Association Between COVID-19 Vaccination and Quality of Life Among University Students

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Introduction

COVID-19 vaccinations have been linked to mental health. Perez-Arce et al[1] examined vaccine health effects. They compare the mental health of vaccinated and unvaccinated people across time. Vaccines reported reduced mental distress in surveys after the first dose. COVID-19-worried people were more likely to get vaccinated.[2] Vaccination increased anxiety, according to Mayank and Ke.[3] Fear and worry increased vaccination rates. COVID-19 anxiety may have been reduced by the vaccination.

Vaccination helps people work, socialize, and live better. "Quality of life" is a person's contentment with physical, psychological, social, and environmental dimensions.[4] Babicki et al[5] examined how vaccinations affect security, COVID-19 anxiety, and quality of life (QOL). Vaccination affects mental health and SARS-CoV-2 anxiety. The completely vaccinated experienced less anxiety than the single-dose or unvaccinated.

The purpose of this study was to determine the association between COVID-19 vaccination and university student QOL. At the time of the study, no publications were addressing the QOL of Egyptian students who got the COVID-19 vaccination.

Methods

Study Design

This study is a descriptive cross-sectional study.

Time and Place of the Study

The study was conducted between December 2021 and February 2022. The study was carried out in Cairo, Egypt.

Population and Sample

All individuals were university students, live in Egypt, and met the inclusion criteria.

Inclusion criteria were as follows: (1) being an active student at the University. Exclusion criteria were having (1) cognitive difficulties and (2) schizophrenia (or any other psychotic disorders).

Data Collection Tools

Standardized e-questionnaires were generated using Microsoft Forms, and the links were shared through the student's university emails. The study data were collected using the following:

Personal information that includes participants' sociodemographic characteristics, educational, and medical problems.

WHOQOL-BREF is a WHO[6] quality-of-life assessment instrument. Twenty-six questions measure life quality. WHOQOL-BREF assesses physical, mental, social, and environmental health. The WHOQOL BREF's psychometric features have been verified as a tool for assessing the QOL across cultures and socioeconomic statuses.[7]

Study Process

One Egyptian private university's students completed the WHOQOL-BREF and personal information questionnaire. Students completed online Microsoft Forms questionnaires. Student surveys took 10 to 15 minutes.

Ethics and Human Subjects Issues

Our study included humans and followed Egyptian research ethics. According to the Helsinki Declaration, the study followed all human subject protections. Approval

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Table 1. General Characteristics of the Studied Groups and the Vaccination Against COVID-19.

| | Vaccination against COVID-19 | | | | |
| | Vaccine obtained | Vaccine not obtained | Total | | |
Variables	n = 365 (71.6%)	n = 145 (28.4%)	n = 510	χ^2	*P*-value
Gender					
Female	287 (56.3)	106 (20.8)	393 (77.1)	1.7	.1
Male	78 (15.3)	39 (7.6)	117 (22.9)		
Age					
18-25	362 (71)	145 (28.4)	507 (99.4)	1.9	.5
26-35	3 (0.6)	0	3 (0.6)		
Marital status					
Single	363 (71.2)	143 (28)	506 (99.2)	0.9	.3
Married	2 (0.4)	2 (0.4)	4 (0.8)		
Family size					
Small (<4 members)	175 (34.3)	83 (16.3)	258 (50.6)	5.1	.07
Medium (4-7 members)	178 (34.9)	55 (10.8)	233 (45.7)		
Large (>7 members)	12 (2.4)	7 (1.4)	19 (3.7)		
Region of residence					
Urban	301 (59)	129 (25.3)	430 (84.3)	3.3	.07
Rural	64 (12.5)	16 (3.1)	80 (15.7)		
Income					
Income lower than expenses	15 (2.9)	12 (2.4)	27 (5.3)	36.6	<.000
Equal income and expenses	300 (58.8)	82 (16.1)	382 (74.9)		
Income higher than expenses	50 (9.8)	51 (10)	101 (19.8)		
Loneliness					
Alone	50 (9.8)	7 (1.4)	57 (11.2)	8.2	.003
Living with family	315 (61.8)	138 (27.1)	453 (88.8)		
Are you currently ill or do you have a medical condition?					
No	272 (53.3)	78 (15.3)	350 (68.6)	24.8	<.000
Yes	61 (12)	53 (10.4)	114 (22.4)		
Maybe	32 (6.3)	14 (2.7)	46 (9)		

from the British University in Egypt Institutional Review Board was obtained to conduct the study (IRB Protocol CL-2009).

Data Analysis

Descriptive statistics were constructed. Chi-squared tests determined dichotomous variable relationships. The Kolmogorov-Smirnov test determined continuous variable distribution normality. Nonnormal variables were tested for statistical significance using the nonparametric Mann-Whitney *U* test. The association between QOL and COVID-19 vaccinations was examined using linear regression. Bonferroni-adjusted significance levels were shown.

Sample Size

SPSS Sample Power was utilized, and statistical analyses showed that the current study's sample size was sufficient to detect significant differences in outcome.

Results

Sociodemographic and Vaccination-Related Variable

Table 1 shows that 510 students completed the assessments; 77.1% of them were female and 18–25 years old. Table 1 shows sociodemographic and vaccine-related group differences. 365 students had COVID-19 vaccines and 145 had not. Students varied in wealth and vaccination status. Students whose income matched their costs were more likely to be vaccinated, $\chi^2(2) = 36.6$, $P < .000$. Students differed in loneliness and vaccination status, $\chi^2(1) = 8.2$, $P < .000$. Students' medical conditions and vaccinations status differed, $\chi^2(2) = 24.8$, $P < .000$.

QOL

Table 2 shows student QOL variations. The Kolmogorov-Smirnov test showed that the student's QOL responses did not follow a normal distribution; therefore, the

Table 2. Quality-of-Life Domain Means for Students Who Were Vaccinated Against COVID-19 and Those Who Were Not.

	Vaccination against COVID-19				
	Vaccine obtained M (SD)	Vaccine not obtained M (SD)	Total M (SD)	U-test or t-test	P-value
Domain's questions					
Physical domain	55.8 (14.4)	38.5 (15.4)	50.9 (16.6)	−10.2	< .000
f3: Physical pain	3.7 (1.02)	2.5 (0.9)	3.3 (1.1)	−11.1	< .000
f4: Need for medical treatment	4.4 (0.6)	2.6 (1.1)	3.9 (1.1)	−13.7	< .000
f10: Energy	2.4 (0.8)	2.4 (0.8)	2.4 (0.8)	0.2	0.7
f15: Mobility	2.6 (1.01)	2.7 (0.7)	2.6 (0.9)	1.3	0.1
f16: Sleep	3.2 (1.1)	2.2 (1.04)	2.9 (1.2)	−8.5	< .000
f17: Satisfaction of the daily activities' performance	3.1 (0.8)	2.5 (0.8)	2.9 (0.9)	−7.47	< .000
f18: Satisfaction of the capacity of work	3.01 (0.8)	2.6 (0.7)	2.9 (0.8)	−3.9	< .000
Psychological domain	50.8 (15.2)	35.5 (16.1)	46.5 (16.9)	−9.01	< .000
f5: Enjoying life	3.04 (0.8)	2.4 (0.8)	2.8 (0.8)	−8.2	< .000
f6: Meaningful life	2.8 (1.1)	2.5 (1.1)	2.7 (1.1)	−3.7	0.001
f7: Concentration ability	2.7 (0.9)	2.3 (0.7)	2.6 (0.8)	−4.4	< .000
f11: Acceptance of bodily appearance	3.2 (1.1)	2.4 (1.1)	3 (1.1)	−7.04	< .000
f19: Satisfaction of oneself	3.3 (1.02)	2.4 (1.1)	3.1 (1.1)	−8.7	< .000
f26: Negative feelings	2.9 (0.9)	2.3 (0.8)	2.7 (0.9)	−7.6	< .000
Social domain	53.01 (18.4)	37.9 (16.1)	48.7 (19.1)	−8.9	< .000
f20: Relationship's satisfaction	3.3 (1.1)	2.6 (0.8)	3.1 (1.1)	−7.04	< .000
f21: Sexual life satisfaction	2.7 (1.01)	2.4 (0.9)	2.6 (0.9)	−3.1	0.004
f22: Satisfaction with friend's support	3.2 (1.1)	2.4 (0.9)	3.1 (1.1)	−7.7	< .000
Environmental domain	56.3 (14.6)	41.4 (16.9)	52.1 (16.7)	−9.4	< .000
f8: Feeling secure	3.3 (0.9)	2.7 (0.6)	3.1 (0.9)	−7.3	< .000
f9: Physical environment	2.9 (0.8)	2.8 (0.8)	2.8 (0.8)	1.3	0.1
f12: Money availability	3.3 (0.8)	2.6 (1)	3.1 (0.9)	−8.08	< .000
f13: Information availability	3.05 (1)	2.5 (0.8)	2.9 (0.9)	−6.3	< .000
f14: Opportunity for leisure activities	2.4 (0.9)	2.4 (0.7)	2.4 (0.9)	0.2	0.8
f23: Living place environment	3.7 (0.9)	2.7 (1.1)	3.4 (1.1)	−9.2	< .000
f24: Healthcare access satisfaction	3.5 (0.9)	2.7 (0.9)	3.3 (0.9)	−7.8	< .000
f25: Transportation	3.5 (0.8)	2.4 (0.9)	3.2 (1.02)	−10.9	< .000
WHOQOL total	65.7 (18.2)	40.6 (23.2)	58.5 (22.7)	−10.83	< .000

On the Likert scale were 5 = *very satisfied or very good* and 1 = *very dissatisfied or very poor*.
Abbreviation: WHOQOL, World Health Organization quality of life.

Mann–Whitney U test was used. After the Bonferroni adjustment, student groups have significantly different physical health QOL ($U = -10.23$, $P < .000$, $r = 0.45$), psychological health ($U = -9.01$, $P < .000$, $r = 0.40$), social relationships ($U = -8.99$, $P < .000$, $r = 0.3$), and environmental health ($U = -9.40$, $P < .000$, $r = 0.41$). Results indicate a trend for group differences in general QOL ($U = -10.83$, $P < .000$, $r = 0.48$).

Linear regression was used to assess the effect of vaccination on the overall QOL. Being vaccinated against COVID-19 was associated with a significantly higher overall QOL ($\beta = 203$, $P < .000$; 95% CI: −3.8 to −5.03). Students who got the COVID-19 vaccination reported a significantly improved overall QOL ($M = 14.5$, $SD = 2.9$) compared with students who did not get the vaccine ($M = 10.4$, $SD = 3.7$).

Discussion

This study's primary objective was to determine the association between COVID-19 vaccination and the QOL of students. Our findings indicated that fully vaccinated students have a better QOL than unvaccinated ones. Our findings were consistent with Babicki et al,[5] who found that those who have been fully vaccinated have the highest QOL, mental health, and financial satisfaction compared with those who have not been vaccinated. Our findings also support those of Perez-Arce et al,[1] who reported that vaccinated people had less mental distress over time.

Social support, personal partnerships, and sexual participation differed between students who received COVID-19 vaccinations and those who did not. Vaccination may boost social contact and security due to COVID-19-induced social

isolation. Our data also showed that students who lived alone had lower social QOL. Living with family provides a shared experience and enriches students' lives.

Limitations

This is a small cross-sectional investigation. Consequently, no inference of causality can be made. Additional longitudinal investigations are required to investigate potential causes.

Conclusions

The COVID-19 epidemic threatens public health in all areas. This research examined students' QOL after COVID-19 vaccination. To improve life quality, mental health professionals should advise students to get all prescribed vaccination. Since vaccination willingness is substantially connected with the public's awareness, we recommend broadening COVID-19 vaccine promotion. This lets us realize vaccination's public health benefits.

Ethical Approval

Approval from the British University in Egypt Institutional Review Board was obtained to conduct the study (IRB Protocol CL-2009).

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