Original Research Article

Parents' Stress and Children's Psychological Problems during the COVID-19 Outbreak in Saudi Arabia: A cross-sectional study

Abstract

The first outbreak of (COVID-19) was on Chinese city, Wuhan at the end of December 2019 in the form of acute pneumonia. COVID-19 is serious and highly infectious disease affected 245,621,992 cases worldwide which has led to a dramatic loss of normal lifestyle and negatively impacted the psychological status of the people. 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 (what's up,telegram) from December 6th to January 5th, 2020-2021. 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** then she/he was 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 increased the risk of depression, anxiety, and stress on 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 prevents them from being supportive parents. This in turn can lead to psychological symptoms in children. Governmental actions should consider the implications of lockdownon 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 limited number of participant, we recommended that further study be carried on larger sample size to see whether they are any similarities in the findings.

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

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 outbreak was declared a global pandemic by the WHO on 11 March 2020 (3). The first case was reported in Saudi

Arabia on 2 March 2020 (4). This outbreak made the governments worldwide take quick precautions,and the Saudi government had a quick 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 23 March 2020for several regions of the kingdom;travel restrictions were placed over all 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 about 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 as well as 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 wellbeing 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 pandemic and quarantine in Saudi Arabia. According to the Ministry of Health, the caseload in Saudi Arabia is plateauing. (12) New confirmed cases have decreased, but strict prevention measures have continued. There is no plan to reopen schools until the caseload is zero.(13) 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. (14) 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 (15) and Internet and smartphone addiction (16). These collectively canaccelerate mental distress in children and parents.

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

Methods

Study Design and Participants

It is a cross-sectional study which 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 ask 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 she/he was 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 at determining the psychological effect of the COVID-19 outbreak on Saudi parents and children.

Measures

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.

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 measure7 items, and every item is rated on a five-point rating scale. Items are summed to obtain the total score.

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.

Results

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. Afterwards, multiple multivariate mediation models were tested including relevant DASS and SDQas 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.

Descriptive statistics

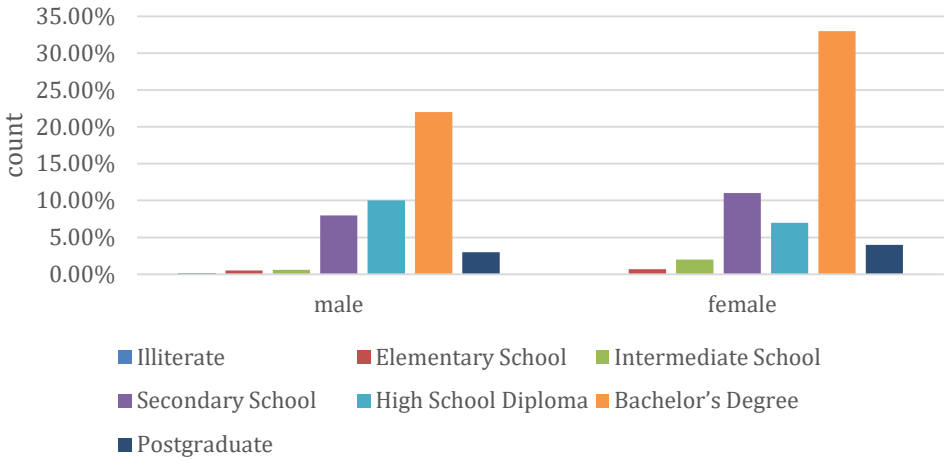
424 parents have participated in this study (237 females, 187 males). Most of which ,76.8%, were well educated, have high school diploma or beyond, to answer the questioner, *see Figure 1*.

Correlation analysis

The correlation values among variables of interest are reported in *Table 7*. The results showed a statistically significant positive correlation with 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 the half with the 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 haven't got any depression, anxiety, or stress during pandemic. People who have relatives 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 wereage, 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 outcome; parent's age was not a mediator predicting children's SDQ.

Figure 1: Education level of the participants



Crosstabs

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: 1.1.1

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		

Table: 1.1.2

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

Sex * Depression

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: 1.2.1

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		

Table: 1.2.2

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

Sex * Anxiety

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: 1.3.1

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		

Table: 1.3.2

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

Have you caught the virus? * Stress

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%		

Table: 2.1.1

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		

Table: 2.1.2

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%		

Table: 2.2.1

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

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: 2.3.1

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		

Table: 2.3.2

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

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: 3.1.1

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		

Table: 3.1.2

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

Crosstab

			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: 3.2.1

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		

Table: 3.2.2

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

Crosstab

			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: 3.3.1

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		

Table: 3.3.2

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

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: 4.1.1

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		

Table: 4.1.2

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

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: 4.2.1

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		

Table: 4.2.2

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

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

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%

Table: 4.3.1

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		

Table: 4.3.2

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

Oneway

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: 5.1.1

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			

Table: 5.1.2

Oneway

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: 5.2.1

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			

Table: 5.2.2

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: 5.3.1

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			

Table: 5.3.2

Crosstabs

Is your child diagnosed previously with mental illness? * Stress

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%		
	No	Count	15	3	4	0		
		% within Stress	4.9%	8.6%	10.8%	0.0%		
Total		Count	307	35	37	33		
		% within Stress	100.0%	100.0%	100.0%	100.0%		

Table: 6.1.1

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		

Table: 6.1.2

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

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%		
	No	Count	12	2	6	1		
		% within Depression	4.4%	4.0%	10.7%	4.2%		
Total		Count	270	50	56	24		
		% within Depression	100.0%	100.0%	100.0%	100.0%		

Table: 6.2.1

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		

Table: 6.2.2

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

Crosstab

			Anxiety					
			Normal	Mild	Moderate	Severe		
Is your child diagnosed previously with mental illness?	Yes	Count	270	54	32	21		
		% within Anxiety	95.7%	93.1%	88.9%	95.5%		
	No	Count	12	4	4	1		
		% within Anxiety	4.3%	6.9%	11.1%	4.5%		
Total		Count	282	58	36	22		
		% within Anxiety	100.0%	100.0%	100.0%	100.0%		

Table: 6.3.1

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		

Table: 6.3.2

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.

Discussion

This study examined the impact of the COVID-19 pandemic on the mental health of childrenand 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 negative effects such as emotional disturbance, stress, and depression(11). Mental health plays a crucial role in the COVID-19 pandemic and the return Toa healthy post-pandemic community (9). As our result indicate that quarantine in general associated with higher prevalence of psychological symptoms such as stress, depression and anxiety, this outcome also found in other study that published in 2020. Our study indicates a positive correlation between gender and psychological impact thus female 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 level 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 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).

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.

Recommendation

For future interest study, 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 researcher from different countries recommended to work on the same research topic.

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 it low sample size.

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

Ethical approval

The study 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 standard, parental written consent has been collected and preserved by the author(s).

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