

Parents' Stress and Children's Psychological Problems during the COVID-19 Outbreak in Saudi Arabia: A Cross-Sectional Study

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The first outbreak of (COVID-19) was in the Chinese city of Wuhan at the end of December 2019 in the form of acute pneumonia. COVID-19 is a serious and highly infectious disease that affected 245,621,992 cases worldwide, leading to a dramatic loss of everyday lifestyle and negatively impacting people's psychological status. This paper shows Parents' Stress and Children's Psychological Problems during this pandemic.

Objectives: This work determined the psychological impacts of the Coronavirus Disease 2019 (COVID-19) pandemic on parents and children.

Methods: Parents who have children aged between 4 and 16 years old (n=424) completed an online questionnaire using QuestionPro and gave written informed consent. The questionnaire was distributed through social media (WhatsApp, Telegram) from December 6th to January 5th, 2020-

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2021. We excluded all responses that came from outside Saudi Arabia. Also, we excluded participants who did not have children; if the parent had more than one child, they were asked to report on one child only. Parents described the difficulties they faced, the parent-child dyadic stress, and their children's behavioral and emotional complications during the pandemic. The participants filled the depression Anxiety Stress Scale (Dass21) and the Strengths and Difficulties Questionnaire (SDQ) scale.

Results: There were significant impacts on the mental health of the public. Our findings demonstrated that the COVID-19 outbreak had remarkable psycho-social effects on children and their parents. The results showed that younger parents were more affected than older parents, Q6 ($r = 0.150, p < 0.01$), DASS stress ($r = -0.266, p < 0.01$), DASS anxiety ($r = -0.201, p < 0.01$), and DASS depression ($r = -0.265, p < 0.01$), but there was no significant psychological impact of having COVID-19. Those who had relatives who died from COVID were at a higher risk of depression ($r = 0.006, p < 0.05$). Having a child diagnosed with mental illness seems to have increased the risk of depression, anxiety, and stress of parents. There was a significant association between parents' mental health and their children's psychological adjustment.

Conclusions: Quarantining is stressful, especially for parents who also have work and school obligations. This circumstance puts parents at a greater risk of distress and might prevent them from being supportive parents. This, in turn, can lead to psychological symptoms in children. Governmental actions should consider the implications of lockdown on families and their mental health.

Recommendation for Future Research: since this study had only focused on one child if parents have more than one with a limited number of participants, we recommended that further research be carried on a larger sample size to see whether there are any similarities in the findings.

Keywords: COVID-19; psychiatry; mental health; parent stress; children's behavioral problems.

1. INTRODUCTION

The novel coronavirus (COVID-19) is a contagious disease caused by the new strains of severe acute respiratory syndrome coronavirus (SARS-Cov-2) [1]. The first case reported was in Wuhan, China, in December 2019 [2]. The WHO declared the outbreak a global pandemic on March 11th, 2020 [3]. The first case was reported in Saudi Arabia on March 2nd, 2020 [4]. This outbreak made the governments worldwide take quick precautions, and the Saudi government had a swift and immediate response: The Ministry of Health used a social media campaign to encourage people to stay home and to be safe [5]. A lockdown was imposed on March 23rd, 2020, for several kingdom regions; travel restrictions were placed overall in Saudi Arabia with a 24-hour lockdown for the next ten days [6].

The pandemic changed daily living and caused significant psychological stress [2]. Many studies have confirmed the psychological effect on children and their families. A study conducted in Saudi Arabia on the psychological effects of COVID-19 used 1160 participants and showed that 25% of the general population experienced moderate to severe psychological impact [7]. A study conducted in China of 3613 Chinese students (7 to 18 years young) showed that

22.28% of children and adolescents had clinical depression and increased levels of anxiety during the pandemic; these values are higher than pre-COVID [8]. A study conducted in Italy found that quarantine alone is a crucial factor that can compromise the well-being of parents and children [9]. Finally, a rapid systemic review concluded that the risk of depression and anxiety increased with isolation and loneliness [10].

Here, we studied psychological problems among children and their families during the pandemic and quarantine in Saudi Arabia. According to the Ministry of Health, the caseload in Saudi Arabia is plateauing [11]. New confirmed cases have decreased, but strict prevention measures have continued. There is no plan to reopen schools until the caseload is zero [12]. Consequently, more than 5 million children have stayed at home with lessons conducted via an online platform called Mansa. This system satisfies their learning needs via guidelines announced by the Saudi Ministry of Education [13]. The abrupt transition has caused some inefficiencies due to limited student control/evaluation and unstable/limited internet connections, particularly for rural or poor families. Many teachers; parents; and children have described the poor effectiveness of online learning. These effects can be impacted by the adverse consequences of digital eye strain [14]

and Internet and smartphone addiction [15]. These collectively can accelerate mental distress in children and parents.

This study aims to determine the psychological impact of the COVID pandemic on parents and their children in Saudi Arabia, explore the factors associated with these presentations, and know the incidence of psychiatric disorders among them.

2. METHODS

2.1 Study Design and Participants

It is a cross-sectional study that was conducted according to the American Psychological Association guidelines.

Parents completed an anonymous online questionnaire using Question Pro and gave written informed consent. The questionnaire was distributed through social media apps such as WhatsApp and Telegram; as we have sent the questionnaire link to the targeted groups and asked them kindly to fill it out; from December 6th to January 5th; 2020-2021. It targeted Saudi parents of children aged between 4 to 16 years old. If the parent had more than one child, then they were asked to report on one child only. We excluded all responses that came from outside Saudi Arabia. Also, we excluded participants who did not have children. The questionnaire was in Arabic and recorded general demographic data such as sex; age; city of the living; social; and educational status, as well as questions addressing coronavirus exposure and impacts on job or health. Descriptive statistics summarized participants' characteristics using mean (standard deviation [SD]) or count (%) as appropriate. Pearson's bivariate correlations were used among the variables of interest. The questionnaire used two validated scales: the Anxiety Stress Scale (Dass21) and the Strengths and Difficulties Questionnaire (SDQ) scale. Both parents and their children were asked if they had been previously diagnosed with any mental disorder.

The parent completed both the parent-focused and child-related questionnaires. There was no monetary incentive for participation. The information presented here is part of a larger longitudinal research project aimed to determine the psychological effect of the COVID-19 outbreak on Saudi parents and children.

2.2 Measures

2.2.1 COVID impact index

Parents evaluated four items regarding the direct impact of the pandemic: if they got infected, if they lost their job, if anyone got infected among their relatives, and if there were deaths among any relatives due to COVID.

2.2.2 Psychological impact on parents and children

The perceptions of stress; anxiety; and depression among parents were investigated using the Depression Anxiety Stress Scale—Short form (DASS21) (Lovibond and Lovibond; 1995). Each of the three domains on the scale measure 7 items; and every item is rated on a five-point rating scale. Items are summed to obtain the total score.

2.2.3 Children's psychological problems

Behavioral and psychological issues in children were investigated using the parent-report form of the Strengths and Difficulties Questionnaire (SDQ) (Goodman; 2001). The current research focuses on the following subscales: hyperactivity-inattention; emotional symptoms; and behavioral issues. Each is assessed using five items scored on a three-point scale. Objects are added together to get the overall ranking.

3. RESULTS

3.1 Statistical Analysis

Descriptive statistics summarized participants' characteristics using mean (standard deviation [SD]) or count (%) as appropriate. Pearson's bivariate correlations were used among the variables of interest. Afterward, multiple multivariate mediation models were tested, including relevant DASS and SDQ as predictors (derived from the correlational analysis). Parents' age, gender, education level were mediators; outcomes included children's psychological problems at the SDQ. Mediation models were compared with a null model and a main effect model, including only the quarantine-related risk factors as the predictor. Akaike weights—providing the probability of a model to support new data conditional on the set of models considered—were used for model comparison.

3.2 Descriptive Statistics

424 parents have participated in this study (237 females; 187 males). Most of which; 76.8%, were well educated; have a high school diploma or beyond; to answer the questioner; see Figure 1.

3.3 Correlation Analysis

The correlation values among variables of interest are reported in Table 7. The results showed a statistically significant positive correlation with a significant p-value between being infected with SARS-CoV-2 and having anxiety; see Tables 2.3.1 and 2.3.2. 40% of the parents participated in the study who lost their jobs during the pandemic had depression. Gender was significantly correlated with the parent's individual stress (DASS) that 37.97% of the mothers found to have stress while the

percentage was almost half with fathers 14.43%. Younger parents were more prone to severe symptoms compared to older parents. The median age of those who got extremely severe symptoms of depression; anxiety or stress was 35.67 years old. On the other hand, it was 41.11 years old for those who hadn't got any depression, anxiety, or stress during the pandemic. People who have relatives who died because of COVID-19 were more prone to depression; (Tables 4.2.1 and 4.2.2).

The risk factors associated with parent's individual stress and children's psychological problems were age; gender; and COVID impact index. The mediation analysis for a model included the COVID impact index as a predictor and children's psychological problems (SDQ) as an outcome; parent's age was not a mediator predicting children's SDQ.

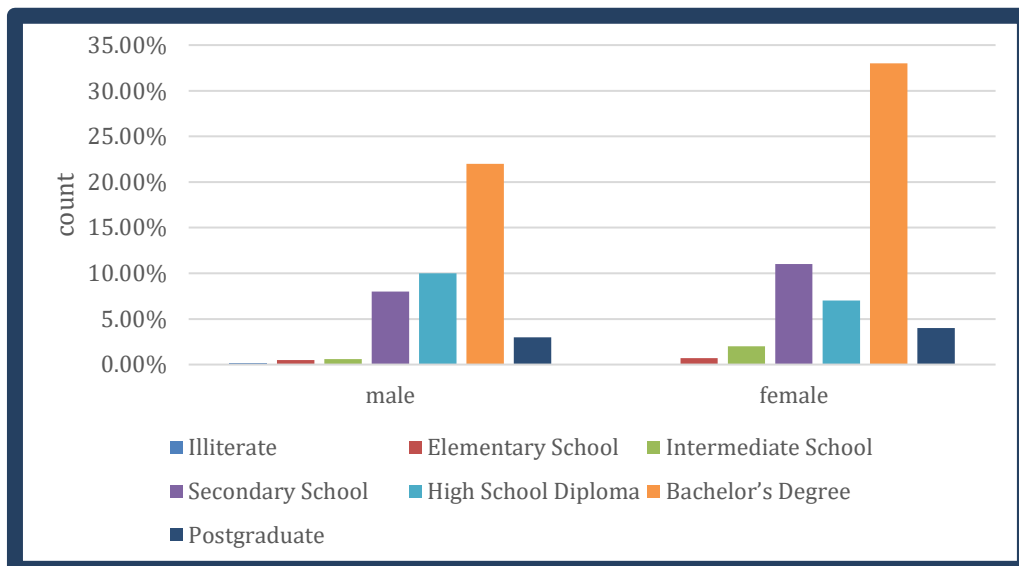


Fig. 1. Education level of the participants

3.4 Crosstabs

Table 1.1.1. Sex * Stress

		Crosstab					
		Stress					
		Normal	Mild	Moderate	Severe	Extremely Severe	
Sex	Male	Count	160	7	9	8	3
		% within Stress	52.1%	20.0%	24.3%	24.2%	25.0%
	Female	Count	147	28	28	25	9
		% within Stress	47.9%	80.0%	75.7%	75.8%	75.0%
Total		Count	307	35	37	33	12
		% within Stress	100.0%	100.0%	100.0%	100.0%	100.0%

Table 1.1.2.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	29.174 ^a	4	.000
Likelihood Ratio	30.704	4	.000
Linear-by-Linear Association	21.071	1	.000
N of Valid Cases	424		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.29.

Sex * Depression

Table 1.2.1

			Crosstab				
			Depression				
			Normal	Mild	Moderate	Severe	Extremely Severe
Sex	Male	Count	143	13	18	7	6
		% within Depression	53.0%	26.0%	32.1%	29.2%	25.0%
	Female	Count	127	37	38	17	18
		% within Depression	47.0%	74.0%	67.9%	70.8%	75.0%
Total		Count	270	50	56	24	24
		% within Depression	100.0%	100.0%	100.0%	100.0%	100.0%

Table 1.2.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.218 ^a	4	.000
Likelihood Ratio	24.926	4	.000
Linear-by-Linear Association	17.420	1	.000
N of Valid Cases	424		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.58.

Sex * Anxiety

Table 1.3.1

			Crosstab				
			Anxiety				
			Normal	Mild	Moderate	Severe	Extremely Severe
Sex	Male	Count	147	23	8	4	5
		% within Anxiety	52.1%	39.7%	22.2%	18.2%	19.2%
	Female	Count	135	35	28	18	21
		% within Anxiety	47.9%	60.3%	77.8%	81.8%	80.8%
Total		Count	282	58	36	22	26
		% within Anxiety	100.0%	100.0%	100.0%	100.0%	100.0%

Table 1.3.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	27.344 ^a	4	.000
Likelihood Ratio	29.093	4	.000
Linear-by-Linear Association	25.197	1	.000
N of Valid Cases	424		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.70.

Have you caught the virus? * Stress

Table 2.1.1

			Crosstab			
			Stress			
			Normal	Mild	Moderate	Severe
Have you caught the virus?	Yes	Count	75	5	14	13
		% within Stress	24.4%	14.3%	37.8%	39.4%
	No	Count	232	30	23	20
		% within Stress	75.6%	85.7%	62.2%	60.6%
Total	Count	307	35	37	33	
	% within Stress	100.0%	100.0%	100.0%	100.0%	

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.950 ^a	4	.062
Likelihood Ratio	8.842	4	.065
Linear-by-Linear Association	4.392	1	.036
N of Valid Cases	424		

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 3.14.

Have you caught the virus? * Depression

			Crosstab			
			Depression			
			Normal	Mild	Moderate	Severe
Have you caught the virus?	Yes	Count	64	14	16	9
		% within Depression	23.7%	28.0%	28.6%	37.5%
	No	Count	206	36	40	15
		% within Depression	76.3%	72.0%	71.4%	62.5%
Total	Count	270	50	56	24	
	% within Depression	100.0%	100.0%	100.0%	100.0%	

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.335 ^a	4	.503
Likelihood Ratio	3.200	4	.525
Linear-by-Linear Association	2.896	1	.089
N of Valid Cases	424		

Table: 2.2.2

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.28

Have you caught the virus? * Anxiety

Table 2.3.1

Crosstab			Anxiety			
			Normal	Mild	Moderate	Severe
Have you caught the virus?	Yes	Count	56	20	8	12
		% within Anxiety	19.9%	34.5%	22.2%	54.5%
	No	Count	226	38	28	10
		% within Anxiety	80.1%	65.5%	77.8%	45.5%
Total		Count	282	58	36	22
		% within Anxiety	100.0%	100.0%	100.0%	100.0%

Table 2.3.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	30.712 ^a	4	.000
Likelihood Ratio	27.814	4	.000
Linear-by-Linear Association	24.439	1	.000
N of Valid Cases	424		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.76.

Crosstabs

Have you lost your job during the pandemic? * Stress

Table 3.1.1

Crosstab			Stress			
			Normal	Mild	Moderate	Severe
Have you lost your job during the pandemic?	Yes	Count	23	2	3	6
		% within Stress	7.5%	5.7%	8.1%	18.2%
	No	Count	284	33	34	27
		% within Stress	92.5%	94.3%	91.9%	81.8%
Total		Count	307	35	37	33
		% within Stress	100.0%	100.0%	100.0%	100.0%

Table 3.1.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.829 ^a	4	.305
Likelihood Ratio	3.867	4	.424
Linear-by-Linear Association	2.002	1	.157
N of Valid Cases	424		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .99.

Have you lost your job during the pandemic? * Depression

Table 3.2.1

			Depression			
			Normal	Mild	Moderate	Severe
Have you lost your job during the pandemic?	Yes	Count	18	1	9	2
		% within Depression	6.7%	2.0%	16.1%	8.3%
	No	Count	252	49	47	22
		% within Depression	93.3%	98.0%	83.9%	91.7%
Total	Count	270	50	56	24	
	% within Depression	100.0%	100.0%	100.0%	100.0%	

Table 3.2.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.014 ^a	4	.011
Likelihood Ratio	11.862	4	.018
Linear-by-Linear Association	6.732	1	.009
N of Valid Cases	424		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 1.98.

Have you lost your job during the pandemic? * Anxiety

Table 3.3.1

			Anxiety			
			Normal	Mild	Moderate	Severe
Have you lost your job during the pandemic?	Yes	Count	22	5	4	2
		% within Anxiety	7.8%	8.6%	11.1%	9.1%
	No	Count	260	53	32	20
		% within Anxiety	92.2%	91.4%	88.9%	90.9%
Total	Count	282	58	36	22	
	% within Anxiety	100.0%	100.0%	100.0%	100.0%	

Table 3.3.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.506 ^a	4	.973
Likelihood Ratio	.472	4	.976
Linear-by-Linear Association	.109	1	.741
N of Valid Cases	424		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 1.82

Crosstabs

Is there any deaths among your relatives because of COVID-19? * Stress

Table 4.1.1

Crosstab			Stress			
			Normal	Mild	Moderate	Severe
If yes; is there any deaths among your relatives because of the infection?	yes	Count	131	16	18	17
		% within Stress	42.7%	45.7%	48.6%	51.5%
	no	Count	164	18	18	16
		% within Stress	53.4%	51.4%	48.6%	48.5%
	Not infected	Count	12	1	1	0
		% within Stress	3.9%	2.9%	2.7%	0.0%
Total	Count	307	35	37	33	
	% within Stress	100.0%	100.0%	100.0%	100.0%	

Table 4.1.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.734 ^a	8	.284
Likelihood Ratio	11.443	8	.178
Linear-by-Linear Association	6.589	1	.010
N of Valid Cases	424		

a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is .40.

Is there any deaths among your relatives because of COVID-19? * Depression

Table 4.2.1

Crosstab			Depression		
			Normal	Mild	Moderate
If yes; is there any deaths among your relatives because of the infection?	yes	Count	111	21	26
		% within Depression	41.1%	42.0%	46.4%
	no	Count	147	29	28
		% within Depression	54.4%	58.0%	50.0%
	Not infected	Count	12	0	2
		% within Depression	4.4%	0.0%	3.6%
Total	Count	270	50	56	
	% within Depression	100.0%	100.0%	100.0%	

Table 4.2.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.301 ^a	8	.019
Likelihood Ratio	21.339	8	.006
Linear-by-Linear Association	13.295	1	.000
N of Valid Cases	424		

a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is .79.

Are there any deaths among your relatives because of COVID-19? * Anxiety**Table 4.3.1**

			Crosstab		
			Anxiety		
			Normal	Mild	Moderate
If yes; is there any deaths among your relatives because of the infection?	yes	Count	115	26	22
		% within Anxiety	40.8%	44.8%	61.1%
	no	Count	155	32	13
		% within Anxiety	55.0%	55.2%	36.1%
	Not infected	Count	12	0	1
		% within Anxiety	4.3%	0.0%	2.8%
Total	Count	282	58	36	
	% within Anxiety	100.0%	100.0%	100.0%	
	Anxiety				

Table 4.3.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.557 ^a	8	.094
Likelihood Ratio	16.090	8	.041
Linear-by-Linear Association	8.564	1	.003
N of Valid Cases	424		

a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is .73.

Oneway**Table 5.1.1**

Descriptives						
Age						
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Normal	307	41.14	8.589	.490	40.18	42.10
Mild	35	37.26	7.269	1.229	34.76	39.75
Moderate	37	35.57	8.092	1.330	32.87	38.27
Severe	33	37.55	7.529	1.311	34.88	40.22
Extremely Severe	12	35.50	8.372	2.417	30.18	40.82
Total	424	39.89	8.580	.417	39.07	40.71

Table 5.1.2

ANOVA					
Age					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1826.298	4	456.575	6.527	.000
Within Groups	29311.926	419	69.957		
Total	31138.224	423			

Oneway

Table 5.2.1

Descriptives						
Age						
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Normal	270	41.40	8.707	.530	40.36	42.45
Mild	50	37.36	7.873	1.113	35.12	39.60
Moderate	56	38.25	8.183	1.093	36.06	40.44
Severe	24	36.21	6.541	1.335	33.45	38.97
Extremely Severe	24	35.71	7.238	1.477	32.65	38.76
Total	424	39.89	8.580	.417	39.07	40.71

Table 5.2.2

ANOVA					
Age					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1834.291	4	458.573	6.557	.000
Within Groups	29303.933	419	69.938		
Total	31138.224	423			

Oneway

Descriptives						
Age						
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Normal	282	40.79	8.588	.511	39.78	41.79
Mild	58	40.05	8.051	1.057	37.93	42.17
Moderate	36	37.72	8.317	1.386	34.91	40.54
Severe	22	36.41	8.093	1.725	32.82	40.00
Extremely Severe	26	35.81	8.542	1.675	32.36	39.26
Total	424	39.89	8.580	.417	39.07	40.71

Table 5.3.2

ANOVA					
Age					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1097.566	4	274.392	3.827	.005
Within Groups	30040.658	419	71.696		
Total	31138.224	423			

Crosstabs**Is your child diagnosed previously with mental illness? * Stress****Table 6.1.1**

			Crosstab			
			Stress			
			Normal	Mild	Moderate	Severe
Is your child diagnosed previously with mental illness?	Yes	Count	292	32	33	33
		% within Stress	95.1%	91.4%	89.2%	100.0%
		Stress				
	No	Count	15	3	4	0
		% within Stress	4.9%	8.6%	10.8%	0.0%
		Stress				
Total	Count	307	35	37	33	
	% within Stress	100.0%	100.0%	100.0%	100.0%	

Table 6.1.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.587 ^a	4	.013
Likelihood Ratio	10.900	4	.028
Linear-by-Linear Association	2.172	1	.141
N of Valid Cases	424		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .71.

Is your child diagnosed previously with mental illness? * Depression**Table 6.2.1**

			Crosstab			
			Depression			
			Normal	Mild	Moderate	Severe
Is your child diagnosed previously with mental illness?	Yes	Count	258	48	50	23
		% within Depression	95.6%	96.0%	89.3%	95.8%
		Depression				
	No	Count	12	2	6	1
		% within Depression	4.4%	4.0%	10.7%	4.2%
		Depression				
Total	Count	270	50	56	24	
	% within Depression	100.0%	100.0%	100.0%	100.0%	

Table 6.2.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.840 ^a	4	.065
Likelihood Ratio	6.985	4	.137
Linear-by-Linear Association	5.343	1	.021
N of Valid Cases	424		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 1.42.

Is your child diagnosed previously with mental illness? * Anxiety

Table 6.3.1.

		Crosstab				
			Anxiety			
Is your child diagnosed previously with mental illness?	Yes	Count	Normal	Mild	Moderate	Severe
				270	54	32
		% within Anxiety	95.7%	93.1%	88.9%	95.5%
Total	No	Count	12	4	4	1
		% within Anxiety	4.3%	6.9%	11.1%	4.5%
		Count	282	58	36	22
		% within Anxiety	100.0%	100.0%	100.0%	100.0%

Table 6.3.2

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.529 ^a	4	.110
Likelihood Ratio	6.102	4	.192
Linear-by-Linear Association	5.277	1	.022
N of Valid Cases	424		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 1.30.

Table 7. Correlation values among variables of interest are reported

p-value	Gender	Age	Marital Status	Educational Level	Q1	Q2	Q3	Q4	Q5	Q6	Child's Gender	DASS Stress	DASS Anxiety	DASS Depression	SDQ ES	SDQ HAS	SDQ CP
SDQ ES	0.059	0.071	-0.054	-0.072	-0.023	-0.020	0.021	-0.094	-0.060	0.052	0.042	-0.041	-0.012	-0.077	1		
SDQ HAS	0.005	0.023	0.009	-0.013	-0.012	-0.015	0.074	-0.002	-0.026	-0.033	0.055	0.036	0.009	0.056	.139**	1	
SDQ CP	0.061	0.005	-0.027	-0.006	-0.041	0.052	0.009	-0.027	-0.014	0.016	0.037	0.034	0.021	0.031	.131**	.221**	1

** Significant correlation at the 0.01 level (2-tailed).

* Significant correlation at the 0.05 level (2-tailed).

Q1: Have you caught the virus? Q2: Have you been tested to confirm the infection?; Q3: Have you lost your job during the pandemic?; Q4: Have any of your relatives become infected with COVID-19?; Q5: How many children do you have?; Q6: Did the online teaching affect the mental health of the parents or the children?SDQ HAS=hyperactivity attention symptom; SQDES=emotional symptoms; and SDQ CP=conductive problem.

4. DISCUSSION

This study examined the impact of the COVID-19 pandemic on the mental health of children and their parents. We explored the associations among the family, environment, and the factors related to the outbreak of COVID-19 on parents' and children's well-being.

The results showed that younger parents were more affected than older parents. However, there was no significant psychological impact of having COVID-19. Nonetheless, those who have relatives who died because of COVID complications tend to have a higher risk of becoming depressed. Similarly, half of the participants who lost their jobs during the pandemic had depression. Having a child diagnosed with a mental illness also increases the risk of having depression, anxiety, and stress. Many (60.8%) parents were overwhelmed by virtual teaching and taking care of their children's learning. There was a significant association between parents' mental health and their children's psychological adjustment.

Quarantine is an effective tool to combat the pandemic [9]; but it has adverse effects such as emotional disturbance, stress, and depression [16]. Mental health plays a crucial role in the COVID-19 pandemic and the return To a healthy post-pandemic community [9]. As our result indicate that quarantine in general is associated with higher prevalence of psychological symptoms such as stress, depression and anxiety; this outcome was also found in other study published in 2020. Our study indicates a positive correlation between gender and psychological impact; thus, females are higher than males regarding having psychological problems such as anxiety. This correlation was found in a study done in China; suggested that increases in anxiety levels in females are higher than males(8). Regarding losing a job in the pandemic our study indicate a negative correlation between losing a job and parent stress during the pandemic; on the other hand, a study done in the USA during the pandemic; published 2020; found that losing a job or inability to provide income to family is one of the stressor that experience by parents [17].

5. CONCLUSION

Governmental leaders have tried to control new COVID cases since its first emergence in Wuhan in December 2019. Some have achieved

impressive control. But most have not considered the psychological aspects of this pandemic. This study focused mainly on the mental health of parents and their children during the pandemic. The results highlight the factors associated with increased risk of suffering mental illnesses such as the parent's age and gender, having a child diagnosed with mental illness, and losing the parent's job during the pandemic. This may encourage the health systems to address some kinds of intervention to support psychological well-being, especially for vulnerable groups who might suffer psychological complications.

6. RECOMMENDATION

For future interest studies, we recommend the following: according to this study limitation, the small sample size is the major issue; we recommend further study with greater sample size and interested researchers from different countries recommended to work on the same research topic.

7. LIMITATIONS

1st informal way of data collection we studied the psychological effects of children based on their parents' responses via an online survey; this is less informative than direct evaluation of children or a child report.

Of course; in the current situation; it is difficult to collect such data directly from children or to have children be evaluated by experts. We also predict that quarantine has a higher risk on families with disabled children; those with separated parents; and low-income families.

2nd we collect the survey from 424 Saudi parents; which is a low sample size.

Finally; the number of children with diagnosed mental illness was less than 6%; which seems small.

ETHICAL APPROVAL

The study was approved by the ethical committee of IAU College of Medicine and the Psychiatry department of King Fahd Hospital of the university; (IRB-2021-121-Med).

CONSENT

As per international standards, parental written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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