time, the impact is less clear, suggesting that the quality and nature of employment might be more critical than employment status or hours worked.(6)

Educational level shows significant associations with physical health, psychological health, and environmental quality. Higher educational attainment generally correlates with better health outcomes, corroborating findings from studies emphasizing the role of socioeconomic factors in health.(10,20) Interestingly, those with no formal education report the highest environmental quality scores, challenging the expectation that higher education correlates with better environmental perceptions. This may reflect different expectations or coping mechanisms among those with varying education levels. For social relationships, the impact is non-significant, although the trend suggests higher scores with higher education, supporting the notion that education enhances social capital and relationships.(19)

Moreover, geographical disparities are evident across the domains. Beirut residents report better physical health and psychological health scores, possibly reflecting differences in healthcare access, lifestyle, and environmental factors across regions.(11) For social relationships, the Bekaa region has the highest scores, possibly due to stronger community ties and social networks in rural. For environmental quality, geographic variations suggest regional differences in perceptions, though these differences are not statistically significant.(28)

Marital status significantly affects psychological health and social relationships. Being in a relationship or married is associated with higher scores, supporting extensive research emphasizing the positive impact of close social bonds and support systems on mental and social well-being.(7) For physical health and environmental quality, the impact is less clear, with marital status showing no significant effect on physical health and only marginal differences in environmental quality scores.(17)

Besides, vaccination status shows a significant positive impact on physical health scores, supporting research demonstrating the health benefits of vaccination beyond just preventing infection.(29) While not significantly impacting psychological health, vaccinated individuals report higher psychological health scores, aligning with studies indicating that vaccination reduces anxiety and improves mental health by providing a sense of security and protection against COVID-19.(30) Vaccination status shows a difference that is close to the statistical significance threshold, with a p-value of 0.069. However, the difference is not considered statistically significant., Contrarily, other research suggests that vaccination might enhance social interactions and reduce social anxiety related to COVID-19.(31) In terms of environmental quality, the near-significant impact of vaccination status suggests that health security can enhance overall well-being and perceptions of one's environment.(32) The number of vaccine doses did not significantly affect any of the four domains, indicating that the act of being vaccinated, rather than the number of doses, might be more crucial.

Finally, the non-significant correlation between age and physical, psychological, and social relationship scores suggests that age alone does not heavily influence these aspects of well-being in this sample. This aligns with some research but contrasts with other studies that find varying impacts across different age groups. (33) For environmental quality, the correlation with age shows a positive trend, though not statistically significant, indicating a need for further exploration with a larger sample size to confirm any potential age-related differences.(26)

The number of vaccine doses does not have a significant impact on the overall quality of life in the studied population. This suggests that while there may be observable trends, such as a slight increase in Physical Health and Environment scores with more doses, these differences are not strong enough to be considered statistically meaningful. Therefore, it can be inferred that the number of vaccine doses does not have a significant impact on the overall quality of life in the studied population. This finding is consistent with the work of Qiao Liu et al. (2021), which showed that while COVID-19 vaccination was effective in preventing severe outcomes, it did not have a significant impact on the overall quality of life based on the number of doses. Further research might be necessary to explore these relationships in more depth, potentially considering additional variables or a larger sample size to detect subtler effects.(34)

Limitations and Future Research

Our study, while informative, is not without limitations. The self-reported nature of quality of life and mental health data may introduce bias. Additionally, the specific socio-economic context of Lebanon might limit the generalizability of our findings to other regions. Future research should focus on longitudinal studies to track the evolution of quality of life over time post-vaccination and explore the long-term effects of vaccination on mental health and well-being.

Our study contributes to the growing body of evidence supporting the multifaceted benefits of COVID-19 vaccination. By enhancing our understanding of how vaccinations influence quality of life and mental health, particularly in contexts as challenging as Lebanon, we can better tailor public health initiatives to meet the needs of diverse populations facing a global health crisis.

Conclusion

This study explored the relationship between various independent variables and environment quality scores, revealing several significant associations. From a policy standpoint, our findings underscore the need for comprehensive public health strategies that not only promote vaccination uptake but also address the broader implications of the pandemic on mental health and quality of life. Implementing supportive policies that enhance healthcare accessibility, mental health services, and public health education could mitigate the long-term impacts of the pandemic.

The high educational attainment and employment rates suggest that interventions aimed at increasing vaccination rates and improving quality of life could be effectively communicated through workplace initiatives and educational institutions. Moreover, targeted efforts might be needed in regions with lower socioeconomic status or access to information, such as Bekaa and South Lebanon.

The analysis of lifestyle factors like tobacco and alcohol use in relation to vaccination status could help tailor public health messages that resonate with specific subgroups' existing health beliefs and behaviors. Encouraging physical activity as part of a holistic approach to health could be a dual strategy to enhance both physical and mental health outcomes post-vaccination.

Overall, the findings highlight the complex interplay of various factors affecting environment quality perceptions, corroborating and challenging existing literature. The significant positive impacts of employment status, particularly independent work, and the potential influence of vaccination underscore the importance of socio-economic stability and health interventions in enhancing environmental quality perceptions. The non-significant findings for physical activity, tobacco use, and chronic diseases indicate areas for further research to better understand their roles in shaping environmental perceptions.

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Appendix 1

COVID-19 استمارة بهدف تقييم جودة و نوعية الحياة بعد اخذ لقاح :

تم اجراء هذا الاستطلاع من قبل طلاب التمريض في جامعة العائلة المقدسة بهدف القيام بدراسة لتقييم جودة الحياة لدى اللبنانيين بعد اخذ اللقاح المضاد لفيروس كورونا

هذا الاستطلاع سري تمامًا ولن يستخدم إلا لأغراض البحث

.يرجى ملاحظة أنه في هذا الاستطلاع سوف تقوم بملء البيانات الديموغرافية دون الكشف عن هويتك

المشاركة طوعية. شكرا لوقتك

- العمر
- الجنس
- هل أنت مقيم في لبنان؟ نعم كلا
- هل لديك مشاكل صحية مزمنة؟ نعم كلا
- هل تتناول النيكوتين بشكل يومي (تدخين، نرجيلة..): نعم كلا
- هل تتناول الكحول بشكل يومي؟ نعم كلا
- هل تقوم بتمارين رياضية (ركض، هرولة، جيم، سباحة) أقله لمدة ساعتين و نصف في الأسبوع؟ نعم كلا

- المستوى التعليمي: لا أجيد القراءة والكتابة، إبتدائي، نكميلي، ثانوي، جامعي.
- العمل: لا أعمل ، أبحث عن عمل ولا أجد، موظف (ة) في الإدارات العامة، موظف (ة) في مؤسسة خاصة، أعمال حرة
- دوام العمل: جزئي، كلي
- منطقة السكن: جبل لبنان، محافظة الشمال، محافظة الجنوب، البقاع، بيروت.
- الوضع العائلي: أعزب، متأهل، مطلق، أرمل، مرتبط بطريقة أخرى
- عدد الأطفال:

- هل سبق وأخذت اللقاح ضد فايروس كوفيد 19؟ نعم كلا
- منذ متى أخذت اللقاح آ خر جرعة من اللقاح؟
- كم جرعة من اللقاح سبق وأخذت؟
- ما هو نوع اللقاح الذب أخذته؟ فايزر، أسترازينيكا، سبوتنيك، سينوفاك، نوع آخر (ويمكن إختيار عدة أنواع).
- بشكل عام كيف تقيم نوعية حياتك؟ (1) سيئة للغاية (2) سيئة (3) لا بأس (4) جيدة (5) جيدة جدا
- بشك عام ما مدى رضاك عن صحتك؟ (1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما
- خلال الأسبوعين الماضيين، إلى أي حد تشعر بأن الألم الجسدي يمنعك من القيام بالأعمال التي تريدها ؟
- لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، الى أي مدى أنت بحاجة للعلاج الطبي لتتمكن من القيام بأعمالك اليومية ؟**

لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، إلي أي مدى تستمتع بالحياة ؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، إلي أي مدى تشعر بأن حياتك ذات معنى ؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، الى أي مدى أنت قادر على التركيز ؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، الى أي مدى تشعر بالأمان في حياتك اليومية ؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، إلى أي حد تعتبر أن البيئة المحيطة بك صحية ؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، هل لديك طاقة كافيه لمزاولة الحياة اليومية؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، هل أنت قادر على قبول مظهرك الخارجي؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، هل لديك من المال ما يكفي لتلبية احتياجاتك؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، ما مدى توفر المعلومات التي تحتاجها في حياتك اليومية ؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، إلي أي مدى لديك الفرصة لممارسة الأنشطة الترفيهية؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، الى أي مدى أنت قادر على التنقل بسهولة؟**

(1) لا يوجد (2) قليلا (3) بدرجة متوسطة (4) كثيرا جدا (5) بدرجة بالغة

- **خلال الأسبوعين الماضيين، كم أنت راض عن نومك ؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، إلي أي مدى أنت راض عن قدرتك على القيام بنشاطاتك اليومية ؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، كم أنت راض عن قدراتك على العمل ؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، كم أنت راض عن نفسك ؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، كم أنت راض عن علاقاتك الشخصية؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، كم أنت راض عن حياتك الجنسية؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، كم أنت راض عن الدعم أو المساعدة من الأصدقاء؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، كم أنت راض عن الأوضاع في مكان سكنك؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، كم أنت راض عن الخدمات الصحية المتوفرة لك ؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، كم أنت راض عن وسائل المواصلات التي تستخدمها ؟**

(1) غير راض على الإطلاق (2) غير راض (3) لا راض ولا غير راض (4)راض (5) راض تماما

- **خلال الأسبوعين الماضيين، كم من المرات كانت لديك مشاعر سلبية مثل المزاج السئ، اليأس، القلق، الاكتئاب؟**

(1) أبدا (2) نادرا (3) غالبا (4) غالبا جدا (5) دائما

هل قام أحدهم بمساعدتك لتعبئة هذه الاستمارة؟ نعم لا

Appendix 2

A form aimed at assessing the quality of life after taking the COVID-19 vaccine

This survey was conducted by nursing students at Holy Family University with the aim of conducting a study to evaluate the quality of life among the Lebanese after taking the anti-coronavirus vaccine.
This survey is completely confidential and will only be used for research purposes.
Please note that in this survey you will fill out demographic data anonymously.
Participation is voluntary. Thanks for your time.

- The age:
- Gender:
- Are you residing in Lebanon? Yes, No
- Do you have chronic health problems? Yes, No
- Do you consume nicotine on a daily basis (smoking, hookah...): Yes, No
- Do you drink alcohol on a daily basis? Yes, No
- Do you exercise (running, jogging, gym, swimming) for at least two and a half hours a week? Yes, No
- Educational level: I cannot read and write, primary, secondary, secondary, university
- Work: I do not work, I am looking for a job but I cannot find it, an employee in public administrations, an employee in a private institution, freelance work.
- Working hours: part-time, full-time
- Residence area: Mount Lebanon, North Governorate, South Governorate, Bekaa, Beirut.
- Marital status: single, married, divorced, widowed, or otherwise related
- Number of children:
- Have you ever taken the vaccine against Covid-19? Yes no
- When did you take the last dose of the vaccine?
- How many doses of the vaccine have you already taken?
- What type of vaccine did you take? Pfizer, AstraZeneca, Sputnik, Sinovac, another type (several types can be chosen).

- In general, how do you rate your quality of life? (1) Very bad (2) Bad (3) It's okay (4) Good (5) Very good

- In general, how satisfied are you with your health? (1) Not satisfied at all (2) Not satisfied (3) Neither satisfied nor dissatisfied (4) Satisfied (5) Completely satisfied

- During the past two weeks, to what extent do you feel that physical pain prevents you from doing the things you want to do?

(1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, to what extent do you need medical treatment to be able to carry out your daily activities?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, how much have you enjoyed life?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, to what extent do you feel that your life has meaning?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, to what extent have you been able to concentrate?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, to what extent do you feel safe in your daily life?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, to what extent do you consider your surrounding environment healthy?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, did you have enough energy to go about daily life?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, have you been able to accept your external appearance?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, did you have enough money to meet your needs?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, how available was the information you need in your daily life?
  (1) None (2) A little (3) To a moderate extent (4) Very much (5) To an extreme extent

- During the past two weeks, how satisfied are you with yourself?

(1) Not satisfied at all (2) Not satisfied (3) Neither satisfied nor dissatisfied (4) Satisfied (5) Completely satisfied

- During the past two weeks, how satisfied are you with your personal relationships?
  (1) Not satisfied at all (2) Not satisfied (3) Neither satisfied nor dissatisfied (4) Satisfied (5) Completely satisfied

- During the past two weeks, how satisfied are you with your sex life?
  (1) Not satisfied at all (2) Not satisfied (3) Neither satisfied nor dissatisfied (4) Satisfied (5) Completely satisfied

- During the past two weeks, how satisfied were you with support or help from friends?
  (1) Not satisfied at all (2) Not satisfied (3) Neither satisfied nor dissatisfied (4) Satisfied (5) Completely satisfied

- During the past two weeks, how satisfied are you with the conditions in your place of residence?
  (1) Not satisfied at all (2) Not satisfied (3) Neither satisfied nor dissatisfied (4) Satisfied (5) Completely satisfied

- During the past two weeks, how satisfied are you with the health services available to you?
  (1) Not satisfied at all (2) Not satisfied (3) Neither satisfied nor dissatisfied (4) Satisfied (5) Completely satisfied

- During the past two weeks, how satisfied are you with the means of transportation you use?
  (1) Not satisfied at all (2) Not satisfied (3) Neither satisfied nor dissatisfied (4) Satisfied (5) Completely satisfied

- During the past two weeks, how often have you had negative feelings such as bad mood, hopelessness, anxiety, depression?
  (1) Never (2) Rarely (3) Often (4) Very often (5) Always

Did someone help you fill out this form? Yes, No